



FEBS at 50

*Half a century promoting
the molecular life sciences*



Edited by
MARY PURTON AND
RICHARD PERHAM

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Founded on 1 January 1964, and thus celebrating its 50th anniversary in 2014, the Federation of European Biochemical Societies (FEBS) has become one of Europe's largest and most prominent organizations in the molecular life sciences, with over 36,000 members across more than 35 societies that represent biochemistry and molecular biology in most countries of Europe and neighbouring regions. FEBS thereby provides a voice to a large part of the academic research and teaching community in Europe and beyond.

As a charitable organization, FEBS promotes, encourages and supports biochemistry, molecular biology, cell biology, molecular biophysics and all related research areas in a variety of ways. A major emphasis in many programmes is on scientific exchange and cooperation between scientists working in different countries, and on fostering of the training of early-career scientists.

This illustrated book provides a snapshot of the origins of FEBS and its work over the past 50 years. There are chapters on the development of the activities of each of its various committees and working groups, with contributions from both those working on behalf of FEBS and those who have benefited from the scientific training and diverse support offered.





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PREFACE

FEBS: FROM THE PAST TO THE FUTURE

by Israel Pecht, FEBS Secretary General

On 23 March 1964, representatives of 18 national biochemical societies from across Europe met in London and founded the Federation of European Biochemical Societies (FEBS). The purpose was to facilitate intra-European Meetings, what turned into the now familiar annual FEBS Congresses. It soon became apparent that there was a need for additional activities to support biochemistry and biochemists, and to encourage collaboration and exchange of information and ideas between scientists, in particular across boundaries in a Europe bitterly divided by the Iron Curtain. Hence, it was not long before FEBS incorporated courses and summer schools and, crucially, scientific publishing into its portfolio. FEBS was a pioneer in this regard, and is one of a few organizations that has continuously provided generations of young scientists, in particular those from more deprived countries, with an open window on advances in research.

In the 50 years since 1964, the dynamism and devotion of a succession of scientists working for FEBS, all on a voluntary basis, as well as the careful stewardship of the income from its journals, has enabled FEBS to diversify beyond its original activities.

A prestigious Fellowships Programme for research and training began in 1978 (reaching a peak of annual expenditure of €2.6 million in 2012). Further initiatives, such as promoting the role of women in science, supporting education in the life sciences at both undergraduate and postgraduate level, and establishing the Young Scientists' Forum alongside FEBS Congresses, started around the turn of the millennium.

During this half-century, there have been dramatic political changes in Europe. FEBS has responded to the reshaping of the map in several ways, supporting and integrating the scientific communities of Central and Eastern European countries through times of great political upheaval, which are, to some extent, still continuing. Sometimes dramatic differences exist in the conditions of biochemical communities, mainly in countries of the former Soviet bloc, compared with central or western parts of the continent. The FEBS Working Group for Integration (WGI) continues its efforts to identify the communities that need help, where appropriate aiding them in getting organized as societies and, more importantly, raising the financial means, though modest, to enable their members to participate in, and benefit from, different FEBS activities.

The political landscape of the world in general is also currently very different from that of the mid-20th century. FEBS was always a sympathetic partner with the International Union of Biochemistry (IUB; later International Union of Biochemistry and Molecular Biology, IUBMB), including sharing the FEBS Congress with an IUBMB Congress or Conference when the latter was held in Europe. However, major new scientific communities are growing across the world, from South America to Asia. Recognizing these important developments, five years ago FEBS started collaborations with several of these leading biochemical societies. Thus, FEBS has begun participating in the national Meetings of the Chinese Society of Biochemistry and Molecular Biology and the Chinese Society of Cell Biology. Collaborations with the Brazilian and Indian biochemical communities have been initiated and are being further developed. These collaborations are fostering contacts and mutual understanding and offer opportunities also to present and promote our scientific journals.

It was the long-range vision of the founders of FEBS that led to the birth and growth of our journals,

fully owned by the Federation. Our two original journals, *FEBS Journal* (previously called the *European Journal of Biochemistry*) and *FEBS Letters*, are now both nearly 50 years old and they have generated the funds essential for all FEBS activities; as the income they provide has grown, so have the activities. Over the years, the interests of our community have developed from their roots in biochemistry to the wider spectrum of modern molecular life sciences. Nonetheless, we all pursue research in biochemistry and molecular biology, using biochemical protocols and following the same molecular lines of thought, even though we may address questions in neurobiology, developmental biology, immunology or cancer biology. *FEBS Journal* and *FEBS Letters* have continually broadened their remit to take account of these changes and to recognize new advancements in life sciences research. FEBS has also been responsive to changes in scientific publishing methods and the demands and interests of the community of molecular life sciences. Two newer journals have been initiated in recent years: *Molecular Oncology*, to publish results of both fundamental and translational research in cancer

Claude Liébecq (Editor-in Chief, *European Journal of Biochemistry*), Moritz Yomtov (Secretary General), Prakash Datta (Treasurer and Managing Editor, *FEBS Letters*) on their way to the FEBS Meeting in Moscow in 1984.





Israel Pecht, FEBS Secretary General, at a meeting of the Society of Biological Chemists (India) (SBCI).

and to discuss policy issues at this interface; and *FEBS Open Bio*, to grant full open access publication as the climate in scientific publishing responds to changing circumstances. Together our four journals provide a range of publication options, available to authors and readers worldwide, of which FEBS can be proud.

Where does FEBS go from here? Our annual Congresses will continue to provide an important service, especially to those facing the decisive, early phase of their careers, by offering a broad palette of the latest research developments and opportunities to meet and network. The Congresses are now complemented by other activities, such as Special Meetings. A developing and very effective form of the latter has proved to be the FEBS 3+ Meeting, a regional activity that brings together members of three FEBS Constituent Societies, usually from neighbouring countries. They have already turned out to provide an excellent forum for presentations and discussions that are broader and more effective than those offered by the national meetings of small communities.

FEBS has also been building a strong involvement in education. Its Education Committee is helping with the interchange of advanced ideas and practices in undergraduate and post-graduate teaching, especially

in Eastern European countries. There is a strong focus on trying to help young scientists develop their careers, from writing grant applications and CVs to advising and mentoring PhD and postdoctoral students. In addition, the younger generation benefits from a range of Advanced Courses to the award of prestigious FEBS Fellowships and travel grants. All these are complemented by the annual Young Scientists' Forum (YSF) and the FEBS Fellows' Forum which accompany the FEBS Congress and are justifiably popular, as are the bursaries that help students financially to attend.

FEBS remains aware of social and economic issues that are crucial for the development and well-being of science in Europe. Among these are the status of women in science and European science policy. Our 'Women in Science' activities, initiated some years ago, are aimed at raising awareness of the disproportionately low presence of women in European scientific activities and the specific constraints they encounter in developing their careers. One initiative in that direction has been the inception of an annual award, the Women in Science (WISE) Award presented jointly with EMBO (European Molecular Biology Organization), to women who constitute models of achievement in research. The awardee is also invited to present a plenary lecture at the annual FEBS Congress.

The political changes that Europe has undergone in the last 30 years have led to the marked increase in membership of the European Union and opened up new possibilities for the development of a joint European science policy. FEBS has been central in efforts to promote a new competitive support system for excellence in research that led to establishment of the European Research Council (ERC). The FEBS Science and Society Committee has pursued these goals through the Initiative for Science in Europe (ISE), which FEBS helped to found and for which it continues to provide major support. In addition to ISE, FEBS has recently also joined the Alliance for Biomedical Research in Europe, a younger organization that is active in promoting research in the medical and related sciences. Both these organizations have an important role in the European political arena. The FEBS Science and Society Committee also organizes round-table discussions and special lectures at the annual FEBS Congress and other events, such as those of the Education Committee or national/regional Meetings.

Europe now has an ever-growing number of umbrella organizations and national societies specializing in different aspects of the molecular life sciences. This calls for serious efforts towards better and more effective coordination of these bodies, for example, along the lines of the North American joint life-sciences umbrella

organization, the Federation of American Societies of Experimental Biologists (FASEB). This organization was founded over 100 years ago and now represents 26 different North American societies and promotes biological and biomedical sciences. One modest step towards this aim is this year's joint 50th Anniversary Conference of FEBS and EMBO, hosted by the French Biochemical and Molecular Biological Society (SFBBM) which is celebrating its 100th anniversary. The nature and structure of the former two organizations is very different: FEBS is a grass-roots organization, bringing together members of the biochemical societies of Europe, whereas EMBO is an academy-style body of scientists elected on the basis of their scientific



Above: FEBS booth at the FEBS|EMBO Conference in Paris, 2014, with Carolyn Elliss (FEBS Communications and Treasury Liaison Officer) and Keith Elliott (member of the FEBS Education Committee).

Left: The FEBS booth at a meeting of the Chinese Society for Cell Biology, Beijing, 2011. Right, Ms Judy Bai from the Beijing Elsevier office; left, Ms Hanni Naor, Assistant to FEBS Secretary General.

IUBMB and FEBS collaborate to organize joint Congresses such as the 37th FEBS Congress and 22nd IUBMB Congress held in Seville in 2012.

achievements. However, similar motives led to the creation of both: the need in post-Second World War Europe for organizations that would promote molecular life sciences. FEBS has always had a wider reach, having its members on both sides of the Iron Curtain. It continues to communicate with and assist – within its limited means – peripheral, more deprived communities. It could perhaps initiate and assist in building up a joint European body in the years to come, one that would bring together the different European umbrella societies of molecular life sciences to advance our common scientific interests in research and development.

Last, but certainly not least, comes the important basis on which FEBS has always operated: the devoted voluntary work of dozens of members of FEBS Committees and Working Groups. All these members, elected democratically by FEBS Council, work selflessly for many days every year in advancing their respective FEBS responsibilities. We operate in a family-like atmosphere, assisted by a very small number of paid staff. A re-evaluation of the Federation's expenditure and future financial plans has already been started (*see p.106*). The aim is to build up an endowment that will maintain FEBS activities for the future, with less dependence on the income from our journals, not least in light of the ongoing changes in the publishing market. During the past 50 years we have seen growth in FEBS activities and impact, recognized and appreciated worldwide. It is all due to this group of dedicated people who will be the base for future success in promoting molecular life sciences in Europe.

It is my special pleasure and privilege to serve with this group of dedicated people, to thank them all, past and present, and to wish FEBS further development and success in the coming decades.





THE ORIGINS OF FEBS

FEBS was officially formed on 1 January 1964 with 17 adhering societies. By the time of its first meeting in March 1964, when the statutes were signed, FEBS had gained one new member and has continued to expand its membership and activities ever since. The foundations and early development of FEBS were well documented in *Forty Years of FEBS, 1964–2003*:

A Memoir edited by Horst Feldmann. In this book, we have two short contributions by people involved at the very beginning of FEBS. Bill Whelan writes again about his key role in the establishment of FEBS and its early development. Federico Mayor recalls his attendance at the 1st FEBS Meeting and the organization of one of the early annual FEBS Meetings.



The 1st FEBS Council meeting was held in March 1964 at the National Liberal Club in London.

THE FOUNDING OF FEBS

by Bill Whelan

The origin of FEBS can be traced to Peter Campbell, then secretary of the Biochemical Society (UK), and Sir Frank Young, an earlier officer of the Society. They recommended to the Biochemical Society Council that the position of foreign secretary be created. In accepting this suggestion, Council changed the name to international secretary, and I was appointed to this position in 1962, having already been the Meetings secretary. I inherited from Peter a series of annual Meetings he had already arranged, extending to 1967, with other European biochemical societies on their territory and, in turn, for them to attend the annual summer Meetings of the Biochemical Society which alternated at Oxford and Cambridge. This, together with the fact that in 1961 I attended the Congress of the International Union of Biochemistry (IUB) in Moscow, brought me into personal contact with a number of my European society counterparts.

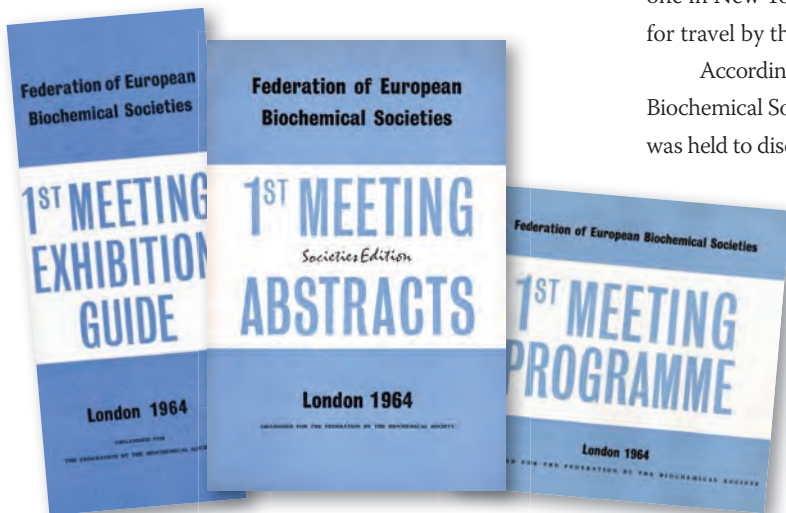
It seemed to me that there was an opportunity to create a formal organization of European societies with the idea that they could hold regular annual



The Statutes of the newly formed FEBS were signed at the 1st Council meeting.

meetings. The IUB Congresses were held only every three years and the next two to occur were far distant, one in New York followed by one in Tokyo. Not good for travel by the younger biochemists!

Accordingly, at the 1962 Cambridge meeting of the Biochemical Society an informal gathering of secretaries was held to discuss the idea, and at the Oxford meeting the following year it was determined that a Federation of European Biochemical Societies (FEBS) would be formed. Its initial purpose would be to hold an annual meeting. The Biochemical Society invited the Federation to hold its first Meeting at University College London in March 1964, at which the FEBS Statutes were duly approved.







Previous pages: FEBS members on a charter flight to an IUB Congress in New York in 1964.

Right: From l-r: Frank Happold, first Chair of FEBS Executive Committee, Henry Arnstein, Secretary General 1967–1974, and Peter Campbell, one of FEBS' founders.



There were many more attendees than the thousand for whom we had printed programmes. Altogether it was a great success and at the first FEBS Council Meeting invitations for later Meetings came in, establishing the (then) practice of meeting alternately in Western and Eastern Europe: Vienna, Warsaw, Oslo and Prague. The IUB had to be considered and the practice grew up that when IUB was holding its Congress in Europe, the FEBS Meeting was restricted to one on a specialized subject.

In 1965 in Vienna, the Council made two important decisions. The chair of FEBS was the chair of the host society for any given year, but an officer, a Secretary General, was to be elected to serve for a longer time. I was the first to serve in this new post. In turn, in Warsaw, in 1966, I persuaded Council that if FEBS was to have significant funds, it needed a Treasurer. I proposed Prakash Datta, who was known to everyone as having performed this role for the first Meeting in 1964. His appointment proved crucial to the financial future of FEBS.

The second Vienna decision was to explore the publication of a journal, which in 1966 became the *European Journal of Biochemistry (EJB)* published by Springer-Verlag, who at the same time ceased publication of the venerable *Biochemische Zeitschrift*. This was a noble gesture, brought about by Theodor (Ted) Bücher, president of the (then) Society of the Federal Republic of Germany, aided by colleagues such as Feodor Lynen, who persuaded Springer to take this

step. The *EJB* commenced publication in 1967 and of course continues today as *The FEBS Journal* (see p.47).

The next major move was a push by me, at the 1967 Meeting in Oslo, that FEBS should publish a competitor to *Biochemical and Biophysical Research Communications*, a very successful short-communication journal. At first, this met with great opposition from the FEBS Publications Committee. There is no doubt that had I not been moving to the University of Miami in two months and resigning from FEBS, the project would have moved more slowly. But I was utterly convinced that *FEBS Letters*, as I called it, would be a resounding success. The way in which the opposition was overcome is described in my memoir.¹ One of the objections had been that with the launching of the *EJB*, we would not be able to find enough other good biochemists to act as editors. So Datta and I recruited an Editorial Board from the Oslo attendees, including Hans Krebs and Fred Sanger. Fred and Hans loved the work. *FEBS Letters* became the house journal for tRNA. Only one of the original 12 editors was not in Oslo. With Council agreeing to hold an informal meeting at the IUB Congress in Tokyo the next month, when Society opinions could be expressed, *FEBS Letters*

1 W. J. Whelan, 'The Foundation and the Early Years of FEBS', *FEBS Letters* 40 (1974), 154–9.

was approved, a publisher chosen (North Holland) and Datta appointed as Managing Editor. *FEBS Letters* has proved a huge success, and has now published nearly 600 volumes. Most importantly, it cemented the role of FEBS as that of scientists publishing for scientists, and sharing the income with a commercial partner. It became a bigger income earner than the *EJB*, because in the beginning only one salaried employee, Datta's secretary, was necessary. The work was divided among the editors. It is on the income from its journals that the resources of FEBS have been built, allowing it to do all the good works that have enriched biochemistry, in Europe and beyond.

As the General Secretary of the IUB, which I became after moving to Miami, I kept in close touch with FEBS, and indeed, until 1980, when I handed IUB representation over to Marianne Grunberg-Manago, I was the only person to have attended every FEBS Council Meeting.

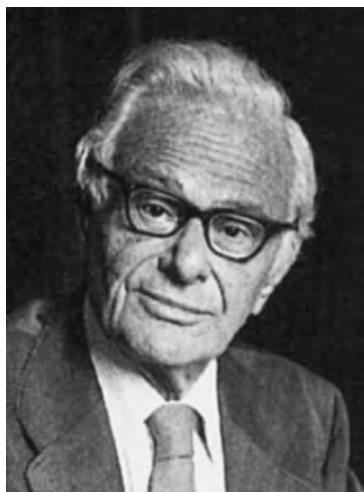
My own involvement with FEBS can now be switched to 1997–2000, when I became president of the International Union of Biochemistry and Molecular Biology (IUBMB; the MB was added in 1991). Over the years the IUB had encouraged the formation of FEBS-

like bodies in the Americas, Asia/Oceania and Africa, and funded them. They joined in an official partnership with the IUBMB, as Associated Organizations. But FEBS did not join until I was the IUBMB president. Their joining delighted me.

In the early days, I was conscious of a feeling in some quarters of the IUB that FEBS was the camel with its nose under the tent. In part this stemmed from the IUB members being mostly national academies, as opposed to the more mundane societies. It could not have been the relative ages of the two bodies; the IUB was only nine years older than FEBS. But time has changed all that. It has been realized that it is the societies that really represent the individual scientists and the individual disciplines. More and more, the IUBMB members have become the societies, for example in the UK and USA, while the Netherlands is no longer a member of the IUBMB.

An aim I encouraged while president of the IUBMB was of increased cooperation between the IUBMB and regional organizations, especially when it came to Meetings. I cannot claim to have been the innovator in this regard. The best early example was when in 2000 FEBS, the IUBMB and the Biochemical

Society (UK) jointly sponsored the triennial Congress held in Birmingham, UK. Once enacted, this cooperation seemed the most natural thing in the world. But since 1992 the IUBMB had been holding large Meetings in non-Congress years with no thought that, by holding them in conjunction with a regional



Hans Krebs and Fred Sanger were two of the original 12 editors of *FEBS Letters*.

biochemical meeting, the event would reach critical mass, with great benefit to either side. This practice is now the order of the day.

It is my earnest hope that I can attend the FEBS|EMBO Conference marking the 50th anniversaries of both FEBS and EMBO. Those who played formative roles in founding FEBS have been leaving us. Claude Liébecq, first Editor-in-Chief of the *EJB*, died recently, as did Uriel Littauer, a tower of strength, whose first encounter with FEBS was when he persuaded the Council to admit the Israeli Society, arguing that Israel is part of Europe. In 2000 FEBS presented Prakash Datta and me with the FEBS Millennium Medal. The last time I saw Prakash, three years ago, we looked forward to meeting again in 2014. Sadly it was not to be.

PERSONAL RECOLLECTIONS ON THE EARLY YEARS OF FEBS

by Federico Mayor

The Spanish Society of Biochemistry (SEB) was founded in 1963. A distinguished group of Spanish biochemists and physiologists were active at this time: Severo Ochoa, Ángel Santos Ruiz, Alberto Sols and Carlos Jiménez Díaz.

On 18 July 1963, delegates from 17 European biochemical societies met in Oxford and decided unanimously to recommend the formation of a Federation of European Biochemical Societies, to come into being on 1 January 1964. The first Meeting was organized by the Biochemical Society (UK) and held in London on 23–25 March 1964. Alberto Sols and I were present at the meeting in Oxford. Together with Emilio Muñoz, José Luis Cánovas del Castillo and Manuel Losada, we also attended the first FEBS Meeting in London in 1964. We stayed at the Imperial Hotel and I was invited to Lancaster House for this very first FEBS event.

In 1969, SEB organized the 6th FEBS Meeting in Madrid. It was a great success with approximately 2,000 participants. Salvador Dalí, the famous painter, illustrated the poster and programme and I fondly remember the visit I made, with Juan Oró, to New York for this purpose. The Minister of Education and Science, José Luis Villar Palasí, gave his full support from the very beginning. He was an admirer of Severo Ochoa, whose return to Spain from the USA, together with that of Nicolás Cabrera, he promoted. But there were some voices against the celebration of this important international encounter. I have never understood the short-sightedness of those who think that, when a scientific community lives in a dictatorial regime, it too must be of a 'dictatorial' nature. On the contrary, when I went in 1961 to the International Union of Biochemistry (IUB) meeting in Moscow, under the then Soviet Union, I realized how wise it is to separate science from politics and to provide 'fresh air' for those living in a closed system.

On 5 February 1969, just three months before the Madrid Meeting, Henry Arnstein, then FEBS Secretary General, wrote to Julio Rodríguez Villanueva, the president of the FEBS Executive Committee, expressing the concern of two Constituent Societies about recent political changes in Spain, and calling a special meeting of the FEBS Executive Committee (in London) to discuss whether the Meeting in Madrid should go ahead. Villanueva wrote back, reassuring Arnstein that Spain's universities were still open for business as usual, and that the Organizing Committee had Spanish government assurances that 'there will be no interference whatsoever with the Meeting' or with those attending. He also suggested that if the FEBS Executive Committee felt the need to meet, it should be 'in Madrid ... This location would obviously be the most appropriate to obtain first-hand information.' By 15 February, a circular was issued, recommending



that the 6th FEBS Meeting 'be held as planned'. I remember that Alberto Sols and I were busy calling here and there, trying to persuade many 'key scientists' to come. Severo Ochoa, Hans Krebs and Feodor Lynen were also very active with their support.

The headlines in the Spanish newspapers reflected unanimously the importance of the FEBS Meeting. The programme was particularly interesting and the opening session was carefully planned to offer a 'depoliticized' event. At the end of the Meeting, Henry Arnstein wrote officially to Carlos Asensio, then General Secretary of the FEBS Executive Committee, stating, '[I think] most people felt that the scientific standing of both the Symposia and the free communications was very high, and the organization of the sessions was excellent.'

In this photograph taken during the Meeting, can be seen, among others (from l-r): Feodor Lynen, Juan Oró, Carl Cori, Hugo Theorell, Alberto Sols, Santiago Grisolia, Hans Krebs, Ángel Santos Ruiz.



FEBS CONGRESSES

The annual FEBS Congress is one of the most visible activities of FEBS. As one of the largest congresses in molecular life sciences in Europe, generally featuring approximately 2,500 attendees, it provides a platform for international scientific exchange and showcases the newest developments in biochemistry, molecular biology and related areas. The FEBS Congress comprises plenary lectures presented by outstanding scientists including Nobel Laureates, a range of subject-specific symposia to provide the latest updates in different areas

of bioscience research, extensive poster communications, and a variety of interesting workshops and other activities on related topics. A full social programme provides further opportunities for meeting other scientists and for informal networking. Public awareness events are sometimes included as evening events that are open to the general public and advertised locally.

As described elsewhere (*see p15*), the organization of annual Congresses (known as Meetings until 2004) was the principal reason for the founding of FEBS in 1964. With the triennial International Union of Biochemistry (IUB) Congress being held in a different region of the world each time, a need was felt for regular international Meetings within Europe. FEBS was formed to facilitate the organization of a meeting in the years in between IUB Congresses; with a restricted special meeting would be held when the IUB Congress was being organized in a country outside Europe. The FEBS Congress is held in countries where there is a Constituent Society which is a member of FEBS.

The organization of a FEBS Congress was and still is the responsibility of the host society, but FEBS provides help to the local organizers. The FEBS Congress Counsellor, a post created in 1978, offers continuity and advice on organizational matters such as the selection of an appropriate venue. Financial support is also provided in the form of a grant, together with bursaries to support the participation of young scientists (under 31 years of age at the time of the Congress).

Satellite Meetings associated with the Congress are often arranged at a nearby venue. Since 2001 the



The 8th FEBS Meeting was held in Amsterdam in 1972.

Congress has also been preceded by the FEBS Young Scientists' Forum (YSF), a lively gathering of over 100 PhD students and young postdocs, whose attendance at this event and the ensuing Congress is funded by the provision of FEBS YSF awards, as described elsewhere in this book. In 2012, a FEBS Fellows' Forum, bringing together senior recipients of FEBS Long-Term and Return-to-Europe Fellowships, also took place ahead of the Congress; this was repeated in 2014. In this chapter, the organizers of several FEBS Congresses recall their experiences. In addition, two recipients of FEBS Prizes express their views of these Meetings.

MEETINGS COUNSELLORS

1978–1987 Simon G. van den Bergh (*Netherlands*)

1988–1996 Horst Kleinkauf (*Germany*)

1997–2005 Joan Guinovart (*Spain*)

2006–2014 Adam Szewczyk (*Poland*)

THE 18TH FEBS MEETING, LJUBLJANA, 1987

by Vito Turk, Chair of the Organizing Committee

The 18th FEBS Meeting was organized by the Union of the Biochemical Societies of Yugoslavia in Ljubljana (now the capital of the new state of Slovenia), from 28 June to 3 July 1987. After 27 years it is not so easy to recall details, particularly after the events that resulted in the disintegration of our former country, Yugoslavia, in 1991. However, my memories of the 18th FEBS Meeting in Ljubljana are very positive. All the members of the Organizing and Scientific Committees from various parts of Yugoslavia, as well as other colleagues, contributed greatly to the success of this meeting, as numerous participants attested.

The decision to organize this meeting in Yugoslavia was made at the FEBS Meeting in Brussels in 1983, after the Austrian Biochemical Society had declined to take it on. Pavao Mildner, then President of the Union of the Biochemical Societies of Yugoslavia, came up with the idea and persuaded our Executive



Above: The 25th Silver Jubilee FEBS Meeting was held in Copenhagen in 1998; *FEBS Letters* Special Issue to mark the 32nd FEBS Congress held in Vienna in 2007.



Right: Cover page of the 18th FEBS Meeting programme.



From l-r: Tom Blundell (UK), Sir Hans Krebs Lecturer; Vito Turk (Yugoslavia, now Slovenia), Chairman FEBS Executive Committee; Borivoj Keil (France), Lecturer.

Committee to take up the opportunity and to prepare a bid. It was agreed that the Meeting would be held in Ljubljana and that I should be chairman of the Organizing Committee. With my colleagues, mostly from Ljubljana, we prepared the application very carefully and sent it to Simon G. van den Bergh, who was then the FEBS Meetings Counsellor. At the meeting in Brussels, Simon informed me about the success of our bid. He visited Ljubljana in autumn 1983 to see the new Congress and Cultural Centre, Cankarjev Dom, where the Meeting was to be held, and some of the nearby hotels. Dr Igor Kregar, the Secretary General of our society, and I appreciated Simon's positive approach as well as some constructive criticism, which we found very useful for our subsequent activities in this area.

The programme of the Meeting consisted of 18 symposia and colloquia: Genome Organization, Gene Expression, Protein Synthesis, Structure and Function of Proteins and Peptides, Enzymology, Metabolic Regulation, Simple and Complex Lipids, Biomembranes, Neurobiochemistry, Growth and

Differentiation of Cells, Hormones, Immunochemistry, Biochemistry of Viruses, Medicinal Biochemistry, Biotechnology, Molecular Design and Engineering of Proteins, and Plant Biochemistry.

There were five plenary lectures. The opening Sir Hans Krebs Lecture was given by Tom Blundell (UK), followed by John A. Rupley (USA), Bruce M. Alberts (USA) and Daniel E. Koshland (USA), with the closing Datta Lecture being given by Nathan Sharon (Israel). In addition, there were about 230 invited lectures and several satellite symposia, including one on Proteinases, which I organized in Brdo near Ljubljana. The FEBS Council, the FEBS Executive Committee and other FEBS Committees, as well as the IUBMB Executive Committee, all held their annual gatherings in Ljubljana as a part of the Meeting. There was also a successful exhibition by various producers of equipment and



From l-r: Marianne Grunberg-Manago (France), President of IUBMB and Lecturer; Carlos Gancedo (Spain), Chairman of the FEBS Fellowships Committee; and Guy Dirheimer (France), FEBS Secretary General.

publishers. The Meeting was attended by over 1,850 scientists, with more than 1,650 coming from abroad. There was also a Ljubljana Special Issue of *FEBS Letters* (217/2, 15 June 1987), which contained a selection of the articles being presented.

The 18th FEBS Meeting was organized at a time when Yugoslavia faced not only a political crisis but a financial one as well. FEBS offered us a loan of DM100,000 to help with the organization, but I decided not to accept it due to uncertainties with the foreign currency rates. As a result, we expected a deficit. However, with the help of the management of Cankarjev Dom, the final balance in dinars (the local currency at that time) showed a small profit. Happily, I think I can say that the 18th FEBS Meeting was successfully organized from the scientific, social and financial points of view.



Helmut Holzer (Germany), Lecturer.



Opening ceremony of the 27th FEBS Meeting in Lisbon.

THE 27TH FEBS MEETING, LISBON, 2001: RISING TO THE CHALLENGE

*by Claudina Rodrigues-Pousada, President of the
Organizing Committee*

Alexandre Quintanilha, when he was President of the Portuguese Biochemical Society (SPB), decided that the same delegate should represent the SPB at FEBS Council every year, in order to start making our society more visible. I was nominated as the representative, a role I performed for a number of years (1991–2004). While I was SPB President (1997–2004), I decided to apply to organize a FEBS Meeting in Portugal. We had never organized an annual meeting before – only a FEBS Special Meeting in Algarve, Albufeira, in 1985 – but we felt it was the right time, and we entered a bid to hold the 27th FEBS Meeting in Portugal in 2001.

In 1998, an Organizing Committee was constituted, comprised of Honorary President Francisco Carvalho Guerra, President Claudina Rodrigues-Pousada, Vice-President Maria Arménia Carrondo, Miguel Teixeira, Ana Ponces Ferire, Ascensão Reis, Isabel Sá Correia and Carlos Frazão. A Scientific Committee was formed of Portuguese scientists, including Maria Arménia Carrondo, Pedro Moradas-Ferreira, Arsélio Pato de Carvalho, Euclides Pires, Alexandre Quintanilha, Claudina Rodrigues-Pousada, Isabel Sá Correia, Roberto Salema, Helena Santos,



Arrival of Portuguese Minister for Science and Technology, Professor Mariano Gago (left), greeted by Joan Guinovart, Claudina Rodrigues-Pousada and Julio Celis.

Maria João Saraiva, Patrício Soares e Silva, Miguel Teixeira and António Xavier. Several international scientists, including Jesus Avila, Gunther Blöbel, Frank Gannon, Joan Guinovart, Andre Goffeau, Uriel Littauer, Paul Nurse and Karel Wirtz, recommended speakers and themes for symposia.

We distributed the first circular containing the main topics of the scientific programme at the 26th FEBS Meeting in Nice in 1999. Leaflets with the names of several invited speakers and the detailed programme were distributed at the 18th IUBMB Congress in Birmingham in 2000. We created a website for our Meeting at the beginning of 2000, which was constantly updated. In those days, online systems were relatively new. Although registration could be done using traditional means (fax), many participants registered via the Internet. A Belgian participant complained that the organization was not satisfactory because he was unable to send us his abstract. I asked him to send it by

regular mail, which he did. Later on, he approached me, declaring that, after all, the Meeting was fantastic. A total of 1,193 abstracts were submitted via the Internet, and we were grateful to Josep Gelpí for receiving and organizing them. The Meeting was held in Lisbon from 30 June to 5 July 2001, in collaboration with the Pan American Association for Biochemistry and Molecular Biology (PABMB), the only European meeting so far organized with this association. It was a highly successful event, with the former Portuguese Minister for Science and Technology, Mariano Gago, attending the opening ceremony.

The financial contribution of FEBS was undoubtedly a great support. We received €50,000 to help with the organization and €50,000 to provide bursaries to students. PABMB donated a further US\$35,000 to sponsor students from Latin American countries to attend the Meeting. FEBS also sponsored the Krebs and Datta Lectures, given respectively by Sir

Philip Cohen and Jean Marc Egly. PABMB sponsored the PABMB Lecture given by Sérgio T. Ferreira. Lectures by Tom Steitz and Susan Gasser were sponsored by the IUBMB and EMBO, respectively. The Theodor Bücher Lecture was given by Dorothea Bartels. We also decided to have one lecture, supported by SPB, given by António Xavier and another one, sponsored by the Calouste Gulbenkian Foundation, delivered by Peter E. Wright.

A total of 2,055 participants attended the Meeting, of whom 44% were young scientists. Two hundred and ten speakers were invited to participate in the scientific programme, which was organized into 48 sessions. For the first time at a FEBS Meeting, a round-table discussion on a society-related issue was included and opened to the general public: 'The Impact of Biochemistry on Society', organized by Alexandre Quintanilha and Federico Mayor. The most popular sessions were Bioinformatics,



Functional Genomics and Proteomics, Signalling Transduction Pathways, Cellular Stress Responses, Molecular Basis of Diseases and Structural Biology. The workshop 'New Frontiers in Teaching Biochemistry' – and, in particular, the talk given by Bruce Alberts – was a great success. In addition to the scientific sessions, two workshops were organized by commercial companies (BIACORE and MICROMASS).

The participants' feedback about the Meeting was very positive and the scientific programme was considered to be excellent. The Portuguese Biochemical Society was very happy to organize this Meeting and very grateful to FEBS for entrusting it with this endeavour. A word of recognition is due to the Fundação para a Ciência e Tecnologia, Calouste Gulbenkian Foundation, and BIAL whose financial support was essential for the success of the Meeting. The social events – in particular the concert, welcome reception and the farewell dinner in S. Jorge castle – were greatly appreciated by the participants.

The preparation of the Meeting was certainly a very hard task, both financially and scientifically, but it was well worth doing. The Meeting made a small profit, which was returned to SPB by FEBS to subsidize students for future FEBS Meetings. The Portuguese scientific community was well represented at the Meeting by 12 Portuguese speakers and derived significant benefit from the conditions generated by the Meeting.

A colleague was surprised that we did not have Nobel Laureates in the scientific programme. My immediate reaction was to point out that, although this was true, we did have Nobel candidates, such as Tom Steitz and Venki Ramakrishnan. My colleague smiled but in fact, together with Ada Yonath, Tom and Venki went on to share the Nobel Prize in Chemistry in 2009!

The Congress Internet cafe. The Internet was used extensively in the organization of this Congress.



Beware of Greeks bearing gifts... Adan Szewczyk, FEBS Congress Counsellor, with Emmanuel Fragoulis and Nikos Karamanos (far right), watched by Jacques-Henry Weil and Angelo Azzi, President of the IUBMB.



**THE 33RD FEBS CONGRESS, ATHENS, 2008:
A CHANGE OF VENUE AND THE MISSING LOGO**

by Emmanuel G. Fragoulis, Chairman of the Organizing Committee and George Panayotou, President of the Hellenic Society of Biochemistry and Molecular Biology (HSBMB)

The successful organization of the 2004 Olympic Games in Athens certainly lifted the spirits of the local Organizing Committee for the 33rd FEBS Congress & 11th IUBMB Conference held in Athens in 2008. Everyone was optimistic that there would be no problems with a much smaller-scale event like the Congress. We were, of course, also counting on the support and experience of both FEBS and IUBMB and indeed this was forthcoming. But the cooperation between the two societies left much to be desired. Among many issues about the rights and obligations of each society, the one that caused the most heated discussion was that of the relative font size of the societies' names in posters and other

promotional material. Would it be the same or proportional to their budget contributions?

Would they be side by side or one above the other? The local Organizing Committee sat bemused and somewhat embarrassed while these matters were hotly debated! A change in FEBS leadership also occurred during the organization of the Congress, with a new Secretary General and Congress Counsellor; this meant a lot of rethinking and last-minute adjustments. Then 'local' issues started appearing: for example, we had to struggle to convince the Ministry of Finance that registration fees should not be subject to VAT. The selection of speakers proved a major point of contention amongst the Organizing Committee, since every scientist believes their field is the most important in the world! But it was the selection of a suitable venue that proved the most difficult. The space required for the large

number of expected participants combined with the rather limited budget meant that the options were very quickly limited to just one: the Peace and Friendship indoor stadium, by the sea south of Athens. This venue was adequate, but dominated by steel and concrete, and better suited for a basketball tournament than an international conference. Many other problems soon became apparent: the venue was far from the city centre and there was not much to do around the stadium, should anyone want to venture outside. Sound insulation between parallel sessions was a major problem and the cost of erecting soundproofing devices skyrocketed. The FEBS and IUBMB representatives were very supportive, but during their site visits they struggled to hide a sense of disappointment about the venue. The local Organizing Committee decided that this was simply not good enough. All available connections with government officials were called into play and many doors were knocked on. We did not have high hopes, but almost miraculously our efforts were rewarded: we managed to secure the Megaron, the main concert hall of Athens, at a knock-down price. It all happened with only three months to go before the start of the Congress, which meant we had to redouble

FEBS SPECIAL MEETING, ATHENS 1982

It was spring, 25 April 1982, when the FEBS Special Meeting on Cell Function and Differentiation opened its doors to 1,200 participants at the Athens Hilton hotel. It was a great event for the Hellenic Society of Biochemistry and Molecular Biology (HSBMB). It was the outcome of the efforts of a small group of Greek biochemists who had undertaken the task with the courage of the inexperienced in Meetings of that size and type. Scientists from around the world, representing a total of 47 countries, honoured us with their presence. Three Nobel Laureates, François Jacob, Peter Mitchell and Max Perutz, were present and the Mayor of the City of Athens presented to each one the gold medal of the City at a special ceremony. François Jacob delivered the opening Sir Hans Krebs Lecture, 'Mouse Teratocarcinoma and Embryogenesis', and received the Sir Hans Krebs Medal. Peter Mitchell delivered the closing lecture, 'Science and Humanity: An Essay on Analytic and Appreciative Communication'. The scientific programme consisted of 16 symposia, 150 main lectures and around 650 posters. The proceedings were published in four volumes: three by Alan Liss and one by Elsevier. The meeting was a success, judging by the comments received from the FEBS Council and other international colleagues, and financially it covered all its expenses. Those who were involved in the organization cherish pleasant memories of the 1982 Special Meeting through which many good collaborations and lasting personal friendships were established.

*Constantine P. Tsiganos and George Palaiologos
(members of the Organizing Committee and former
HSBMB presidents)*



The Megaron Concert Hall, Athens.

our efforts to get everything in order. But our joy at securing such a magnificent, luxurious building in the centre of Athens, with a great wood-panelled concert hall and superb acoustics, was such that we were all very happy to put in the extra effort.

The short time left until the start of the Congress meant that things got hectic, and the situation was not helped by various mishaps. A particularly nasty one concerned the abstracts: the electronic submission system required the title in capital letters, and most authors obliged. However, the publishers of the abstract book then changed the titles to lower case, resulting in absolute chaos with all the scientific acronyms. The proofs were a nightmare to correct, almost every abstract requiring a correction in gene or cell names. But there was a further surprise when the printed abstract books eventually arrived. Three logos were supposed to be prominent on the cover: those of our national society, FEBS and

IUBMB. One can only imagine our astonishment when all 3,000 books arrived without the FEBS logo; there was just a gaping white space between the two other logos! With time running out, there was only one thing that could be done to avoid serious embarrassment and the wrath of FEBS: we designed and printed the FEBS logo onto transparent, self-adhesive stickers, which were then painstakingly placed by hand onto each of 3,000 books on the eve of the Congress. Anyone who still has this book can verify the presence of the sticker!

Of course, none of these or many other problems was apparent when the Congress started. The general consensus of the participants was that the organization was almost faultless. We like to think that the change of venue together with the huge effort of the local Organizing Committee made all the difference and ensured that Athens 2008 was one of the most memorable FEBS or IUBMB Congresses.



The 26th FEBS Meeting was held in the Acropolis Congress Centre, Nice in 1999.

THE 35TH FEBS CONGRESS, GOTHENBURG, 2010: A JOINT ENTERPRISE

by David Gotthold and Stefan Hohmann, *Swedish Society for Biochemistry, Biophysics and Molecular Biology* and Winnie Eskild and Tom A. Kristensen, *Norwegian Biochemical Society*

The 35th FEBS Congress in Gothenburg in 2010 was the first to be organized jointly by two FEBS Constituent Societies. The hosts were the Swedish Society for Biochemistry, Biophysics and Molecular Biology and the Norwegian Biochemical Society (NBS), with Stefan Hohmann as Chair and Winnie Eskild as Co-chair of the Organizing Committee. Gothenburg, on the Swedish Atlantic coast, is an effective venue with a conference centre located in the heart of the city and everything within walking distance. With daylight almost around the clock at midsummer, the city offered an open and friendly atmosphere ensuring easy scientific interactions. Reports from the participants later showed that the meeting was highly appreciated.

This was the second Congress involving the NBS. In 1967 Norwegian biochemists organized the 4th FEBS Meeting in Oslo with more than 1,100 participants. At that time Norway did not have a biochemical society, instead the biochemists participated in a joint society with the physiologists. The FEBS Meeting provided the inspiration and some start-up funds, leading to the establishment of the Norwegian Biochemical Society in the following year, 1968. The Swedish Society for Biochemistry, Biophysics and Molecular Biology also had previous experience, having hosted the 22nd FEBS Meeting in Stockholm in 1993.



Bücher Lecturer, Svante Pääbo.

The theme for the 2010 FEBS Congress – Molecules of Life – was reflected in the lectures and discussions. Research focused on therapy was the central topic, with many presentations on mapping and characterizing of compounds aimed at curing or moderating disease. The transformation of waste into biofuel with a little help from designed molecules was also discussed during the six-day meeting which attracted more than 1,550 participants from all over Europe.

Preceding the 2010 FEBS Congress, the 10th Young Scientists' Forum (YSF), 'Life of Molecules', was

held in beautiful Hindåsgården outside Gothenburg, providing a great opportunity for more than a hundred young scientists from all over Europe to meet, interact and promote their scientific future. Apart from a very interesting scientific programme and career development discussions, there were many opportunities to exchange experiences. All



Abstracts book for the 35th FEBS Congress.



Left: Participants enjoying a social event.

Below: Winnie Eskild, Former Secretary General for the Norwegian Biochemical Society and Co-chair of the Organizing Committee for the FEBS 2010 Congress.

participants presented their own research, which helped promote discussions. All travel and accommodation costs as well as participation in the main FEBS Congress were covered by a grant for the YSF meeting.

Roger Tsien (Nobel Laureate in Chemistry 2008) opened the conference. He discussed how future research on fluorescent molecules could be used in the tracking of tumours. He also talked about activatable peptides (ACPPs) capable of penetrating cancer cells. When marked with a fluorophore, these peptides help surgeons detect tumours and distinguish them from healthy tissue. Sir John Walker (Nobel Laureate in Chemistry 1997) gave an inspiring lecture on the significance of protein crystal structures, and how important these structures have been in his work on elucidating the mechanism of ATP synthesis. Elizabeth Blackburn (Nobel Laureate in Physiology or Medicine 2009), reminded us how to live a healthy life: 'be positive, avoid chronic stress, keep in



shape and eat omega 3'. These recommendations were backed up with quantitative biological evidence showing how chronic stress and defeatism is connected to many of the most common diseases associated with ageing. Less stress and more exercise result in less shortening of the telomeres which, in its turn, is related to a person's biological age. Venki Ramakrishnan (Nobel Laureate in Chemistry 2009) talked about the road from the atomic structure of the ribosomal subunits to function, explaining how this huge machinery can handle the translation process, and match a tRNA with the correct amino acid to elongate the polypeptides. Common to all four Nobel Laureates was their great ability to communicate with the audience, thus making their knowledge available even though the topic might be outside one's own main field of interest. They presented their work with an exuberant enthusiasm, humour and everyday metaphors that made us smile and at the same time gave the audience insight into their research.

FEBS aims for full gender equality. Winnie Eskild, chair of the NBS at the time, was pleased to announce at the opening ceremony that a third of the invited speakers at the Congress were women. Looking through the list of participants it is obvious that the world of science is not anywhere close to consisting only of men; many of the participants are young women, suggesting that future FEBS Congresses will have a more equal gender distribution.

Together with the European Molecular Biology Organization (EMBO), FEBS has initiated the project FEBS|EMBO Women in Science Award (WISE) to emphasize important research made by female scientists. At the Congress, Ingrid Grummt from the German Cancer Research Centre in Heidelberg was awarded the 2010 Prize for her research on regulation of gene transcription. She presented the work on the regulation of ribosomal RNA synthesis in her lecture.

Midsummer in Gothenburg, on the Swedish Atlantic coast.





Left: Miguel Ángel de la Rosa.

Below: Preparing a poster for display.

**THE 37TH FEBS CONGRESS, SEVILLE, 2012:
ADDING VALUE TO THE CONGRESS FORMAT**

by Miguel Ángel de la Rosa, Chair of the Organizing Committee, Irene Díaz-Moreno, Secretary of the Organizing Committee, and Joan Guinovart, Chair of the Scientific Committee

The 37th FEBS Congress was held in Seville, Spain in September 2012. This was a joint meeting with the IUBMB (their 22nd Congress), and was organized by the Spanish Society for Biochemistry and Molecular Biology (SEBBM), along with the Portuguese Biochemical Society (SPB) as a partner society.

The main theme of the Congress was ‘From Single Molecules to Systems Biology’. Spectacular advances in ‘-omic’ disciplines and information technology have led to multidisciplinary and integration becoming key features of post-genomic and proteomic research. Genes, gene products, their regulatory networks and their interactions with their environment must be analysed not only at the molecular level, but also as components

of higher-order structures, metabolic pathways or entire cells and organisms. This branch of research, termed ‘Systems Biology’, uses a holistic approach to apply concepts from molecular biology, engineering sciences, mathematics and information technology to complex biological systems such as living cells.

Immediately before the Congress, the 12th FEBS Young Scientists’ Forum (YSF) was held as a joint event with the IUBMB Young Scientist Programme, and the



FEBS, AN INNOVATIVE FEDERATION: THE INTRODUCTION OF POSTERS AND THE POSTER PRINTING ON-SITE SERVICE AT FEBS MEETINGS

Posters are now ubiquitous at all scientific meetings but are a relatively recent feature. Their first-ever appearance at an international conference was at the 6th FEBS Meeting in Madrid in 1969. They were called ‘demonstration sessions’ and participants were notified in advance whether their communication was scheduled for one of four ‘demonstration’ sessions, or if they were to make a short oral presentation (seven or 10 minutes) in one of the 59 conventional ‘free communication’ sessions. In an incredible feat of organization for the time, the Abstracts Book had been conveyed in advance to every participant by regular post, what would be called today *snail mail!*

The board on which ‘demonstrations’ were to be posted consisted of a horizontal wooden rectangle of 2.5 square metres on which, according to the programme, the author ‘may pin his [*sic*] cards before the time scheduled for the session’. Adjacent to this was a small wooden tray with thumb-tacks, adhesive tape, and black and red markers. Since this type of presentation was a novelty, ‘chairmen’, also called ‘coordinators’, were in charge of the sessions ‘to help participants in the arrangement of their demonstrations’. The first demonstration session was chaired by M.A. Dankert (from Luis Leloir’s laboratory) and Carlos Gancedo. Truly, they were needed! Quite a number of participants did not realize exactly what was expected from them and it was necessary to provide certain instructions. A

sizeable quantity of white kraft paper was available and many people drew their presentations *in situ*. Some participants were quite angry that their work had been assigned to these demonstration sessions and the chairmen had to try to convince them of the value of the experiment. Fortunately, at the end of the session many of the initially angry participants apologized and said they had been really amazed by the increased possibilities of communication provided by this new kind of presentation.

Over 40 years later, at another international meeting in Spain, the 37th FEBS & 22nd IUBMB Congress held in Seville in 2012, another important feature was incorporated into the poster sessions. Participants had the opportunity, for the first time, to travel without having to carry their poster materials thanks to the ‘Poster Printing On-Site Service’; they could email their poster as a digital PDF file that could be printed and hung on the appropriate display

board for a nominal fee of €30. At the relevant poster session, the authors would find their poster ready for presentation. The printing requests had to be made a few days before the meeting, but the printing service was also available throughout the entire meeting. These were indeed two important innovations at two FEBS Meetings.

*Carlos Gancedo and
Miguel Ángel de la Rosa*



Poster for the 6th FEBS Meeting in Madrid, 1969, designed by Salvador Dali.





Welcome mixer at the 37th FEBS Congress and 22nd IUBMB Congress.

1st FEBS Fellows' Forum. It attracted 150 outstanding young scientists. In addition, registration fee waivers for the main Congress were awarded to 498 PhD students and young scientists.

The Congress brought together 2,454 participants and 59 exhibitors from 73 different countries, spanning five continents. Events and speakers reflected great geographical diversity as well as the important contributions made by men and women; the female:male participant ratio was 55:45. The scientific level of all abstracts submitted was excellent; 1,990 abstracts were approved and 1,703 posters and 122 oral communications were presented. Twenty plenary lectures (including those of six Nobel Laureates) and 137 symposium and workshop lectures were delivered by internationally renowned experts in their fields.

The programme of the meeting followed the standard format for typical FEBS and IUBMB Congresses, with morning and evening sessions running over six days. It also incorporated the main events of the SEBBM Congress, including the Meetings of its 20 scientific groups and lectures delivered by researchers from Argentina, Chile and Mexico. Of particular note is that both the European Molecular Biology Organization (EMBO) and the European Research Council (ERC) organized sessions during the Congress, thus strengthening FEBS' links and collaboration with these other major European science organizations.

As local organizers, we planned to add value to the Congress experience by developing new ideas and creating novel activities. The 'Biochemistry in Gastronomy' presentation showed the scientific principles underlying modern cuisine. There was a guided poster tour to facilitate the exchange between speakers and poster presenters, and a portrait gallery to honour 24 outstanding

female scientists, past and present. Also worth a special mention is the abstract search online service; all approved abstracts were made available on the official website about a month before the Congress, allowing participants to decide in advance which posters to visit and which presentations to attend. Other novel services such as the conference app, child care at the venue, and the poster printing on site, were also very much appreciated.

With the goal of bringing science closer to a wider audience, a number of activities took place under the umbrella of the 'Biochemistry in the City' initiative. There were two round-table discussions open to the public (one on cancer and one on functional food). A three-day course entitled 'And You? Me, a Biochemist!' encouraged high-school students to study science at university. There was also a 'science for non-scientists' activity, 'Genes in the Bottle', where passers-by could isolate their own DNA from a buccal swab. A meeting with Nobel Laureates was held at a downtown hotel with the aim of making the public realize how crucial science is for future development of a knowledge-based economy.

Under the theme 'From Single Molecules to Systems Biology', we hope to have fulfilled delegates' expectations by providing a quality programme and a good arena for expanding knowledge and networking.



Nobel Laureate Venki Ramakrishnan gave the Sir Hans Krebs Lecture in 2012.

FEBS PRIZES

The Sir Hans Krebs Lecture and Medal

The Sir Hans Krebs Lecture and Medal was endowed by a generous gift from the Lord Rank Centre for Research in the UK and is awarded for outstanding achievements in biochemistry and molecular biology or related sciences. Sir Hans Krebs was a German-born British biochemist, well known for his work in identifying the urea cycle and the citric acid cycle, and he played a key role in many ways during the early days of FEBS. The awardee, who should be active in European research, presents one of the plenary lectures at the FEBS Congress. The awardee receives a silver medal, plus his/her travel and accommodation expenses in attending the Congress. It is customary for the lecture subsequently to be published in *The FEBS Journal*.



The Datta Lectureship and Medal

The Datta Lectureship award is funded by a generous capital gift from Elsevier Science Publishers and is awarded for outstanding achievement in the field of biochemistry and molecular biology or a related area. S. Prakash Datta was the first Managing Editor of *FEBS Letters* (1968–1985) and Treasurer of FEBS (1964–1990), and the Datta Medal is awarded in recognition of his many contributions. The award is normally made at each FEBS Congress to one of the



plenary lecturers. The lecturer should normally be from a country with a FEBS Constituent Society. The awardee receives a medal, provided by Elsevier Science Publishers, plus his/her travel and accommodation expenses in attending the Congress. It is customary for the lecture to be published in *FEBS Letters*.

The Theodor Bücher Medal

The Theodor Bücher Lecture and Medal was endowed by a generous capital gift from Frau Ingrid Bücher to the Gesellschaft für Biochemie und Molekularbiologie (GBM) and is awarded for outstanding achievements in biochemistry and molecular biology or related sciences. Theodor Bücher was a visionary German biochemist who played a key role in the early development of FEBS by arranging for its acquisition of *Biochemische Zeitschrift*, which became the *European Journal of Biochemistry* and later *The FEBS Journal*. The awardee, who is expected to be active in European research, presents one of the plenary lectures at the FEBS Congress. The awardee receives a silver medal, plus his/her travel expenses to the Congress. It is customary for the lecture subsequently to be published in *The FEBS Journal*.



The FEBS|EMBO Women in Science Award

The FEBS|EMBO Women in Science Award is a joint initiative of FEBS and the European Molecular Biology Organization (EMBO) and highlights the major contributions made by female scientists to

life sciences research. Each year an individual woman working in the life sciences is recognized for her exceptional achievements. The winner presents one of the plenary lectures at the FEBS Congress, and receives a grant and a statuette (*right*).

FEBS Anniversary Prizes

FEBS Anniversary Prizes of the GBM were initiated at the 10th anniversary of FEBS by generous capital gifts from Boehringer Mannheim GmbH and Eppendorf AG. They are awarded for outstanding achievements in the field of biochemistry and molecular biology or related sciences, with the awardees selected from researchers under 40 years of age who have been invited to give a lecture at one of the symposia or workshops held during a FEBS Congress. The prize administration is managed by both FEBS and the GBM, and up to two Anniversary Prizes of €2,000 and a diploma are awarded each year.

FEBS Diplôme d'Honneur

The FEBS Diplôme d'Honneur was instituted on the 10th anniversary of FEBS to honour biochemists and molecular biologists who have given outstanding service to FEBS, and is awarded at the FEBS Congress.



SLIPPING INTO FOREIGN CULTURES

by Sir Tim Hunt,¹ *Sir Hans Krebs Lecturer (2008)*

I don't remember how one got to the 12th FEBS Meeting in Dresden in 1978, except that it involved flying to Berlin and crossing the Iron Curtain. After that, perhaps we took the train? The Meeting was held in the huge auditorium of a giant concrete conference centre, and the delegates stayed in a special hotel from which the locals were excluded (apart, of course, from the staff). My first impression of life behind the Iron Curtain was of endless blocks of rather soulless-looking concrete flats whose façade was decorated with giant banners celebrating '25 Years of German–Soviet Friendship'. One's Orwellian prejudices were confirmed. It was all very drab, and signs of war damage were to be seen everywhere in the centre of the town.

But inside the Meeting, as far as I recall, things then were much as things are now. There were lots of talks (with slides of course – not Powerpoint). One talk, by a Russian scientist, made a deep impression. The talk (something about protein synthesis) was good and was given in beautiful, unaccented English. At the end there were questions. But it turned out that not only did the speaker need an interpreter to understand the questions (in English), he also needed the interpreter to provide the answers. That was pretty weird. He must have learnt his talk by rote and heart.

What made the deepest impression, however, was the business of food. We gradually became aware that there were at least two kinds of restaurant, those for



Above: Sir Tim Hunt gave a plenary lecture at the IUBMB/FEBS Congress in Seville in 2012.

Inset: The 12th FEBS Meeting was held in Dresden in 1978.



the locals and those for us visitors. I don't remember us ever poking our noses into the former, or even whether we could have, had we so desired. It was tricky enough getting fed in the places designed for us. My recollection is that we started queuing at about 5.30 pm and got home around midnight after a fairly modest supper. The reason it took so long was the series of waits – to get into the restaurant, to be shown to a table, to get a menu, to place the order, and finally to be brought the food. The customer certainly did not come first in any of this, and it was clear evidence that the system wasn't working very well as far as restaurants were concerned. I'm not sure I'd have gone as far as predicting the collapse of communism from this evidence, but in retrospect it sticks in the mind as a harbinger of what was to take another decade or so to come.

¹ Tim Hunt was awarded the 2001 Nobel Prize in Physiology or Medicine with Paul Nurse and Leland H. Hartwell for their discoveries of protein molecules that control the division (duplication) of cells.



A postage stamp to commemorate the Meeting.

Yet there was something good about the regime, or so it struck me at the time. Harvey Lodish and I travelled back together to Berlin and spent some time in the wonderful Pergamon Museum, where the front gate of Babylon is still displayed in splendid surroundings. The streets of East Berlin were sober and quiet, and I bought a miniature score of Beethoven piano sonatas for next to nothing in a music shop. Passing through Checkpoint Charlie to the West provided a slight frisson,

and then we had to find ourselves a hotel for the night. West Berlin was all flashing neon signs and bright lights, music spilling out of dubious-looking doorways. This garish exuberance curiously came as a rather unpleasant shock after the sobriety of the East. There was definitely something a bit distasteful about capitalism thus manifest. Eventually we found a hotel, however, where we took a room with a huge double bed that we shared and managed to get to the airport in time to catch our planes

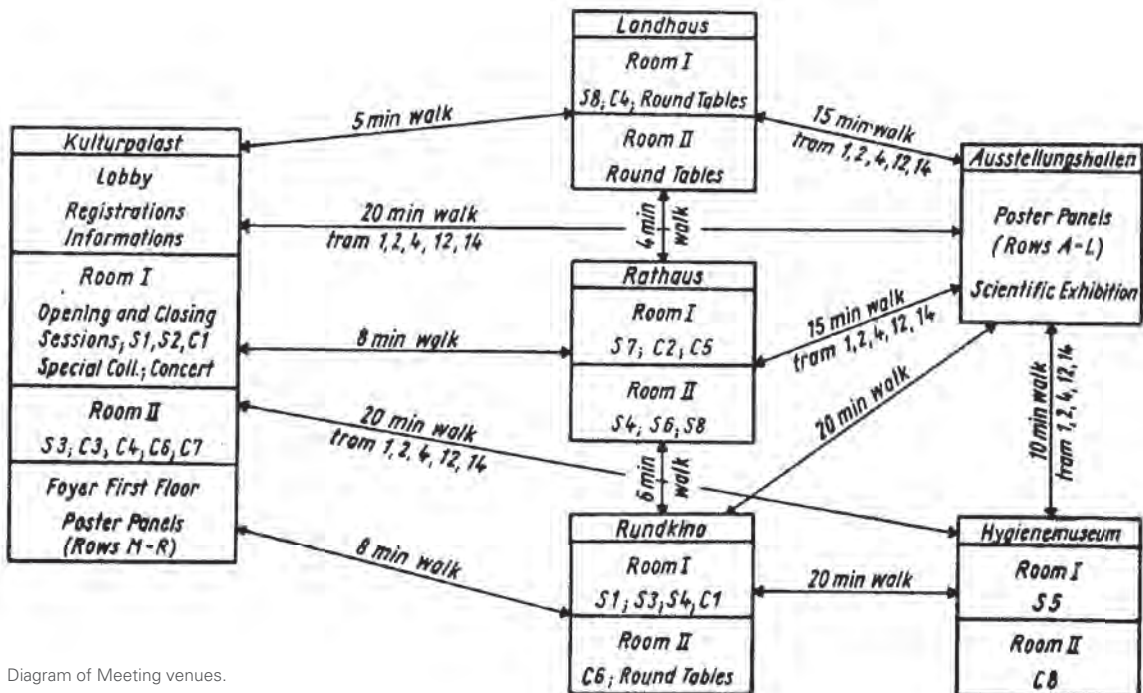


Diagram of Meeting venues.

the following morning. I guess the whole experience didn't suggest that biochemistry was secretly thriving behind the Iron Curtain, but since we did not visit any labs either in Dresden or Berlin, the evidence was thin.

Dresden next influenced my life 23 years later, in November 2001, when I got a surprise phone call and invitation from Werner Franke to address the first-ever joint meeting of the German and French Societies for Cell Biology in Strasbourg in two days' time. 'How are you, Werner?', I had said, by way of greeting: 'Terrible!', he replied. It turned out that Günter Blobel was to have given the keynote speech, on his way to the rededication of the Frauenkirche in Dresden, which had been terribly damaged by British bombers at the end of the Second World War, and towards whose restoration Günter had generously donated his Nobel Prize. But his wife had just received a potential anthrax letter and Günter didn't want to risk leaving her alone in New York. This was so obviously a genuine excuse that I readily agreed to drop everything and go to Strasbourg, although it was pretty strange for an Englishman to be giving the special lecture on this historic occasion. François Jacob was there, too, and gave a charmingly gracious speech, only his limp from a war wound reminding us why it had taken nearly 60 years for this scientific reconciliation to occur.

The importance of science as a tool of international diplomacy is not so often adduced as a reason for its support, but in my experience it's not to be sneezed at. We scientists are extremely lucky to be able to slip into foreign cultures almost unnoticed, at every stage of our lives. Maybe it's not a huge thing quantitatively speaking, but to me it's one of the biggest perks of the job. And as for Dresden, its fine new Max Planck Institute of Molecular Cell Biology and Genetics, set up by a Finn and inhabited by a motley crew from all over the world, is a beacon of excellence in biochemistry and cell biology that may provide an optimistic example of how to bring the dead back to life – scientific resurrection – even further east.

ADA YONATH

Ada Yonath was awarded the Theodor Bücher Medal in 2012. She was awarded the Nobel Prize for Chemistry in 2009, together with Venki Ramakrishnan (*see p.38*) and Tom Steitz (Krebs Lecturer in 2000) 'for studies of the structure and function of the ribosome.'

Head full of ribosomes: The light blue curls show the structure of the small ribosomal subunit and the grey-purple represent the large subunit.



FEBS ANNIVERSARY PRIZE, 2010

by Johanna Ivaska, University of Turku and VTT Technical Research Centre of Finland

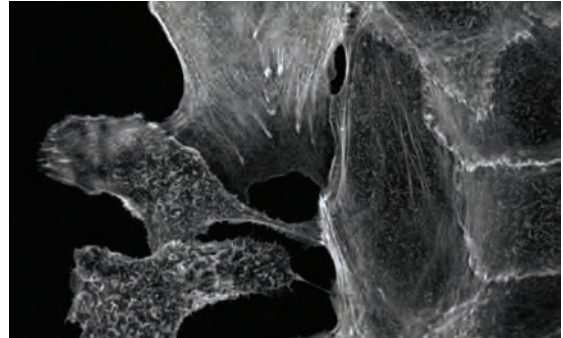
I had the honour of receiving a FEBS Anniversary Prize at the 35th FEBS Congress in Gothenburg in 2010. I had been invited to the meeting to talk about our research related to cell adhesion and cancer and was very much looking forward to the exciting conference covering many interesting topics. Shortly before the Congress, I was announced as a winner of the prize, which is awarded in recognition of important achievements in the field of biochemistry. For a 'close-to-the-bench' biochemist like me this indeed felt like the biggest possible compliment.

I studied biochemistry at the University of Turku and graduated with a PhD from the Medical Faculty there in 2000. I had the amazing opportunity to work for three years as a postdoc at the Cancer Research UK London Research Institute under the mentorship of Peter J. Parker and was introduced to the fascinating world of signalling



Left: Johanna Ivaska in the fascinating world of cell biology. Picture taken by Vesa-Matti Väärä.

Below: Breast epithelial cell breaking away from the epithelial sheet upon EMT induction. MCF10A cells overexpressing SNAIL2 transcription factor stained with phalloidin to visualize actin. Picture by Reetta Virtakoivu.



and endocytosis. I returned to Finland and with the Academy of Finland Researcher grant started my own laboratory. By 2010, five PhD students had graduated from the laboratory, we had published a number of papers on novel functions of integrins in cancer, and our Cancer Signalosome project had been awarded an ERC Starting Grant in the first call in 2007.

The focus of my research throughout my career has been to investigate how cell adhesion and motility are regulated by a class of cell-adhesion receptors called integrins. My laboratory has focused especially on cancer cells and we have targeted our efforts to unravel mechanisms related to cancer cell invasion, metastasis and integrin-dependent cell survival. In 2010 one of the main interests in our laboratory was to understand the cooperation between integrins and the cytoskeleton in regulation of cell invasion. We were especially focusing on a process called Epithelial-to-Mesenchymal Transition (EMT) since it is a critical event in the progression towards cancer metastasis. EMT involves upregulation of the intermediate filament protein vimentin and loss of cell-cell contacts within the intact epithelium. We are still working on EMT but the main focus of the laboratory has for the past years been in three main areas:

1. investigating how integrin adhesive activity is regulated;

2. studying the endo/exocytic traffic of integrins and the link between integrin traffic and cancer;
3. determining the underlying mechanism regulating cross-talk between integrin and receptor tyrosine kinases.

Today my laboratory is an exciting international group of students, postdocs and technical staff with versatile expertise in imaging, cell biology, protein chemistry, experimental animal models and analysis of human clinical samples. We work in close collaboration with a number of groups in Europe and worldwide and aim to be at the forefront of research in the role of integrins in cancer.

I had been aware of FEBS as an organization long before I received the award, through their excellent workshops and conferences. Early on in my career I had the opportunity to travel to meetings with the FEBS travel grant programme and later many of my students and postdocs have benefited from this same invaluable scheme. Science and being a scientist is about knowing people, discussing results and hypotheses, and forming collaborations across boundaries. FEBS is an extremely important organization in facilitating this in Europe at every level.

FEBS PUBLICATIONS

FEBS IN ACADEMIC PUBLISHING

by László Fésüs, Chair, FEBS Publications Committee

The launch of two journals, the *European Journal of Biochemistry* in 1967 and *FEBS Letters* in 1968, is evidence of the strength and impact that FEBS had established in just a few years from its founding in 1964. Starting the *European Journal of Biochemistry* (*EJB*) was a relatively smooth process, by taking over and renaming *Biochemische Zeitschrift* (founded in 1906). The inception of *FEBS Letters* required the strong determination and diplomatic skills of Bill Whelan, the first FEBS Secretary General, as well as the commitment of Sir Hans Krebs and Fred Sanger who joined its first Editorial Board (see p.19). Both journals grew rapidly in their early years, becoming influential and well-respected forums of biochemistry and molecular biology. This almost unprecedented success was due to several key elements. First, there was the dedication and hard work of the founding Editors-in-Chief, Claude Liébecq for *EJB* and Prakash Datta for *FEBS Letters*, and their Editorial Boards, which included many leading figures in biochemical research. Another element was the enthusiasm and surge of activity that followed the foundation of FEBS, together with the

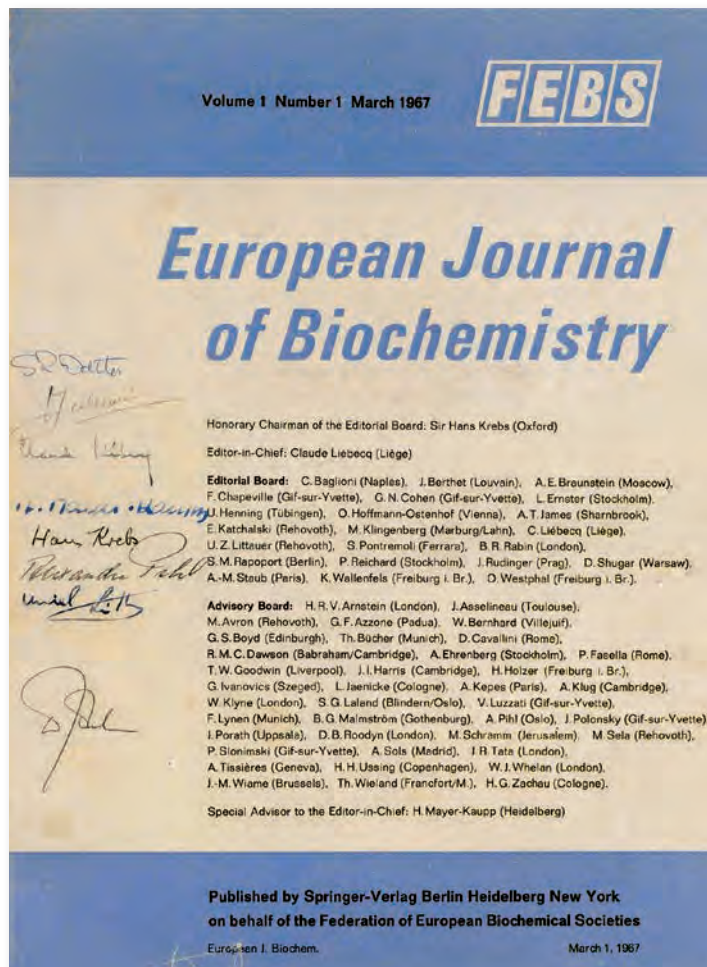
spirit of cooperation coinciding with a new wave of biochemical discoveries and technical advances, some of which were first published in the two FEBS journals. Finally, the high-level professionalism of the two publishers, Springer-Verlag for *EJB* and Elsevier/North Holland for *FEBS Letters*, ensured reliable technical quality and a wide distribution of the journals.

Undoubtedly, the two journals brought recognition for FEBS around the world in its early years and they have been crucial in developing the FEBS brand during the following decades, under the excellent stewardship of subsequent editors: Philipp Christen and Richard Perham at the *European Journal of Biochemistry* (renamed *The FEBS Journal* in 2005); and Giorgio Semenza, Matti Saraste and Felix Wieland at *FEBS Letters*. The financial success of the journals was achieved through fruitful business partnerships with the publishers (*EJB* transferred to Blackwell in 1999 which merged with Wiley in 2007). This has provided the necessary revenue for the continual broadening of FEBS' other activities: the promotion of molecular life science research in Europe through advanced courses, fellowships, bursaries for young scientists and organization of international events of high impact. FEBS has also devoted significant

resources to establishing a new journal, *Molecular Oncology* (which began publishing in 2007), to benefit cancer research.

The migration from print to digital journals, which started about two decades ago, has produced a dynamic and strongly competitive period in scientific publishing. Our journals have adapted to the new challenges, with the early introduction of online submission systems, the provision of electronic versions of articles, digitization of the archive, a reduction in publication times to a few weeks, and extended publicity through social media, podcasts and other means. It has become clear that the disappearance of the printed journals is an irreversible process; in fact, *FEBS Journal* has been published only online since 2013 and *FEBS Open Bio*, our new open access journal launched in December 2011, has been available only online from the outset.

The almost unlimited potential in digital publishing has provided the background for a move to open access scientific publishing, which has the aim of making results freely accessible to the scientific community and to the public on websites. This has been gaining strong momentum over the past decade; politicians and research funders feel under pressure to demonstrate that the research they have funded benefits society and therefore have mandated open access publication of findings either through the 'gold' route (with authors paying an article-processing charge, APC) or at least the 'green' route (accepted articles deposited in institutional or other repositories). Library budgets have not risen as rapidly as the prices of journals, and some consider online publication to be practically cost-free and that the value added by publishers can be disregarded. However, the transition from traditional modes of scientific publishing based on journal subscriptions to an 'author-pays' system could have serious consequences. Open access has been accelerated in part by a strong antagonism towards the



Cover of the first issue of the *Journal*, March 1967.

enormous profits of some publishers, who have been considered as exploiters of tax- and charity-funded research and academic referees. But moving to an author-pays system does not stop profit-making, as evidenced by the recent appearance of thousands of predatory open access journals based on questionable motives and obvious greed.¹ It also should be clearly

1 John Bohannon (2013) 'Who is afraid of peer view?' *Science* 342: 60–5.

recognized that a substantial part of the profits from the currently dominant subscription-based system goes back to learned societies, and through them to the scientific communities they serve. For example, FEBS owns the journals it publishes with Wiley-Blackwell and Elsevier and, through contracts that ensure fair profit sharing, the majority of journal income comes back to FEBS to benefit biochemical research and education. A move to full open access publishing with low APCs would mean that FEBS would require other sources of funding to maintain many of its scientific activities. Thus, FEBS is committed to looking for a smooth transition to open access but at the same time must consider proactive measures to minimize the financial risk to its other activities.²

The biggest danger of uncontrolled commercialization of open access publishing is the loss of both quality control and public trust in science. The many hundreds of professional societies around the world currently have crucial responsibilities in not allowing this to happen by providing the necessary critical and independent scrutiny of scientific claims and testing the validity of results. It has to be emphasized that peer review at traditional journals like ours is an essential part of the editorial process; moreover, it provides a valuable service to authors – a fair and balanced assessment of their work, and published work that is improved and enriched with the assistance of editors and publishers.

Academic publishing is the arena where success of individual scientists is manifested and the peer-reviewed article is and will remain the central element in communication and assessment of research output. In recent years, however, the objective value of the latter has been distorted by the improper use of the

Impact Factor of scientific journals as the primary parameter to compare the achievements of individuals and institutions. Many scientists have felt that something should be done to improve the evaluation of the quality and impact of research. As an important step forward, a large group of editors and publishers of scholarly journals (including FEBS and the Editors-in-Chief of its journals) formulated and made public in May 2013 a set of recommendations: the San Francisco Declaration on Research Assessment (DORA).³ This calls for the ‘need to assess research on its merits rather than on the basis of the Impact Factor of the journal in which the research is published’. FEBS strongly supports the DORA recommendations – including full acknowledgement of each author’s contribution, proper citation of earlier work, removal of a limit on the number of references, the use of a range of alternative metrics – and remains committed to accepting good sound papers of all kinds in molecular bioscience in its journals, assessing them on their own merit without becoming slaves to article metrics.

There is much dissatisfaction, especially among non-tenured scientists of the younger generation, with the current culture and atmosphere of scientific publishing. Criticisms go beyond problems created by misinterpretation of Impact Factors. Also disliked is the practice of demanding unnecessary ‘reviewer experiments’, the risk of being scooped, and favouritism shown to ‘fashionable’ topics and dogmas. We have to assure our young colleagues that the duty of our journals is to publish their work subject to fair and content-focused peer review, not to reject papers on the grounds that they will not boost Impact Factors, and not to delay their publication without sound reasons.

2 Maria Leptin (2012) ‘Open access – Pass the buck’. *Science* 335: 1279.

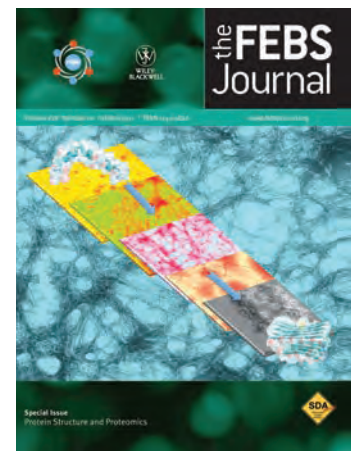
3 The San Francisco DORA is available at www.ascb.org/SFdeclaration.html.

FEBS clearly sees that in the increasing competition for attention there are many new challenges to face. Beyond the task of managing a smooth transition to open access publishing and adapting to the new copyright rules (such as licensing for open access through Creative Commons variants), journal editors and publishers have to introduce measures that can give greater guarantee of the reproducibility of the experimental results in papers they publish.⁴ New enabling technologies for access to and mining of research data are also to be provided. There is a need to pay increasing attention to a wide range of ethical issues that can arise in academic publishing, including misconduct by authors (fabrication, falsification or plagiarism), abuse of editorial positions, conflicts between publishers' and societies' commercial interests, and principles of editorial freedom and integrity. As the digital revolution continues, the format and information content of the scientific article are changing dramatically, open and interactive prepublication feedback as well as refereeing will become the norm, and post-publication innovations (such as comments and ratings) are increasing in popularity among scientists. To be able to respond to these challenges and to remain successful and influential in science publishing, FEBS will need to make significant changes in its publication system. There are plans to pull together the available resources of the journals on a joint publishing platform and to build on its rich tradition and own identity. More than ever, this will require the help and active contribution of the more than 36,000 members of European biochemical societies who constitute the membership of FEBS.

4 'Problems with scientific research: How science goes wrong'. Leader, *The Economist*, 19 October 2013: 1–3.



Above left: Cover of the first issue of the re-titled *The FEBS Journal*, 1 January 2005.



Above right: Cover of the first Special Issue on Protein Structure and Proteomics October 2011.

THE FEBS JOURNAL: ALMOST 50 YEARS OF FRONTLINE SCIENTIFIC PUBLISHING

by Richard Perham, Chair of the Editorial Board (Editor-in-Chief) (1998–2013)

The Federation of European Biochemical Societies was only three years old when it launched the *European Journal of Biochemistry (EJB)* in 1967, as described elsewhere by Iain Mowbray (*see p.98*) and László Fésüs (*see p.44*). The German Gesellschaft für Biologische Chemie and the publisher Springer-Verlag were exceptionally generous in allowing FEBS to take over and rename an existing distinguished journal, *Biochemische Zeitschrift* (founded in 1906). The new *EJB* was committed to the 'publication of regular extended papers' under the guidance of Claude Liébecq (University of Liège) as first Editor-in-Chief.¹ Some members of the Editorial Board of *Biochemische Zeitschrift* were retained and some new members were recruited, making a total of 22.

1 Liébecq, C. (1992) A brief history of the *European Journal of Biochemistry* on the occasion of its 25th anniversary. *Eur J Biochem* 204, 421–32.



Editors-in-Chief (from l-r): Claude Liébecq, Philipp Christen, Richard Perham and Seamus Martin.

At its first meeting in Heidelberg on 26–27 July 1966, the Editorial Board invited Sir Hans Krebs to become Honorary Chairman and appointed an Advisory Board of 38 members. It also adopted a centralized system with the Editor-in-Chief being responsible for the acceptance or rejection of a manuscript. The Editorial Office was established in Liège. All the first editors were European and, for the first decade or so, most of the authors were European too. Initially papers could be written in English, French or German (the latter two with English abstracts) but, with English becoming the lingua franca of science, the use of languages other than English soon faded.

By 1975 Liébecq said he was finding it difficult to handle the growing diversity of papers and the FEBS Publications Committee agreed to ‘associate’ editors being appointed. They formed a board of ‘Managing Editors,’ chaired by Liébecq, and together they fostered diversification. However, although the decision-making process became decentralized, the Editorial Office in Liège continued to handle the secretarial work to do with submissions, corrected proofs and so on. This essentially is the model that has persisted to this day (*see below*). A rule was introduced that the Managing Editors should be restricted to a term of five years, renewable for a further five years. Claude Liébecq held the post of Editor-in-Chief until 1988, when Philipp Christen (University of Zürich) was appointed and the Editorial Office moved to Zürich.

Growth and diversification of EJB and the birth of The FEBS Journal

EJB grew to become a major player in the publication of full-length papers in biochemistry and molecular biology. It retained a European flavour though by 1998 it had 13 editors, including one from the USA and one from Japan. This was reflected in the origin of the papers published, with the percentage from outside Europe rising from 15–20 in the 1980s to a little under 30 by 1998. Review articles also began to feature, the topic of which might be mature or one that had recently come upon the scene but merited wider exposure. Sadly Sir Hans Krebs died in 1981 but he was succeeded as Honorary Chairman of the Editorial Board by another very distinguished scientist supportive of FEBS, Fred Sanger.

In 1998 when I was invited by FEBS to take over as Editor-in-Chief of *EJB* I was able to look back and congratulate both Claude Liébecq and Philipp Christen on a job well done.² Relations with Springer-Verlag (in particular in the person of Dieter Czeschlik) were good. *EJB* was generating income and, with *FEBS Letters*, was able to provide funds to underpin the growing ambitions of FEBS, not least in educating and supporting young scientists. However, times were

² Perham, R.N. (1999) Editorial. *Eur J Biochem* 259, 1.



Editors and staff celebrating the refurbishing of *The FEBS Journal* office in 2008 (from l-r): Anne-Marie Bruyins (Deputy Editorial Manager), John Markley, Alex Wlodawer (crouching), Ferdinand Hucho, Hermona Soreq, Richard Perham, Anna Tramontano, Nigel Scrutton, Hans Westerhoff (crouching), Nancy Lane Perham (guest), Vanessa Wilkinson (Editorial Manager), Gabriele Varani, Harald Stenmark, Jan Johansson, Rolf Apweiler.

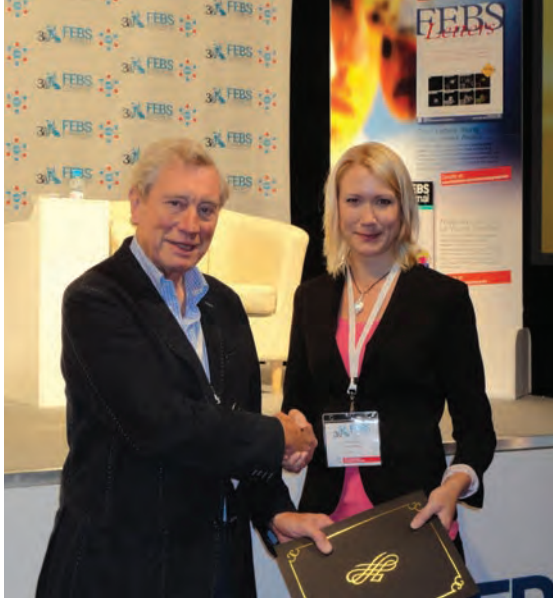
changing and challenges from outside were beginning to come thick and fast. Among them were the growth of electronic publishing, increasing competition from many newly founded 'niche' journals catering to specialized communities, and globalization. The last of these affected publication attitudes in biochemistry and molecular biology, just as it did more public concerns about employment, financial markets, international relations and so on.

The publishing contract was due for renewal at the end of 1998 and, after careful scrutiny of the competitive bids put forward by various publishers, the FEBS Publications Committee chose to sign a contract with Blackwell Science. This was not a decision taken lightly but reflected the better financial terms on offer and the promise of a faster production process and more resilience in an increasingly electronic world. A new editorial office was set up in Cambridge with Jane Roscoe as Editorial Manager. In March 2002, as soon as we responsibly could, we adopted an electronic submission and reviewing system, choosing Manuscript Central (now ScholarOne) for the purpose. This was a

merciful release from mountains of paper and postage and enabled us to refine the peer review system (*see below*), making it easier for distinguished scientists to combine editorial work for the journal with a busy scientific life. The Editorial Board embraced the need to diversify the content of the journal and to seek a wider range of authors, especially from North America, Asia and the Pacific. Although the primary purpose of the journal remained that of publishing original research reports, reviews and mini-reviews were popular and have gradually been expanded. Initially Ferdinand Hucho (Berlin) assumed general responsibility for reviews; more recently Nicholas Tonks (Cold Spring Harbor, New York) and the Editor-in-Chief have taken on this role.

By 2004 the Editorial Board had 22 members, seven of whom were based in the USA and one in Japan, and the Editorial Advisory Board included members from Australia, Canada, Japan and South Africa, as well as the USA. Jane Roscoe left in 2000 and was succeeded as Editorial Manager by Louise Sanders. When Louise wished to return to her academic work in 2004, Vanessa Wilkinson became Editorial Manager and is still in post. All three have been excellent colleagues, devoted to the journal and its success, and the same can be said of the Deputy Editorial Managers and editorial assistants who deal with papers, authors and editors on a day-to-day basis. The longest-serving, Giannina Bartlett, has been with us since 2000.

In 2004, after careful consideration, a decision was taken to rename *EJB* as *The FEBS Journal*. The Editorial Board were keen to add to the growing worldwide appeal of the journal and its broadening remit across the molecular life sciences, not just 'classical' biochemistry. We also felt there was much to be said for promoting the FEBS brand by having its journals carry a common name: *The FEBS Journal* and *FEBS Letters*. The first issue of the retitled journal appeared on 1 January



FEBS Journal prizewinner Anna-Karin Gustavsson receiving her award at the FEBS Congress in St Petersburg in 2013.

2005, with a new cover design to mark the change.³

It is interesting to note that *FEBS Journal* had been the name favoured by Springer-Verlag when the *European Journal of Biochemistry* was being framed back in 1966.⁴ The journal now has editors based in Australia, India and the USA and on the Editorial Advisory Board there are scientists from Brazil, China, Japan, South Africa, Taiwan and the USA, plus a wide range of European countries. The gender mix is also healthier (six of the 24 editors are female). In 2013 papers were submitted from 60 different countries and papers were accepted for publication from 43 of them.

The FEBS Journal has continually embraced new growth points in the molecular life sciences: from structural biology to molecular cell biology, bioinformatics and systems biology, molecular neurobiology, and the molecular biology of disease. It has been quick to adopt innovative measures: Early View (website listing of papers accepted for publication) in 2002, followed by Accepted Papers published online ahead of formal journal make-up

³ Perham, R.N. (2005) Editorial. *Eur J Biochem* 272, 1.

⁴ Liébecq, C. (1992) A brief history of the *European Journal of Biochemistry* on the occasion of its 25th anniversary. *Eur J Biochem* 204, 421–32.

in 2010; a new website in 2003 whereby mathematical models can be accessed by those interested in trying them out; Virtual Issues (collections of recent papers on selected topics published in *The FEBS Journal*) in 2008; Structured Digital Abstracts (SDAs) in 2009 after their successful pioneering in *FEBS Letters* (see p.56) plus hotlinking to other relevant databases in 2011; and Illustrated Abstracts in 2011. Special Issues (collections of themed papers, assembled by members of the Editorial Board and/or Editorial Advisory Board with outside help where appropriate) began in 2011. They are usually connected with important scientific conferences and contain both invited reviews and original research papers. Ten have been published to date. Publication is rapid: despite a full and helpful peer-review process, the average time from submission to first decision is around 30 days, accepted papers are available immediately online, and papers that require no, or only modest, revision to which authors react quickly, can appear in three months or less in formal journal make-up.

All our review articles are published online free of charge and we happily provide full open access publication of papers where authors wish it or are mandated to use it. Wiley-Blackwell (Blackwell Publishing merged with John Wiley in 2007) deposit papers in PubMed Central for authors free of charge. As from 1 January 2013, *The FEBS Journal* sought to diminish the adverse environmental impact of publishing and transporting hard copies – and at the same time to save money that could be put to better use in improving its electronic version – by going online only.

The FEBS Journal Prize

In line with the *FEBS Letters* Young Group Leader Award, on 1 January 2004 *The FEBS Journal* (then *EJB*) introduced an annual prize for young scientists who were still PhD students or postdocs no more than three years from the award of the PhD Degree at the time of

publication, and who were first author of a paper judged by the editors to be the best published in the journal in the previous calendar year. Ten have thus far been awarded (7 to women, 3 to men) from a wide range of countries: Germany, 2; USA, 2; Australia, 1; Canada, 1; Ireland, 1; Korea, 1; the Netherlands, 1; and Sweden, 1. The winner receives his/her award at the FEBS Congress and is invited to give a plenary talk on the award-winning work. Under the new FEBS financial arrangements (see *p.106*), from 2014 the prize has been reduced to €1,000 but the other arrangements remain the same.

Marks of public esteem

The FEBS Journal was named a 'rising star' by Thomson Reuters Science Watch in May 2008 (*archive.sciencewatch.com/inter/jou/2008/08junFEBSJournal*) and a survey of the quality of published crystal structures in 2007⁵ placed *EJB/The FEBS Journal* at the top of the list. Given the number of options now available to authors for publication of their work, not least more 'niche' journals and the growth in open access journals, *The FEBS Journal* is publishing fewer papers overall than it did 10–20 years ago, which is true of most if not all major general journals. However, it is pleasing to note that the quality and interest of the papers has reached an all-time high, as measured by the journal's Impact Factor, 4.25 in 2012 (rising steadily from a range of 3.0–3.5 over the years). The use made of the Impact Factor in some circles is badly flawed, as indicated by the San Francisco DORA, to which the editors of *The FEBS Journal* fully subscribe (see *p.46*). *The FEBS Journal* is not, and never has been, a slave to metrics of this kind. Nonetheless, the rising Impact Factor is matched by big increases in the number of downloads of *The FEBS Journal* papers, which cannot be anything but encouraging.

5 Brown, E.S., and Ramaswamy, S. (2007) 'Quality of protein crystal structures'. *Acta Crystallogr D Bio Crystallogr* 63, 941–50.

Peer review

Peer review is an essential part of the evaluation of manuscripts submitted for publication in *The FEBS Journal*. A full account can be seen elsewhere (see *FEBS News, Issue 2 (May) 2013, at www.febs.org/news/newsletter*). Newly submitted manuscripts are assigned to a suitable editor by the Editorial Office (the editors cover a wide range of fields), and the editor, in discussion with the Editor-in-Chief, will decide whether the paper is of sufficient quality and potential interest to be sent out to referees. If it fails to pass this test, the authors are given a reasoned decision immediately to avoid delay and potential frustration in deciding whether to submit their work elsewhere. Papers selected for further consideration go out for review; the editors can select referees from our first-class Editorial Advisory Board, from the journal's extensive database, or from their own knowledge of other suitable experts in the particular topic, and may include referees nominated by the authors in the submission process. In 2013, for example, 1,911 different referees from 47 different countries acted as reviewers for *The FEBS Journal*.

Authors' details are made available to the referees but referee details are anonymous to authors and other referees. The vast majority of referees greatly prefer it this way but referees are not prohibited from making their names known to authors if they wish to do so. If a paper is rejected, the editors do all in their power to explain to authors the reasons for the decision. If a revised paper needs to be sent back to the referees for a further review, they are not allowed to raise fundamentally new points unless the revised version reveals concerns that could not have been foreseen in the original version. Any call for additional experiments must be justified by a clear need to substantiate or extend the claims being made. The editors receive many expressions of gratitude from authors for the time and trouble taken by the journal in helping them to improve the quality of their papers and arousing more interest among potential readers.

TABLE 1. NOTABLE PAPERS PUBLISHED IN THE FEBS JOURNAL

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FEBS Letters cover Volume 1, Issue 1, 1 July 1968.

Some important papers published in EJB/ The FEBS Journal

Over the years many important papers have been published in *EJB/The FEBS Journal* and some of them are listed in Table 1 to give a flavour of the range of topics covered. Most are original research articles, a couple come from Special Issues and a few are review articles that have served the community well as penetrating statements about an important field at the time.

Conclusions

As I wrote when *The FEBS Journal* was launched in 2005, 'the growth and outward looking nature [of the life sciences] can be attributed in large part to the birth of biochemistry itself, the child of chemistry out of physiology a century or more ago, and is something to be warmly welcomed'.⁶ The process goes on. I ended a third term of five years as Editor-in-Chief on 31 December 2013 and have been succeeded by Seamus Martin (Dublin). I am confident that *The FEBS Journal* will continue to evolve and move forward under his experienced leadership. I am deeply grateful to the many members of the Editorial and Editorial Advisory Boards for their invaluable contributions over the past 15 years, to the Editorial Office staff in Cambridge (I am delighted that the office will remain there despite the change of Editor-in-Chief and that their great expertise will not be lost), to Bob Campbell, David Nicholson and their colleagues in Wiley-Blackwell, and not least to the host of authors who have reposed their confidence in *The FEBS Journal* as the vehicle to disseminate their work around the world.

6 Perham, R.N. (2005) Editorial. *Eur J Biochem* 272, 1.



FEBS LETTERS:

46 YEARS ABREAST OF SCIENCE

by Daniela Ruffell, Editorial Manager, FEBS Letters
Launching a journal for rapid publication of short scientific reports

The idea of launching a new journal of the 'Letters' form was proposed by Bill Whelan, then FEBS Secretary General, at the 4th FEBS Meeting held in Oslo in 1967, when FEBS was just a few years old. The journal was conceived on the same basic principle that had led to the founding of FEBS: to foster biochemistry in Europe and beyond. The aim was to create a forum for the dissemination of short but complete scientific reports, the novelty and content of which justified urgent publication. North Holland Press (since taken over by Elsevier) was chosen as publishing partner and the journal was named *FEBS Letters* to reflect the format of its articles, which has been maintained throughout its existence. At the time it was felt that rapid publication was necessary to fuel scientific progress, and *FEBS Letters* ever since has aimed for expedited manuscript handling and reduced time from acceptance to publication. Today, handling time from

submission to first decision is on average 2.3 weeks, and accepted manuscripts are published online within three days. Supporting the molecular biosciences does not stop with the dissemination of scientific results – the income from the journal, which is shared in a fair proportion with the publisher, Elsevier, is reinvested in FEBS science to fund fellowships, workshops, courses, conferences and other activities.

The first issue of *FEBS Letters* appeared in July 1968, with Satya Prakash Datta (University College London) as Managing Editor. Authors were encouraged to send their manuscripts direct to a member of the Editorial Board, who independently evaluated them and, if necessary, consulted external referees. In the early years, scientific articles could be published in English, French or German; however, English came to prevail as it was steadily adopted as the language for scientific communication.

Changing through the years

In 1986, Prakash Datta was succeeded as Managing Editor by Giorgio Semenza (ETH Zürich), who oversaw a steady expansion of the journal's popularity. The number of articles published reached a peak of 1733 in 1999. It was Matti Saraste (EMBL, Heidelberg), appointed Managing Editor in 2000, who profoundly reorganized the journal's modus operandi by centralizing the handling

of manuscripts in the Editorial Office. Authors sent their manuscripts to the journal's Editorial Office, where assistant editors would redirect them to appropriate members of the Editorial Board based on expertise and no longer on geographical location. This working model, principally operated via email communication, allowed the Editorial Office to closely monitor handling times and rejection rates, thus reducing variation between the members of the Editorial Board.

After the sudden and tragic death of Matti Saraste in 2001, Felix Wieland (University of Heidelberg) took over as Managing Editor, and still holds the post today. With the acceleration in the pace of science, and the corresponding adaptation of infrastructures for scientific dissemination, *FEBS Letters* has implemented a series of innovations in recent years. In 2003 the journal adopted a highly efficient online manuscript-handling system, which hugely facilitated the handling, tracking and submission of the manuscripts, further reducing handling times and enhancing uniformity in manuscript processing. Since 2008 the Editorial Office has also performed a professional pre-screening of the manuscripts, thereby reducing the workload of the members of the Editorial Board, now called Academic Editors. Thus, in the Editorial Office, manuscripts are screened for their suitability to the scope of the journal, for their novelty, mechanistic insight and



Managing Editors of *FEBS Letters*. From l-r: S.P. Datta, 1968–1985; G. Semenza, 1986–2000; M. Saraste, 2000–2001; F. Wieland, 2001–present.



Special Issue covers (from l-r): Cellular Stress, Synthetic Biology and Junctional Proteins.

advance in knowledge. Studies deemed unsuitable for publication are discussed with the Managing Editor and those deemed unlikely to make it to publication are rejected immediately (with an average turnaround time of just two to three days). The Editorial Board has been expanded to over 40 Academic Editors, all distinguished and active members of the scientific community worldwide, and whose expertise fairly covers all the fields that fall within the scope of *FEBS Letters*. The vast majority of the papers that are assigned to Academic Editors are impartially peer-reviewed by external reviewers, and a final decision is reached by the Academic Editor on the basis of these reports.

Special Issues

In 2000, under Matti Saraste's management, *FEBS Letters* started publishing Special Issues on a regular basis, and today these are one of the strongest features of the journal. Special Issues are collections of invited reviews on a specific topic by renowned experts in the field, and are well respected for their high calibre and provocative views on cutting-edge science. The reviews are freely

available from the day of publication. Today, Special Issues are managed by a Reviews Editor, Wilhelm Just.

Awards

In 2003 *FEBS Letters* introduced the prestigious 'Young Group Leader Award', awarded to a young independent scientist (aged 40 years or under), who was the corresponding author of an outstanding Research Letter published in the previous calendar year. The award, endowed with €10,000 and presented at the annual FEBS Congress, where the winner gives a talk on the award-winning work, has made prominent some very high-ranking young scientists among our authors. From 2014 the award has been made biennial, and the eligibility has been extended to all of our authors, with no age limit, to reflect even better the high quality of the studies published in *FEBS Letters*.

Staying innovative

In 2009, thanks to the collaboration and innovative input of Gianni Cesareni, a member of the Editorial Board at the time, *FEBS Letters* became the first

TABLE 1: FEBS LETTERS BIBLIOMETRICS

Impact Factor (2012)*	3.582
5-year impact Factor (2012)*	3.478
Immediacy index (2012)*	0.514
SJR (2011)	1.8
SNIP (2011) [†]	0.823
H-index [‡]	185
Eigenfactor (2012) [§]	0.095329
Article influence [§]	1.2879

*Thomson Reuters; [†]JournalM3trics; [‡]Google Scholar; [§]eigenfactor.org

journal to include Structural Digital Abstracts (SDAs) with its articles. SDAs are represented as short sentences below the regular abstract, describing a novel relationship between two biological entities determined by the study, and pointing to database entries that contain the full details of the relationship, including the method used to study it. The ultimate goal of SDAs is to achieve efficient archiving of experimental and functional data in the ever-growing body of literature, which is becoming increasingly hard to search, and to facilitate the reader's chore in grasping the article's content at a glance. The SDA experiment presently focuses on protein–protein interactions and co-localization of proteins and enzymatic reactions, and may possibly be expanded to a broader spectrum of molecular relationships in the future.

FEBS Letters also benefits from innovations in publishing introduced by Elsevier. The most notable example is the 'Article of the Future' format, a three-pane layout optimized for online reading, providing content navigation and value-added enhancements

such as a 3D molecular viewer. In keeping with the evolution of publication models, *FEBS Letters*, though remaining a subscription journal, also offers the option of publishing open access articles.

Papers that made an impact on the scientific community

The prestige of *FEBS Letters*, and its influence within the scientific community, can be estimated not only by the number of scientific contributions (almost 50,000 published articles since inception), and by its steady Impact Factor (3.582 in 2012), and other bibliometrics (Table 1), but also by its average cited half-life, which is >10 years, implying per se the publication of solid science.

Several papers published in *FEBS Letters* are important historical milestones in the molecular biosciences (Table 2). In 1969, the Nobel Laureate Frederick Sanger published the sequence of phenylalanine tRNA from *E. coli*. In 1975, a real breakthrough in the field of bioenergetics was reported by another Nobel Laureate, Peter Mitchell, in two seminal papers describing a new general mechanism for energy conservation in biological systems, the so-called Q-cycle, and its application to the cytochrome bc1 complex in mitochondria. In 1977 Opperdoes and Borst reported that glycolytic enzymes in *Trypanosoma brucei* localize in a microbody-like organelle, which they termed a glycosome.

FEBS Letters has also published many fundamental papers on free radical chemistry. Among these, a study by Barry Halliwell (who is also a member of our Editorial Board today) showing for the first time that the iron-catalysed Haber-Weiss reaction for the



TABLE 2: NOTABLE PAPERS PUBLISHED IN FEBS LETTERS

Barrell, B.G. & Sanger, F. (1969) The sequence of phenylalanine tRNA from <i>E. coli</i> . <i>FEBS Lett.</i> 3(4), 275–8.	Honda, R., Tanaka, H. & Yasuda, H. (1997) Oncoprotein MDM2 is a ubiquitin ligase E3 for tumor suppressor p53. <i>FEBS Lett.</i> 420(1), 25–7.
Mitchell P. (1975) The protonmotive Q cycle: a general formulation. <i>FEBS Lett.</i> 59(2), 137–9.	Mosselman, S., Polman, J. & Dijkema, R. (1996) ER β : Identification and characterization of a novel human estrogen receptor. <i>FEBS Lett.</i> 392(1), 49–53.
Mitchell P. (1975) Protonmotive redox mechanism of the cytochrome bc ₁ complex in the respiratory chain: protonmotive ubiquinone cycle. <i>FEBS Lett.</i> 56(1), 1–6.	Okabe, M., Ikawa, M., Kominami, K., Nakanishi, T. & Nishimune, Y. (1997) ‘Green mice’ as a source of ubiquitous green cells. <i>FEBS Lett.</i> 407(3), 313–19.
Opperdoes, F.R. & Borst, P. (1977) Localization of nine glycolytic enzymes in a microbody-like organelle in <i>Trypanosoma brucei</i> : the glycosome. <i>FEBS Lett.</i> 80(2), 360–4.	Rao, R.V., Peel, A., Logvinova, A., del Rio, G., Hermel, E., Yokota, T., Goldsmith, P.C., Ellerby, L.M., Ellerby, H.M. & Bredesen, D.E. (2002) Coupling endoplasmic reticulum stress to the cell death program: Role of the ER chaperone GRP78. <i>FEBS Lett.</i> 514(2–3), 122–8.
Halliwell, B. (1978) Superoxide-dependent formation of hydroxyl radicals in the presence of iron chelates: is it a mechanism for hydroxyl radical production in biochemical systems? <i>FEBS Lett.</i> 92(2), 321–6.	Leibowitz, M.D., Fiévet, C., Hennuyer, N., Peinado-Onsurbe, J., Duez, H., Bergera, J., Cullinan, C.A., Sparrow, C.P., Baffic, J., Berger, G.D., Santini, C., Marquis, R.W., Tolman, R.L., Smith, R.G., Moller, D.E. & Auwerx, J. (2000) Activation of PPARdelta alters lipid metabolism in db/db mice. <i>FEBS Lett.</i> 473(3), 333–6.
Gutteridge, J.M. (1986) Iron promoters of the Fenton reaction and lipid peroxidation can be released from haemoglobin by peroxides. <i>FEBS Lett.</i> 201(2), 291–5.	Locovei, S., Scemes, E., Qiu, F., Spray, D.C. & Dahl, G. (2007) Pannexin1 is part of the pore forming unit of the P2X(7) receptor death complex. <i>FEBS Lett.</i> 581(3), 483–8.
Dolgikh, D.A., Gilmanshin, R.I., Brazhnikov E.V., Bychkova, V.E., Semisotnov G.V., Venyaminov S.Yu & Ptitsyn, O.B. (1981) Alpha-Lactalbumin: compact state with fluctuating tertiary structure? <i>FEBS Lett.</i> 136(2): 311–15.	
Ohgushi, M. & Wada, A. (1983) Molten-globule state: a compact form of globular proteins with mobile side-chains <i>FEBS Lett.</i> 164(1), 21–4.	

generation of free radicals is feasible, and the work by John Gutteridge demonstrating that iron released from haemoglobin can generate hydroxyl radicals in the Fenton reaction, are most noteworthy.

The concept of the molten globule state, whereby a protein structure is compactly packed with a slowly

fluctuating tertiary structure, was first presented in *FEBS Letters* in the early 1980s with two pioneer papers on α -lactalbumin and cytochrome *c*. In the 1990s, when the cancer community was making big advances in dissecting the tumor suppressor p53 pathway, a paper published in *FEBS Letters* showed

that MDM2 regulated p53 half-life through its ubiquitin E3 ligase activity. A seminal paper published in 1996 reported the cloning and characterization of ER β , a receptor for 17- β -estradiol with a high similarity to the previously described oestrogen receptor (from then on called ER α), but with a lower affinity for the ligand. This was the first step towards understanding the degree of complexity underlying cell responsiveness to oestrogens.

One of the most cited and most downloaded papers ever published in *FEBS Letters* relates the generation of transgenic green mice that express green fluorescence protein (GFP) ubiquitously, with the only exception of erythrocytes and hair. These mice have ever since been a valuable source of fluorescent cells for transplantation experiments and beyond. Another paper that deserves a special mention is the study by Rao and colleagues, who uncovered the anti-apoptotic role of the ER chaperone GRP78 and provided for the first time a mechanistic link between ER stress, the unfolded protein response (UPR) and the cell death programme. The first paper to propose a physiological role for the nuclear receptor PPAR δ , was a study published in *FEBS Letters* in 2000 showing that PPAR δ was involved in regulating cholesterol metabolism in diabetic db/db mice, and paving the way for therapeutic applications. And last but not least, an elegant contribution from the Dahl lab provided evidence that Pannexin1 channels are the pore-forming units activated by ATP stimulation of the P2X purinoreceptor 7 (P2XR7).

These are only a few examples of the richness and diversity in content of the scientific literature published in *FEBS Letters*. We encourage our readers to dig out more outstanding papers from our journal, and hope that this will inspire them to submit their own contributions in the form of concise yet complete studies that require urgent publication.

MOLECULAR ONCOLOGY: A NICHE IN TRANSLATIONAL RESEARCH

by Julio Celis, Editor-in-Chief



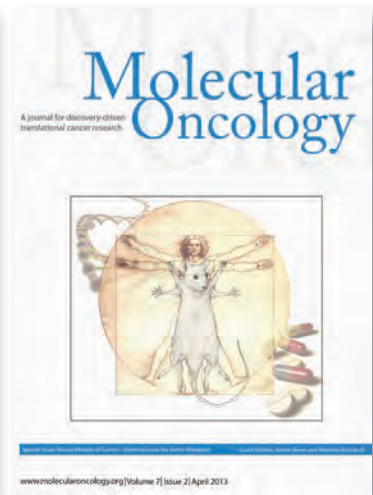
In 2006, FEBS took the decision to start a new journal with the aim of providing the broad cancer community with a forum for the publication of new discoveries, new approaches and state-of-the-art technical developments in basic, clinical and discovery-driven translational cancer research. In addition, the new journal would be expected to publish articles on issues of science policy, with particular emphasis on initiatives dealing with the increasingly multidisciplinary nature of cancer research and barriers to translational research. After due consideration of publishing partners, it was agreed that the journal would be called *Molecular Oncology* and be published by Elsevier on behalf of FEBS as a subscription-funded journal.

During the past eight years, *Molecular Oncology* has seen a near-exponential increase in the number of manuscripts submitted, steady growth in the number of article downloads, and a steady increase in its Impact Factor, which stood at 6.701 for 2012. These encouraging developments in the journal's metrics are in great part due to the quality of the published articles as well as to the engagement and commitment of the members of the Editorial Board. The list of the 20 most cited publications in the lifetime of the journal (Table 1) includes articles covering basic, preclinical and clinical research as well as technology and infrastructures.

In the expectation that the rise in the Impact Factor is likely to lead to more submissions, in 2014 we have increased the number of issues published per year from six to eight, with a further rise to 10 planned for 2015. *Molecular Oncology* will continue to publish original articles, invited reviews, news and views in science policy issues as well as thematic issues. The

TABLE 1: MOST HIGHLY CITED ARTICLES PUBLISHED IN MOLECULAR ONCOLOGY

- Ropero, S. & Esteller, M. (2007) The role of histone deacetylases (HDACs) in human cancer. *Mol. Oncol.* 1, 19–25.
- Kenny, P.A. et al. (2007) The morphologies of breast cancer cell lines in three-dimensional assays correlate with their profiles of gene expression. *Mol. Oncol.* 1, 84–96.
- Naume, B. et al. (2007) Presence of bone marrow micrometastasis is associated with different recurrence risk within molecular subtypes of breast cancer. *Mol. Oncol.* 1, 160–71.
- Lin, E.Y. et al. (2007) Vascular endothelial growth factor restores delayed tumor progression in tumors depleted of macrophages. *Mol. Oncol.* 1, 288–302.
- Lindquist, D. et al. (2007) Human papillomavirus is a favourable prognostic factor in tonsillar cancer and its oncogenic role is supported by the expression of E6 and E7. *Mol. Oncol.* 1, 350–5.
- Platz, A. et al. (2008) Human cutaneous melanoma; a review of NRAS and BRAF mutation frequencies in relation to histogenetic subclass and body site. *Mol. Oncol.* 1, 395–405.
- Rademakers, S.E. et al. (2008) Molecular aspects of tumour hypoxia. *Mol. Oncol.* 2, 41–53.
- Fass, L., (2008) Imaging and cancer: A review. *Mol. Oncol.* 2, 115–52.
- Riegman, P.H.J. et al. (2008) Biobanking for better healthcare. *Mol. Oncol.* 2, 213–22.
- Schiess, R., Wollscheid, B. & Aebersold, R. (2009) Targeted proteomic strategy for clinical biomarker discovery. *Mol. Oncol.* 3, 33–44.
- Lynch, H.T. et al. (2009) Hereditary ovarian carcinoma: Heterogeneity, molecular genetics, pathology, and management. *Mol. Oncol.* 3, 97–137.
- Crum, C.P. (2009) Intercepting pelvic cancer in the distal fallopian tube: Theories and realities. *Mol. Oncol.* 3, 165–70.
- Green, T.P. (2009) Preclinical anticancer activity of the potent, oral Src inhibitor AZD0530. *Mol. Oncol.* 3, 248–61.
- Fehrenbacher, N., Bar-Sagi, D. & Philips, M. (2009) Ras/MAPK signaling from endomembranes. *Mol. Oncol.* 3, 297–307.
- Brech, A. et al. (2009) Autophagy in tumour suppression and promotion. *Mol. Oncol.* 3, 366–75.
- Mavaddat, N. et al. (2010) Genetic susceptibility to breast cancer. *Mol. Oncol.* 4, 174–91.
- Weigelt, B., Geyer, F.C. & Reis-Filho, J.S. (2010) Histological types of breast cancer: How special are they? *Mol. Oncol.* 4, 192–208.
- McDermott, S.P. & Wicha, M.S. (2010) Targeting breast cancer stem cells. *Mol. Oncol.* 4, 404–19.
- Prat, A. & Perou, C.M. (2011) Deconstructing the molecular portraits of breast cancer. *Mol. Oncol.* 5, 5–23.
- Helleday, T. (2011) The underlying mechanism for the PARP and BRCA synthetic lethality: Clearing up the misunderstandings. *Mol. Oncol.* 5, 287–393.



last group highlights important cancer topics, helps to structure the field, and has a significant educational component. Three thematic issues are soon to be published: *Critical Issues on Biomarkers Discovery and Validation* (edited by Alan Spatz and Leon van Kempen), *Cancer Drug Resistance* (edited by Daniel Peeper) and *Personalized Cancer Medicine*, a follow-up to the successful 2012 issue edited by John Mendelsohn, Ulrik Ringborg and Richard Schilsky.

Since its inception, the journal's Editor-in-Chief has been Julio Celis from the Danish Cancer Society in Copenhagen. The journal has had two Managing Editors – Hannah Brown from 2008 to 2009 and Jose Moreira from 2009 onwards. Dorte Holst Pedersen has provided the technical infrastructure to handle and oversee the review process. The journal is indebted to all the members that have served on the Editorial Board for providing state-of-the-art advice regarding current trends in cancer research, submitting articles, reviewing manuscripts, writing reviews, and suggesting and editing thematic issues. The support of Elsevier, first by Adriaan Klinkenberg, later by Carl Schwarz and now Lucía Muñoz Franco, is greatly appreciated.

FEBS OPEN BIO: RESPONDING TO A NEW NEED

by Mary Purton, Executive Editor

For some years FEBS was increasingly aware of the growing interest in open access publishing and felt that the time was coming when it should extend its portfolio of journals to take account of that. In 2011, after discussion with various



potential publishing partners, FEBS launched a new journal, *FEBS Open Bio*, in partnership with Elsevier. *FEBS Open Bio* is published only in electronic form (there is no printed version) and is free online to all readers, charging authors of accepted articles a fee towards the costs of publication. Articles are published individually (there are no issues) on Elsevier's ScienceDirect platform, and copies are also deposited in PubMed Central. Authors retain copyright and are able to post additional copies of the final version on any website of their choice, thus ensuring the widest possible audience for their work.

The scope of *FEBS Open Bio* is broader than that of other FEBS journals, publishing articles across the molecular and cellular life sciences in both health and

disease. Novel or innovative work is encouraged, but papers describing sound science of a confirmatory nature in developing fields or extending knowledge of an important topic from one organism to another are also considered eligible.

FEBS recognizes the value of peer review and was keen to maintain it for this new journal, and thus its founding Editorial Board was formed from members of the Editorial Boards of *The FEBS Journal*, *FEBS Letters* and *Molecular Oncology*. Other editors have since been appointed. However, the peer review process of *FEBS Open Bio* focuses on the technical soundness of papers, leaving the assessment of their impact and importance to the scientific community.

FEBS Open Bio welcomes direct submissions and these are peer-reviewed and judged on their merits by the editors of *FEBS Open Bio*. In addition, articles originally submitted to other FEBS journals but which the editors

of those journals judge to be scientifically sound though perhaps of a confirmatory nature or of insufficient general interest to justify publication in their journals, can, with the authors' permission, be transferred to *FEBS Open Bio*. The reviews solicited by the editors of the original journals are transferred along with the papers for the benefit of the editors of *FEBS Open Bio*. This conserves the peer review process, and offers authors a fast-track alternative for publication of their paper.

Since its launch in December 2011, *FEBS Open Bio* has seen a steady growth in submissions, with its 100th article published in June 2013 and its 200th article appearing in June 2014. The journal will not be eligible for an Impact Factor until June 2015, but the number of downloads and early citation metrics are gratifyingly encouraging. They testify to the attention that this new journal is already receiving and suggest that it is filling the niche foreseen by FEBS in deciding to launch it.

The screenshot shows the Elsevier website interface for the FEBS Open Bio journal page. At the top, the Elsevier logo is on the left, followed by a search bar with the text "Type here to search on Elsevier.com". To the right of the search bar are links for "Advanced search", "Follow us:" with social media icons (Facebook, LinkedIn, Twitter, YouTube), and "Help & Contact". Below the search bar is a navigation menu with links for "Journals & books", "Solutions", "Authors, editors & reviewers", "About Elsevier", "Community", and "Store".

The main content area is divided into several sections:

- FEBS Open Bio**: A large blue box containing the journal's logo, a description: "FEBS Open Bio is an online-only open access journal for the rapid publication of research articles in molecular and cellular life sciences in both health and disease. The journal's peer review process...", and a list of actions: "Guide for Authors", "Submit Your Paper", "Track Your Paper", and "View Articles". It also mentions the Executive Editor, Mary Purton, and provides a link to "View full aims and scope".
- Journal Metrics**: A box on the left showing "Source Normalized Impact per Paper (SNIP): 0.339" and "SCImago Journal Rank (SJR): 0.441". It also lists the imprint as ELSEVIER and the ISSN as 2211-5463.
- Journal Insights**: A central box with the heading "Discover this journal's metrics" and icons for "Impact", "Speed", and "Authors". It includes a "FIND OUT MORE" button.
- News**: A box on the right with the heading "New Journal Metrics for FEBS Open Bio" and "Journal awarded SNIP and SJR rankings". It features a graphic for "50 years of FEBS" (1964-2014) and a link for "2014 FEBS Advanced Courses" with a "VIEW ALL" button.
- Share this page:** A section with social media sharing icons.
- ADVERTISEMENT**: A vertical banner on the right for "Cell Biology" featuring the text "RARE DISEASES - MOLECULAR INSIGHTS" and "a special issue of *Experimental Cell Research*".

FEBS ADVANCED COURSES

FEBS funds scientific and educational events on advanced topics in biochemistry, molecular biology and related biosciences. The organization of Advanced Courses was one of the first activities of FEBS. Henry Arnstein, then Meetings secretary of the Biochemical Society, first suggested to FEBS Council in 1965 that it should organize summer schools and he served as the first chairman of the FEBS Summer Schools Committee. At that time FEBS had no funds, and so each school had to be financially self-sufficient. The first summer school, 'Centrifugal Fractionation of Animal Cells; Theoretical Basis and Practical Procedures', was held in June 1965 in Louvain, and run by Christian de Duve (Nobel Laureate in Physiology or Medicine in 1974). Funds for the course were secured in part from the International Cell Research Organization (ICRO) and EMBO. Other supporters for early courses included the British Council, the Royal Society of London and the Council of Europe. From the beginning, there were courses focused on methodology, for example 'Computing Techniques in Biochemistry', run by Jim Ottoway in Edinburgh in 1968 (*see p.100*), and 'Methods in Sequencing Radioactive Nucleic Acids', organized by George Brownlee in Cambridge in 1969.



CHAIRS OF THE ADVANCED COURSES COMMITTEE

1965–1967	Henry Arnstein (<i>UK</i>)
1967–1970	Peter Campbell (<i>UK</i>)
1970–197	Max Grüber (<i>Netherlands</i>)
1978–1986	Giorgio Bernardi (<i>France</i>)
1987–1995	Horst Feldmann (<i>Germany</i>)
1996–2004	Karel Wirtz (<i>Netherlands</i>)
2005–2010	Karl Kuchler (<i>Austria</i>)
2011–2013	Jaak Järv (<i>Estonia</i>)
2013–	Beáta Vértessy (<i>Hungary</i>)

The FEBS Advanced Course on 'Peptide Hormone Receptors', 1980 (from l-r): Jim Gosling, Robert J. Ryan, Joe Sreenan, Harold Papkoff. The two-week course was organized by Professor Fotrell, Dr Headon and Dr Gosling and had 70 attendees.



In 1967 Peter Campbell took over chairmanship of the Committee. The frequency of courses was increased and the name changed to Advanced Courses, as not all were held in the summer and the new name was thought to be more persuasive in encouraging academic institutions to allow their staff to attend. Two grants of DM50,000 and DM100,000, generously provided by Volkswagenstiftung and secured with the help of Theodor Bücher and Otto Westphal, made the job of the Committee and the course organizers less precarious.



Hands-on training during the FEBS Practical Course 'State-of-the-art infection models for human pathogenic fungi', in Jena (Germany) in 2013.

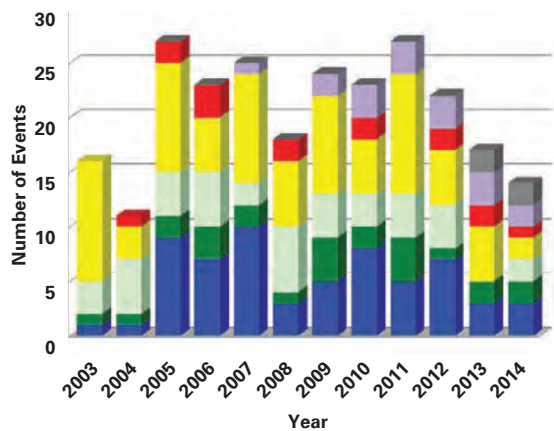


Informal discussions on the ski slopes at the FEBS Special Meeting 'ABC Proteins: From Multidrug Resistance to Genetic Disease' (Innsbrück, Austria, March 2014).

By 1970, when Max Grüber succeeded as chair, funds generated by the two FEBS journals, the *European Journal of Biochemistry* and *FEBS Letters*, meant that FEBS could now subsidize Advanced Courses and was also able to set up the Youth Travel Fund (YTF) to enable young scientists to attend.

Giorgio Bernardi became chair of the Committee in 1978 and adopted a new policy: FEBS would only fund events of wide educational value and not Meetings that would chiefly benefit well-established scientists. Lecture tours by prominent scientists were also being funded by this time.

In 1981, FEBS joined EMBO in supporting the Spetses Summer Schools that had been initiated by Marianne Grunberg-Manago in 1966. In their early



FEBS Advanced Courses Programme 2003–2014. Key: blue, Workshops; dark green, Practical Courses; light green, Combined Practical and Lecture Courses; yellow, Advanced Lecture Courses; red, Special Meetings; violet, Joint FEBS|EMBO Lecture Courses; grey, joint events (FEBS/Biochemical Society joint events).

years these summer schools were held in the Anargyrios & Korgialienios School on the Greek island of Spetses, a location incidentally made famous by John Fowles in his celebrated novel *The Magus*, published in 1965. Fowles had taught English at the school for two years.

Advanced Courses of various kinds remain a major activity of FEBS.¹ Through the YTF, FEBS also provides grants to enable participation in these events by PhD students and young scientists from countries that have a FEBS Constituent Society and, in justified cases, also from Asia, North and South America, and Africa. More detailed descriptions of Advanced Courses and the Spetses Summer Schools are presented below.

Looking to the future, FEBS Advanced Courses remain at the forefront of science education for graduate students and postdoctoral researchers, while also focusing on mature scientists who wish to keep up-to-date with upcoming fields and techniques. The FEBS Advanced Courses Committee will also widen its collaborative network with other institutions with similar aims. The joint Advanced Lecture Courses with EMBO have been running for many years and FEBS has just signed the continuation agreement for the next five years. The International Union of Biochemistry and Molecular Biology (IUBMB) is also an important partner, and FEBS has now formalized an agreement for IUBMB-supported lectures as well as Youth Travel Fellowships. The EU framework provides additional possibilities that FEBS is exploring. FEBS also collaborates with its Constituent Societies, now exemplified in our joint funding of courses with the Biochemical Society (UK).

1 For further details of the rich variety of courses that FEBS offers, see *Fifty Years of FEBS: A Memoir 1964–2013*, by Horst Feldmann and Guy Dirheimer (2014) Wiley.

FEBS ADVANCED COURSES PROGRAMME

by Jaak Järvi, Chair of the FEBS Advanced Courses Committee (2011–2013)

The FEBS Advanced Courses Programme covers a variety of types of events. Advanced Lecture Courses address topical subjects of general importance and allow the interaction of participating young scientists with leaders in the field. Practical Courses teach advanced experimental and computational methods in the molecular life sciences, so that young scientists can apply these methods in their home laboratories. Combined Practical and Lecture Courses teach basic and advanced techniques in molecular life sciences and have hands-on training elements. Workshops address timely topics of high scientific interest and, like the Advanced Lecture Courses, enhance the interaction of young scientists with prominent lecturers.

FEBS Special Meetings are conventional conferences but are more narrowly focused than the annual FEBS Congress. They provide a top-level programme of lectures from leading scientists in the field. In earlier years such meetings were run when the triennial IUB International Congress of Biochemistry was held outside Europe.

FEBS is now also financing joint events with other organizations and societies. These include Joint FEBS|EMBO Lecture Courses, where both bodies approve applications through evaluation committees and provide funding. Negotiations about cooperation between FEBS and EMBO began in 2005 and the first (pilot) joint event took place in 2007. Since 2009, several courses a year have been organized under this scheme.

Another recent development has been joint FEBS/Biochemical Society (UK) Focused Meetings and Lecture Courses funded by both parties. The first two events were organized in 2013 in the UK: 'Exploring Kinomes: Pseudokinases and Beyond' in Cambridge

and 'Cell-penetrating Peptides: Design, Synthesis and Applications' in London. Two more were held in 2014: 'Membrane Morphology and Function' in Abruzzo, Italy and 'Single Biomolecules – *in silico*, *in vitro* and *in vivo*' in Hertfordshire, UK.

The list of funding instruments has also recently been expanded to include joint Meetings and courses financed by FEBS in cooperation with IUBMB and/or IUBMB-related non-European societies. For example, a course, 'Molecular and Cellular Basis of Infection', which was also supported by UNESCO and EMBO, was held in South Africa in 2008. And in 2012, an Advanced Lecture Course on 'Metabolism and Metabolic Diseases' was co-organized with CSBMB in Shanghai, China. FEBS provided YTF grants to enable scientists from the FEBS area to attend this meeting.

Hopefully these cooperative schemes will be extended in coming years, with co-funding from other European societies, grant-giving organizations and industry being welcomed. Further details about these

developments will be published on the FEBS website www.febs.org as well in the *FEBS News*.

One of the greatest benefits of the FEBS Advanced Courses Programme has been the availability of YTF grants, which help young scientists to attend the courses. These grants cover registration fees, accommodation and meals, and may support travel, if decided by the course organizer. Although the funding for this type of support was recently reduced by the FEBS Executive Committee, the course organizers still have some funds to be used for this purpose.

All proposals for courses are evaluated by the FEBS Advanced Courses Committee. As specified in the FEBS Statutes, committee members serve for four years and chairpersons for three years. In 2005/6 an online submission system was launched for Advanced Courses applications, and submissions for year 2007 were the first to be dealt with electronically. The system allows committee members access to all the documents, and includes reporting options. It has recently been updated, along with the new FEBS website.

FEBS Advanced Courses Programme 2014

FEBS Advanced Lecture Courses
ADVANCED PROTEOMICS
 Vienna, Italy, August 3 – 9, 2014
 Organizer: Dr. Bernard Kuster
 E-mail: kuster@strim.de
 Deadline for application: May 15, 2014

360° LYSSOSOME: FROM STRUCTURE TO GENOMICS, FROM FUNCTION TO DISEASE
 Bonn, Turkey, October 23 – 26, 2014
 Organizer: Dr. Eser Sezgin
 E-mail: eser.sezgin@ege.edu.tr
 Deadline for application: June 20, 2014

FEBS Practical and Lecture Courses
LIGAND-BINDING THEORY AND PRACTICE
 Rome, Italy, Early Republic, June 29 – July 6, 2014
 Organizers: Dr. Rudiger Etrich, Dr. Janette Conay and Dr. Wei-Feng Xue
 E-mail: etrich@th.uni-zz
 Deadline for application: March 1, 2014

FUNDAMENTALS OF MODERN METHODS OF BIOCRYSTALLOGRAPHY – BIOCRYST2014
 Oporto, Portugal, September 20 – 27, 2014
 Organizers: Dr. Maria Arménia Carrondo and Dr. Thomas Schneider
 Website: bioxyst2014.fabrizio.it
 Deadline for application: July 15, 2014

FEBS Practical Courses
ADVANCED METHODS IN MACROMOLECULAR CRYSTALLIZATION VI
 Rome, Italy, Early Republic, June 29 – 27, 2014
 Organizers: Dr. Ivano Kato-Smatanova, Dr. Pavlina Rezabova and Dr. Juan Manuel Gesto-Ruiz
 E-mail: ivaneko@seznam.cz
 Deadline for application: March 31, 2014

MICROSPECTROSCOPY: FUNCTIONAL IMAGING OF BIOLOGICAL SYSTEMS
 Wageningen, The Netherlands, September 2 – 11, 2014
 Organizer: Dr. Jan Willem Borst
 Website: www.microspectroscopy-course.eu
 Deadline for application: June 1, 2014

FEBS Workshops
BIOLOGY OF RNA IN HOST-PATHOGEN INTERACTIONS
 Tenerife, Spain, January 26 – 29, 2014
 Organizers: Dr. Francisco Garcia-del Portillo and Dr. Cecilia Arriola
 Website: biointra.org/csic/es/
 RNA_host_pathogen_2014
 Deadline for applications: December 16, 2013

LIPIDS AS MOLECULAR SWITCHES
 Soriano, Greece, August 25 – 30, 2014
 Organizer: Dr. Bernd Helms
 Website: www.febs-lipidcourse.org
 Deadline for application: June 1, 2014

DECODING NON-CODING RNAs IN DEVELOPMENT AND CANCER
 Capri (Napoli), Italy, October 12 – 15, 2014
 Organizer: Dr. Sando De Falco
 E-mail: sando.defalco@univie.it
 Deadlines for application: YTF: June 15, 2014; other: July 15, 2014

FEBS Special Meetings
ABC PROTEINS: FROM MULTIDRUG RESISTANCE TO GENETIC DISEASE
 Bergamo, Austria, March 9 – 14, 2014
 Organizer: Dr. Karl Kuchler
 Website: www.febs-abc2014.org
 Deadline for application: December 15, 2013

Joint FEBS/Biochemical Society Focused Meetings
MEMBRANE, MORPHOLOGY AND FUNCTION
 Fara San Martino, Italy, May 5 – 8, 2014
 Organizer: Bonafide Larijan
 E-mail: bonafide.larijan@concenter.org.uk
 Deadlines for application: abstracts March 4, 2014; other: April 7, 2014

SINGLE BIOMOLECULES – IN SILICO, IN VITRO AND IN VIVO
 Edinburgh, United Kingdom, September 11 – 13, 2014
 Organizer: Andreas Kulik and Liming Ying
 E-mail: a.kulik@heriot.ac.uk
 Deadlines for application: abstracts July 10, 2014; other: August 11, 2014

Joint FEBS/EMBO Lecture Courses
BIOPHYSICS OF CHANNELS AND TRANSPORTERS
 Ghent (Belgium), May 11 – 17, 2014
 Organizer: Dr. Frances Ashcroft
 Website: channels.gu.ubn.ca
 Deadline for application: January 20, 2014

FEBS/EMBO LECTURE COURSE ON NUCLEAR PROTEOMICS
 Kos Island, Greece, May 18 – 23, 2014
 Organizer: Dr. Axel Imhof
 Website: www.nuclearproteomics.org
 Deadlines for application: YTFs, February 28, 2014; general registration and abstract submission, March 23, 2014

Participation of young scientists and PhD students in most of these events can be supported by FEBS Youth Travel Fund grants. Applications for these awards should be addressed directly to the Organizers of these events. Further information about the Advanced Courses Programme can be found on the FEBS website: www.febs.org
 E-mail: advanced.courses@febs.org

INTERESTED IN ORGANIZING A COURSE IN 2015?
 PLEASE CONSULT THE FEBS WEBSITE (WWW.FEBS.ORG) FOR APPLICATIONS. MAIL@H1.ORG



FEBS Advanced Lecture Course: 'Molecular Mechanisms in Signal Transduction and Cancer', 2012.

THE SPETSES SUMMER SCHOOLS

by Horst Feldmann, Chairman of FEBS Advanced Courses Committee (1987–1995)

It was Marianne Grunberg-Manago who started the international summer schools on molecular biology in 1966, as a series of annual lecture courses. In the 1960s, there was a shortage of advanced study courses for molecular biology and NATO suggested that she might organize one. NATO were keen for it to be held in a country where there were no university courses on molecular biology and so Marianne suggested it be held on a Greek island. 'I felt that the environment would help attract the best lecturers and encourage them to stay for the whole time at the School, around two weeks. They would be relaxed and in a mood to interact socially and scientifically with the students.' For a location, she chose the Anargyrios & Korgialenios School on the island of Spetses and the first such Summer School (in 1966) was highly successful. Marianne recalled:

'Dr Zervas and Dr Pullman (who previously organized two NATO Schools) ... acted as co-organizers. Francis Crick came on his boat as well as Jacques Monod, who introduced me to Melina Mercuri.'¹

In 1969, Francis Crick, Mark Bretscher, Brian Clark (all from Cambridge) and Thanos Evangelopoulos (Athens) organized the second Spetses Summer School. Marianne and Francis came to the conclusion that at least a third group should become involved, so the next venture was in mainly German hands, with Hans Zachau (Munich) as chairman aided by Francis Crick (Cambridge), Mario Crippa (Naples), Horst Feldmann (Munich), Peter Hans Hofschneider (Munich) and Alberto Monroy (Naples). From then on, a similar rotation was applied in subsequent years.

¹ 'Evolutionary Tinkering in Gene Expression', M. Grunberg-Manago, B.F.C. Clark, and H.G. Zachau (eds). *NATO ASI Series, Series A: Life Sciences*, vol. 169 (New York and London: Plenum Press, 1988).

Initially, the summer schools were sponsored exclusively by the Scientific Affairs Division of NATO. However, NATO's strict rules – only to finance lecturers and students coming from NATO countries – meant that the organizers had to apply for further grants to allow lecturers and students from non-NATO countries to attend. EMBO began supporting the Spetses Summer Schools in 1972 and from 1981 FEBS became a funder. In 1998/9, NATO's policy changed and the rules now demanded that a minimum of one co-organizer from an Eastern European country was to be invited and that 40% of the students were to come from these countries. The organizers of the Summer School in 2000 felt this was too restrictive, and so they decided to give up NATO support and to rely on financial support from just EMBO and FEBS. Thanks to the cooperation and generosity of these two organizations, financing did not greatly suffer and the number of students from Eastern European countries in fact increased. This can be viewed as the moment that the Spetses Summer Schools largely turned into FEBS | EMBO Summer Schools.

The principles of organizing the Spetses Summer Schools have largely been maintained throughout the years. The organizers are responsible for choosing the timeliest topics in molecular, cellular and developmental biology, inviting competent lecturers, and selecting students from those who applied to attend. In the beginning, the schools lasted for 12 days, but since 2000 this has been cut to eight days, as both FEBS and EMBO felt that two weeks was too long. The student participants were accommodated in two buildings of the Anargyrios & Korgialenios School and the lectures took place in an air-conditioned lecture hall that seated 130 people. Discussions were held in the open air, in gardens or at the beach. The lecturers were privileged to stay in a nearby hotel; during the early years this was Kasteli Hotel, which offered air-conditioned rooms in the main building as well as small bungalows in the grounds. The service,

however, was not great. Breakfast was a time-consuming enterprise and one day Francis Crick, wanting not to miss the first lecture, went into the kitchen himself to get hold of some toast and fried sausages. Marianne was shocked, all the more because at that moment a huge painting fell from the wall onto her. Fortunately, the new Spetses Hotel opened close to the Anargyrios & Korgialenios School in 1973, and from then on lecturers were accommodated in more comfortable surroundings.

After some years, the Board of Trustees of the Anargyrios & Korgialenios School and the Greek government decided to apply for an EU grant to redevelop the facilities which were in urgent need of improvement, as attested by the steady complaints of students to the course organizers. During recent years, the British and the French organizers have preferred to hold the school at Spetses Hotel, whose owner had built a lecture hall with sufficient technical equipment and accommodation for 100 participants in double (or triple) bedrooms. This has limited to 80 the number of students who can attend each course. Other course organizers, however, have adopted a 'mixed solution'.

Over the past 45 years more than 500 different lecturers have come to Spetses to teach some 5,000 young pre- and post-doctoral researchers. There is also no lack of illustrious names among the lecturers, including Nobel Laureates David Baltimore, Paul Berg, Mario Capecchi, Aaron Ciechanover, Francis Crick, Manfred Eigen, Tim Hunt, Aaron Klug, Roger Kornberg, Rita Levi-Montalcini, Rich Roberts, Fred Sanger, Phil Sharp, John Sulston and Kurt Wüthrich. The numbers show that the Spetses Summer Schools were not a 'club' as some have argued. Of course, some lecturers were invited to come back several times for a number of reasons: they offered interesting subjects, presented good lectures, interacted well with the students, and were prepared to stay for the whole duration of the course.



Spetses Summer School 2009: 'Proteins and their networks: from specific to global analysis.' Organized by Alan Fersht (UK) (far left), Daniela Rhodes (UK) and Matthias Uhlen (Sweden).

Most participants of the courses feel like members of a community, and have good memories of both the course and its venue. Some of the students who have attended the schools remain in contact long afterwards, and former students have later become lecturers. A further positive effect of the close interactions between students and lecturers has been that many of the participants have found a postdoctoral position in one of the lecturers' laboratories.

From 2010, the collective name 'Spetses Summer Schools' has largely been dropped. There were several reasons for this. First, the principal organizers of the early summer schools have retired. Secondly, the number of applications declined, as potential student participants felt that the schools were different from other Meetings. This is partly due to the fact that money from their home institutions became scarce, and therefore they preferred to apply to attend more specialized courses, Meetings or workshops, directly related to their research interests. Financial support from EMBO and FEBS also became restricted, so that the organizers had to seek additional money from other grant-giving institutions.

However, Spetses as a location for other lecture courses has by no means lost its attraction. Over the years, many course organizers (supported by FEBS and/or EMBO) have chosen Spetses as a location, and not only those who experienced the splendid atmosphere of the Spetses Summer Schools. The older generation of organizers supports these changes and is encouraging younger colleagues to keep the tradition of the Spetses Summer Schools alive. I am convinced that such courses will be of benefit for the future training of young scientists, and I am confident that the people of Spetses will enthusiastically welcome any type of scientific clientele – as much as serious tourists.

- *E.H.C. Crick, 'On running a summer school,' Nature 220 (1968), 1275–6; repr. in 'Evolutionary Tinkering in Gene Expression.'*
- *Horst Feldmann, 'The Spetses Summer Schools of Molecular and Developmental Biology: An overview with a web compilation of these International Schools from 1966 through 2009' (2013), epub.ub.uni-muenchen.de/17312/1/SPETSES_SUMMER_SCHOOLS.pdf.*

FEBS EDUCATIONAL ACTIVITIES

FEBS EDUCATION COMMITTEE

by Gül Güner Akdoğan, Chair of the FEBS Education Committee

The FEBS Education Committee has its roots in the FEBS Working Group on Teaching Biochemistry, which was founded in 2001 by Jean Wallach (Lyons, France) as he describes below. Between 2001 and 2006, this group was active in promoting educational events at the annual FEBS Congresses, with, as members, Keith Elliott (Manchester), Peter Ott (Bern), Gül Güner Akdoğan (Izmir), Jason Perret (Brussels), Jose Villalain (Alicante) (followed by Pilar Roca), Pedro Moradas-Ferreira (Porto) and Ed Wood (Leeds).

At the FEBS Council Meeting in Istanbul in 2006, the FEBS Working Group on Teaching Biochemistry became the FEBS Education Committee, with Ed Wood (Leeds, UK) as the first chair. Costas Drainas (Ioannina, Greece) served on the Committee from 2009 until his unfortunate death in 2011. Jason Perret (Brussels, Belgium) (2008–2011), Miguel Castanho (Lisbon, Portugal) (2008–2011) and Karmela Barišić (Zagreb, Croatia) (2009–2012) served on the Committee, each for one term, according to FEBS regulations for committee membership. Gül

Güner Akdoğan (member from 2007) took over as chair after the sad death of Ed Wood on 14 December 2008 ('A Tribute to Ed Wood', *FEBS News*, July 2009).

Gül Güner Akdoğan was elected as chair of the Committee at the FEBS Council Meeting in Prague in 2009 and then re-elected for a second term at the FEBS Council Meeting in Seville in 2012. Keith Elliott (Manchester) was co-opted onto the Committee from the outset and Peter Ott (Bern) was also co-opted and served as the website manager.

Educational Activities during the Annual FEBS Congresses

The first educational activities of FEBS were organized by the Working Group on Teaching Biochemistry during the 28th FEBS Congress in Istanbul in 2002. In the years that followed, these events have had an increasing impact. The organization was taken over by the FEBS Education Committee from 2007 onwards, sometimes in collaboration with other groups, including the IUBMB Education Committee and the FEBS Science and Society Committee, when working on a common topic.

It is interesting to note the variety of topics and their evolution (*see Table 1*).

TABLE 1: EDUCATIONAL ACTIVITIES AT FEBS CONGRESSES

FEBS Congress*	FEBS Education Committee Event(s)†
2002 Istanbul: 28th FEBS Congress (organized by ISBMB)	Symposium: 'Virtual Learning' Computer-Lab Activity: 'Virtual learning'
2004 Warsaw: 29th FEBS Congress	Workshop: 'Problem-Based Learning'
2005 Budapest: 30th FEBS Congress	Workshop: 'Laboratory Practicals'
2006 Istanbul: 31st FEBS Congress	Workshop: 'New Approaches to Post-graduate Education'; Workshop: 'How to Write Successful Research Grants'; Data-base Searching-Computer Lab
2007 Vienna: 32nd FEBS Congress	Symposium: 'How to go from Biochemistry Research to Commercial Biotechnology'; CV Clinics
2008 Athens: 33rd FEBS Congress & 11th IUBMB Conference	Symposium: 'Post-Graduate Education' (With HSBMB) Workshop: 'E-learning'; CV Clinics
2009 Prague: 34th FEBS Congress	Workshop: 'Teaching Systems Biology'; Workshop: 'Bioethics' (Co-funded with IUBMB); CV Clinics
2010 Gothenburg: 35th FEBS Congress	Workshop: 'Research in Undergraduate Education' (Co-funded by IUBMB); Workshop: 'Research Oriented Education in High Schools'; Practical Systems Biology Workshop (With the SSBMB); CV Clinics
2011 Turin: 36th FEBS Congress	Workshop: 'PhD Training in Europe: Where Are We Heading?'; Workshop: 'Integrating Molecular Bioscience; Education with Medical Training'; CV Clinics
2012 Seville: 37th FEBS & 22nd IUBMB Congress	Workshop: 'Research into Effective Learning Strategies: What Biochemistry Is Learning from the Other Sciences' (Co-funded with IUBMB Education Committee); Workshop: 'Teaching Molecular Evolution: A Unifying Principle of Biochemistry' (Co-Funded with IUBMB and FEBS Science and Society Committee); Workshop: 'Science in School: Biodiversity and Evolution' (Co-funded with FEBS Science and Society Committee); CV Clinics
2013 St Petersburg: 38th FEBS Congress	Workshop: 'Molecular Life Sciences Education for the Needs of the Industry'; CV Clinics
2014 Paris: FEBS EMBO Conference	Skills and Key Knowledge for a Molecular Life Scientist; New Educational Technologies; CV Clinics

* Including joint events with IUBMB and EMBO; † Events prior to 2007 were organized by the FEBS Working Group on Teaching Biochemistry

Mission and Aims

The FEBS Education Committee has the mission of promoting education of the highest quality in biochemistry and molecular biology in Europe at both undergraduate and postgraduate levels. To do this:

1. we encourage the development of innovative teaching methods;
2. we disseminate advice on educational resources;
3. we arrange at least one education event at each FEBS Congress;
4. we arrange other educational events such as workshops on educational issues in FEBS member countries on request;
5. we collaborate with bodies within and outside FEBS: the Working Group on Integration, the Science and Society Committee, the IUBMB Education Committee, Working Group on the Careers of Young Scientists, the Constituent Societies of FEBS, IFCC and ORPHEUS.

Education Workshops in FEBS member countries: origins and development

Ed Wood, the first chair of the FEBS Education Committee, wrote to the Constituent Societies of FEBS in March 2008:

Successful education is not just about 'giving' information to passive students and then assessing whether they can repeat the information in an examination ... Some years ago the Committee on Education of the International Union of Biochemistry and Molecular Biology (IUBMB) was in the habit of offering Workshops on Education on request from member Societies. These Workshops, organized by Professor Frank Vella, typically took place over three days, were held in many countries of the world ... There was no set formula for the activities and the issues discussed were very varied. The Workshop 'team' usually consisted of three individuals from



Organizers (centre front) and participants at the FEBS Education Workshop in Sofia, Bulgaria, 2013.



Education Workshop in Sofia, Bulgaria 2013 (from l-r): Bojidar Galutzov (Sofia University), Mathias Sprinzl, Genoveva Nacheva (Bulgarian Society of Biochemistry), Gül Güner Akdoğan, Diana Petkova (Bulgarian Society of Biochemistry), Mariek Odjakova (Sofia University and course organizer) and Keith Elliott.

different countries who had some expertise in teaching. Usually members of the visiting team gave one 'scientific' lecture on their research topic, and often some local individuals (for example at the post-doc level) were invited to speak about their research or prepare a brief critical summary of a current paper from the literature for presentation. The main activity however, was not 'scientific' – it was concerned with the process of teaching, sometimes called 'pedagogy', and how the activity could be made more effective.

The Education Committee of FEBS now proposes to try to offer similar Workshops and may do this in collaboration with IUBMB. Since

the original IUBMB Workshops mentioned above, things have moved on considerably in the world of university education [and] there are many 'new' issues in pedagogy to be dealt with alongside the 'old' ones.

The FEBS Education Committee is still discussing how Workshops might be run and what the financial implications might be. In the IUBMB-sponsored Workshops, typically IUBMB provided the travel money for the visiting team, and accommodation was paid for locally, often in campus guest houses, sometimes in modest hotels ... If you, through your local Biochemical Society, would be interested in discussing the possibility of

a Workshop – perhaps with a view to reviewing the teaching methods used in your institution, then in the first instance please contact me and we can begin to consider the possibilities and feasibility of a visit.

The first workshop was planned by Ed Wood to take place in Sofia, on 17–18 October 2008, with Keith Elliott and Gül Güner Akdoğan as co-trainers. Unfortunately, owing to Ed's illness, Gül and Keith had to run the workshop without him. Ganka Kossekova (Sofia Medical University) coordinated the workshop. The first workshop being successful, many others have followed (*see Table 2*).

The education team for a proposed workshop is identified and invited by the FEBS Education Committee, either from Committee members or experts at large, depending on the topics to be covered. The workshop can stand alone or be associated with another scientific event such as a Congress of the Constituent Society.

Those attending the workshops include university faculty, postdocs, PhD students, administrators and high-school teachers where appropriate. They may be working in the areas of biochemistry, molecular biology, medicine, pharmacy, science education and all disciplines in the basic sciences.

Organization of the Workshops

The workshops are organized by the FEBS Education Committee in collaboration with the FEBS Constituent and/or Associated Society of the country where the workshop is to be held. A typical workshop lasts one or two days and focuses on the current thinking and innovations in education that have been found to be useful for enhancing learning. The specific topics to be covered are selected by the Constituent Society according to their needs, and taken from the array of topics offered by the FEBS Education Committee (*see Table 3*).

TABLE 2: WORKSHOPS ORGANIZED BY THE FEBS EDUCATION COMMITTEE

Cluj-Napoca, Romania, September 2009
Athens, Greece, May 2010
Opatija, Croatia, September 2010
Tallinn, Estonia, May 2011
Bratislava, Slovakia, September 2011
Ljubljana, Slovenia, November 2011
Izmir, Turkey, March 2012
Yerevan, Armenia, October 2012
Cambridge, UK, December 2012
<i>(In Memory of E.J. Wood)</i>
Gdansk, Poland, July 2013
Tbilisi, Georgia, October 2013
Sofia, Bulgaria, November 2013

The workshop is agreed between the Constituent Society and FEBS Education Committee at least one year before the event. The Constituent Society assigns a local coordinator for the workshop – typically the person responsible for the educational activities of the society. Although the workshops are intended to target the needs of the Constituent Society members and those attending are, for the most part, members of the host society, any FEBS member from a different country may attend these workshops if interested.

The chair of the Education Committee usually takes overall responsibility, but the venue, time and duration, as well as the topics of the workshop, are suggested by the local hosts. The programme is based on the topics selected by the Constituent Society hosts and the sessions are organized using different educational techniques depending on the character of the topics. These will include lectures, small-group sessions, panel discussions and, if requested, selected short talks and poster sessions based on educational issues.

All local arrangements are the responsibility of the host Constituent Society: advertisement within the country, name badges, transport, social programme and so on. The FEBS Education Committee assumes responsibility for the workshop trainers, their flights, booklets and photocopies to be distributed, visual aids and collection of feedback information, advertisement on the FEBS website and suchlike.

The website provides an interactive environment (Virtual Classroom) where relevant information and material is accessible. The Committee is grateful for the effort and expertise of Peter Ott who has successfully managed the site (available at edu.febs.unibe.ch).

TABLE 3: TOPICS OFFERED BY THE FEBS EDUCATION COMMITTEE

Discussion on skills and knowledge expected from a molecular life science graduate
Quality assurance in education
Postgraduate education
Distance or e-learning
Curriculum planning
Designing laboratory practicals
Student-centred learning
Problem-based learning
Ethics education
Biochemistry education for the needs of industry
Assessment and feedback
Teaching molecular evolution
Research experience in undergraduate education
How to write a scientific paper
Scientific communication to non-scientists
How to write a research proposal
Funds and programmes

Types of Workshop

Workshops undertaken fall into three main categories:

1. workshops to 'promote molecular life sciences education': in Eastern European countries, these bring together young scientists and experienced faculty to reflect on educational issues in the country – in particular, to discuss what could be done – and also to set an example of how to train young scientists for professional scientific skills. In addition, workshops focused on particular topics such as 'teaching molecular evolution' could also be designed with similar aims.
2. workshops on 'Innovations in Education': these bring together faculty and young scientists from all over Europe to discuss innovations in teaching and learning in the area of molecular life sciences and biosciences. One of these workshops was successfully run in Cambridge in 2012.
3. 'revisit' workshops: it was generally felt that a 'revisit' could be held in a country that had previously hosted a workshop, in order to discuss progress and to reflect on what could be done in the future. This type of workshop can be pursued four to five years after the first experience. An example is the Sofia Workshops in 2008 and 2013.

Future Prospects

The work of the Committee is evaluated periodically. It is generally agreed that we have established an infrastructure and an acceptable standard for workshops on innovative topics and educational issues in biochemistry and molecular biology at a European level. Many Constituent Societies from all over Europe have expressed interest. Further development in the exchange of learning resources and further dialogue with bodies within and outside FEBS are being sought. In addition, the Committee has started thinking on 'European Strategies for High Quality

Undergraduate and Post-Graduate Education.' Further enhancement in the synergy of cooperation within the Committee, among all the Constituent Societies of FEBS and other international organizations, will be promoted.

In order to acquire a wider network and stronger funding, the possibility of submitting a project to the EU is being considered. It is thought that such a project at the European level is needed because the education and training of molecular life scientists to a high standard is critical to the advancement of science, innovation, productivity, wealth and the social cohesion of European society. Standards and content of molecular life sciences education programmes are uneven, and the transparency and comparability of qualifications is limited. There is a growing need to train contemporary scientists who are well qualified not only in science and research, but also in the educational aspects of scientific research. Therefore, the new generation of molecular scientists should be equipped with transferable scientific skills and also be capable of training students in this aspect. The FEBS Education Committee is committed to continue fulfilling the vision and mission of FEBS in this area of education.

THE CREATION OF THE WORKING GROUP ON TEACHING BIOCHEMISTRY

by Jean Wallach, Chair of the FEBS Working Group on Teaching Biochemistry

As a member of the Editorial Board of the journal *Biochemical Education* from 1992, I had many discussions with Ed Wood about the opportunity of creating a European Education Committee, like that of the IUBMB. We had earlier organized a successful practical and session on various applications of gel filtration in biochemistry in 1976 in Hamburg. It took another 20 years to succeed in our project!

As I was in charge of the Education Committee in the French Society for Biological Chemistry, I suggested

to the organizers of the FEBS Meeting in Nice in 1999 that they put forward the proposal to create an education group within the Federation. The idea, supported by the French delegates and in particular Guy Dirheimer, was accepted and Julio Celis (FEBS Secretary General) and Iain Mowbray (FEBS Treasurer) entrusted me with the task of creating a Working Group on Teaching Biochemistry. After contacting well-recognized experts in biochemical education in Europe, I was able to propose the first Working Group, comprising Pedro Morradas-Ferreira, Jose Villalain, Peter Ott, Keith Elliott and Gül Guner together with Iain Mowbray and myself. Iain's role was essential as he was in a position to convince the FEBS Council of the benefits of creating such a group. The official launch came in Birmingham in 2000 during the FEBS Meeting. To begin with, we organized yearly Meetings of the group in Lyons, which were characterized by the quality of debate and the conviviality of its members. As a result, we proposed organizing an education session at each FEBS Congress. The first one took place in Istanbul in 2002 on the topic 'Multimedia Approach on Teaching Biochemistry' (see *Table 1 on p.71 for a list of topics covered in subsequent years*). At this point, we were joined by Jason Perret and by my friend Ed Wood, which was for me a very great pleasure after the decades during which we were both associated with *Biochemical Education* and attending many Meetings together.

The recognition of our work culminated in 2006 when our Working Group was converted into the FEBS Education Committee, which remains very active.

Although I am no longer a member of the Committee, I am involved in *Biochemical Education* and recognize the quality of the recent education sessions. All the 'pioneers' of the Working Group can be proud of the work being done today by the members of the current Education Committee.

I wish them all the best for its future.

MAKING A DIFFERENCE TO THE TEACHING OF BIOCHEMISTRY

by Miguel Castanho, Member of the FEBS Education Committee (2008–2012)

I served on the FEBS Education Committee from 2008 to 2012. During this period I had the opportunity to learn about the best innovative practices taken across Europe by the Committee. Under the coordination of first Ed Wood and then Gül Güner, the FEBS Education Committee assembled a series of workshops that could be taken to any university in Europe to help local teachers and researchers to improve teaching and learning. In this way, the Committee has been a very dynamic facilitator in the implementation of educational strategies, from problem-based learning to PhD supervision. If I had to highlight a particular activity, I would choose the selection of the themes for educational symposia and workshops in FEBS Congresses, and their organization. These symposia and workshops are unique for the timeliness of the themes and their impact is immense, with practical examples being replicated in different universities around the globe. Interestingly, many educational activities in FEBS Congresses are jointly organized with IUBMB, which contributes to their high quality and high impact.

In short, the FEBS Education Committee has made, and continues to make, a great difference to improving the teaching and learning of biochemistry. I am proud to have had the opportunity to make a contribution to this.

DEVOTED TO IMPROVING BIOCHEMICAL EDUCATION

Karmela Barišić, Member of the FEBS Education Committee (2009–2012)

I was a member of the FEBS Education Committee from 2009 to 2012. During that time, I had the opportunity to work together with many colleagues who were devoted to the improvement of higher education in biochemical and molecular biological sciences across and beyond Europe.

I participated in many Education Committee Meetings and workshops (in Lisbon, Izmir, Athens, Tallinn and Ljubljana). I appreciated the atmosphere of all the sessions I was involved in, notably the openness of discussions, the friendliness of the work environment, and the willingness of all Committee members to achieve more.

The meeting and workshop in Opatija was a big challenge for me and for the Croatian Society of Biochemistry and Molecular Biology. I was honoured to have been given an opportunity to host the Education Committee meeting and organize a workshop. The two-day workshop programme covered the following topics: postgraduate education (student abilities and supervisor skills, role of supervisory committees, PhD curricula, experimental research-based theses); ethics education (different approaches to ethics education, interactive session on ethics education); and problem-based learning. To judge from subsequent feedback, the workshop was successful and important for the Croatian biochemical community.

I wish much further success to the Education Committee in its mission. Keep up the good work!



FEBS Education Workshop: 'Teaching Molecular Evolution Gdańsk', Poland, July 2013.

CV SUPPORT FOR YOUNG SCIENTISTS

by Keith Elliott, Member of the FEBS Education Committee

When the FEBS Education Committee was first established, we were looking for ways to make a quick impact and particularly to help young scientists. I approached the organizers of the Young Scientists' Forum (YSF) for the Vienna Congress in 2007 with an offer to run a CV advice session based on those I had been involved with for many years as part of the Careers Conferences run by the Biochemical Society in the UK. After some discussion with the chair of YSF and the local organizers, this offer was accepted.

Although I had alerted the participants by email, I was only able to give a very brief introduction to the CV support sessions at the 2007 YSF (bad weather in Vienna caused my flight to be delayed). I collected CVs to be reviewed during the main Congress and was amazed by the uptake – 30 of the 100 participants brought their CVs to be assessed by me, with the help mainly of Ed Wood, but also Gül Güner and Jason Perret.

The following year in Athens at the joint 33rd FEBS Congress & 11th IUBMB Conference I was invited to attend the whole YSF and participate in the Careers Round Table. I gave a short talk and was a member of the panel for the round-table discussion. This was particularly useful as it enabled interaction with the other round-table

participants, often with complementary presentations and experience. It also provided me with the opportunity to get to know a lot of the participants and talk to them informally before actually discussing their CVs in detail. This has been the format at all YSFs and Congresses since.

Each year between 30 and 50% of the YSF participants have brought along a CV; thus over 300 have been seen in the seven years of the project to date. I estimate that we have seen CVs from participants working in over 40 different countries and probably even more nationalities. I provide all participants with an annotated copy of an extended version of my PowerPoint presentation, including hyperlinks to a number of specific Web resources for CV and cover-letter writing – important because many of the general resources on the Web are not appropriate for research science or academic posts.

After Ed Wood's death in 2008 I was primarily helped by Jason Perret while he was a member of the Education Committee, but generally dealt with 70–80% of the CVs myself, and all of them at the FEBS Congress in St Petersburg in 2013. I have spent most of the Congresses on the FEBS stand running 'drop-in' sessions for individuals (or occasionally two or three friends). Discussion is vital, as usually considerably more is learned about the person than is presented in the CV. The most common 'faults' are those of omission –

Keith Elliott (left) and Jason Perret (right) assessing the CVs of YSF participants.



FEEDBACK FROM THOSE ATTENDING CV SUPPORT SESSIONS

'I'd never had any advice on my CV before, because it isn't usual to consider a CV at scientific institutions in Russia. So it was helpful.'

Ilya Akberdin, Russia

'It gave me a lot of confidence, because I never had the chance to evaluate my CV. I also came to know about some weak points, and got some useful advice on how to improve them. I think these things are very important when a person like me is in the middle of his PhD and looking for future options.'

Gautam Chaurasia, Germany

'I will pass on your talk to my working group, because I would like to pass on your knowledge!'

Iris Magler, Austria

'I found your presentation and especially discussion with you very fruitful. It was the first time I have discussed my CV with an expert and I was impressed and applied all your suggestions. I'm about to finish my PhD so I'm aware how important a good CV is. However, many people from YSF were not interested in having a good CV at all, maintaining that it was too early for them to prepare a CV but in my opinion it is never too early.'

Paweł Zawadzki, Poland

'I completely rewrote my CV after hearing your advice, and it has shaped how I've been thinking about my career since. It was missing several important pieces of information, and since I've put them in there, I think it "sells me" much better.'

Sarah Dombernowsky, Denmark

mainly a concentration on detailed academic records (but sometime omitting information on the PhD project) without reference to anything that tells the reader about the person. All too often, interesting information (like teaching in a school or organizing an international conference) only came out during the discussion. However, we have been amazed at some of the skills the young scientists have acquired, including setting up companies, journalism and even being an international basketball player. With each discussion taking about 15 minutes, this means a total time of at least 12.5 hours per Congress, usually rather longer!

There have been spin-offs from the YSF sessions. In 2011 one of the participants who organized the symposia for research students at the Friedrich Miescher Institute in Basel asked me to run a workshop at the Institute; I did this over two days. Since then I have run similar workshops in the CNR Institute of

Protein Biochemistry in Naples and the Faculty of Pharmacy in the University of Zagreb (and am always open to more offers!). Sessions on CV preparation are now also often included in the workshops run by the Education Committee. These have allowed me to reach and help an even wider group of young scientists.

Overall I believe the CV support sessions have been extremely successful. The feedback has been excellent, with quotes often included in the reports for *FEBS News* after the Congresses. Most PhD students and postdocs I have seen say that no one has ever talked to them about how to write a CV; they are also not aware of the way that CVs are handled by large (or even small) companies, where the CV will first be seen by a human resources department or even a recruitment agency and not initially by the scientists and so have to pass 'the 30-second test'. The sessions are valued by the participants, the YSF organizers and FEBS as a whole.

FEBS FORUM FOR YOUNG SCIENTISTS

THE FEBS YOUNG SCIENTISTS' FORUM (YSF)

by Claudina Rodrigues-Pousada, Chair of the Careers of Young Scientists' Working Group

The life sciences community faces many challenges posed by the rapid evolution of technology and information storage and retrieval, as well as by the evolution of ideas as a new generation of scientists takes charge. There are economic problems derived from the pace of scientific advance and the development of sophisticated and expensive instruments, but there is also the urgent need for new and flexible strategies and mechanisms to promote the careers of young scientists, the future leaders. FEBS does not have the resources to be a significant contributor to solving the economics challenges but it can promote initiatives, both at national and European level, to ensure that Europe remains at the forefront of the life sciences.

Over the past 50 years, FEBS has launched various activities with this in mind. One new activity was initiated in 2001 with the 1st Young Scientists' Forum (YSF) in Oeiras, Portugal. The idea behind this was to organize an event, before the main FEBS Congress, that was aimed at young scientists at PhD and postdoctoral levels, where they could exchange ideas and discuss their own work in a relaxing atmosphere. The participants

would then attend the main FEBS Congress, bringing in a new audience. FEBS pays for attendance at the YSF and 80% of the travel costs, as well as the registration fees and lodging during the Congress. The event is overseen and guided by the chair of the Working Group on the Careers of Young Scientists elected by the FEBS Council, and he/she is a member of the FEBS Executive Committee. However, the organization of the YSF is in the hands of a local committee of young scientists. This was supervised by Marja Makarow (2001–2004), I was elected for the period 2005–2007, Daniela Corda took charge 2008–2010, and I was elected again in 2011 and 2013.

The programme of a YSF is divided into several sessions, with oral presentations selected from the abstracts submitted. Daniela Corda introduced another session in which authors presenting a poster give a one-minute presentation. They have to be concise and to go straight to the focus of their work, which is good training for future longer presentations. A small number of more established scientists are also invited to give talks on key subjects. EMBO often sponsors a Young Investigator Lecture, which has been a success (*see www.embo.org/index.php/funding-awards/lecture-grants/lectures-young-investigator*). In addition, we organize round-table discussions that deal with career issues.

As chair of the Working Group, I have found it extremely rewarding to witness the high scientific level of successive YSFs. Over the years, the YSF has improved in both the quality of science presented and its organization. I would like to acknowledge the great organizational skills of each of the 14 chairs of the local organizing committees; all of them have put their energy and knowledge at the service of their young colleagues. Personally, I feel that I have gained a great deal of understanding but also I have experienced the great joy and enthusiasm for science that these young scientists reveal.

THE 1ST FEBS YOUNG SCIENTISTS' FORUM (YSF), OEIRAS, PORTUGAL, 2001

by Júlia Costa, Chair of the YSF Organizing Committee

The organization of the FEBS Young Scientists' Forum (YSF) at the Instituto de Tecnologia Química e Biológica (ITQB), in Oeiras, Portugal in 2001 was a challenge for me and the other members of the local organizing committee. We were all at the beginning of our scientific careers and had no previous experience of organizing a meeting, but it turned out to be very successful – a meeting arranged by young scientists for even younger scientists. The support, advice and encouragement of the members of the Working Group was crucial, especially that of Claudina Rodrigues-Pousada. The students in my lab also played an important role, since they were fantastically committed to the local organization.

It was very rewarding to have the chance to organize a properly funded meeting with great science. We also awarded travel grants to many European students who would otherwise not have been able to participate in the YSF or the FEBS Congress, and I felt almost like Santa Claus in June. There were a few keynote lectures by senior invited scientists in the

The Instituto de Tecnologia Química e Biológica (ITQB), in Oeiras, Portugal, where the 1st FEBS YSF was held.



areas of protein structure–function, trafficking and signalling, but most of the scientific oral programme was built from the students' own contributions, and they did a very professional job in a vibrant atmosphere of discussion and enthusiasm. In addition, there was a large poster session with almost 100 posters presented.

Claudina Rodrigues-Pousada (third from left) with the local organizing committee of the 11th FEBS YSF.

Twelve years later one of my most vivid memories is of the round-table session, which discussed the opportunities for young scientists in the near future. Then, as now, unemployment in science was a major concern of the students. On a positive point, all of us who participated in the organization of the first YSF are employed and doing research.

We had a lot of fun not only with the scientific programme, but also with the social programme. A highlight was certainly the dinner at Fábrica da Pólvora (an old rehabilitated gunpowder factory) with great wine and food as well as outdoor music and dancing. The location of the YSF was very close to the beach and on their way back from Oeiras to their hotel in Cascais the students had a fantastic view over the Atlantic Ocean. But in spite of the temptation of the beach, the auditorium was always full with around 150 participants!

I served as chair of the local organizing committee and found it a very gratifying experience. As well as offering a 'hands-on course' in meeting organization, it also gave me the chance for networking, which contributed to the development of my scientific career. Looking back, I still have the feeling that the first FEBS YSF was very successful and established the event for future years.

THE 11TH FEBS YOUNG SCIENTISTS' FORUM (YSF), TURIN, ITALY, 2011

by Francesco Rua, Chair of the YSF Organizing Committee

The decision to host the 36th FEBS Congress and the 11th YSF in Turin was received with great enthusiasm by the Italian scientific community as a whole and especially by the biochemists in Turin.



During the few days of the FEBS Congress, Turin was the international focal point for presentations and discussions on cutting-edge biochemical sciences. The Congress in 2011 also coincided with the many cultural events being held in Turin for the celebration of 150 years of Italian unification, and of Turin as the first Italian capital.



The organization of the YSF in Turin was very stimulating, while requiring a lot of time and dedication during my PhD studies. During the year that preceded the meeting, I was grateful to receive the invaluable guidance and help of both Claudina Rodrigues-Pousada, chair of the YSF Working Group, and Gianfranco Gilardi, chair of the Organizing Committee of the 36th FEBS Congress. The

YSF local organizing committee was composed entirely of PhD students who contributed their passion and enthusiasm to make all the young scientist participants feel that they were indeed the future generation of science. My special thanks goes to my colleagues Andrea Cavagnino, Valentina Sala, Andrea Occhipinti, Elisa Lupino, Giovanna Grimaldi and Simone Morra.

I was overwhelmed when more than 400 young scientists from 32 different countries applied to attend the YSF in Turin, which made the selection task by the local committee extremely tough. In the end, 126 young scientists were selected and hosted in the relaxing atmosphere of Villa Gualino on a wooded hill overlooking the city of Turin. They had ample opportunities to discuss scientific research and career developments as well as to socialize. The scientific theme chosen for the YSF, 'Biochemistry for Tomorrow's Medicine', included a broad range of topics that were discussed during 24 talks and 102 posters, covering the most recent aspects of RNA biology, development, gene response and regulation, and structure/function of proteins. The Turin YSF was enriched by keynote lectures from two outstanding scientists: Cathie Martin from the John Innes Centre and Tiago F. Outeiro from the University of Göttingen, working on the biotechnology for healthier foods and on the basis of neurodegeneration, respectively. The round-table discussion session with Claudina Rodrigues-Pousada (FEBS), Keith Elliott (FEBS), Andrea Hutterer (EMBO) and Alan Craig (Marie Curie Programme) provided an excellent opportunity to get one-on-one guidance about pursuing a scientific career and the many funding resources available to young scientists within Europe.

I enjoyed every minute of this shared experience and given the chance I would definitely do it again.

THE 13TH FEBS YOUTH SCIENTISTS' FORUM (YSF), ST PETERSBURG, RUSSIA, 2013

*by Alexey Belogurov Jr and Azad Mamedov,
Co-chairs of the YSF Organizing Committee*

Russia had already held a FEBS Congress in 1984 but not since, so the FEBS Congress in St Petersburg in 2013 was the first time for our country to welcome a YSF. It was a great honour but even more it was a



great challenge and responsibility. I would like to thank the rest of the local organizing committee who were really fantastic and made it possible. The procedure to select attendees was hard because the standard of the scientific reports submitted by the applicants was very high. However, this ensured an interesting scientific programme. We were privileged to be able to organize



Poster session at the 13th FEBS YSF, with Alice Verchère (2014 YSF Organizer).

of the Congress Organizing Committee. The Russian Foundation for Basic Research also provided assistance that helped significantly to enhance the meeting in general. Finally, I would like to acknowledge the limitless energy and assistance of Claudina Rodrigues-Pousada, who guided us all the way to the realization of a successful YSF in 2013. I now feel that I am experienced enough to organize any future scientific meeting. We received a lot of positive feedback from the YSF's participants, and this was the richest reward we could imagine.

Alexey Belogurov Jr

It was a huge honour to be a co-chair and organize the 13th YSF in St Petersburg in 2013, and to be a part of the huge European biochemical community. The organizing process was difficult and time-consuming, but it was one of the greatest and most interesting experiences of my life. Through YSF I fully felt the immensity of the whole of FEBS. If it was so difficult for us to organize a three-day forum, I cannot imagine the huge amount of work involved in the organization of a FEBS Congress! Perhaps my most important and lasting memory is that of more than 100 young scientists from all over Europe meeting in one place in the beautiful city of St Petersburg at the classic building of the Academy of Sciences, which is more than 200 years old and in that time has witnessed the discussion of many different scientific issues. It seemed to me during the YSF that we were a big scientific family. Across Europe, we all face funding problems, and it is great that, thanks to FEBS, there is a possibility to organize and attend such unforgettable scientific events.

Azad Mamedov

the opening ceremony and further scientific sessions in the architecturally outstanding building of the Academy of Sciences on the Neva River – the heart and soul of Russian science. We thank Zhores Alferov and Michael Dubina for making this possible. Throughout, the YSF team were supported by the main 38th FEBS Congress and Alexander Gabibov, chair

FEBS FELLOWSHIPS PROGRAMME

FEBS Fellowships Programme began in 1979. Since then it has come to be known as a highly competitive and prestigious programme. This is thanks to our rigorous selection methods and the package we offer Fellows.

As part of our commitment to young scientists, we offer both Short-Term Fellowships and Long-Term Fellowships to members of our Constituent Societies, as well as Summer Fellowships to promising young students. We also offer Collaborative Experimental Scholarships designed exclusively for members of our Constituent Societies in the currently depressed economies of Central and Eastern Europe; and Return-to-Europe Fellowships for postdoctoral scientists wishing to come back to the European area. In addition, FEBS offers awards and follow-up grants to past holders of a FEBS Long-Term Fellowship.

Our fellowships and scholarships are intended to allow members of our Constituent Societies working in a FEBS country to work in a laboratory in another FEBS country or, in the case of Return-to-Europe Fellowships, to work again in a FEBS country. Because of their young age, applicants for a Summer Fellowship need not be members of a FEBS Constituent Society.

A FORMER CHAIRMAN'S VIEW

by Vicente Rubio, Member of FEBS Fellowships Committee (2009–2010) and Chairman (2011–2013)

The Fellowships Programme of FEBS was started in 1979 by Prakash Datta and funded by the revenue from FEBS journals. With Guy Dirheimer as the first fellowships officer, Short-Term Fellowships were introduced to support visits of up to three months by a member of any FEBS Constituent Society to laboratories in another FEBS member country. In the first five years, nearly 300 fellowship applications were received and 200 were granted. The programme continued to gain momentum under Carlos Gancedo's leadership. A big leap forward was the starting of the Long-Term Fellowships, which now extend for up to three years, and remain, together with the Short-Term Fellowships, the pearls of our programme.

We now also have Summer Fellowships for junior PhD students, and Collaborative Experimental Scholarships to help doctoral students from the depressed economies of Central and Eastern Europe. The increasingly popular Return-to-Europe programme, introduced by Maciej Nałęcz in 2009, aims to attract back talented postdoctoral scientists who have been working outside Europe. Two further awards favour particularly successful Long-Term Fellows or help establish our Long-Term Fellows as junior group leaders.

CHAIRS OF THE FELLOWSHIPS COMMITTEE

1979–1983	Guy Dirheimer
1984–1992	Carlos Gancedo
1993–2001	Israel Pecht
2002–2010	Maciej Nałęcz
2011–2013	Vicente Rubio
2014–	Andreas Hartig

Participants at the First Fellows Forum 2012, together with members of the FEBS Fellowships Committee (kneeling, from l-r): Vicente Rubio, Andreas Hartig, Laszlo Buday, and their assistant, Ariel Colome (far left).

The Fellowships Programme has become a true flagship of FEBS. In the period 1993–2001, when the present Secretary General, Israel Pecht, was Chair of the Fellowships Committee, 90 Long-Term Fellowships, 342 Short-Term Fellowships and 78 Summer Fellowships were awarded. Since then, the number of applications for Long-Term Fellowships has skyrocketed from 55 in 2002 to 284 in 2013. The total number of applications for Long-Term Fellowships in the period 2002–2013 was 2,424, of which 254 were awarded and taken up. Furthermore, applications for the Return-to-Europe Fellowships, which last for two years, have



Vicente Rubio.

grown from two in 2009 to 30 in 2013, with a total of 85 applications and seven awarded and taken up.

During the period 2008–2013, there were 148 applications for Summer Fellowships and 40 awarded. There were 425 applications for Short-Term Fellowships of which 210 were successful and we received 125 applications for Collaborative Experimental Scholarships for Central and Eastern Europe and awarded 90.

Long-Term Fellowships are initially awarded for one year, and applications for renewal for a second or third year have amounted, on average, to approximately 90 and 75%, respectively, of those Long-Term Fellowships initially awarded, with success rates of nearly 100 and 66%. Approximately 20% of those receiving a Long-Term Fellowship apply for a Distinguished Young Investigator Award, with a success rate close to 50%. Fewer applications are received for awards from the Follow-Up Research Fund (on average, one per year), and the success rate has been about 35% in recent years.

Overall, it can be estimated that in total FEBS has awarded no fewer than 350 and possibly close to 400 Long-Term Fellowships together with perhaps 1,300 Short-Term Fellowships, to name only these two longer-standing fellowship programmes. I warmly thank the past and present members of the Committee, too numerous to be named here, who have devoted so many hours to helping the careers of younger people. I admire their fair judgement and generous dedication. The time is now ripe to examine the efficiency of our effort, a challenge that the new Chair of our Fellowships Committee and former Chair of FEBS, Andreas Hartig, has enthusiastically taken up.

To generate a sense of collegiality and to help networking and scientific exchange among our



Fellows, a first Fellows' Forum was organized, to run in parallel with the YSF, before the 37th FEBS & 22nd IUBMB Congress in Seville in 2012. A second Fellows' Forum, organized by Andreas Hartig, was held before the FEBS|EMBO Conference in Paris in 2014. For organizational, space and budget reasons, these Meetings are restricted to about 25 senior Long-Term and Return-to-Europe Fellows. In spite of this, they are helping to define the future of this already-numerous and growing community of FEBS Fellows.

A few final words about the future and – alas – the present. If the revenue from FEBS journals were to dry up, so would the possibility of awarding fellowships. Initiatives to move towards open access publications are a potential threat to traditional subscription journals and thus to FEBS revenue. Therefore, a new philosophy of savings has been brought to FEBS by its new Treasurer, Sir Alan Fersht, who has argued for and convinced, not without misgivings, both the Executive Committee and Council to make savings now, to ensure that FEBS survives for another 50 years (*see p.106*). The idea behind the scheme is to reduce FEBS spending in the short term to build up financial reserves that will ensure that FEBS can carry out its core tasks and avoid

cancellation of any of its current activities. Then, as this goal is attained, the policy can be relaxed, depending on the health of future publications revenue.

It is not for me to judge on that policy, since the Executive Committee and Council approved it. My only concern is for those who will not get a fellowship today in the name of the future. The number of Short-Term Fellowships has been reduced to 25 two-month awards per year, that of Long-Term plus Return-to-Europe Fellowships to 10, except in 2014, when there were only five. Collaborative Experimental Scholarships and Summer Fellowships also have been reduced to four or five per year. Although the success rate for most fellowships is still in the 25% range, this is not the case for two jewels in our crown, the Long-Term and Return-to-Europe Fellowships, for which the current success rate is of the order of 3.5–4%. Those awarded one can really boast that they have received the most selective fellowship in the world! Overall, the FEBS expenditure on fellowships will be in the order of €1 million per year, but this is approximately 37% of the amount at peak spending in the recent past. We must hope that this policy will be implemented for the shortest possible time. Meanwhile, our fellowships continue to be awarded fairly and quickly (less than three months from application) and they are much sought after. Our administrative activities also improve, with paper having been largely eliminated and with an electronic submission system on the way.

The value of FEBS fellowships is addressed in an anecdotal way in this chapter, by having some past Fellows tell us their stories and the role that FEBS played in their lives. Enjoy reading them, since I am certain there will be many happy ones for any future book on 100 years of FEBS.

I thank Carlos Gancedo and Andreas Hartig for making valuable suggestions that certainly improved this text.

SUPPORTING A LATE STARTER

by Dan Tawfik, FEBS Long-Term Fellow

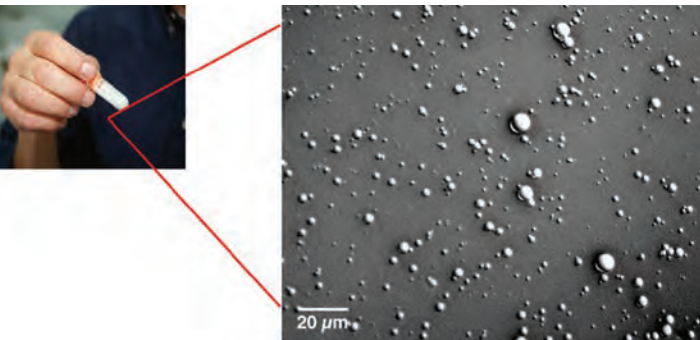
Science in general, and particularly chemistry, was always my ‘thing.’ At the second grade of high school, I already had a reasonably equipped laboratory on the balcony of my home. Nonetheless, it took a long army service, and several years in business, before I finally completed my BSc in chemistry at the Hebrew University of Jerusalem, followed by an MSc, and finally a PhD at the Weizmann Institute of Science in Rehovot. The last was in catalytic antibodies, a research area that has since vanished. It was, nonetheless, a critical introduction to proteins, molecular recognition, enzyme catalysis and, foremost, to a question that later became of prime interest to me – how does nature achieve unlimited functional diversity in proteins (e.g. a specific antibody to nearly every possible antigen, be it large or small, a natural protein, or a synthetic organic molecule), with a rather limited sequence diversity?

By the time I completed my PhD, I had received several offers for a postdoctoral position in Europe and the US, and finally opted for the MRC Centre for Protein Engineering in Cambridge, UK, under the directorship of Alan Fersht. The choice proved entirely justified: this lab was a most inspirational playground, with complete intellectual freedom to explore new avenues and highly risky projects. However, by now I was already a ‘late starter’, and essentially every postdoctoral fellowship I looked into had a strict age limit: ‘candidates must be under the age of 35.’ The outlier was FEBS, which had a somewhat softer rule: ‘Candidates are normally under the age of 35.’¹ I applied, and was awarded a Long-Term Fellowship for two years.

My research in Cambridge took new directions that were not even mentioned in my application. I became intrigued by the concept of *in vitro* evolution – the idea

¹ The current rule is that applicants should normally be scientists with no more than six years’ post-doctoral experience.

of subjecting genes and proteins to random mutagenesis and selection in the laboratory, and in real time, and thus evolving new biomolecules with tailor-made properties. A fruitful collaboration with Andrew Griffiths, initiated through an informal chat during a laboratory tea-break, led us to develop a new experimental technology that became known as *in vitro* compartmentalization. We used emulsion droplets as cell-like compartments and in these droplets, with a volume of 10^{-15} litre, performed cell-free transcription of genes, translation and various other biochemical reactions. In this way, gene repertoires comprising $>10^{10}$ different variants could be replicated, translated and selected in parallel.² The development and application of this technology continued and was subsequently supported by a Research Fellowship awarded by Sidney Sussex College, Cambridge. The emulsion technology became applicable in a variety of areas, not just *in vitro* evolution, but also in high-throughput DNA sequencing, medical diagnostics and what is now dubbed digital PCR. I insisted (at some cost, though; I was the only junior lab member to have had the 'honour' of receiving a letter from the head of the Medical Research Council), and became very proud to see, that FEBS duly received a share of the revenues that stem from this invention. It all began with a fellowship generously endowed to an 'abnormal' candidate!



2 Tawfik, D.S. and Griffiths, A.D. (1998) *Nature Biotechnol* 16, 652–6.

By summer 2001 I had moved to a faculty position at the Weizmann Institute. My research, however, emerged not from the power of the emulsion technology but, on the contrary, from its failure to deliver. We, and others, naively saw protein evolution as a mere issue of numbers. We assumed (wrongly) that given the ability to select from vast gene repertoires, nearly any activity could be evolved and would do so almost regardless of the starting sequence. But it became clear that our understanding of the forces and mechanisms that govern protein evolution was very limited. What we ignored was a paradigm that evolutionists, starting from Darwin, had always known: 'Nothing evolves unless it already exists.' My new research group at the Weizmann Institute began to explore a new topic: promiscuous protein functions, latent functions that seem to exist within every natural protein. These coincidental functions, which were never selected for and have no known physiological role, provide critical starting points if and when a new function is needed. We demonstrated that the conformational plasticity of proteins, and the existence in equilibrium of multiple active-site conformers, can mediate alternative, promiscuous functions.³ In this manner, one sequence can mediate multiple functions, and provide multiple opportunities for the evolutionary divergence of new functions. We subsequently discovered that promiscuous functions provide unique evolutionary starting points, in being augmented by mutations without initially compromising the protein's original function.⁴

Emulsions provide a novel means of miniaturizing and paralleling genetic and biochemical assays. A tube containing approximately one milliliter of emulsion provides more than 10 billion individual droplets with an average volume of about 10 femtolitre.

3 James, L.C., Roversi, P. Tawfik, D.S. (2003) *Science* 299, 1362–7.

4 Aharoni, A. et al. (2005) *Nature Genet* 37, 73–6.

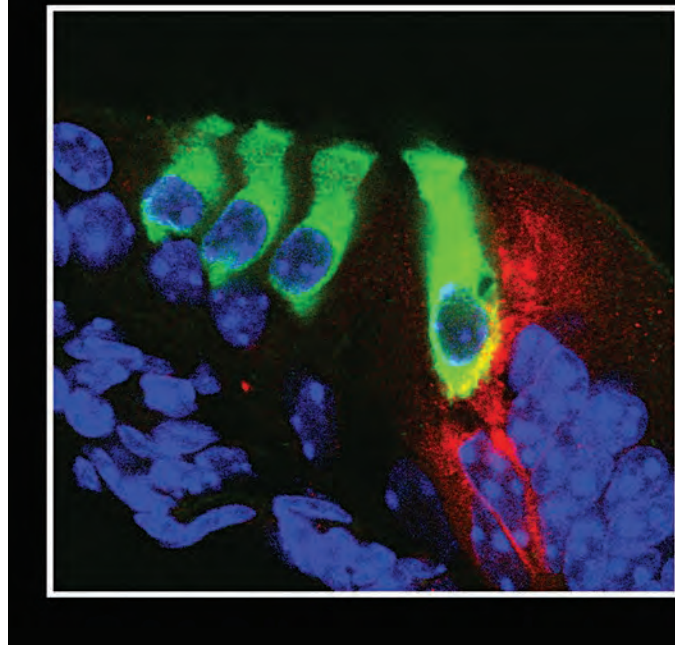
Ultimately, reproducing the evolution of new proteins exhibiting new functions and new structures has become the main theme of my research. In doing so, we promote our understanding of protein structure, function and evolution, following a rephrasing of Feynman's famous quote: 'What we don't understand, we cannot make.' And so, our new insights regarding how proteins evolve also facilitate the engineering of new enzymes, including some for reactions and substrates that nature has not tackled. Most rewardingly, students and postdocs whom I have been fortunate to mentor now lead research groups that explore a whole range of topics that stem from this interest in a simple and most basic question: 'how do proteins evolve?' More details can be found at our group's website: www.weizmann.ac.il/Biological_Chemistry/scientist/Tawfik.

My connection with FEBS continues, despite the fact that I am scarcely involved in activities outside my own lab. Supporting this organization of scientists for scientists, and its various activities, is a priority for me. I enjoy mentoring postdoctoral fellows who received the very same fellowship I had, and participating in FEBS-supported workshops such as the YSF (see Chapter 6), or a recent summer school in Gdansk, Poland. For the past five years, I have also been a member of the Editorial Board of *The FEBS Journal*.

REFOCUSING MY DEVELOPING CAREER

by Isabel Varela Nieto, FEBS Short-Term Fellow (1992)

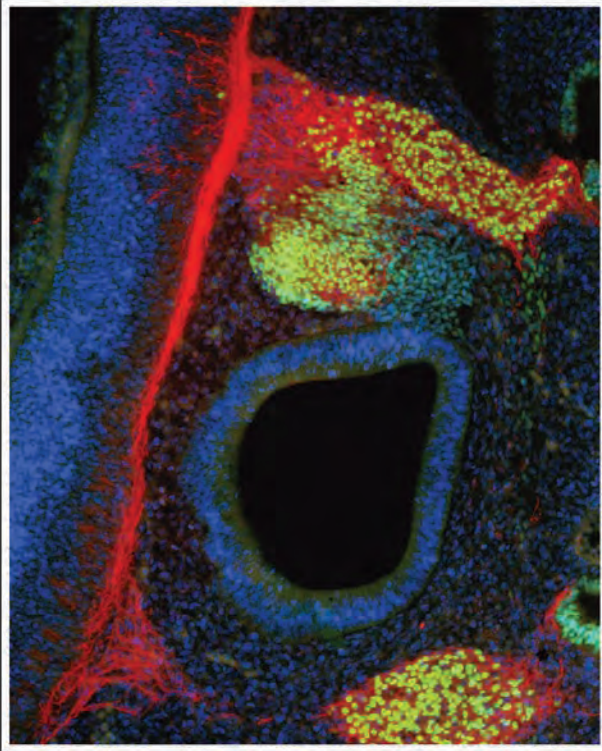
One of my first interactions with FEBS was attending the great FEBS summer schools on the Greek island of Spetses. As a PhD student in Spain, I had joined the Spanish Society of Biochemistry and Molecular Biology (SEBBM), which had been one of the founder members of FEBS (see p.20). Before the arrival of the Internet, these Meetings organized by FEBS were the way for



Organ of Corti in the cochlea of a mouse embryo at 18.5 days of embryonic development. Image courtesy of Hortensia Sánchez and María R. Aburto.

early-stage researchers to develop their scientific careers. I attended Meetings on lipid mediators and on cell signalling, and met, among others, Inder Verma, Michael Karin and Tulio Pozzan. But it was Jacques Pouyssegur who had the most definitive impact on my scientific career; the work from his lab, on intracellular signalling and the role of proto-oncogenes in the normal cellular responses to extracellular factors, was very different from the focus of most developmental biologists at the time, and helped to shape my subsequent work.

A few years later, I had finished my first postdoc and was looking for financial support for a second stay abroad. I found this support at European level and in 1998 spent four incredible months at the Louvain University Medical School and International Institute of Cellular and Molecular Pathology (ICP) in Brussels, Belgium. I learned how to do primary cultures of cells and started studying the long-term actions of insulin and the role of lipid signalling in these actions. The atmosphere in the lab of Louis Hue was great and we also enjoyed many evenings out in the cafés of Brussels.



Otic vesicle and associated auditory-vestibular ganglion (green) from a chick embryo. Image courtesy of María R. Aburto.

As much as we try and plan our scientific careers, serendipity often plays a part. A concatenation of happy accidents sent me to a great meeting in Mallorca where my poster was right next to one describing the action of insulin on cell proliferation in a culture of explanted otic vesicles. Since then, my work has focused on the study of the molecular bases of inner ear development, otic neurogenesis, hearing and hearing loss. In 1992, I was starting an independent research group in the Institute for Biomedical Research of the Spanish Research Council (CSIC) in Madrid. At that point, I needed to acquire expertise in neurobiology. I found support in the FEBS Short-Term Fellowships Programme, which allowed me to visit Sven Pålman's lab at the Uppsala University Hospital in 1993. I was expecting my second child and I

have great memories of the healthy lifestyle in Uppsala. It was June, the month of long days, outdoor activities and grand concerts at Linnaeus' house and historic gardens. Stockholm, a magnificent city full of surprises, was just a boat ride away. This opportunity allowed me to refocus my career and to confront the new challenges that faced me. It was indeed fundamental to establishing my research group and to developing collaborations, some lasting to the present date. Since 2000 I have been head of the Neurobiology of Hearing group and scientific supervisor of the Department of Hearing Neurophysiology at the Institute for Biomedical Research (CSIC-UAM), Spain. My main research interests are animal models of human sensory diseases, IGF-1 actions on hearing development, and molecular bases of noise-induced and age-related hearing loss.

The Meetings that FEBS has held in my home country of Spain have also been important in my career development. Having a FEBS international meeting organized locally is an incredible opportunity for researchers of all ages. I had the honour of being a speaker at the 24th FEBS Meeting in Barcelona organized by Joan Guinovart in 1996, and was part of the Organizing Committee of the 37th FEBS & 22nd IUBMB Congress in Seville organized by Miguel Ángel de la Rosa in 2012.

I am currently giving back for these earlier opportunities, serving in SEBBM as scientific secretary and as coordinator of the Science and Society activities. We have just celebrated our 50th anniversary and I would like to invite you all to take a closer look at our history (www.sebbm.es/ES/50-aniversario_16/video-cincuentenario-sebbm_825) and current activities (www.sebbm.es).

Happy anniversary FEBS! And many, many thanks for your constant support!

A TURNING POINT IN MY CAREER

by Emilie Pacary, FEBS Long-Term Fellow (2007–2010) and Distinguished Young Investigator (2011)

The discovery of adult stem cell plasticity raised many hopes for the treatment of brain diseases such as cerebral ischaemia. For example, bone marrow-derived mesenchymal stem cells (MSC) appeared to be a useful cellular source not only to replace damaged neurons, but also to provide support to the ischaemic brain by providing neurotrophic factor. However, their capacity for neuronal differentiation was still a highly controversial topic when I started my PhD in the laboratory of Myriam Bernaudin, at the University of Caen, France in 2003. In this context, the aim of my PhD work was to better characterize the neurogenic potential of MSC *in vitro* and to evaluate their therapeutic potential after cerebral ischemia.

I demonstrated that *in vitro* an inhibition of RhoA signalling together with an activation of the transcription factor HIF-1 (Hypoxia inducible factor-1) promotes neuronal differentiation of MSC.¹ This treatment induces changes in morphology and gene expression consistent with differentiation of MSC cells into neuron-like cells and cell-cycle arrest. Moreover, the co-treatment gives rise to cells with functional characteristics of immature neurons. I also demonstrated that this protocol favours the neuronal differentiation of neurospheres derived from the embryonic cortex and promotes neurite outgrowth of PC12 cells.² We showed that, *in vivo*, MSC injection can be used as a tool to induce brain repair and functional recovery after an ischaemic lesion.³

1 Pacary, E. et al. (2006) *J Cell Sci* 119, 2667–78.

2 Pacary, E. et al. (2007) *Mol Cell Neurosci* 35 (2007), 409–23; Pacary, E. et al. (2008) *Biochem Biophys Res Commun* 377, 400–6.

3 Esneault, E. et al. (2008) *J Cerebr Blood Flow Metab* 28, 1552–63.

Importantly, this work introduced me to the field of neurogenesis and stem cells as well as to the RhoGTPases. To improve cellular therapies using stem cells in brain damage, I then reasoned that it was essential for me to better understand the process of embryonic neurogenesis. Thus, after my PhD I applied for a FEBS fellowship to do a postdoc in the laboratory of François Guillemot, a specialist in the field. The first three of my five-and-a-half years in his lab at the National Institute of Medical Research, in London, UK (2007–2012) were supported by a FEBS Long-Term Fellowship.

One aim of Guillemot's research is to elucidate the programme controlling neurogenesis. Some years ago, his group and others showed that proneural bHLH transcription factors play a major role in the regulation of neurogenesis in vertebrate embryos. Proneural genes, which encode bHLH transcription factors such as Neurogenin (Neurog) and Mash1, are both necessary and sufficient to activate a full programme of neurogenesis in stem cells. However the molecular mechanisms underlying each of the cellular steps that stem cells go through to generate differentiated progenies are still largely unknown. To start to address this question, we focused on neuronal migration and aimed at better understanding how this specific step is controlled by proneural factors at a molecular level, focusing on the embryonic cerebral cortex.

During this postdoc, I showed that different proneural proteins activate distinct pathways in migrating neurons and thereby control different phases of the migratory process. The proneural proteins Neurog2 and Mash1 induce the expression of the Rho



Emilie Pacary.

GTP-binding protein Rnd2 and Rnd3 respectively, in migrating neurons of the embryonic cerebral cortex. The two Rnd proteins inhibit RhoA signalling in different compartments of the neuron and as a result, promote multipolar to bipolar transition in the intermediate zone and locomotion in the cortical plate respectively.⁴ More recently, I also showed that Rnd3 plays multiple roles in cortical progenitors during embryonic neurogenesis as in the regulation of cell cycle progression and the maintenance of adherens junctions.⁵

Importantly, this work represents one of the first studies on Rnd functions *in vivo* and its novelty and impact led to publications in highly regarded

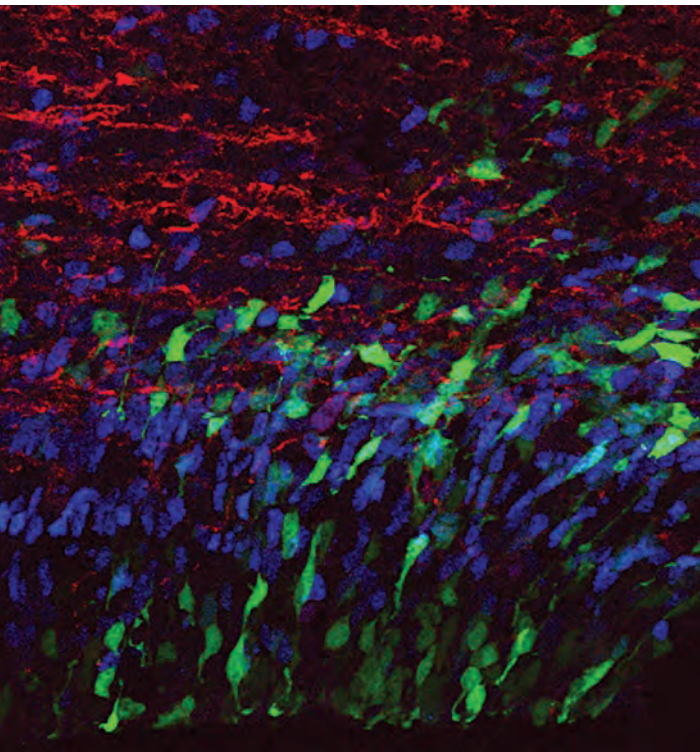
4 Pacary, E. et al. (2011) *Neuron* 69, 1069–84.

5 Pacary, E. (2013) *Nat Commun* 4, 1636.

journals. Moreover, this FEBS-funded postdoc strengthened considerably my expertise in the field of neuronal development and RhoGTPases, allowed me to learn a large range of techniques such as *in utero* electroporation, and thus undoubtedly played a crucial role in my recruitment as research associate (CR2 INSERM) in the laboratory of Nora Abrous at the Neurocentre Magendie, in Bordeaux, France.

My previous work provided mechanistic insights into the critical aspect of neuronal differentiation and neuronal migration regulation, highlighting a key role of the RhoGTPases. My current projects are aimed at further understanding the regulation of neuronal development by RhoGTPases, focusing on Rnd proteins, and will extend this analysis to adult neurogenesis. For instance, one of my current projects is the study of the role of Rnd proteins in the regulation of dendrite, spine and synapse formation in the developing hippocampus and their implication in the development of hippocampal-dependent memory. To decipher these functions, I am knocking down Rnd expression in the developing hippocampus by using *in utero* electroporation. FEBS has played an important role in the development of this project, too, since the equipment for *in utero* electroporation was purchased thanks to a FEBS Distinguished Young Investigator Award.

These projects are of fundamental importance from a basic scientific perspective, with the goal of providing mechanistic insights into the critical aspect of developmental and adult neurogenesis and memory regulation. They are also important from a clinical perspective, with the goal of improving strategies of brain repair and providing effective therapies for a range of disorders involving cognitive impairment.



Cerebral cortex electroporated with a green fluorescent protein construct and stained for the transcription factor Tbr2 (blue) and Tuj1, neuron-specific beta-tubulin (red).



Jörg
Mansfeld.

SEARCHING FOR TRUFFLES

by Jörg Mansfeld, *FEBS Long-Term Fellow (2008–2011)* and *Distinguished Young Investigator (2012)*

Writing about the intricate path that eventually led me to become an independent group leader feels a somewhat delicate subject as I am only beginning to approach what many young scientists perceive as a thin red line between success and failure. At the start of my studies of biology at the University of Konstanz in 1997 I still remember the very first lecture, given by Werner Franke of the German Cancer Society Centre (DKFZ), in honour of the great chemist Peter Hemmerich. When Franke talked about his fascination with science and what in his opinion would be essential to succeed, he made the analogy of a truffle pig trying to find the biggest truffle in between thousands of roots. One would need to be persistent, determined, willing to get one's hands dirty, and open to new approaches. This analogy stuck and turned out to be a good companion for the coming years.

As part of my studies, I visited the laboratory of Helmut Platter to work on the actin cytoskeleton of *Paramecium tetraurelia* under the guidance of Roland Kissmehl. His enthusiasm sparked my passion for research and I continued working with him for my diploma thesis as well. To this day I consider this time important in the sense that I rarely see science merely as competition for the highest Impact Factor but as a chance to explore something truly new.

An internship in the Academy of Science in St Petersburg just before my diploma thesis fuelled the desire to go abroad for my PhD studies. I decided to attend an interview at the Pontificia Universidad Católica in Santiago de Chile to work on transcytosis and receptor recycling, in hindsight probably more for the idea of doing something different than for scientific opportunities. Unable to secure funding for the full duration of a PhD there, however, I looked closer to home to learn everything about biochemistry and cell biology in the laboratory of Ulrike Kutay at the Swiss Federal Institute of Technology (ETH Zürich). Here, I investigated how nuclear pore complexes, giant protein assemblies that mediate all transport between the nucleoplasm and the cytoplasm, are built and assembled in the nuclear membrane.¹ Ulrike's thorough experimental approach and the extremely high standards she set in scrutinizing data and hypotheses were another key step in my scientific education. Her dedication and passion for research were again contagious and fostered the dream of becoming an independent scientist myself.

Being intrigued by dynamic changes of multi-protein complexes during the cell cycle, towards the end of my PhD I went for an interview with Jonathon Pines at the Gurdon Institute in the University of Cambridge. Jon's work has been instrumental in uncovering different aspects of mitotic regulation and, after talking

¹ Mansfeld et al., *Molecular Cell* 22 (2006), 93–103; Mitchell et al., *Journal of Cell Biology* 191 (2010), 505–21.

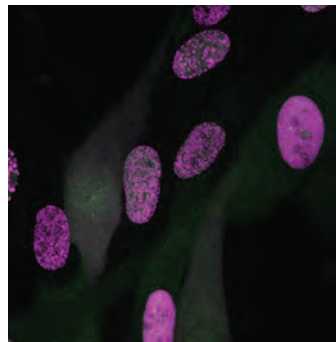
to him and members of his laboratory, I was convinced that this should be my next step. Unfortunately, it was uncertain whether he would have funds for the time in question, unlike two other laboratories where I had gone for interviews and from which I had received offers. Coming back to Zürich I faced a dilemma: should I follow my desire to work on mitosis in Jon's laboratory or instead choose secure funding elsewhere? Since my PhD with Ulrike was very fruitful, I was able to apply for several postdoctoral fellowships. Among those I secured, the FEBS Long-Term Fellowship was the most attractive because it offered potentially three years of funding and future funding possibilities such as the FEBS Distinguished Young Investigators Awards and the FEBS Follow-up Research Fund.

In Jon's laboratory I investigated how the Anaphase-Promoting Complex/Cyclosome (APC/C) ubiquitin E3 ligase ensures faithful chromosome segregation and genomic stability. Combining mass spectrometry, biochemical and cell biological approaches, I identified a novel subunit of the APC/C in human cells which is required for proper mitotic checkpoint function.² In collaboration with Ashok Venkitaraman's laboratory at the MRC Cancer Cell Unit in Cambridge, we further showed that the E2 ubiquitin-conjugating enzyme UBE2S works in concert with the APC/C to elongate ubiquitin chains on APC/C substrates.³

In 2012 I was delighted to discuss this work with the other FEBS Long-Term Fellows at the First FEBS Fellows' Forum in the beautiful Costa Ballena resort in Spain. This was a great opportunity for us Fellows to get to know each other, talk about science and future career opportunities, and finally meet with members of the FEBS Fellowships Committee in person. I hope this meeting will be a

2 Mansfeld et al., *Nature Cell Biology* 13 (2011), 1234–43.

3 Garnett et al., *Nature Cell Biology* 11 (2009), 1363–9.



Visualizing the cell cycle by endogenous probes. Retinal pigment epithelial cells (RPE-1) expressing endogenous mRuby-PCNA (magenta) and Cyclin A2-Venus (green).

recurring event in the future since forging bonds between young scientists at similar steps in their careers appears an essential and logical approach to me.

Towards the end of my postdoctoral work, the FEBS Distinguished Young Investigator Award enabled me to pursue independent projects, test ideas, and obtain the preliminary data that were essential to be rewarded with an Emmy Noether stipend from the German Research Foundation (DFG) to fund my own group. I remain very indebted to Jon for the scientific freedom I experienced and I am grateful for all his support. In 2013, I moved back to Germany to set up my own laboratory at the Biotec Institute of the TU Dresden, working on the role of proteolysis during quiescence and the re-entry into the cell cycle.

Part of this article originally appeared in FEBS News (May 2013)

A LOVE AFFAIR WITH SCIENCE

by Fabiana Perocchi, FEBS Return-to-Europe Fellow (2011–2012)

It was an extremely cold day in Munich eight years ago; the entire city was covered in snow. That day I fell in love. For the previous two years I had been working on a puzzle with thousands of pieces, roughly the number of parts that make up an entire mitochondrion in budding yeast. This was the goal of my PhD studies in the team

of Lars Steinmetz at the European Molecular Biology Laboratory in Heidelberg: how does the energy factory of the cell accomplish its tasks; what are the team players and how do they communicate with each other?

These questions were more complex than my imagination and visualization alone could piece together and for more than two years I had used all sorts of computational tools to assemble the puzzle and to model *in silico* mitochondrial protein–protein interaction networks. Until then, though, I had never witnessed a mitochondrion in action! It was love at first sight when I finally could take them out of the cells and observe them doing all sorts of tasks: importing proteins, consuming oxygen, producing ATP. It was at that time that I joined the team of Holger Prokisch at the Institute of Human Genetics of the Helmholtz Centre in Munich, for a three-month internship. After that experience my scientific career turned into a self-rewarding mission to discover the intimate secrets of this powerful organelle.

I would pack my suitcases and move without hesitation from one country to another, from one continent to another, and land wherever I could find the best scientific and technological tools to continue my investigations on mitochondria. This is why after three years of postdoctoral research at Harvard Medical School and Massachusetts General Hospital I applied for a FEBS Return-to-Europe Fellowship.

My research studies in Harvard had been extremely successful, culminating in the discovery of the genetic identity of a calcium channel of mitochondria, sought-after for 50 years. I was at a crossroads. My findings were opening the way to many opportunities for my future career in science. As the old adage says: 'Strike while the iron is hot.' I could remain at Harvard and follow up on my discoveries. This would have certainly given

me additional high-profile publications, publicity and recognition in the field of calcium signalling. On the other hand, I felt my mission there had been accomplished and other scientists could sort out the details.

I was looking for the next challenge: could we figure out effective therapeutic strategies to replenish a cell with sick mitochondria, as in many rare and common human disorders, by replacing them with new healthy ones? A worldwide leading group, headed by Luis Serrano at the Centre for Genomic Regulation in Barcelona, was actively pursuing similar challenges. Thanks to the FEBS Return-to-Europe Fellowship I was able to continue my scientific journey with my beloved mitochondria. Not only that, the FEBS Fellowship supported the development of my successful transition from postdoc to independent research group leader: I was able to work on both my research ideas and fundraising for my next research position.

I am now back in the place where I fell in scientific love for the first time. In summer 2012, I created and recruited my team of motivated and passionate young scientists at the Institute of Human Genetics of the Helmholtz Centre and the Gene Centre of the Ludwig-Maximilians University in Munich.

The most difficult challenge in a young scientist's career is to achieve independence, moving from being led to becoming a leader, mentor and manager of the next generation of scientists; and at the same time gaining the proper qualifications required for a long-lasting future in academia. At this key crossroads, programmes like the FEBS Return-to-Europe Fellowship can help greatly in shaping our scientific future.

Fabiana Perocchi (far left) and her research team.



FINANCES

In 50 years, FEBS has had just three Treasurers: Prakash Datta (1966–1990), Iain Mowbray (1991–2011) and Alan Fersht (2012–). In this chapter, Iain Mowbray recalls how Datta set about establishing an income to fund FEBS' aspirations, and then he describes his own time managing FEBS finances. Finally, Alan Fersht sets out the current financial strategy of FEBS, to ensure the Federation remains able to continue its work to promote, encourage and support research in the molecular life sciences.

LONG-TERM GUIDING HANDS ON FEBS' FINANCES

*by Iain Mowbray, Assistant Treasurer (1986–1989),
Treasurer Elect (1990) and Treasurer (1991–2011)*

That FEBS grew to become such a successful organization is in no small measure due to the imagination and foresight of its first Treasurer, Prakash Datta. Datta's view was that without adequate financial resources, such an organization would have little impact. He thus set about providing a source of income for the fledgling federation.

The obvious model was that of the Biochemical Society (UK), with its income provided by the *Biochemical Journal*. It was also fortunate that a strong



Iain Mowbray.

supporter of FEBS was Theodor Bücher, then President of the Gesellschaft für Physiologische Chemie and also Managing Editor of the leading German biochemical journal, *Biochemische Zeitschrift (BZ)*. Bücher's proposal was that instead of FEBS founding a new journal, *BZ* should be converted into a FEBS journal. *BZ* was owned by the publisher Springer-Verlag and both its Editorial Board and the publisher, represented by Dr Herman Mayer-Kaup, could see that a German-language journal, despite its distinguished past, was failing to make a significant impact in the



Theodor Bücher, who played a crucial role in FEBS' acquisition of the *European Journal of Biochemistry*.

largely (USA-led) English-speaking biochemical world. Datta believed that if FEBS were to embrace a reborn *BZ*, then it should own the copyright to the journal. Whether it was Datta's engaging personality or an appreciation of reality that persuaded Mayer-Kaup – who was an urbane Shakespearean scholar – to agree to this is unclear, but Springer-Verlag consented. The independence provided by the possibility of removing a successful journal to another publisher was crucial in allowing FEBS to negotiate publishing contracts that were favourable to FEBS both operationally and financially, and under Claude Liébecq as its first Editor-in-Chief, the *European Journal of Biochemistry* rose from the ashes of *BZ* and thereafter thrived (see p.47).

Bill Whelan, then FEBS Secretary General, was keen also to found a 'Letters' journal akin to *Biochemical and Biophysical Research Communications (BBRC)* and this had the support of Bernard Horecker, the Chair of the Editorial Board of *BBRC*. There was however strong opposition, and opinion at the FEBS Council at the 4th FEBS Meeting in Oslo in 1967 was divided. Nevertheless, active recruiting of prominent biochemists such as Hans Krebs and Fred Sanger – both Nobel Laureates – as potential editors and adopting North Holland Press (since taken over by Elsevier) as

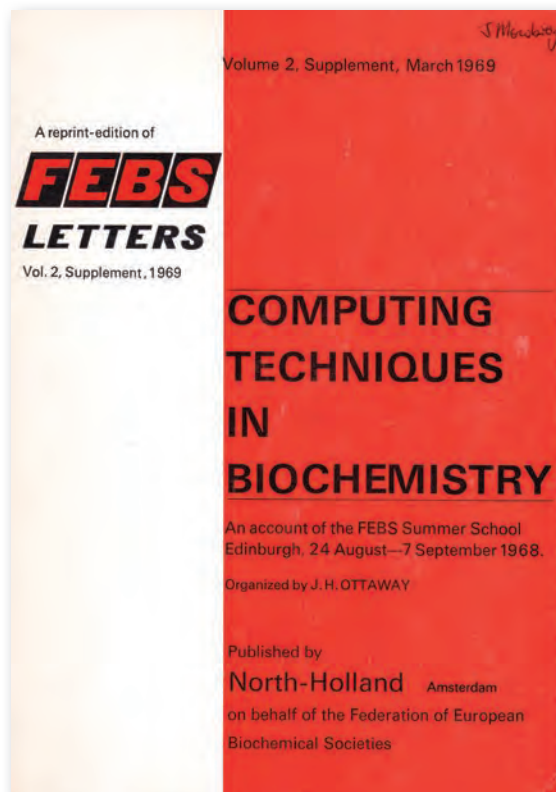
publishing partner because of its development of a photo-offset process ideally suited to rapid publication, led to the majority of FEBS Constituent Societies later that year agreeing to the venture (see pp.18 and 53). Prakash Datta, who had been central to promoting this development, agreed to become the first Managing Editor of *FEBS Letters*. Crucially, again, he also insisted that FEBS be the copyright owner.

The success of *FEBS Letters*, both scientifically and financially, owes a huge debt to Datta for his superb management and constant drive to accept for publication only research in its final form, not to be republished *in extenso* elsewhere. As a chemistry graduate who subsequently studied medicine, he always sought to attract articles that had medical relevance, arguing that spreading the subscription base to clinics was vital to the journal's income. His relaxed and informal way of running the journal with only the aid of his fierce secretary, Anna Straker, and his wide circle of scientific contacts, ensured that its quality and extensive output made it one of the most cited journals in the 17 years (1968–1985) of his tenure. His retirement as Managing Editor was marked by *FEBS Letters'* publishing partner, Elsevier, donating funds and an annual medal to establish the Datta Lectureship as one of the principal plenary lectures at each FEBS Congress.

As FEBS Treasurer and in charge of its bank accounts, Datta became in effect the Chief Executive of FEBS, providing direct financial support for its annual Meetings and Summer (later Advanced) Courses. This inevitably led to the application for FEBS to become a registered charity in order to maximize tax-free income from its journals for use in other approved scientific activities. Status as a registered charity in England and Wales was finally conferred after rewriting the Statutes and Guidelines and taking legal advice in December 1970.

An account of the FEBS Summer School held in Edinburgh 1968 which Prakash Datta and Iain Mowbray helped to organize.

My association with Datta owed much to a series of coincidences. As a physical chemistry undergraduate at Edinburgh University, I had opted for biochemistry as a course outside my main honours stream and then switched to a biochemistry degree. Following work on a project designed by Jim Ottaway aimed at simulating metabolism, Ottaway suggested that I undertake a PhD to measure the flux of radiocarbon-labelled intermediates in intact perfused rat hearts and derive the associated rate parameters by computer simulation. Ottaway conceived of organizing a conference to gather together biochemical, mathematical and computer expertise to expand our knowledge and provide contacts for advice. He had come to Edinburgh from University College London (UCL) where he and Datta had run the medical biochemistry course, become friends and had co-authored *Aids to Biochemistry*, one of a series of textbooks aimed at medical students. Datta suggested to Ottaway that we might meet our objectives by organizing a FEBS summer school and, under the title 'Computing Techniques in Biochemistry', this took place over two weeks in 1968. As the assistant director, my role was to match participating students with the most appropriate practical exercises to their backgrounds and aims. In addition, as an Edinburgh local, I was able to offer advice on the social programme. I had once before met Datta on a visit with Ottaway to UCL and had been treated by him to my first Indian curry. In Edinburgh, the very sociable side to his personality was a significant asset to the school's social programme. As the son of a Scottish woman from Greenock who, as was not uncommon in the time of Empire, had gone to India as a missionary teacher, Datta unexpectedly had some background in



common with me. In India she had married her college principal before he was appointed by Gandhi to be the Indian High Commissioner to the League of Nations in Geneva, where Datta was brought up.

From Edinburgh I moved to Melvin Calvin's Department of Chemical Biodynamics at the University of California in Berkeley where I had a postdoctoral Carnegie Fellowship. In 1971 I applied for a lectureship at UCL. There was little prospect of UCL paying for me to attend an interview, but my contact with Datta in part led to UCL offering me the post. The Biochemical Society at that time held a three-day major meeting each year at UCL and I soon assumed responsibility as the local organizer. In time I also helped to found the Regulation in Metabolism Group and served as its first group secretary. The group secretaries at their annual

meeting also nominated one representative to sit on the Executive Committee of the Biochemical Society, which I had the privilege to do from 1978 to 1982.

My friendship with Datta strengthened, as his office was adjacent to my research labs on the fourth floor of the Darwin Building at UCL and he sponsored me to become a member of a number of local clubs and societies. Partly as a consequence of this friendship, I took my research students and postdocs to the annual FEBS Meeting (now Congress) and, through Prakash, became familiar with FEBS activities. Datta retired from UCL and as the Managing Editor of *FEBS Letters* in 1985 but he still came into UCL. After a health scare in 1986, he began to worry what would happen if he were to become seriously unwell. All of the financial affairs of FEBS had been run entirely by him and only in association with a London-based firm of accountants to meet the requirements of the then charity laws. My active involvement with the Biochemical Society in addition to our close friendship possibly made me the obvious person to approach. Consequently I visited him in the study at his home, and was shown how to access his computer files. That he and I were among the most computer-literate members of the UCL Biochemistry Department may also have been a significant factor. While I insisted to him that I was sure he was in robust health, I took on this information about FEBS finances over the next few months. When I was

invited to attend a FEBS Executive Meeting in 1986 to be introduced as the Honorary Assistant Treasurer, I accepted. My research on the mechanism of ATP conservation in myocardial ischaemia was going well and I had just been promoted to a readership. Datta's wife, Naomi, a very distinguished microbiologist and Fellow of the Royal Society, warned me that the commitment required for FEBS might be too great but I ignored her sensible advice in light of the clear benefits that FEBS had conferred on European biochemistry through Datta's continuing commitment. The FEBS Executive Committee and then Council appointed me as Assistant Treasurer and I continued to take over part of the Treasurer's duties. At the FEBS Council Meeting in Rome in 1989 I was appointed Treasurer Elect when Prakash announced his intention of resigning.

At that time, Europe was still strongly divided by the 'Iron Curtain' that separated East and West. FEBS had pursued a very active policy of engagement with both sides, sometimes in the face of considerable disapproval, for example in the divide between East and West Germany. FEBS always tried to build positive bridges with state officials and not to take a political stance since that would seldom be to the benefit of members in regimes that were less democratic than one wished. There were two problems: first, sending funds to support events in some regimes meant that any surplus could not be recovered, and so it was often ceded to the local Constituent Society; equally, exchange rate fluctuations meant that endless last-minute adjustments were needed. In the Eastern bloc, most bills had to be paid in cash, either local or exchangeable. The best



A cartoon of Prakash Datta that appeared on the cover of *FEBS Letters*, c.1986.



Executive Committee meeting December 1998 (from l-r): Joan Guinovart, Iain Mowbray, Brian Clark, Karel Wirtz, Julio Celis, Bill Whelan (President of the IUBMB), Vito Turk, Carlos Gancedo, Israel Pecht and Willy Stalmans.

exchange rates for local currency were usually available from the chief porter in one's hotel and transactions took place in the lift between floors! Datta and I were lucky in being relatively well built so that the body belts round our waists containing Deutschmarks, US dollars and roubles were not too obvious. Even in Western European countries there were problems because of foreign exchange rules and limits on the amount one could draw at any time from a bank on a single cheque. Because of the small maximum limit in Italy in 1989, Datta and I spent hours taking turns to queue up at the Congress bank counter to redeem cheques. However, this inclusiveness and determination to treat all Constituent Societies as equal remains one of the continuing successes of FEBS.

When I took over as Treasurer from Datta it was just as clear as it had been at the founding of FEBS that national societies starved of funds were likely to be relatively ineffectual in meeting their aims. Thus my objective, as Treasurer, was to follow Datta's lead and continue to husband FEBS' resources to provide a significant wealth base. The first priority was to keep the

journals viable, not only as conduits of research findings but also as businesses by (most importantly) forging good trusting relationships with our professional publishing partners; and further to make sure that FEBS received its fair share of the income generated from the quality assurance provided by our journals' distinguished Editorial Boards. The next goal was to keep a firm control on expenditure, looking for value for money in everything and keeping spending committees clearly informed about the resources available to them. The then Statutes set this as a discretionary responsibility of the Treasurer.

In the initial years my aim was to underspend each year so that a reserve could accumulate to provide stability should our income, somewhat overdependent on publishing, suffer a downturn. In addition, all of the investment income was recycled into the reserve accounts. That FEBS held the copyright of its journals was crucial. Without that, we would not have achieved the favourable financial terms we now have with our publishers. This firm determination led to FEBS parting company with Springer-Verlag

when their electronic development faltered; this was regrettable but understood by Dieter Czeschlik, Springer's representative for the *European Journal of Biochemistry*. Various other publishers were subjected to close scrutiny and interview before Blackwell was selected. The move from Springer to Blackwell met with significant opposition within FEBS but was a necessary business decision.

Later on in my tenure, having built up a reserve of over four times annual expenditure and with publishing income still buoyant, I was keen to encourage and support diversification into new schemes consonant

with our charitable aims so that the reserves would not continue simply to accumulate. Even with the unlikely scenario of a sudden complete cessation of publishing income, FEBS would still be able to fulfil its commitments. However, the more recent revolution in electronic publishing and increasing evangelical demand for free open access publication is very likely to lead to decreased income from the predominant subscription-access business model, even if financial support for peer review and the archiving and cross-referencing facilities pioneered and maintained by publishing companies will still be needed. One route



Executive Committee meeting in Oeiras, Portugal, December 2003 (clockwise, from l-r): Vito Turk, Iain Mowbray, Marja Makarow, Israel Pecht, Julio Celis, Claudina Rodrigues-Pousada, Guy Dirheimer, Joan Guinovart.



Executive Committee meeting in Berlin, 1997. Standing, from l-r: Karel Wirtz, Carlos Gancedo, Joachim Seelig, Prakash Datta, Willy Stalmans, Karl Dekker and Joan Guinovart. Seated, from l-r: Horst Kleinkauf, Iain Mowbray, Vito Turk and Israel Pecht.

to maintaining both income and services to science is to diversify the FEBS journal base. To this end I had in recent years been active in promoting and negotiating publishing contracts for *Molecular Oncology*, a translational cancer journal with Julio Celis as Editor-in-Chief, and most recently for *FEBS Open Bio*, an open access journal with Mary Purton as Executive Editor. In both cases, the copyright belongs to FEBS and, while initial investment has been needed, these two journals, handled properly, should before long make a positive contribution both scientifically and financially to FEBS.

When I became Treasurer, although I still had active support from Prakash Datta who continued to correspond with those appointed to Long-Term Fellowships for some years, it was obvious that I needed some secretarial help. Doris Herriott, who had recently retired as Meetings officer of the Biochemical Society, agreed to join me for two days a week and essentially established and ran my FEBS office at UCL

for 10 years. By the time she finally decided to retire fully, the increasing income of FEBS had allowed it to expand its main charitable activities and it was becoming a substantial burden on my time. It was clear that I needed a full-time secretary as replacement for Doris. A very competent Australian, Louise McSeveny, was working in our departmental office at UCL as a temporary secretary, and she agreed to come to work for FEBS. Over the next decade she became an indispensable part of the FEBS Treasury. Her dedication to helping young scientists in their applications for grants to attend Congresses or Advanced Courses was untiring, if occasionally exasperating for her.

FEBS was founded at a time when learned society support in biochemical sciences was relatively well developed within national boundaries. Its special role was to forge cooperation across state borders and fundamental to this was the rule that travel and research grants are only to be awarded to applicants who undertake an activity in a country different from that in which they currently live and work. This pioneering mobility scheme for Research Fellowships and YTF grants to attend Advanced Courses has been a major contributor to the integration and networking of European biological science. Given the disparity in income and support between different parts of the Continent, there is still a strong need for such programmes, despite the danger of actively promoting a 'brain drain' and impeding the even spread of economic development. FEBS' Collaborative Scholarship scheme to allow research students from economically deprived states to visit laboratories in Western Europe to conduct experiments impossible in their home laboratory but

requiring a return home to complete a thesis, is an initial attempt to mitigate this.

The debate about the need for a 'general' annual Congress rather than more focused Meetings on specialist research topics continues. FEBS' conclusion has been that for young scientists at the beginning of their research careers, who are not committed to a particular field, there is still a strong need to provide talks on research at the cutting edge but open to a wide-ranging audience. Indeed the case is perhaps even stronger now that research teams often comprise scientists trained initially in a variety of disciplines from physics and mathematics through chemistry and biochemistry to cell biology and genetics. It's encouraging to see that EMBO supports this and that the first joint FEBS | EMBO Conference in Paris, 2014, celebrated their parallel 50 years of existence together with the centenary of the French Society for Biochemistry and Molecular Biology.

The success of FEBS has only been achieved because of the many talented individuals who have

collaborated to generate income from our journals and use this for the educational benefit of the coming generation of scientists. FEBS is above all a team effort: the dedicated professionalism of journal editors and staff and of our publishing partners; the analytical expertise of the committees evaluating grant requests; the unstinting help and advice offered by the members of its specialist committees; and the services and advice provided by the elected officers to national societies and other organizations. As Treasurers, Datta and I were fortunate to have had, through the former constitution, a long-term guiding hand and central role as members of the FEBS teams.

Finally, I have made the most wonderful set of friends in every country in Europe and beyond, with colleagues willing to share their efforts freely and generously for the benefit of our science. This is the sort of legacy that provides a network of goodwill like, it seems, nothing else can.



Iain Mowbray (yellow shirt) at the FEBS Congress in Warsaw, 2004 with Bill Slater, former President of the IUBMB (far left) and next to him Guevork Kevorkian, President of the Association of Armenian Biochemists.

RESTRUCTURING FEBS' FINANCES FOR THE FUTURE

by Sir Alan Fersht, FEBS Honorary Treasurer

When I took over as FEBS Treasurer on 1 January 2012 I announced:

The immediate goals have been to transfer operations of the FEBS Treasury from London to a new office in Cambridge, and to update banking and administrative procedures. In the longer term, the challenge will be to maintain FEBS' income streams from its journals during a time of upheaval in scientific publishing and to manage FEBS' investments through the Eurozone crisis. The ultimate aim is to ensure that FEBS can continue its work to support scientists through its wide range of Fellowships, course travel grants, prizes and other initiatives.



Restructuring of FEBS

Prior to 2013, FEBS was an unincorporated charity, which is an outmoded form of governance for a large charity with financial, contractual and legal obligations. During 2012, FEBS updated its structure to become a company limited by guarantee (registered company number 08239097) and registered as a charity (number 1149638) – a model used by other significant UK-registered charities such as the Biochemical Society (UK). FEBS is still a charity but is now a legal entity with financial safeguards.

It is important to emphasize that the name, aims and activities of FEBS remain unchanged by the new structure. The organization's overall objective is formally stated as 'to contribute to and promote the advancement of research and education for the public benefit in the sciences of biochemistry and molecular biology and related disciplines ... by all suitable means'.

Publishing changes and FEBS finances

FEBS has recognized the value of and demand for open access publishing in the bioscience and wider community over recent years, and as a result its established journals offer open access publication options. Moreover, FEBS recently launched the entirely open access journal *FEBS Open Bio*.

At the same time, FEBS is very aware of how traditional journal subscription publishing models have enabled investment in and development of high-quality science publishing by its journals. Furthermore, as FEBS wholly owns its journals, this mode of publishing has generated significant income for FEBS to use to support and advance the molecular life sciences across Europe and further afield, through research fellowships, conferences, travel grants and

Sir Alan Fersht.

FEBS owns four scientific journals and uses the revenue they generate to fund its other activities.

so on. *FEBS Journal* and *FEBS Letters*, the established journals owned by FEBS, currently have a strong subscription base, but we must face the reality that the trend towards open access publishing will continue, and that current pricing structures for open access publication will ultimately result in a drastic reduction in FEBS' income – a problem FEBS shares with many other learned societies.

A new financial strategy for FEBS was therefore needed. FEBS is now trying to develop its current financial reserves as an endowment, with future income derived largely from that. As a result, FEBS is reassessing and reducing some of its recent high expenditure levels, with any excess of income over expenditure for the next two or three years of guaranteed income to be used both to cover its current commitments and to build up the endowment.

A key area of FEBS spending that had increased dramatically in recent years was Long-Term Fellowships (~€2.3 million in 2012), followed by Advanced Courses (~€0.9 million in 2012). Unfortunately, these high levels of spending are now unsustainable and both areas made fewer awards in 2013. Although clearly regrettable, this is unavoidable if FEBS is going to be able to continue to support biochemistry and molecular biology in the long term. The changes mean that funding in these programmes currently needs to be focused on the most outstanding applications.

FEBS programmes

Despite these concerns, there is much for FEBS to be positive about. Congress funding is maintained and we enjoyed a unique anniversary event in Paris, joining with EMBO for the FEBS|EMBO 2014 Conference in Paris, hosted by the French Society for



Biochemistry and Molecular Biology. FEBS continues to fund a variety of Advanced Courses on a range of important topics in molecular life sciences research, with many offering YTF grants and all at exciting locations across Europe. Although competition for Long-Term Fellowships is now fiercer, the full range of FEBS Fellowships is also still on offer. For Constituent Societies, FEBS will continue to fund National Lectures, FEBS 3+ Meetings and education workshops. All members of the FEBS Executive and other Committees (elected to their posts by FEBS Council) continue to devote their time and energy to FEBS and the bioscience community on a pro bono basis, with some administrative support only for the busier areas of FEBS work.

Modified from articles published in FEBS News (February 2012 and January 2013)

FEBS AND WOMEN IN SCIENCE

WORKING GROUP ON WOMEN IN SCIENCE (WISE)

The Working Group on Women in Science (WISE) was established in 2001. Its main objectives are to facilitate awareness of the issue of Women in Science, to encourage people to participate actively in promoting gender equality in science, and to support the Constituent Societies of FEBS and academic institutions in FEBS countries in efforts to improve the position of women in science.

The Working Group has organized workshops on topics related to Women in Science at several FEBS Congresses in recent years, as well as a lunch for young female scientists to discuss career-related issues with senior scientists. In addition, FEBS and EMBO

have worked together to select an outstanding female scientist for the FEBS | EMBO Women in Science Award. A list of the chairs of the Working Group are shown in Table 1.

FEBS | EMBO WOMEN IN SCIENCE AWARD

Launched in 2007 as a joint initiative of FEBS and EMBO, the aim of the award is to highlight the major contributions made by female scientists to research in the life sciences. Winners of the award will serve as inspiring role models for future generations of women in science.

Each year the winner is honoured at the annual FEBS Congress, where she receives a grant and a statuette, and presents a special plenary lecture. The lecture is normally published subsequently in the *FEBS Journal*.

The nominee must be a woman who has made significant contributions to her field of science, including work published in the past five years. The nominee's research must be based in one of the FEBS or EMBO member countries and in a scientific field covered by FEBS and EMBO, i.e. the life sciences, including medical and agricultural research.

The nominator is required to submit a nomination letter and letters of support from two other scientists,

TABLE 1: CHAIRS OF THE WORKING GROUP ON WOMEN IN SCIENCE (WISE)

2003–2004	Sissel Rogne
2005–2007	Saskia van de Vies
2008–2010	Ruth Hracky Paulssen
2011–Sept 2012	Lea Sistonen
Sept 2012–2015	Cecilia Arraiano

along with the nominee's CV and publication list. The closing date for nominations is mid-October in the calendar year preceding the year of the award. An award committee of eight members evaluates the nominees and makes the selection. The official announcement is then made via a press release prior to the FEBS Congress.

FEBS | EMBO Women in Science Award 2008

Naama Barkai (*below*) was the first-ever winner of the FEBS | EMBO Women in Science Award. She was honoured for her outstanding contributions to the field of systems biology and the mathematical modelling of biological systems. Naama Barkai's deep understanding of the relevant biology and physics allows her to combine experiments and theory to develop novel solutions to fundamental biological problems such as chemotaxis, embryonic development and the organization of the cellular transcription programmes.

Professor Uri Alon, a colleague of Barkai at the Weizmann Institute of Science in Rehovot, Israel, commented: 'Naama's work is consistently inspiring. She has, in my opinion, identified some of the most fundamental problems in systems biology and proposed elegant and powerful answers.'



The selection committee credits Barkai's originality and creative research for not only revolutionizing the field of systems biology but also significantly changing the way scientists think about complex biological processes. An associate professor at the Departments of Molecular Genetics and Physics of Complex Systems at the Weizmann Institute of Science in Rehovot, Israel, Naama Barkai utilizes mathematical modelling to unravel the principles that govern the design and function of biological networks. She was visiting professor at Harvard University (2005–2006) and a Robert H. Dicke Fellow at Princeton University where she worked with Stanislas Leibler on the theoretical analysis of biochemical networks. She received her PhD in Physics at the Hebrew University (1995) for research on statistical mechanisms of learning.

'I am honoured that FEBS and EMBO have recognized my work,' said Naama Barkai. 'Women are underrepresented in academia and this award helps to raise awareness of the opportunities for female scientists to further their research careers.'

In 2007, Naama Barkai was elected an EMBO Member and was an EMBO Young Investigator (2001–2004). She has received several prestigious awards including the Helen and Martin Kimmel Award for Innovative Investigation (2007), the Teva Prize for Research in Systems Biology (2005), the Morris L. Levinson Biology Prize from the Weizmann Institute of Science (2004) and the Michael Bruno Memorial Award (2004).

The 2008 FEBS | EMBO Women in Science Award of €10,000 was presented to Naama Barkai on 2 July 2008 at the 33rd FEBS Congress and 11th IUBMB Conference in Athens, Greece where she gave a plenary lecture subsequently published in the *FEBS Journal* (N. Barkai and D. Ben-Zvi, (2009), Big frog, small frog – maintaining proportions in embryonic development. *FEBS Journal* 276 (2008). 1196–1207).

FEBS | EMBO Women in Science Award 2009

Anne Houdusse, head of the Structural Motility Team, CNRS/Institut Curie, in Paris, was honoured for her outstanding contributions to the field of structural biology and the understanding of the molecular mechanism of action of myosins.



Anne Houdusse has established and clarified the molecular structure and function of myosins – a family of motor proteins vital for muscle contraction and motility processes such as cell division or transport of organelles within cells. She has translated details seen in atomic resolution structures into functional insight and co-developed a theory that describes the movement of the molecular motors during muscle contraction.

The selection committee praised Anne’s originality and research creativity as well as her courage in tackling difficult areas of science and her persistence in achieving results. ‘We are fortunate to work on a very puzzling and interesting question: how motor proteins convert chemical energy to produce force,’ said Anne Houdusse. ‘My laboratory’s contribution is just one piece of this incredibly complex and important puzzle, and the current picture is the fruit of the research led by many brilliant scientists. By trying to understand how to inhibit the activity of specific motors responsible for metastasis or cell proliferation we hope to develop therapeutic strategies against cancer.’

The award winner credits the support of the Institut Curie and dynamic collaboration with several researchers in contributing to the understanding of this fundamental problem in biology. As group leader at the French National Center for Scientific Research (CNRS) Institut Curie in Paris, Anne Houdusse studies the structure and function of biological macromolecules, using biophysical

techniques, particularly X-ray crystallography. She was a postdoctoral fellow at Brandeis University in Massachusetts, USA (1992–1998) where, with Carolyn Cohen and Andrew Szent Györgyi, she laid the foundation for her challenging work on structures of conventional myosins. At CNRS, she works closely with the American biologist Lee Sweeney.

The 2009 FEBS | EMBO Women in Science Award was presented to Anne Houdusse at the 34th FEBS Congress in Prague, Czech Republic, where she gave a plenary lecture subsequently published in *The FEBS Journal* (P. Llinas, O. Pylypenko, T. Isabet, M. Mukherjea, H.L. Sweeney and A.M. Houdusse, How myosin motors power cellular functions – an exciting journey from structure to function. *FEBS J.* 279 (2012), 551–62).

FEBS | EMBO Women in Science Award 2010

Ingrid Grummt, from the German Cancer Research Center in Heidelberg, has made important contributions to the field of transcriptional regulation in cells throughout her career. ‘Ingrid Grummt is an outstanding scientist who has made seminal contributions



in the field of regulation of gene expression, including the very recent discoveries that link ageing and some inherited diseases with the silencing of genes required for cell growth,’ said selection committee member Claudio Sunkel, Director of the Institute of Molecular and Cellular Biology in Porto, Portugal.

The 2010 winner is distinguished not only for scientific contributions but also for her commitment to the development of European science through her active service on various advisory boards, panels and scientific committees. ‘It is important to me to inspire young women to face personal and professional

challenges, to help them mobilize their strengths when in doubt and motivate and encourage them to keep their eyes on their goals. I think that integrating career and personal goals makes people happier and more productive in the long run,' said the award winner.

Prior to joining the German Cancer Research Center, Ingrid was a postdoctoral fellow at the German Academy of Sciences in Berlin and the Max Planck Institute of Biochemistry in Munich, and led a research group at the University in Würzburg, Germany. She has been honoured with prestigious awards such as the Science Prize of the Fritz-Winter-Foundation and the Gottfried Wilhelm Leibniz Prize for German scientists.

The 2010 FEBS|EMBO Women in Science Award was presented to Ingrid Grummt at the 35th FEBS Congress in Gothenburg, Sweden, where she gave a plenary lecture which was subsequently published in *The FEBS Journal* (I. Grummt, Wisely chosen paths – regulation of rRNA synthesis. *FEBS J.* 277 (2010), 4626–39).

FEBS|EMBO Women in Science Award 2011

Carol Robinson, Professor of Chemistry at the University of Oxford, was recognized for her pioneering work in the development of mass spectrometry as a tool used for investigating the structure and dynamics of protein complexes.



'Carol V. Robinson has pioneered, in an almost singlehanded manner, the use of electrospray mass spectrometry for structural studies of large multimeric protein assemblies. She had the courage to do what experts regarded as not feasible and has succeeded in the face of strong skepticism,' stated her collaborator Wolfgang Baumeister from the Max Planck Institute of Biochemistry in

Martinsried, Germany, in his nomination of Carol Robinson for the award.

'I am truly delighted that the work of my research group has been honoured in this way,' said Carol Robinson upon hearing of the award. 'Women from many continents and countries are employed in my group. They have enriched my research bringing different talents and skills.'

Robinson's research has opened up a new area of mass spectrometry. Her group was one of the first to use electrospray mass spectrometry to study large protein complexes. In collaboration with Micromass UK, she designed an instrument specifically adapted for the detection of high-mass complexes. This instrument has since gone into production in Canada and the UK and has now been installed in many laboratories around the world. More recently, her research has focused on combining mass spectrometry with cryoelectron microscopy.

The 2011 winner is distinguished not only for her scientific contributions, but also for her support and mentoring of women pursuing careers in science. As a group leader, Carol understands the importance of a flexible workplace for the scientists in her lab who are parents.

Her own career path was marked by her early start as a laboratory technician for seven years before obtaining a PhD. She then took an eight-year break to raise her three children. She returned to the lab as a postdoctoral researcher, built her research group and became the first female professor of chemistry at the University of Cambridge in 2001. Three years later, she was elected a Fellow of the Royal Society and was awarded the Royal Society's Rosalind Franklin Award which promotes women in science, technology, engineering and mathematics.

The 2011 FEBS|EMBO Women in Science Award was presented to Carol Robinson at the 36th FEBS

Congress in Turin, Italy, where she gave a plenary lecture which was subsequently published in *The FEBS Journal* (C.V. Robinson, Finding the right balance – a personal journey from individual proteins to membrane-embedded motors. *FEBS J.* 279 (2012), 663–77).

FEBS | EMBO Women in Science Award 2012

Susan Gasser, Director of the Friedrich Miescher Institute for Biomedical Research in Basel, Switzerland, was recognized for her outstanding scientific research on genome stability and epigenetics, and her commitment to mentoring women pursuing a career in science.

The Gasser laboratory studies two research topics of central importance to human health and disease: the maintenance of genome stability through DNA repair, and the role of epigenetic inheritance during tissue differentiation. Susan and her colleagues have examined how the experience of the cell and the environment affects the epigenetic code in different organisms. This Swiss scientist has authored more than 200 scientific articles and reviews over 30 years. The implications of her research are far-reaching for human disease, notably cancer. ‘Susan Gasser is not only a first-rate scientist, but is also playing an important role as one of the most



Susan Gasser.

dynamic and successful female scientific leaders in Europe and, indeed, anywhere,’ stated Gottfried Schatz, Professor Emeritus of Biochemistry at the University of Basel.

‘This is indeed a great honour, since being recognized as a top scientist seems harder for a woman than for a man,’ said the award winner upon hearing of her distinction. ‘My own success, in any case, reflects that of my team, which balances individual goals with those of the group as a whole. This coordination is a talent women often have.’

‘She clearly represents a role model for female scientists in Europe and beyond,’ commented Erich Nigg, director of the Biozentrum, University of Basel, who has followed Susan’s scientific career for the past 25 years.

The 2012 FEBS | EMBO Women in Science Award was presented to Susan Gasser at the 37th FEBS & 22nd IUBMB Congress in Seville, where she gave a plenary lecture, subsequently published in *The FEBS Journal* (A. Gonzalez-Sandoval, B.D. Towbin, and S.M. Gasser, The formation and sequestration of heterochromatin during development. *FEBS J.* 280 (2013), 3212–19).

FEBS | EMBO Women in Science Award 2013

Geneviève Almouzni of the Institut Curie in Paris was recognized in 2013 for her outstanding contributions to research in the area of histones and chromatin, her engagement in promoting epigenetics in Europe, and her active role in mentoring female scientists.

Almouzni has investigated the basic mechanisms involved in chromatin assembly from the nucleosome to higher-order structures such as those found in heterochromatin domains. The dynamics of this organization in the context of the cell cycle and development as well as genotoxic stresses have been central to her research. ‘Her work has greatly extended our understanding of chromatin assembly and DNA repair,’ said Sir John Gurdon, winner of the 2012 Nobel Prize in Physiology or Medicine, who worked with

the award winner on examining aspects of nuclear reprogramming involving histone variants.

'It is a great honour for all scientists who work in the field of chromatin and epigenetics, particularly for all women in science,' said Geneviève upon hearing of her award.

This French scientist has been an inspiring mentor and motivator for other women in science throughout her career at the Institut Curie. She is also highly engaged with the European scientific community as the coordinator and member of international projects such as the FP6 Epigenome Network of Excellence and the FP7 European Network of Excellence EpiGeneSys. Her publishing record encompasses more than 160 papers and she sits on numerous committees and editorial boards including the Advisory Editorial Board of *The EMBO Journal*. 'Her capacity to succeed at all levels and still have the time and energy for others is admirable,' stated her colleague Edith Heard, Director of the Research Unit at the Institut Curie.

The 2013 FEBS|EMBO Women in Science Award was presented to Geneviève Almouzni at the FEBS Congress in St Petersburg, where she gave a plenary lecture which was subsequently published in *The FEBS Journal* (S. Adam, S.E. Polo and G. Almouzni, How to restore chromatin structure and function in response to DNA damage – let the chaperones play. *FEBS J.* 281 (2014), 2315–23).

FEBS|EMBO Women in Science Award 2014

The winner of the 2014 FEBS|EMBO Women in Science Award was Pascale Cossart, a world-renowned microbiologist and professor at the Institut Pasteur in Paris. Cossart received the award for her outstanding contributions to the study of how bacteria infect human and other cells, her active role in encouraging cooperation

between different disciplines in the life sciences, and her support and mentoring of young scientists.

Cossart has studied in detail how the infectious bacterium *Listeria monocytogenes*, a deadly food-borne pathogen, infects cells and leads to disease (for example, encephalitis, bacteraemia and gastroenteritis). Cossart and colleagues were the first to work out how *Listeria monocytogenes* enters and takes over cells that it infects. This has helped to build up a comprehensive picture of the genetic and biochemical processes that make this organism so effective and lethal. 'Her work has provided an incredible foundation for the study of how microorganisms infect cells and disrupt the essential processes needed in a healthy cell,' said Julian Davies, Professor Emeritus in the Department of Microbiology and Immunology at the University of British Columbia.

Upon hearing of her distinction, Cossart said: 'I am really happy. This prize is very different from any other award. It comes from EMBO and FEBS which means a lot. It not only recognizes scientific achievements but also social behavior and engagement in the scientific community. I truly feel honoured and encouraged to go ahead.'

This French scientist has been an inspiring mentor and supporter of younger scientists, including women,

Pascale Cossart at the FEBS|EMBO Conference in Paris, 2014.





Above and opposite: Women in Science networking day at the Friedrich Miescher Institute.

throughout her career. ‘Science has become increasingly competitive over the years and it is important to encourage young scientists to pursue their efforts to have a productive and also happy scientific career,’ said Cossart. She is also highly engaged with the international community of microbiologists, having published more than 300 papers and serving or having served on numerous committees and editorial boards. She was a member of the Editorial Board of *FEBS Letters* from 2002 to 2008 and a member of the Advisory Editorial Board of *The EMBO Journal* from 1996 to 2008. She was a member of the FEBS Advanced Courses Committee from 2008 to 2009. She was elected a member of EMBO in 1995 and has served as a member of EMBO Council since 2010. ‘Her unfailing ability to pursue important biological problems and, at the same time, support her colleagues mark her out as one of the best scientists of her generation,’ stated her colleague Carmen Buchrieser, Head of the Unité Biologie des Bactéries Intracellulaires at the Institut Pasteur.

WOMEN IN SCIENCE: LOOKING BACK AND LOOKING FORWARD

by Susan M. Gasser, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland

For a long time I thought the problem would solve itself: with more and more young women choosing to study science at university, it seemed natural that the number of female PhD students, postdocs, group leaders and professors would rise too. A natural knock-on effect would equal out the gender gap that had hung over European academic research for many years. However, lately I have come to realize that, although the number of female students has increased, the gender gap is still very large at all levels beyond the postdoctoral stage and a disproportionate number of women decide not to assume the career of an independent research group leader. What specific measures will help reduce this gap in the future?

Looking back at my own career, which started at the same time as I embarked on family life at the end of my postdoctoral studies, I see three things that provided support and helped me progress through a professorship at the University of Geneva to the directorship of the Friedrich Miescher Institute for Biomedical Research.

The first is *mentoring*. I had the great fortune to find a strong mentor in Jeff Schatz, my PhD supervisor. He supported me with unbiased tips and insights when I was young, recommended excellent labs for my postdoctoral studies, and continually suggested my name for committees, nominations and small honours. To this day he is an extremely valuable partner in discussion, whether it concerns science and science policy, or questions of work–life balance. We all need support in our careers and perhaps women need it even more than men, for there is a fragile period when family demands and career demands seem at odds, and some good fortune – a funded grant, an extra good postdoc or an award – can make all the difference. Mentors do not have to be women. Men can help women navigate

the ins and outs of the research grant business, and can help them overcome their own biases, which often work against their careers. Men can be proud of successful woman trainees and trumpet their achievements. I find that successful scientists with daughters are particularly good mentors – not due to their paternal instinct, but because they know what it means to be proud of a female's accomplishments. Mentoring programmes that include male mentors should thus be set up with the goal of encouraging women to pursue careers in science.

Although questions about work–life balance concern all scientists, women are usually more affected by these issues because women still bear the bigger burden of childcare and domestic work. Thus the second important initiative is to highlight *role models*. Female researchers, and particularly mothers, are still outliers. Family issues can be overwhelming and usually women cannot talk about their struggles with their male colleagues. Without female peers or role models, women cannot discover how others in the same boat are faring. Whenever I talk about women and scientific careers, what resonates the most with younger female scientists are the hands-on tips on how to manage both a scientific career and family life; how to prioritize and organize your time, underscoring what is important when leading a lab as a mother. These insights not only provide tangible solutions, but they also illustrate to

young women researchers that they can indeed 'do it', and that most likely there are answers to the challenges they face. I am grateful for the FEBS|EMBO Women in Science Award, as it got me out to talk about the many successful women who combine career and family life. Part of my goal is simply to expand the public perception of 'a scientist' to include women, and thus provide talented young women with role models.

Thirdly, it goes without saying that society can do a lot to facilitate female careers, whether in science or music, art or engineering, by ensuring good and efficient day care for children. Proper school activities and schedules that do not include two-hour breaks at lunch time (i.e. times when mothers are expected to be at home) and are standardized for children in different school classes – these and other such measures would improve life immeasurably for young working mothers. Not every woman needs or wishes to have a career, and raising a family successfully is indeed a full-time job, but by tailoring schools and day care to accommodate working parents, society will simplify career paths for talented women who want to do both.

Finally, even once these practical questions are worked out, I recommend that women foster a *network* of support, even if that network spreads across different institutes, organizations or countries. As a young woman scientist in Switzerland, I took great pleasure and comfort in having a large number of female colleagues in the US with whom I corresponded and discussed results at Meetings. This helped balance the drought of female peers that I experienced in Switzerland, a country that was – in every other way – a mecca for research.

I would like to thank my lab members, administrative support and in particular Dr Sandra Ziegler for help on this text. I gratefully acknowledge receipt of Women in Science Awards from FEBS|EMBO and from the Weizmann Institute in Israel.



INTEGRATING LIFE SCIENCES ACROSS EUROPE

50 YEARS OF FEBS IN A DIVIDED AND ECONOMICALLY UNEQUAL EUROPE

*by Mathias Sprinzl, Chair of the FEBS Working
Group for Integration*

The Federation of European Biochemical Societies turned 50 years old in 2014. Thirty-six biochemical societies from different European countries are now Consistent Societies. The countries they represent have different histories, different traditions, different cultures, different economic performances, and also different ways of supporting and organizing science and higher education. Nonetheless, all European biochemical societies were able to join FEBS from the start; FEBS even abstained from using the term 'national' in addressing them, in order to allow societies in both East and West Germany to become members.

Indeed, in 1964 Europe was deeply politically and economically divided: on the one hand there was the Western world, with economies based on private property and parliamentary democracy, and on the other, Eastern Europe, the so-called socialist bloc, with rigid state-controlled economic systems and one party ruling all affairs of state. These differences also left visible marks on the way in which scientific institutions were run and how people working in these institutions were treated.

Let us recall some historical facts that marked 1964, the year in which FEBS was founded. Soviets and Americans were competing in efforts to dominate space, and weapons of mass destruction were considered as valid components of politics and diplomacy. In Moscow, Communist Party First Secretary Khrushchev, who tried to start peaceful negotiations with the West, retired and was replaced by a hardliner, Leonid Brezhnev. The Vietnam War was in full swing and Nelson Mandela, political leader of the campaign against apartheid in South Africa, was sentenced to life imprisonment. The Olympic Games, dedicated to ideas of peace, friendly competition and understanding, were also held in 1964 – in Tokyo.

In that year I began work as a graduate student at the Institute for Organic Chemistry and Biochemistry of the Czechoslovak Academy of Sciences in Prague. This institute harboured, under the protective hand of its internationally recognized director František Šorm, many excellent chemists and biochemists. Professor Šorm, later one of the first Chairmen of FEBS, was politically engaged and took care of external relations between the Institute and the State. This allowed scientists from the Institute, including graduate students, to dedicate their time and effort to research.

But still, many restrictions remained. Access to scientific literature was limited and even *Science* and *Nature* were frequently subject to censorship. Permission to travel, even to East European countries, was controlled by the State and the (Communist) Party and it was not advisable to differ publicly from the official line in discussions of political issues. In 1964, the Statutes of FEBS were signed by 18 representatives of the founding European biochemical societies, among them four from the Communist countries of the Eastern bloc including the Czechoslovak Biochemical Society. An important principle of FEBS was that political, national and territorial considerations were omitted from its Statutes. This was very much ahead of its time and differed from contemporary political practice.

The concept of the 'fathers of FEBS' proved to work. With the establishment of FEBS it became a little easier to visit conferences, workshops and Congresses abroad and to benefit from FEBS travel funds. From the very beginning it was the practice to organize FEBS conferences and Congresses in alternate years in different countries of East and West. This automatically increased the chance of communication across the Iron Curtain. We in Prague could feel that FEBS was contributing to better and easier networking and to the exchange of scientific ideas.

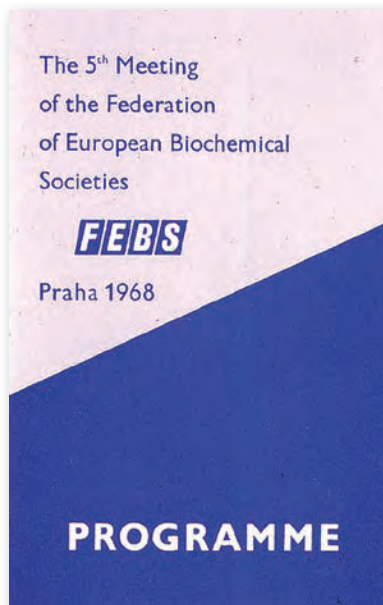
The year 1968, when the Czechoslovak Biochemical Society organized the FEBS Meeting in Prague, was especially exciting. Many of us remember it as the year of the Prague Spring. The FEBS Meeting was not only enthusiastically attended, but it was recognized as a special

event providing, for many of us for the first time, the opportunity for free communication with others in the European scientific community. Unfortunately, this period, full of hope and optimism, did not last very long. The Prague Spring was suddenly terminated, just one month after the FEBS Meeting, by the occupation of Czechoslovakia by armies of the Warsaw Pact. The dream of 'socialism with a human face' was replaced by a period of 'normalization,' an ironic description for a period of political repression affecting science as well as everyday life. This dark period hit the Eastern European countries with differing intensity but left its mark almost everywhere. Even so, FEBS maintained its principle of disregarding political, ideological and territorial differences and tried to encourage all European biochemical societies to participate in its scientific activities.

The political situation that divided Europe for more than 40 years suddenly changed in 1989. In that unforgettable year, the Berlin Wall was demolished and almost all borders between East and West were

opened. The face of Europe radically changed. Germany could unite again, the Soviet Union was dissolved and many new post-Communist republics were created in Central and Eastern Europe. In several of the new states, biochemical societies were established and most of them became members of FEBS.

The Communist rules and practice left behind a difficult economic and political situation that was slow to change. Yet in almost all post-Communist countries people could start to travel freely. This led to an



exodus of many scientists from East to West. Many formerly successful scientific institutions in the Eastern countries were left without young academics. FEBS recognized this brain drain and at the FEBS Council meeting in Nice in June 1999, a new Working Group to explore ways to improve assistance to biochemists of Central and Eastern European countries (WOGCEE) was constituted with Guy Dirheimer as its first Chair. WOGCEE visited many CEE countries, collected information about the situation in the life sciences there, and promoted a flow of information about the FEBS mission.

In addition to the traditional activities of FEBS as organizers of Congresses, workshops, practical courses and fellowships, specific objectives were defined to help biochemical societies in these economically less developed countries:

1. to improve the flow of scientific information by providing Internet access;
2. to increase the number of practical courses organized in Eastern European countries;
3. to improve the collaboration of life scientists from Eastern countries with Western European laboratories, especially at the level of graduate students and postdocs;
4. to combat the brain drain from East to West and encourage young scientists to return to their home institutions after a stay abroad;
5. to increase the number especially of young scientists participating in FEBS Congresses, Meetings and workshops;
6. to organize donations of laboratory instruments to scientific and academic institutions in Eastern Europe.

Positive results of this endeavour soon became visible. WOGCEE visits and information provided by personal

contacts between FEBS representatives and national society members helped to dismantle the top-down structure traditionally existing in societies that had not always been democratically organized. As a result of this, young scientists became aware of the benefits provided by FEBS and the number of applications for Youth Travel Fund and Short-Term Fellowships from Eastern Europe increased, sometimes even exceeding the number of applications from Western countries. In the first decade after the 'velvet revolution' in Czechoslovakia and other East European countries, the Scientific Apparatus Recycling Program (SARP) of FEBS provided rapid help to deal with the shortage of laboratory equipment. This programme still exists today, though in modified form. Also successful were FEBS–WOGCEE activities providing scientific literature, textbooks and electronic access to scientific information.

After ten years, WOGCEE was renamed the Working Group for Integration (WGI), but this was not only a change of name. In one decade the situation in several countries of the former socialist bloc had considerably improved, economically and politically, and this was reflected in the increasing values of GDP per capita (data.worldbank.org). Even now, the range of this indicator is broad. In Europe there are some economies with GDP per capita below US\$5,000 and others above US\$50,000. These huge differences are not geographically specific; rather, they reflect the political and economic development in different countries. The term 'Central and Eastern Europe' was, therefore, eliminated from the name of the working group. Apart from economic performance, the indicators reflecting state expenditure on science and higher education, usually presented as a percentage of GDP, are also very important. These indicators are very low in countries with low GDP per capita (sometimes below 0.5%, compared with more than 3% in economically

developed countries). There are also huge differences in resources spent on R & D across Europe.

FEBS, with its very limited budget, cannot fill this gap and balance the lack of proportionality. The emphasis of WGI activity therefore has to be on activities that can be realistically accomplished. Thus, the focus is less on direct financial support of individual Constituent Societies and more on actions that have an impact on European networking and integration.

At present, WGI emphasizes the necessity of efficient information flow about FEBS and its activities. For this, Constituent Societies have to possess efficient organization and communication systems. Moreover, membership of modern biochemical societies should be open to all areas of life sciences, including biochemistry, molecular biology and neighbouring disciplines. It is of fundamental importance that Constituent Societies reach all scientists of the country including those in universities, research institutions and industries engaged in life sciences. Direct communication between FEBS and individual members of the society, or an efficient top-down information flow, should be established. WGI visits in recent years have shown that this is not yet the practice everywhere.

Access to scientific information, literature and databases has improved considerably in the past decade owing to electronic accessibility of subscription journals and the establishment of open access journals. This is expected to be developed further in the future, with FEBS playing a leading part. However, there are still some member societies and institutions that cannot cover the costs of electronic access to scientific literature. In such cases FEBS provides useful financial support.

The situation with scientific equipment has also become less critical in recent years. In this respect, biochemical institutions in those countries that are not members of the European Union are the most disadvantaged. FEBS helps here by

A VIEW FROM THE WEST

Some 50 years ago European biochemists hardly knew one another – we may have got to know those who worked in an area close to our own, but that was about it. If separated by the ‘Iron Curtain’, it was much worse and we may not have known each other at all.

When FEBS was created in 1964, the situation changed; we soon learnt about the problems experienced by our colleagues on the other side of the Iron Curtain. In addition to those problems that we all shared, they had some that were specific to the political regime under which they lived. Other problems were not politically coloured but rather the economic consequence of the particular regime.

The major obstacles hampering their work were related to travel and trade. They were unable to attend the Meetings of ‘Western’ biochemists or to spend time in our labs. They also had problems in buying and receiving without much delay the international biochemical journals. The supply of chemicals (often simple ones, easily available in the West) was also a problem; and many of them had to be bought in precious *valuta*. I was certainly not the only Western biochemist who sent to our Eastern colleagues chemicals, journals, etc. – all things which we could easily afford, but which were out of their reach; nor was I the only Western biochemist who accepted in our lab young Eastern biochemist(s). I felt and still feel ashamed at their gratitude; it cost us so little to help them.

Giorgio Semenza, Managing Editor FEBS Letters (1986–2000), member, Advanced Courses Committee (1986–1988), member, Science and Society Committee, (2001–2007), Chair, Science and Society Committee (2008–2010)

covering the transportation cost for instruments and laboratory equipment and by identifying donors of such equipment. At this point, the need for receiving institutions to find a suitable donor of a particular instrument is essential. Experience in the past taught us that many donated instruments were not functional or that the service costs were not sufficiently considered. Sometimes even the personnel for running the equipment efficiently were missing in the receiving laboratory.

Of utmost importance for WGI is the close cooperation of other FEBS working groups in implementing the FEBS mission. This is visible on several levels. The chairs of other working groups often take part in WGI visits and are kept informed about the results and observations resulting from WGI actions. The activities of the FEBS Education Committee with WGI serve as an example of such fruitful cooperation. In the past few years it has become almost a rule that after a visit of WGI, an education workshop is organized in the visited country. This has occurred in Slovakia, Armenia, Georgia, Serbia and Bulgaria. These workshops provide an opportunity to meet young members of biochemical societies and communicate the FEBS mission. 'How to write scientific publications?', 'Information about publication media', 'How to participate in scientific networks and research programs?' and 'How to teach biochemistry?' are the main topics of these workshops. Lack of communication skills among graduate students and postdocs and traditional ways of teaching with little active participation of students, are still frequently observed in countries visited by WGI. To change the legacy of autocratic societies requires new thinking and will benefit from networking with other scientists in FEBS. It is the intention of WGI to make integration an indispensable part of FEBS activities in the future.

BIOCHEMISTRY BEHIND THE IRON CURTAIN *by Václav Pačes, Institute of Molecular Genetics, Academy of Sciences of the Czech Republic*

In 1965, a year after FEBS was founded, I began my PhD studies. At this time the intransigent Communist regime in Czechoslovakia was slowly beginning to ease up on its control. For me, politics had little interest then. Fortunately, I was able to work in the laboratory of Jiří Doskočil, an outstanding Czech scientist and one of the founding personalities of molecular biology in Czechoslovakia. His laboratory was located in the Institute of Organic Chemistry and Biochemistry of the then Czechoslovak Academy of Sciences in Prague. This was a first-rate institute and was the equal of the best in Europe. František Šorm, the director, was an excellent chemist and science manager – but a person answerable to the Communist Party. This was normal for that time.

Šorm ran the Institute autocratically, but to his credit his primary emphasis was always on the quality of science. There were no desks for PhD students then, only a laboratory stool and a bench beneath a window for writing protocols. Šorm frowned on students studying in the Institute library during work hours. We were to study at night or at weekends, he told us sternly. Doing experiments was our task. (What a stark contrast with PhD students of today who work comfortably at computers!)

In 1968 my PhD thesis was almost completed. This was a year of political upheaval all over Europe. There were student protests and occupations in Paris, and in Czechoslovakia the legendary Prague Spring. This was politically a period of hopeful but cautious relief. For researchers like me, for example, it meant that, at last, issues of the journal *Nature* with uncomfortable editorials were no longer confiscated. We were exuberant as it became possible for us to communicate more freely with colleagues abroad. In short, we started

to live a normal life. This was also the year when our Institute made arrangements for the 5th FEBS Meeting, to be held in Prague. As a PhD student, my assignment was to help where needed. This included preparing an index for the book of abstracts, and directing participants to buses and cars at Prague Airport. It was an eye-opening experience for me, as it was the first FEBS Meeting and the first international meeting I was able to attend. It was incredible for me to see world-renowned leaders of contemporary biochemistry and to exchange lab experiences with participants. Many years later, several participants from abroad commented on how well the Meeting had been organized.

This Meeting was where I gave my first talk in English. I remember how nervous I was but I soon discovered that scientists were amiable persons who empathized with the efforts of a fledgling. This was also the Meeting where the new FEBS journal, *FEBS Letters*, was launched. My paper was published in the first issue and I felt very proud. With so many new scientific encounters, my life was developing agreeably in bright colours. Following the FEBS Meeting, I worked hard to conclude my experiments and write my thesis. Newspapers freely published descriptions of the ruthless 1950s when innocent people were jailed and even executed simply because they did not agree with the Communist regime. While following the political development in the country, my main focus was my scientific work.

On the night of 20 August 1968, at around 11pm, I was awakened by an unrelenting strange loud noise overhead. Our one-year-old son woke up and started to cry. Magda, my wife said: 'It sounds like an airlift.' A good joke, we thought – but it was anything but: it really was an airlift. By morning our country had been occupied by Soviet-led armies of the Warsaw Pact. That sad day the short-lived Prague Spring came to a brutal end as tanks and other military equipment rolled noisily

into the city. The bright colours of my life changed to deep black.

The following 21 years (from 1968 to 1989) were the gloomiest period for me and my fellow Czech scientists. It was extremely difficult to travel abroad. In envy, we read journals announcing FEBS Congresses, conferences and practical courses that we were forbidden by the regime to attend. This had a depressing effect on research at the Czechoslovak Academy of Sciences and at universities throughout the country and stymied their work. But at the end of the 1980s the situation slowly started to change.

The 14th Congress of the International Union of Biochemistry (IUB) took place in 1988 in Prague. The very fact that we got support from the authorities to bring to Czechoslovakia so many scientists from all over the world signified that political change was approaching. At that time, professional Congress organizers did not exist in this country, leaving five scientists to organize the whole event: Jan Škoda, then Chairman of the Czechoslovak Society for Biochemistry, Zdeněk Deyl, Arnošt Kotyk, Vladimír Kostka and me. Six thousand scientists attended.

A tradition of IUB Congresses is that three flags are displayed at the Congress centre: those of the



FEBS Letters stand at the IUB Congress in Prague 1988.

previous Congress country, the current Congress host country, and the next Congress organizer's country. Flying over the Prague Congress Centre were flags of the Netherlands, Czechoslovakia and Israel. Czech Communists then

branded Israel as one of its worst enemies. On the first day, two men appeared, asking to talk to Jan Škoda, President of the Congress, and informing him that the Israeli flag must be removed. Škoda told the Organizing Committee and they decided that the flag should remain where it was. And nothing happened; no action was taken by the regime. One of the concerns of the Organizing Committee was that colleagues who had emigrated from Czechoslovakia after 1968 might be denied a visa. But all of them received visas and came to Prague. This contrasted with the IUB Congress in 1982 in Perth when visas were denied by the Australian authorities to several Russians on a purely political basis. Years later, many participants commented on how well the Prague Congress was organized. They were also surprised at how advanced Czech scientists were, despite their isolation from the West during the 1970s and 1980s.

In 1989 the infamous Iron Curtain fell down at last. Czech scientists soon became fully integrated with the international community of colleagues. In 1993, Czechoslovakia was peacefully divided into two independent states: the Czech Republic (Czechia) and the Slovak Republic (Slovakia). The Czechoslovak Society for Biochemistry and Molecular Biology was reorganized as the Czech Society for Biochemistry and Molecular Biology and the Slovak Society for Biochemistry and Molecular Biology.



The 14th IUB Congress was held in Prague in 1988; The 34th FEBS Congress was held in Prague in 2009.

FEBS started to organize help for post-Communist countries. This was well meant but in several cases it was based on inaccurate

reporting in the Western media about the living conditions and level of science in these countries. While Czech research institutes were already equipped with advanced computers, I recall that obsolete computers were occasionally sent to our laboratories. An Italian colleague was enthusiastic about new developments in Italian communications made possible using computers to send texts. He suggested that we should catch up and start doing the same, unaware that we had been communicating by email routinely for at least the previous five years. Frankly, it surprised me that scientists in Western Europe were so poorly informed about developments behind the Iron Curtain.

In 2009, the Czech Society for Biochemistry and Molecular Biology organized the 34th FEBS Congress in Prague. To broaden FEBS' outreach, we included several medically oriented symposia in the programme. FEBS executives discussed this and, while some members were opposed, it remained in place. We simply felt that bringing together clinicians and biochemists might promote mutual interests and concerns, leading to new perspectives in the medical/biochemical fields. This became a reality; more than 2,000 participants attended the Prague Congress. Many of them were medical doctors and our Organizing Committee received very positive feedback. In 2012, the Czech Society for Biochemistry and Molecular Biology proposed that the

International Union of Biochemistry and Molecular Biology (IUBMB) Congress in 2018 be held in Prague. It seemed appropriate for Prague to host a big biochemical Congress 30 years after the 1988 IUB Congress and 50 years after the 1968 FEBS Meeting. Unfortunately, IUBMB executives declined our invitation.

Today Czech biochemists are fully integrated with the European and world biochemical communities. We readily approve of developments in the European Union despite sporadic criticism of bureaucratic interference. From our 41-year isolation we know how frustrating it is to be barred from participation in world science. The positive experiences we have had since the collapse of communism have intensified our resolve that the repressive, dehumanizing years of 1938–1990 must never return to the Czech Republic.

TEAMWORK UNDER THE UMBRELLA OF FEBS *by Jolanta Barańska, President of the Polish Biochemical Society*

FEBS celebrated its 50th birthday in 2014. For much of these 50 years, Poland has been in shadow. After the Second World War, Poland found itself behind the Iron Curtain and only after the political transformation of 1989 did it become a free country again. During these decades, FEBS exerted a strong positive influence on Polish biochemistry, opening doors to European laboratories, presenting new research horizons and integrating the scientific community.

The outbreak of the Second World War stopped the development of biochemistry (called in those days 'physiological chemistry') in Poland. Numerous scientists lost their lives, cities were ruined, and



Proceedings in the 2004 FEBS 29th Congress, Warsaw. Centre: Jolanta Barańska, the President of the Polish Biochemical Society (sitting); Julio Celis, the FEBS Secretary General (standing).

laboratories and equipment were destroyed. However, in a relatively short time after the war, all university centres and their research and education departments were rebuilt and resumed work. Despite the most oppressive period of Stalinism, with its dogmatism intruding into the foundations of biology, scientists tried to organize a scientific life in Poland. In the second half of the 1950s the political situation slightly improved, and the Polish Biochemical Society (PTBioch) was founded in 1958 to promote and support biochemistry in Poland.

The first president of the Polish Biochemical Society was Bolesław Skarzyński; the second Bronisław Filipowicz; and the third, Kazimierz Zakrzewski, elected during the 1st National Biochemical Congress, organized in Łódź, in 1963. He was a Polish delegate to the 1st Meeting of the FEBS Council, held in London in 1964. Together with other representatives of the 18 founding societies, Kazimierz Zakrzewski signed the Statutes of the newly created organization.

Collective effort and a very good, friendly cooperation between FEBS and the Polish Biochemical Society, still headed by Kazimierz Zakrzewski, resulted in a crucial event in PTBioch history. Only two years after the creation of FEBS, in the spring of 1966, the 3rd FEBS Meeting was organized in Warsaw. The very fact that such a meeting could be organized in Poland, in the middle of the Cold War era, seemed unbelievable, almost a miracle. However, it was held there and was successful. More than 1,000 researchers from all around the world took part. Among them were five current or future Nobel Laureates. In a period of limited contacts with world biochemistry, the 3rd FEBS Meeting was a fantastic opportunity, especially for the younger generation, to meet with well-known creators of science. It was very important, both for the further development of Polish biochemistry and for the integrity of the scientific community. However, most



FEBS 2004 Special Fellowships Winners: young people from Eastern Europe during 'Cocktails for Young Scientists – Welcome to FEBS Journals'.

significant of all was the feeling that under the umbrella of FEBS, we had created a team.

Over the next 20 years, the activity of the Polish Biochemical Society was concerned mainly with domestic problems. The Society held its own annual interdisciplinary Meetings, published two biochemical journals, organized specialized symposia, and gave awards for best publications. Although Polish biochemists wanted to attend FEBS Congresses and take part in other FEBS activities, going abroad in those days was not so easy. One needed to receive not only an invitation and travel visa, but also special permission from an appropriate government department. Also, owing to low salaries and a non-convertible currency, scientists often had no funds to support such ventures. Nevertheless, many of us, after receiving fellowships from various foreign institutions, went abroad both as postdocs and to participate in

various scientific events. Throughout this period, FEBS helped us very much, receiving our applications, giving financial support by reducing fees, and facilitating visits to numerous European laboratories. We are still very grateful for that support.

The political situation was completely transformed in 1989, with Poland becoming again a free country. Nevertheless, even in these more favourable circumstances, further successes of the Polish Biochemical Society and its fruitful partnership with FEBS would not have been possible without the imagination and persistence of such people as Zofia Zielińska, Tomasz Borkowski, Lech Wojtczak, Kazimierz Zakrzewski (again) and Zofia Porębska – successive presidents who led PTBioch through the difficult period of the 1970s and 1980s. Since 1989, in a new political and economical system, the activity of the Society has improved under the leadership of Liliana Konarska, Jolanta Barańska, Lech Wojtczak (again) and Andrzej Dzugaj. The Society and its members (now



After a piano concert celebrating 40 years of FEBS at the Fryderyk Chopin Monument in the Royal Łazienki Park (from l-r): Adam Szewczyk, Jolanta Barańska and Alexander Wlodawer.

about 1,300) play a vital role in the development of biochemistry and biology in general in Poland. Thus, it was decided that besides the annual meeting of the Polish Biochemical Society, a joint meeting with the Cell Biology Society would be organized every three years. Such Meetings took place in 2008 and 2011. More recently, this idea was extended to cover four societies: Biochemistry, Cell Biology, Bioinformatics and Biophysics organized a common meeting in Warsaw in 2014.

Under the auspices of FEBS, the Polish Biochemical Society, headed by Jolanta Barańska, organized the 29th FEBS Congress in Warsaw in 2004. We were delighted and honoured to host the Congress, but additionally, 2004 was a great occasion to celebrate the 40th Anniversary of FEBS. As a *signum temporis*, just before the Congress, in May of the same year, Poland joined the European Union. More than 2,000 biochemists from all over the world took part in the Congress and its keynote speaker was Kurt Wüthrich, Nobel Laureate. Most importantly, researchers from East European countries received FEBS special fellowships which allowed many of them to attend the Congress and to meet and discuss recent progress in biochemistry. It was agreed that the Congress took place in a pleasant, friendly atmosphere.

Thanks to direct cooperation with FEBS, a large number of Polish biochemists now have the opportunity to participate in FEBS Congresses, FEBS Advanced Courses, numerous symposia, or the Young Scientists' Forum. The FEBS Fellowships Committee and FEBS Youth Travel Fund have made it possible for young people to take part in these activities and to visit European laboratories. Their number continues to increase.

The Polish Biochemical Society is deeply involved in the daily work of FEBS. Kazimierz Zakrzewski and Jolanta Barańska have been Chairs of the FEBS

Executive Committee, Maciej Nałęcz was the Chair of the Fellowships Committee, and Adam Szewczyk is currently Congress Counsellor. Our colleagues Jan Barciszewski, Jolanta Barańska, Jerzy Duszyński, Andrzej Dzugaj, Mariusz Jaskólski and Lech Wojtczak have worked as members of the Advanced Courses Committee, the Fellowships Committee, the Publications Committee, the Science and Society Committee, the Working Group on Assistance to Central and Eastern Europe (WOGCEE) and the Working Group on Integration (WGI).

Another field of activity is collaboration with the Ukrainian Biochemical Society and with Belarusian scientists. In 2001, the Polish and Ukrainian societies signed an Agreement of Cooperation. Every two years since 1996 these two societies have organized the Parnas Conferences, to commemorate Jakub Karol Parnas, the founder of the Polish School of Biochemistry. Before the Second World War, Parnas was a Professor of Physiological Chemistry at the University in Lviv. He participated in decoding glycolysis, also known as the Embden-Meyerhof-Parnas pathway. The 8th Parnas Conference, held in 2011 in Warsaw, was for the first time organized not only by the Polish and Ukrainian Societies, but also by the Israel Society for Biochemistry and Molecular Biology. In 2013, a similar conference was held in Jerusalem and, like the previous one, was a great success. These conferences, organized by three Constituent Societies, have received FEBS financial support, and are further discussed on p.148. Over the past 17 years the Parnas Conferences have expanded knowledge and promoted cooperation and friendship between scientists, thus accomplishing a major purpose of FEBS.

Fifty years of FEBS prove that the idea of the Federation is still valid and vital. A bright future for the Polish Biochemical Society depends on FEBS' further success.

CLOSE AND REWARDING COLLABORATIONS *by Jerka Dumić, President of the Croatian Society of Biochemistry and Molecular Biology*

It is a great joy and honour for the Croatian Society of Biochemistry and Molecular Biology (CSBMB) to celebrate the 50th anniversary of FEBS as an active member. The Society is a non-profit organization which brings together scientists and professionals interested in molecular life sciences with the purpose

FEBS 3+ Meeting in Opatija, 2012: Jadranka Varljen, Zrinka Kovarik, Ada Yonath, Jerka Dumić, László Fésüs, Beáta Vértessy and Marinka Drobnič-Košorok.



of promoting biochemistry and molecular biology, assisting education in biochemistry and molecular biology, and organizing national and international scientific Meetings and workshops.

The first association of Croatian biochemists was established in 1957 as a section for biochemistry within the Croatian Chemical Society and in 1965, upon invitation from Peter Campbell, the section joined FEBS. In 1976, it became an independent society, the

Croatian Biochemical Society (CBS), but remained part of the Union of Biochemical Societies of Yugoslavia. In 1992, CBS became a full member of FEBS. Today CSBMB has 380 members, centred in Zagreb and with branches in Rijeka, Split and Osijek.

The collaboration of CSBMB and FEBS has always been close and rewarding. On many occasions, FEBS has supported the activities of CSBMB and in different ways helped its members during their scientific careers.





‘Education in Biochemistry and Molecular Biology’ workshop in Opatija, Croatia, organized by Gül Güner (centre front) with assistance from Mathias Sprinzl (far left) and FEBS Education Committee members (hiding at the back).

The first FEBS Advanced Course in Croatia was organized in 1971 in Zadar (on Catalytic and Regulatory Properties of Enzymes), followed by several others. Two of them, FEBS Advanced Courses on Glycoproteins (Lovran, 1999 and Dubrovnik, 2001), were organized by CSBMB. In 2005, in Dubrovnik, CSBMB organized a satellite meeting (Glycoproteomics: Protein Modifications for Versatile Functions) as part of the 30th FEBS Congress & 6th IUBMB Conference on the Protein World (Budapest, 2005).

In 2006, the FEBS Working Group on Assistance to Central and Eastern Europe (WOGCEE) visited CSBMB. The FEBS officers went to several academic, industrial and scientific institutions in Zagreb and Osijek, and also to the Ministry of Science, Education

and Sports of the Republic of Croatia. This visit provided an opportunity for the FEBS officers to gain an insight into the activities of CSBMB, to meet the academicians and scientists – especially young ones – and to exchange opinions and discuss the problems encountered by molecular life scientists in Croatia.

After its national meeting in September 2010, CSBMB collaborated with the FEBS Education Committee to organize the workshop ‘Education in Biochemistry and Molecular Biology’ in Opatija. Forty young scientists and teachers had a great opportunity to gain new skills and knowledge on ethics education, post-graduate education and problem-based learning.

The last and the most prominent collaboration of CSBMB and FEBS resulted in the organization of the

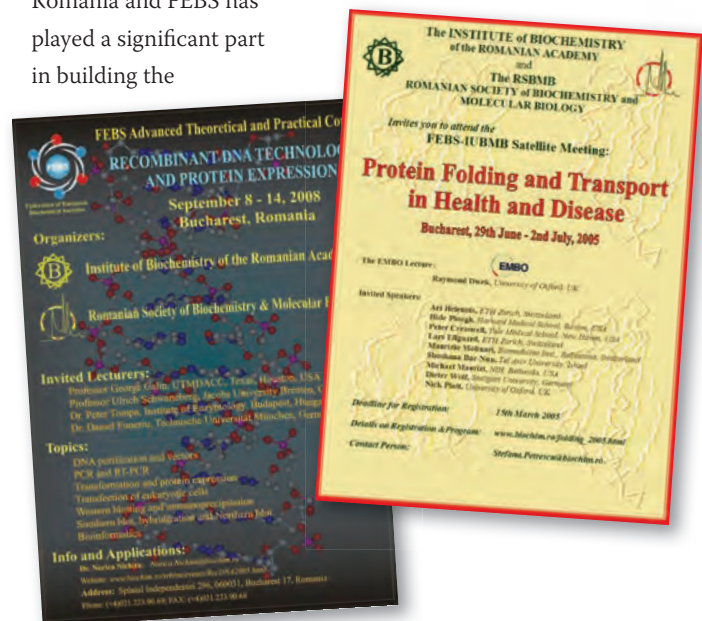
FEBS 3+ Meeting 'From Molecules to Life and Back', held in Opatija in June 2012. This meeting, organized with the Hungarian Biochemical Society (HBS) and the Slovenian Biochemical Society (SBS), gathered together 300 molecular life scientists not just from those countries but also from others in Europe. One-third of the participants were young scientists and 36 of them received travel grants as part of the FEBS 3+ Meeting Programme. The main goal of the meeting was to improve and enhance collaboration between the members of these societies on a wider platform, especially among young scientists. The Scientific Committee (chaired by Jerka Dumić, president of CSBMB, and co-chaired by Marinka Drobnič-Košorok, president of the SBS, and László Fésüs, President of the HBS) the Organizing Committee (chaired by Zrinka Kovarik) and the local organizing committee (chaired by Jadranka Varljen) were honoured to host the FEBS officers, Israel Pecht (FEBS Secretary General) and Jacques-Henry Weil (Chair of the FEBS Science and Society Committee). The Scientific Programme comprised nine symposia and five workshops. In addition to four plenary lectures (delivered by Ada Yonath (Nobel Laureate in Chemistry), Kai Simons, Josef Jiricny and Sandra Oršulić), and two Science and Society lectures (delivered by Jacques-Henry Weil and Gottfried Schatz), 80 talks were delivered and 150 posters were presented in three poster sessions.

To date, three members of CSBMB have served as members of FEBS committees and working groups; Karmela Barišić, on the FEBS Education Committee (2009–2012), Tihomir Balog, on the FEBS Fellowships Committee (2012–2014), and Jerka Dumić, on the FEBS Working Group on Integration (WGI) (2010–2014). The Croatian Society of Biochemistry and Molecular Biology is proud to be a FEBS member and will continue to contribute to the activities of FEBS with the aim of promoting and developing molecular life sciences.

CONNECTING AND EDUCATING EUROPEAN SCIENTISTS

by Stefana Petrescu, Director of the Romanian Society of Biochemistry and Molecular Biology

The Romanian Society of Biochemistry and Molecular Biology (RSBMB) has benefited from special support from FEBS, especially in the first difficult years for Eastern European science after the great political changes that began in 1989/90. Over the years, we have had a couple of visits from the Working Group on Assistance to Central and Eastern Europe (WOGCEE), benefited from the Scientific Apparatus Recycling Program (SARP), organized three FEBS Advanced Courses, and actively been involved in the development of FEBS activities. Some individuals have participated in supporting the activity of working groups of FEBS: Stefan Szedlacsek and Gabriela Negroiu have been members of WOGCEE and Stefana Petrescu was elected as a member of the Working Group on Women in Science (WISE) in 2004. Biochemistry and molecular biology have thrived in these years in Romania and FEBS has played a significant part in building the



special relationships which connected biochemists from different European countries through their science.

Recombinant DNA technology has been widely adopted around the world as a standard tool. In Eastern Europe, however, there is still a lag in the extensive use of this powerful technique, and its advantages and applications in various research fields are not yet fully acknowledged. This is mainly due to the lack of infrastructure and flaws in the educational system, which still fail to provide a critical mass of qualified molecular biologists. The current economic growth in Eastern European countries requires the acquisition of technological capabilities in all areas, including life sciences. The FEBS Advanced Course 'DNA Recombinant Technology and Protein Expression' was aimed at filling this gap. It comprised lectures and laboratory work, and was intended to benefit both beginners and those familiar with the basics of recombinant DNA technology. The course provided the participants with the essential principles and strategies of recombinant DNA technology, with a focus on the



use of eukaryotic recombinant DNA, protein expression in eukaryotic cells, and specialized techniques and applications emerging from the opportunities created by recombinant DNA. Organization of this course in Bucharest by the Romanian Society of Biochemistry and Molecular Biology helped young biochemists from Romania and neighbouring Eastern European countries to acquire basic skills. The participants benefited from an intensive training in state-of-the-art techniques which could help them to develop their own research projects on their return to their home laboratories. The course content was put together by a team of experienced researchers from the Institute of Biochemistry, all trained in Western laboratories, and benefited from the participation of other leading scientists from prestigious research institutions who gave lectures and interacted with the students.

Romania proved to be an ideal location for the organization of this course owing to its position in Eastern Europe, which facilitated transport of participants from all surrounding countries. Moreover, the Institute of Biochemistry in Bucharest, where the course was held, has acquired experience during the last decade from organizing four FEBS Advanced Courses



FEBS Working Group on Integration on a visit to Romania in 2010. L-r: Israel Pecht, Gül Güner Akdoğan and Mathias Sprinzl.



Opposite, above and below: Participants at the FEBS Advanced Course on Recombinant DNA Technology, Bucharest 2003 and (below) 2005.

on this topic (in September 2001, September 2003, June 2005 and September 2008) with excellent results and appreciation from the participants.

WOGCEE visited Bucharest twice, once in 2000 and again in 2010. Both visits were aimed at evaluating the situation in molecular life sciences in Romania. Following the first visit, Romania was encouraged to apply to organize FEBS Advanced Courses and to hold educational workshops. All these activities contributed to the spreading of molecular biology among young scientists. The report from the second visit indicated that FEBS could offer experts for grant evaluation programmes and recommended support activities to alleviate the brain drain of Romanian scientists to other countries.



FEBS MEMBER SOCIETIES

FEBS currently has 36 Constituent Societies (national societies for biochemistry and molecular biology), of which 33 are Member Societies and three are Associate Member Societies. A delegate from each Member Society, together with the FEBS Executive Committee, forms the FEBS Council, the governing body of the Federation.

As part of its overall goal of advancing the molecular life sciences, FEBS offers specific programmes of support for Constituent Society events (*see below*). Constituent Societies are also able to post news items on the FEBS website.

FEBS supports plenary lectures (a maximum of five per year) to enhance the scientific Meetings of its Constituent Societies, through FEBS National Lecture awards. Established to commemorate the 40th anniversary of FEBS, these enable a distinguished scientist with a significant international reputation who is working in a different FEBS country from the one hosting the event to present a lecture at the meeting. The speakers' travel and accommodation costs are borne by FEBS.

The FEBS 3+ Meetings Programme supports scientific Meetings organized through the collaboration of at least three FEBS Constituent Societies. These events (a maximum of two per year) should be scientific Meetings with symposia and colloquia, corresponding

to the format of an annual national scientific meeting of a Constituent Society. A grant is provided to the host society both for general organization purposes to cover lecturers' travel expenses, accommodation, renting of the congress venue and so on, and for a 3+ Fellowship scheme to attract young scientists living outside the host country who are members of one or other of the two (or more) collaborating societies.

The FEBS Education Committee has developed education workshops that can be co-organized with FEBS Constituent Societies to promote high-quality undergraduate and postgraduate education in the molecular life sciences.

For a trial period from January 2014, Constituent Societies can apply to FEBS for patronage of international events they are organizing. FEBS Patronage will be granted to demonstrate recognition of the important role of the event in advancing molecular life sciences in the FEBS area, and the aim is to aid organizers in raising local sponsorship.

FEBS does not have direct individual members, but all members of a FEBS Constituent Society are automatically also members of FEBS. Young scientists who are members of our Constituent Societies and working in the FEBS area are eligible to apply for a range

LIST OF MEMBERS**Constituent Members**

Armenian Association of Biochemists (AAB)

Austrian Association of Molecular Life Sciences and Biotechnology (ÖGMBT)

Belgian Society of Biochemistry and Molecular Biology (BMB)

Biochemical Society (UK and Ireland)

Bulgarian Biochemical, Biophysical and Molecular Biology Society (BBMBS)

Croatian Society of Biochemistry and Molecular Biology (CSBMB)

Biological Society of Cyprus

Czech Society for Biochemistry and Molecular Biology (ČSBMB)

Danish Society for Biochemistry and Molecular Biology (DSBMB)

Estonian Biochemical Society (EBS)

Finnish Biochemical, Biophysics and Microbiology Society (Societas Biochemica, Biophysica et Microbiologica Fenniae, Biobio Society)

French Society for Biochemistry and Molecular Biology (Société Française de Biochimie et Biologie Moléculaire, SFBBM)

German Society for Biochemistry and Molecular Biology (Gesellschaft für Biochemie und Molekularbiologie, GBM)

Hellenic Society of Biochemistry and Molecular Biology (HSBMB)

Hungarian Biochemical Society (HBS)

Israel Society for Biochemistry and Molecular Biology (ISBMB)

Italian Biochemical Society (Società Italiana di Biochimica e Biologia Molecolare, SIB)

Latvian Biochemical Society (LaBS)

Lithuanian Biochemical Society (Lietuvos Biochemikų Draugija, LBD)

National Committee of Biochemists and Molecular Biologists (NCBMB, Russia)

Netherlands Society for Biochemistry and Molecular Biology (NVBMB)

Norwegian Biochemical Society (NBS)

Polish Biochemical Society (Polskie Towarzystwo Biochemiczne, PTBioch)

Portuguese Biochemical Society (Sociedade Portuguesa de Bioquímica, SPB)

Romanian Society of Biochemistry and Molecular Biology (RSBMB)

Serbian Biochemical Society (SBS)

Slovak Society for Biochemistry and Molecular Biology (Slovenská spoločnosť pre biochémiu a molekulárnu biológiu, SSBMB)

Slovenian Biochemical Society (Slovensko biokemijsko društvo, SBD)

Spanish Society for Biochemistry and Molecular Biology (Sociedad Española de Bioquímica y Biología Molecular, SEBBM)

Swedish Society for Biochemistry, Biophysics and Molecular Biology (Svenska Föreningen för Biokemi, Biofysik och Molekylärbiologi, SFBBM)

Swiss Society for Molecular and Cellular Biosciences (SSMCB)

Turkish Biochemical Society (TBS)

Ukrainian Biochemical Society (UBS)

Associate Members

Association of Georgian Biochemists (AGB)

Moldavian Society of Biochemistry and Molecular Biology (MSBMB)

Moroccan Society of Biochemistry and Molecular Biology (SMBBM)

Sir Frederick Gowland Hopkins was the first Chairman of the Biochemical Society, 1913–1914. He was a Nobel Laureate in Physiology or Medicine in 1929 for the discovery of vitamins. Portrait by Meredith Frampton.



of research fellowships, Youth Travel Fund grants to attend FEBS Advanced Courses, and support to attend the annual Young Scientists' Forum and FEBS Congress.

Several FEBS Constituent Societies have contributed accounts to this chapter. The Biochemical Society (UK) played a large part in the formation of FEBS, hosting the 1st FEBS Meeting. As part of the celebrations for its own 100th anniversary, the French Society for Biochemistry and Molecular Biology (SFBBM) hosted the joint FEBS | EMBO Conference in Paris in 2014. The Spanish Society for Biochemistry and Molecular Biology (SEBBM) and Hungarian Biochemical Society (HBS) both celebrated their own 50th anniversaries in 2013. And the Ukrainian Biochemical Society describes its history and participation in the FEBS 3+ Meetings Programme. Other chapters in this book also contain contributions from many Constituent Societies who have organized FEBS events over the past 50 years.

BIOCHEMICAL SOCIETY (UK)

*by Professor Steve Busby,
Chair of the Biochemical Society*

The Biochemical Society (UK) is proud to be a founding member of FEBS.

It was 103 years ago when 32 biochemists came together on a Saturday afternoon at University College London, to found the Biochemical Club. The name didn't last long – it was changed to the Biochemical Society two years later – but the general purpose remains as important as ever. According to J.A. Gardner, who presided over the gathering in 1911, a biochemical society in the UK was desirable for four main reasons: a common meeting place to discuss biochemical problems; the association of workers on the animal and vegetable sides;

a common journal to be owned by the Society; and the advancement of the science of biochemistry in the UK.

In celebrating our centenary in 2011, we recalled the achievements of the Society and looked forward to the opportunities and challenges in the next 100 years. Our centenary celebrations encompassed a wide range of activities and events including *Little Miracles*, a play which explored the scientific, social and ethical implications of embryonic stem cell research; *Eureka Moments*, podcasts of wonderful interviews with some of our honorary members; and the publication of the Society's latest history book, *Biochemical Society Centenary: The Last 25 Years*.

Although the Society was formed in 1911, it was not until two years later that the first female members were admitted. During 2013 we celebrated the past, present and future influence of women with interests in the molecular biosciences with a series of new initiatives, events and activities. A highlight of these activities was a special series of 'HighSci lectures' for schools, delivered by female biochemists. These events aimed to raise the profile of women in biochemistry with school students, highlighting positive female role models working in science today.

We are pleased to be following up these two centenaries with the celebration of another important milestone: 50 years of the Federation of European

Three biochemists were among the first women to be elected Fellows of the Royal Society. From l-r: Marjory Stephenson, Dorothy Needham and Dorothy Hodgkin.



Biochemical Societies. Officers of the Biochemical Society played major parts in its foundation in 1964 (*see p.15*).

The molecular life science landscape has changed dramatically over the past 50 years and FEBS has been there to witness – and influence – it all. We have seen an incredible array of discoveries take place across Europe, in fields as diverse as DNA sequencing, antibody structures, photosynthetic reaction centres, cell cycle, cell signalling, inositol phosphates, small non-coding RNAs, innate immunity, and the mechanism of ATP generation. It's hard not to credit the formation of FEBS with having contributed to these discoveries.



The Biochemical Society had already begun formal engagement with other European societies a decade before the formation of FEBS, as the recovery from the Second World War made travel and communication easier. A joint meeting in 1956 between our Society and the Belgium Biochemical Society proved highly successful and was followed by Meetings in Finland (Turku), France (Paris) and Belgium (Louvain) between 1959 and 1962. By 1964, FEBS was an idea whose time had come. Biochemistry was entering a new and significantly more complex phase, as scientists delved further into the chemical processes that govern living organisms. It was an era of fewer singular discoveries. Each discovery was now often the end result of putting together the many puzzle pieces of science that other researchers had completed. The original mandate of FEBS may have been simple: to agree to mutual society collaboration and hold a combined meeting every one or two years. But if we were to understand the increasingly complex world of molecular and cellular bioscience, the collaboration and sharing of knowledge that FEBS brought about was pivotal.

The extent of this collaboration expanded beyond Europe in 2000, when FEBS and IUBMB sponsored a joint Congress for the first time.



Left: Sir Philip Randle, then President of the Biochemical Society, at the 2000 joint IUBMB-FEBS Congress.

Above: Ron Laskey, current President of the Biochemical Society, performing at Ronnie Scott's Jazz Club as part of the 2000 joint IUBMB-FEBS Congress's social programme.

This was hosted by our Society in the UK. Over 2,300 biochemists and molecular biologists from more than 50 countries assembled in the regenerated city of Birmingham from 16 to 20 July for the 18th IUBMB Congress 'Beyond the Genome.' There was a very strong sense that it was appropriate for the 2000 Meeting to be held in the UK and hosted by the Biochemical Society, as the very first International Congress of Biochemistry had been hosted by the Society and held in Cambridge in 1949.

Birmingham was considered something of a gamble when our Society's Executive Committee booked the venue in the mid-1990s, amid concerns that the city would struggle to attract as many delegates as would London. However, it was a gamble that paid off, with many attendees recalling how impressed they were by the venue in the International Convention Centre with Symphony Hall and the newly refurbished canal area close by, with its stylish bars and restaurants.

'Beyond the Genome' also proved to be a fitting title for the Congress, which took place less than two weeks after the publication of the draft sequence of the human genome. Unsurprisingly therefore, a highlight of the programme was the opening plenary lecture 'Decoding the Human Genome' given by J. Craig Venter (Rockville, USA). Other stories to hit the headlines in the UK during the conference concerned a group of alleged 'new variant' CJD cases, and a flock of Belgian sheep suspected of carrying BSE-like prions. Thus, Stanley Prusiner's plenary lecture on the molecular biology of these unique pathogens was one of the most well-attended lectures of the conference.

Along with a changing science landscape, the political landscape of Europe has undergone a profound transformation since FEBS was formed. FEBS has been there to welcome and support the scientific recovery of national biochemical societies following the end of conflicts in their countries. It has played a pivotal role in raising the role and status of life sciences within

the European Union, supporting the establishment of the European Research Council and providing a united biochemistry voice on pan-European policy and funding matters, such as Horizon 2020. It is a testament to the success of FEBS that it has been able to grow and adapt its mandate to reflect this new era.

The Biochemical Society is pleased to be organizing a programme of activities to celebrate the 50th anniversary of FEBS. We have set aside a generous portion of our General Travel Grants fund to support in full attendance of five postgraduate members at the FEBS Congress and preceding Young Scientists' Forum. This will provide an outstanding opportunity for our postgraduate members to network among the emerging next generation of top European scientists. Together with FEBS, we organized the presidential address for the Biology Section on epigenetics by authors Nessa Carey and Bryan Turner (University of Birmingham, UK) at the British Science Festival in September 2014. We ran a joint Focused Meeting with FEBS in Italy in May – 'Membrane, Morphology and Function' – and had another in September – 'Single Biomolecules: *in silico*, *in vitro* and *in vivo*' – at the UK's University of Hertfordshire.

An article appeared in the August issue of our membership magazine, *The Biochemist*, highlighting the benefit of FEBS membership to our members. We also produced a virtual issue of the 50 top-cited papers in our own journals from scientists in FEBS member countries. Fifty years of FEBS is a milestone worth celebrating and we look forward to another 50 years of effective collaboration.

- R.H.A. Plimmer, History of the Biochemical Society 1911–1949. T.W. Goodwin, History of the Biochemical Society 1911–1986. John Lagnado (ed.), Biochemical Society Centenary: The Last 25 Years. www.biochemistry.org/AboutUs/Archive/BiochemicalSocietyHistory.aspx

FRENCH SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY (SFBBM)

by Alain Krol, *Secretary General of SFBBM*

The French Society for Biological Chemistry (Société de Chimie Biologique, SCB) was founded in March 1914 by young, enthusiastic and visionary biochemists. Their aim was to gather together scientists who shared the goal of studying the chemical and physico-chemical reactions that govern biological functions. The first president was Maurice Nicloux. The SCB would meet every other week in Paris to present new data. These findings were then published in a periodical journal, the *Bulletin de la Société de Chimie Biologique*. The Society had held eight Meetings before the First World War broke out on 2 August 1914. This frightening maelstrom lasted for four years, with its dreadful catalogue of woe and sorrow. The SCB also suffered the consequences of the war. Its activity ceased between August 1914 and May 1919 and it mourned the loss of three members who were killed on the battlefield. When activity resumed, the SCB had 280 members.



In 1927 a meeting – the first ‘Days of Biological Chemistry’ – was organized in Lille. This event was then held every other year, either in Paris or in another city. In 1933 the Days became the Congress of the SCB. French and Belgian scientists had always had close relationships and, before the official birth of the Belgian Society for Biochemistry in 1952, a number of Belgian biochemists were members of the SCB. It was therefore no big surprise that Brussels was the venue for the 5th Congress of Biological Chemistry in 1936. Meanwhile, SCB members wished to open up new horizons. In 1930, the first foreign speaker invited to the annual Congress was G. Barger, the President of the Biochemical Society (UK), and he was followed by many others. As a token of its growing international influence, by 1939, 400 out of the 1567 SCB members were foreigners.

Despite the occupation of France by the German army during 1940–1945, the SCB maintained its activities and continued to publish the *Bulletin*. Three of



Above: French President Vincent Auriol hosting at the Palais de l'Élysée a delegation of the second International Congress of Biochemistry (Paris, July 1952).

Left: Maurice Nicloux, the first President of the French Société de Chimie Biologique.

its members were killed by the Nazis: Fred Vles on a train to Dachau concentration camp; Gabriel Florence in the Neuengamme concentration camp along with the Jewish children for whom he was caring; and Paul Reis, who joined the underground forces of the French Resistance.

On 16 January 1945 the regular Meetings of the SCB resumed. Happily, the prestige of the Society had not been affected by the war, as attested by its 1,748 members in 1950 and by the many Nobel Laureates who were invited to deliver talks. In addition, the SCB was lucky to be served by highly motivated and dynamic secretaries general and internationally renowned presidents. In 1946, after five years of restrictions and travel prohibitions, the opportunity to attend the French–Swiss Biochemical Meeting in Basel from 24 to 26 May was like a journey to the land of milk and honey. Later, in 1948, there were 600 participants at the 8th Congress of Biological Chemistry, with a high proportion of foreign scientists. Such a high number of attendees was beyond that expected for a national society, and SCB members began to think on a larger scale for further Congresses. This led to the biennial organization of the Latin Biochemical Meetings until 1976. Meanwhile, following the initiative of the Biochemical Society (UK) which organized in 1949 the 1st International Congress of Biochemistry in Cambridge, an International Committee for Biochemistry was elected. Jean Roche and Jean-Émile Courtois, who were members of this committee, organized the 2nd International Congress of Biochemistry at Paris-Sorbonne University, in July 1952. It turned out to be a great event, not only owing to the presence of the 2,357 participants but also because the main organizers and the most prestigious speakers were invited to the Élysée Palace by President Vincent Auriol. The SCB was proud of the success; the glory days were back, enabling the Society to recover the lustre of the pre-war period.

The 50th anniversary of the SCB, celebrated in style in Paris in April 1964, was an important event both at national and international levels. The Chairs of the Organizing and Executive Committees were René Wurmser and Jean-Émile Courtois respectively. A 592-page book and a 62-page ‘coffee-table’ book immortalized various moments from the event. The opening ceremony took place in the large lecture hall of the Sorbonne which was surmounted by the big medal of the SCB. The SCB received 59 greeting cards, often nicely decorated, from biochemical societies, universities and faculties all over the world.

One important activity of the SCB was the publication of the journal *Bulletin de la Société de Chimie Biologique*. Not to look outmoded, the title of the journal changed to *Biochimie* in 1971. As of 1986, all articles were published in English. Thanks to the efforts of Editors-in-Chief Yves Raoul, François Gros, Marianne Grunberg-Manago, Roger Monier and Richard Buckingham, *Biochimie* has developed an international reputation and competes well with other journals in the field. Indeed, the average Impact Factor over five years was 3.55 in 2012. In 1974, the SCB launched a new periodical called *Regard sur la Biochimie* which was intended as a link between SCB members. Roland Perlès was the first Editor-in-Chief, followed by Sylvain Blanquet, Claude Lazdunski and Jean Montreuil. Alain Krol has been Editor-in-Chief since 2008.

In 1990, after a poll of its members, and to keep up with the times, the Société de Chimie Biologique became the Société Française de Biochimie et Biologie Moléculaire (SFBBM). The current chairman is Frédéric Dardel.

French biochemists took an important part in the establishment of FEBS in 1964, together with 17 other European societies. Jean-Émile Courtois was the French representative of the SCB at the 1st Meeting of the FEBS Council in London on 22 March 1964.

Right: The 17th FEBS Meeting in Berlin (1986). Marianne Grunberg-Manago (FEBS Diplôme d'Honneur and former Chair of SFBBM) with Guy Dirheimer (former Chair of FEBS and SFBBM, left) and Jean-Pierre Ebel (former Chair of FEBS and SFBBM, right).



Below: The 26th FEBS Meeting in Nice, 1999. Stanley Prusiner (left) receiving the Sir Hans Krebs Medal from Michel Lazdunski (right).

SCB has hosted two FEBS Meetings. In 1975, the SCB, led by Jean-Pierre Ebel (President) and Roland Perlès (Secretary General), organized the 10th FEBS Meeting in Paris. It took two years of preparation, with seemingly inexhaustible dynamism. The Meeting



attracted 2,706 participants, of whom 850 were under 30 years of age. A reception was hosted by the President of the Paris Council who presented the Gold Medal of the City of Paris to Sir Hans Krebs and Feodor Lynen. Guy Dirheimer and Michel Lazdunski were in charge of the organization of the 26th FEBS Meeting in Nice in June 1999. Plenary lectures were delivered by Stanley Prusiner (San Francisco), Mariano Barbacid (Madrid), Kai Simons (Heidelberg) and Marc Van Montagu (Gent). Among the 2,223 participants, 1,138 originated from France – evidence of their interest and solidarity – and 795 were young scientists. The Meeting was a great success, both science- and budget-wise, and stood as an example of friendly cooperation. Lastly, it established the SFBBM–FEBS fellowships for young French scientists wishing to attend FEBS Meetings.

Warmth has always been the hallmark of the relationship between SFBBM and FEBS. Many SFBBM

members have served on the various FEBS Committees. For example, Jean-Pierre Ebel was the Chair of FEBS in 1975–1976; Guy Dirheimer launched the FEBS fellowships in 1979 before becoming Secretary General in 1984–1989, then Chair from 1999 to 2002; Giorgio Bernardi was the Chair of the Advanced Courses Committee (1978–1986); Jacques-Henry Weil has been the Chair of the Science and Society Committee since 2011. Several SCB members have served on the Editorial Board of two journals, *European Journal of Biochemistry* (now *The FEBS Journal*) and *FEBS Letters*, founded by FEBS. FEBS has awarded a number of Short- or Long-Term Fellowships for training periods abroad or to attend Advanced Courses, many of which have been organized in France. French biochemists have therefore widely benefited from FEBS activities.

The year 2014 was a special one in which we celebrated the 100th anniversary of SFBBM and the 50th anniversary of both FEBS and EMBO. To mark the occasion in a unique fashion, a common conference was organized, hosted by SFBBM at the Palais des Congrès in Paris, from 30 August to 4 September. This was the first time in their history that the two European organizations FEBS and EMBO had arranged a common scientific conference: previously they held separate yearly Congresses. Needless to say, the synergy between FEBS, EMBO and SFBBM made this conference a great and unforgettable success.

I am indebted to Guy Dirheimer without whom the writing of this text would not have been possible. He provided me with the necessary information and figures, some of which were taken from his private collection.

- *Guy Dirheimer, 100 Years of SFBBM, special issue of Regard sur la Biochimie (2014).*
- *Horst Feldmann, Forty Years of FEBS, 1964–2003: A Memoir (Blackwell publishers, 2004).*

SPANISH SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY (SEBBM)

by Federico Mayor Jr, President of SEBBM

The Spanish Society for Biochemistry and Molecular Biology (SEBBM) is pleased to congratulate FEBS on the celebration of its 50th anniversary. Fifty years is a perfect age – at least that is what I keep saying as a 50-something myself! At this point, one has acquired experience and perspective, but still has the enthusiasm and energy to address new challenges. One can recollect and reflect about the past, but is always looking ahead and planning for the future.

In 2013 SEBBM commemorated the 50th anniversary of its foundation. SEBBM and FEBS are thus almost the same age, and our organizations have shared many efforts in the past to promote and support biochemistry and molecular biology in Spain and in Europe. Despite current difficult times for science in Spain and many other European countries, both societies remain fully committed to encouraging top-level research, education, the careers of young scientists, the role of women in science, and the dialogue between science and society. We like to think that our fellow citizens can ask our political leaders and representatives to support research funding and scientific activities as a true priority.

Collaboration and interaction with FEBS has been very important for SEBBM on the long road, initiated by a few pioneer scientists in 1963, towards consolidating and expanding biochemistry and molecular biology in Spain. As recalled on p.20, several members of our Society played an active role in the origins of FEBS. The three FEBS Congresses that have been held in Spain (the 6th Meeting in Madrid in 1969, the 24th Meeting in Barcelona in 1996 and the 37th Congress in Seville in 2012) have been important events in our history. The 6th Meeting, chaired by the then SEBBM President Julio Rodríguez Villanueva,

was held in very difficult political times and was a turning point for the internationalization of Spanish biochemistry (*see p.20*). The presence of around 2,000 delegates and several Nobel Laureates at this Meeting had a great impact and helped raise the social profile of our discipline. The 24th Meeting, chaired by Joan Guinovart, and the joint 37th FEBS & 22nd IUBMB Congress, chaired by Miguel Ángel de la Rosa (*see p.34*), were key events in the consolidation and potentiation of biochemistry and molecular biology in our country and proof of the commitment of Spain to FEBS and other international bodies in our field.

I would also like to mention the very important role that FEBS Advanced Courses, journals, travel grants and fellowships have played in training young investigators and in encouraging scientific collaborations. Many Spanish scientists have taken advantage of these opportunities as important steps in their academic and research trajectory. The FEBS Young Scientists' Forum (YSF) initiative is another excellent example of strategies aimed at promoting

interaction between scientists early in their careers. SEBBM strongly encourages participation in these programmes and the future benefits they confer.

We are also grateful to FEBS for its support in the celebration of our own 50th anniversary, which recently gathered over 1,000 participants during the 36th Meeting of the SEBBM held in Madrid in September 2013. This Congress had an exciting scientific programme, which included Nobel Laureates Brian K. Kobilka, who delivered the opening 'Alberto Sols' plenary lecture funded by Fundación BBVA, and Sydney Brenner, who recounted '60 years of Molecular Biology' at the closing plenary lecture, funded by Fundación Ramón Areces. The meeting was structured in three symposia, running in parallel across three days involving 36 speakers. In addition, more than 100 oral communications were presented at the specific sessions organized by the thematic SEBBM scientific groups in the afternoons, and the lively poster sessions reached a record of 650 presentations. The closing session was devoted to awards for young scientists and, in addition, honorary SEBBM memberships were awarded to distinguished colleagues, including the few women scientists (Gertrudis de la Fuente, María Cascales and Gabriela Morreale) who were among the pioneers that founded our Society in 1963.

Fiona Watt (King's College London) gave a FEBS National Lecture, and a FEBS-sponsored symposium session on Pathogens and Cell Response brought speakers from the Netherlands, Switzerland, Portugal and Spain. Israel Pecht, FEBS Secretary General, also addressed the participants to congratulate SEBBM on this special occasion.

We share with FEBS the priority of encouraging an active dialogue between science and society, so that the public, policymakers and the media are rigorously informed of the aims, outcomes and implications of biochemical and molecular biology research in the fields of biotechnology and biomedicine.





Miguel Ángel de la Rosa (left) in conversation with Angelo Azzi, President of IUBMB, and Federico Mayor at the the opening Session of the IUBMB of IUBMB & FEBS Congress in Seville, September 2012.



This is key to influencing scientific policy at the national and European levels, promoting interest in science, and fostering scientific vocations among young people. In addition to making use of our quarterly publication (*Revista SEBBM*) distributed to all our members and key stakeholders, in 2009 SEBBM created a specific committee to support outreach activities in our website, social networks and collaborations with other organizations. Our website, www.sebbm.es, includes content designed for students and science teachers as well as reports on the activities of top Spanish researchers in non-specialist language. Also, our annual Congresses always include satellite activities such as the Entrepreneurship Forum, an Introduction to Research workshop for undergraduate students, and dissemination conferences for the general public in the city where the meeting is organized (termed 'Biochemistry Congress in the City'). We also actively participate in the Researchers' Night, an initiative of the European Union held in more than 150 European cities.

To celebrate our 50th anniversary, we also launched specific projects. These included '50 Years, 50 Molecules', a new section on the SEBBM website where visitors are able to vote for their favourite molecules among the 50 shortlisted. 'Molecules of Life: 50 Years of Biochemistry and Molecular Biology in Spain', a temporary exhibition seeking to bring basic educational concepts of biochemistry and molecular biology to a wide audience, opened at the National Museum of Natural Sciences in Madrid to coincide with the celebration of SEBBM's anniversary Congress. We also held specific activities in several cities around the country and a series of 12 lectures between January and November 2013 on SEBBM's 50th anniversary in some of Madrid's most emblematic buildings, seeking to review the history of the SEBBM and its contribution to Spanish society over the past 50 years, and to analyse from different viewpoints the present and future of scientific research.

The shared objectives of SEBBM and FEBS in promoting high-quality research and education in biochemistry and molecular biology, scientific aid to disadvantaged economies, the career of young scientists, and the role of women in science – and in seeking public awareness and support for those activities – are more needed than ever. The complex problems of our global world need the imagination and the voice of the scientific community. As in the past, the 50-year-old FEBS is ready to lead the way in the European field, with the support of all its Constituent Societies.

HUNGARIAN BIOCHEMICAL SOCIETY (HBS)

by Beáta Vértessy, Secretary General of HBS; Balázs Sarkadi, President of FEBS (2007); Péter Csermely, Vice-President of HBS and László Fésüs, President of HBS

The Hungarian Biochemical Society celebrated its 50th anniversary in 2012. The Society was established on 30 June 1962 as the Hungarian Biochemical Association by the Biology Section of the Hungarian Academy. In 1981 membership was extended to the Biochemistry Section of the Hungarian Association of Chemists. The renamed Hungarian Biochemical Society has continued to serve the Hungarian biochemical and molecular biological community over the past three decades (*see www.mbkegy.hu*). Currently, our Society has around 1,000 members, affiliated at universities, research institutes and research-focused biomedical firms. Béla Tankó, the founding President, was succeeded in turn by Ferenc Guba, Gertrúd Szabolcsi, Géza Dénes, Péter Friedrich and László Fésüs.

For its golden jubilee, the Society prepared a special issue of its journal *BIOKÉMIA* (Biochemistry), summarizing the 50-year history of Hungarian biochemistry and molecular biology, as well as the involvement of the Society with FEBS.

The Society has held a variety of types of Meetings over the years. In the early years, an annual 'grand assembly' was held at different locations – usually in major university cities of the country. Between 1990 and 2005, three very successful International Conferences of the Hungarian Biochemical Society were organized, reflecting the increased need for, and volume of, international contacts after the major European political changes in 1989. Between 1995 and 2005 the molecular biology section of the Society led by László Patthy (a current member of the FEBS Publications Committee and member of the Editorial Advisory Board of *The FEBS Journal*) organized highly successful annual Meetings; and, in recent years, the signalling and pharmaceutical biochemistry sections have also organized popular specialist Meetings. Since the 30th FEBS Congress in Budapest in 2005, annual Meetings have been organized.



In line with the novel FEBS 3+ initiative, we held a joint meeting with our Croatian and Slovenian colleagues in Opatija, Croatia in 2012. In 2013, our Society joined forces with Hungarian geneticists and cell biologists to organize the Hungarian Molecular Life Science Conference, with all presentations in English. The continued variety of Society Meetings, and the adoption of novel initiatives such as the symposium on epigenetics in 2012, show how well the Society has adapted to the changing needs of its membership.

Like other scientific societies, the Hungarian Biochemical Society recognizes high-quality research of young scientists, and also lifetime achievements, by presenting various awards. There are awards for the best poster, and the best original publication of the year is recognized by the Bio-Science Award with the first author, usually a young scientist, invited to give a plenary lecture at the Society meeting. The most prestigious award is the Béla Tankó Award, named after the founding president. The Society journal *Biokémia* has served the membership for 35 years, presenting scientific papers, as well as news items, and papers on research policy and education in quarterly issues.

The Hungarian Biochemical Society was one of the 18 founding societies of FEBS and has organized three FEBS Congresses. Brunó F. Straub and his team organized the 9th FEBS Meeting at the Budapest University of Technology (BME) in 1974. The 20th FEBS Meeting was held in Budapest in 1990, right after Hungary changed to a democracy. The historic events that granted the long-awaited freedom for our country

Then and now. (top) Albert Szent-Györgyi becoming an Honorary Member of the Hungarian Biochemical Society in 1973; on the left of Szent-Györgyi is Béla Tankó, the founding President of the Hungarian Biochemical Society. (bottom) The 50th Anniversary Meeting in 2012: Péter Závodszy, Chair of the Section of Biology of the Hungarian Academy of Sciences (left), László Fésüs, President of the Hungarian Biochemical Society (middle) and Mathias Sprinzl, representative of FEBS Executive Committee (right).

led to changes in the political system at many levels. As the Secretary General of the Hungarian Biochemical Society, Pál Elödi, remarked: 'There was no responsible government or city official with whom we could discuss the sponsorship of the organization.' Still, the 1990 Meeting was a great success with 60 scientific sessions, gracefully contributing to our path towards the free world. The 30th FEBS Congress in Budapest in 2005 was held jointly with the 9th IUBMB Conference, and had 2,650 participants from 95 countries. In line with the slogan of the Congress 'Science is fun!', accompanying events included pub tours, where Nobel Laureates and 90 other distinguished speakers spent an evening with young participants in a pub – creating a memory for life.

Although our Society is just 50 years old, Hungarian biochemical research started more than 100 years ago. The first highlight was the school of Albert Szent-Györgyi, who received the Nobel Prize in 1937 'for his discoveries in connection with the biological combustion processes, with special reference to vitamin C and the catalysis of fumaric acid.' From the Szent-Györgyi school, Brunó F. Straub, the discoverer of actin, had a decisive role in Hungarian biochemistry in the second half of the 20th century. Straub established a high-level research institute at the Semmelweis University Medical School in Budapest, and he also founded and led the Institute of Enzymology in Budapest (1952) and the Szeged Biological Centre (1973), which became a Centre of Excellence of the European Union. Kálmán Laki, another member of the Szent-Györgyi team, in the 1970s and 1980s promoted the development of a new biochemistry school in Debrecen through scholarships and collaborations with the Szent-Györgyi research network in the USA. Ilona Banga was a founder member of the Hungarian Biochemical Society, while Ferenc Guba continued the Szent-Györgyi legacy in muscle research in Szeged. Currently Hungary has 12 internationally renowned biochemical research/university institutes with

strong biochemistry education and PhD programmes, demonstrating the strength of this scientific discipline in the country. Recently many of these institutes have moved to new, spacious research buildings.

Protein biochemistry is traditionally very strong in Hungary, and this field has been extended by modern structural methods and by proteomics in recent years. Signalling studies began when this area first came to the forefront internationally with the discovery of the importance of protein phosphorylation. A recent trend is lipidomics, which is becoming more and more established in Szeged and Debrecen. Genomics, epigenetics and next-generation sequencing have extended molecular biological methods. The ever-increasing amount of data generated by these methods requires bioinformatics approaches for its analysis; network analysis is traditionally strong in Hungary. Hungarian laboratories and pharmaceutical companies are also traditionally strong in drug discovery. Of course, in recent decades, 'biochemistry' has been extended by molecular biology and the term 'molecular life sciences' is becoming more fashionable. However, biochemistry remains crucial in the establishment and understanding of the 'omics-world'.



Cover page of the *Biokémia* journal, celebrating the golden jubilee of our Society ('Magyar Biokémiai Egyesület').



The new building of the Research Center for Natural Sciences of the Hungarian Academy of Sciences creates a strong potential for interdisciplinary research in molecular life sciences. The Center, with room for 400+ research personnel and state-of-the-art infrastructure, is located on the joint campus of major universities (Eötvös Loránd Science University and Budapest University of Technology).

Looking ahead, our Society drives collaborations with related disciplines both at national and regional levels. The use of English as the official language opens up our Meetings to the international scientific community, further promoting integrative efforts. Biochemistry and molecular biology, using key state-of-the-art molecular technologies, form a peculiarly strong and reliable basis upon which integrated and quantitative views on biological and biomedical problems can be understood at the organism level.

UKRAINIAN BIOCHEMICAL SOCIETY (UBS)

by Tatiana Borisova, Foreign Secretary, UBS

The Ukrainian Biochemical Society (UBS) is one of the oldest biochemical societies in Europe, founded by O.V. Palladin in 1925. It unites biochemists, molecular biologists, cell biologists and scientists from other related fields, supporting the advancement of biochemistry and molecular biology, and developing scientific collaborations between the research teams and biotechnology industries for sustainable development. There is a particular focus on early career scientists, encouraging their participation in many activities and providing support for their future development.

The UBS currently has 680 members, including several scientists from neighbouring Belarus. New

non-residential members are always welcome. The headquarters of the Society are located in Kiev in the Palladin Institute of Biochemistry of the National Academy of Sciences (NAS) of Ukraine, and this institute provides staff and infrastructure for the operation of the Society. National Congresses of Biochemistry are organized by the Society every four years in different cities of Ukraine, attracting about 600 participants. UBS is one of the largest occupational scientific bodies ever recognized in Ukraine and within the Commonwealth of Independent States (CIS).

The UBS joined FEBS in 1994 and Ukrainian scientists are active members of FEBS committees and working groups. O. Matyshevska, Scientific Secretary of UBS, was a member of the Working Group on Assistance to Central and Eastern Europe (WOGCEE, 2006–2008); M. Skok is a member of the Fellowships Committee; T. Borisova, Foreign Secretary of UBS, is a member of the Working Group on Integration (WGI, 2010–2014); S. Komisarenko, President of UBS, is currently a member of the Science and Society Committee. UBS and the Palladin Institute of Biochemistry of the NAS of Ukraine also helped with the organization of a FEBS Advanced Course in Kiev in 2004.

PARNAS CONFERENCES



Jakub Karol (also known as Jakov Oskarovitch) Parnas was born on 16 January 1884 in Mokrzany near Ternopil (now part of Ukraine). Parnas studied chemistry in Berlin, Strasbourg and Zürich, and began his research career in Strasbourg. After the First World War, he decided to work in Poland, organizing the Department of Physiological Chemistry at Warsaw University. Between 1920 and 1941, Parnas headed the Department of Medical Chemistry at the Medical Faculty of the University of Lviv, well known as a cultural and scientific centre in Ukraine. These were the most fruitful years of his life and work. He created an excellent team of pupils and co-workers in close cooperation with other

European scientists. The Second World War ended this happy life. In 1939 Lviv became part of the USSR. In June 1941, before German troops entered Lviv, Parnas was evacuated to Ufa in the Asian part of the USSR, and in 1943 transferred to Moscow. He was elected to the USSR Academies of Sciences and Medical Sciences and was awarded with the most prestigious Soviet awards. However, on 28 January 1949, he was arrested with no explanation (perhaps for being of Jewish origin) and died next day in Lubyanka, the infamous Moscow prison.

J.K. Parnas was an outstanding biochemist in the field of enzymology of carbohydrate metabolism and energy generation. Two enzymes that regulate



IX Parnas meeting
participants at The Hebrew
University, Jerusalem, Israel.

held in Gdansk, Poland in 1998, at the same time as the Days of Ukraine cultural festival. Many outstanding international scientists participated. Subsequent Parnas Conferences took place in Lviv, Ukraine in 2000, in Wrocław, Poland in 2002, in Kiev, Ukraine in 2005, in Krakow, Poland in 2007, in Yalta, Ukraine in 2009 and in Warsaw, Poland in 2010. These conferences became international rather than bilateral, and provided an excellent opportunity for new scientific collaborative research between biochemists, and young scientists in particular. It was also decided to rename the conferences the Parnas Conference on Biochemistry and Molecular Biology, with a possible additional subtitle specifying the theme of each one.

glycolysis were discovered by Parnas's team. Working in collaboration with the Niels Bohr Institute in Copenhagen, Parnas was one of the first (in 1937) to use radioactive isotopes in metabolism research. Thanks to his discoveries, we can explain the cycle of cell metabolism (glycogen phosphorylation), which allows muscles to contract properly. This is known as the EMP (Embden, Meyerhof and Parnas) pathway.

To commemorate Parnas's impact on biochemical sciences, the Ukrainian and Polish Biochemical Societies decided to organize biennial memorial Parnas Conferences, alternating between Poland and Ukraine. The 1st Parnas Conference took place in Lviv, Ukraine in 1996, the 2nd was

Since 2011 the Israel Society for Biochemistry and Molecular Biology has joined this activity and thereafter the Parnas Conferences have been supported by the FEBS 3+ Meetings Programme. The 9th Parnas Conference, 'Proteins from Birth to Death', was jointly organized by all three societies and was held in Jerusalem from 29 September to 3 October 2013. It brought together about 200 scientists from 12 different countries. Among the many outstanding and world-renowned scientists who participated were two Nobel Laureates, Aaron Ciechanover and Ada Yonath.

*Tatiana Borisova, Foreign Secretary,
Ukrainian Biochemical Society*

REACHING OUT BEYOND FEBS

From its foundation 50 years ago, FEBS has supported molecular life scientists across Europe, facilitating communication between active scientists and in particular supporting the teaching and career development of students and early career scientists. However, research in the molecular life sciences is a global activity and impacts on the lives of all society. Thus, FEBS is also concerned with forging connections with molecular life scientists around the world, and

also with politicians and society in general. This chapter focuses on the activities of FEBS that reach beyond its members. First, Julio Celis, José Mariano Gago and Federico Mayor recall the involvement of FEBS in the creation of the European Research Council. Next, Jacques-Henry Weil describes the work of the FEBS Science and Society Committee. Finally, there is a description of FEBS' links to other learned societies around the world.



Fotis Kafatos speaking at the ERC meeting 'The Future Starts Today' in Brussels, 2009.

SHAPING SCIENCE POLICY IN EUROPE: THE CREATION OF THE EUROPEAN RESEARCH COUNCIL (ERC)¹

by Julio Celis, former FEBS Secretary General and José Mariano Gago, former Portuguese Minister of Research and Education

It was at the Lisbon Summit in March 2000 that the heads of state and government of the European Union (EU) first endorsed science as a major objective for the future of the EU, alongside information technologies and their promise of an ‘information society.’ The Lisbon Strategy (as it became known) inaugurated a bold agreement by all EU states to ‘work towards making the EU the most competitive and dynamic knowledge-based economy in the world, capable of sustained economic growth, providing more jobs and achieving greater social cohesion.’ Progress in the basic sciences was recognized as being as important as innovation. Moreover, a major objective was to bring together R & D programmes and institutions at national, intergovernmental and EU levels.

This promise was followed by a commitment at the EU Summit in Barcelona in 2002 to increase the R & D (public and private) expenditure in the EU to reach 3% of GDP by 2010. For the first time, heads of governments proposed a substantial increase in the budget for research.

In light of these political objectives, Philippe Busquin, the new European Commissioner for research, developed the concept of the European Research Area (ERA) as a dynamic space for convergence of all science and technology activities in Europe. This would provide a framework for setting political priorities for EU science policy, by seeking to bring together across borders, academy and industry, national programmes

and institutions, as well as European Commission (EC)-managed funding programmes and initiatives. Although Busquin’s ambitious aim was to be watered down over time by national interests, lobbying by industry, and occasional bids for exclusive power and legitimacy, it greatly contributed to strengthening and motivating a larger constituency for scientific development in Europe. In fact, it stimulated the European scientific community to become involved in shaping the future of science policy in Europe.

FEBS and the European Life Sciences Forum (ELSF)

Even before these events, FEBS had recognized the societal responsibility of scientists and was determined to increase and coordinate the input of the biochemical community on science policy across the life sciences. In 1999, Julio Celis, then FEBS Secretary General, proposed to the FEBS Executive Committee the inception of a Science and Society Committee to bridge the gap between scientists and society in identifying and dealing with issues that arise as a result of new research developments. Moreover, since research in the life sciences was becoming multidisciplinary, he emphasized the need to join forces with other international organizations to promote a global vision for the life sciences. Accordingly, at the FEBS Council Meeting in Nice in June 1999 he announced that he was in conversation with the European Molecular Biology Organization (EMBO; led by its Executive Director, Frank Gannon), the European Molecular Biology Laboratory (EMBL; led by its Director General, Fotis Kafatos) and the European Life Science Organization (ELSO; led by its President, Kai Simons) to create a European Life Sciences Forum (ELSF).

Shortly thereafter, at a meeting hosted by EMBO at the EMBL in Heidelberg, a group of prominent life scientists agreed to work towards the creation of such a

¹ For a more detailed account of the events leading to the creation of the ERC, see *Molecular Oncology*, 8 (2014) 447–57.



Federico Mayor (left) and Philippe Busquin (right).

forum, and at a meeting in May 2000 it was decided to set up an ELSF that would embrace a broad alliance of life science, biotechnology and biomedical researchers. A small governing body was appointed consisting of Frank Gannon, Fotis Kafatos and Kai Simons, with Julio Celis as president. Luc van Dyck joined as manager six months later. The secretariat was set up at the EMBL/EMBO facilities in Heidelberg, and EMBO, FEBS and the EMBL offered to pay a large fraction of the expenses for a period of three years.

The aim of the ELSF was to support scientists taking a more active role in strategic and science policy issues, to speak with a unified voice on matters of common interest and to increase the visibility of the life sciences and their impact on policymaking. Preliminary activities of the ELSF included creating contacts with key stakeholders, establishing close connections with Commission officials in Brussels, as well as providing input to Framework Programme 6 (FP6), the 2002–2006 research and technology development programme.

The ELSF also identified as priorities the careers of young scientists and the creation of an ERC to support basic research. At that time, the life sciences community

was concerned about the fact that the EU Framework Programmes were among the few instruments available to implement the vision of ERA, and had reservations about the efficiency and effectiveness of these programmes which were seen to be highly bureaucratic. In addition, most of the Framework Programme budget was dedicated to industrial development and there was no means of funding high-level basic research across Europe. Thus, there was a clear need for new instruments to implement the goals of ERA.

At its meeting in Istanbul in October 2002, the FEBS Council agreed to create a Working Group on ERA. The group was formed at the beginning of 2003 and included T. Blundell, P. Chambon, S.P. Datta, G. Dirheimer, A. Finazzi Agro, J.M. Gago, J. Guinovart, F. Kafatos, M. Lazdunski, M. Makarow, C. Martinez, F. Mayor, D. McConnell, I. Mowbray, M. Nałęcz, W. Neupert, M. Osborn, V. Paces, I. Pecht, C. Rodrigues-Pousada, S. Rogne, W.L.R. Stalmans, P.C. van der Vliet, K.W.A. Wirtz and J.E. Celis. The creation of the Working Group would uphold the FEBS community's commitment to the broad objectives of the ERA as well as efforts towards the establishment of the ERC.

Initial steps towards the creation of the European Research Council

The idea of an ERC to address the concerns of the basic research community had already been raised at a meeting organized by the Royal Academy in Sweden in 2001. Following the introduction of the ERA concept by the EU, the matter was openly discussed in October 2002 at a conference in Copenhagen, 'Towards ERA: Do we need a European Research Council?', organized by the Danish Research Councils under the auspices of the Danish Presidency of the EU. Science policymakers,

administrators and representatives from ministries, research councils and some large foundations attended this meeting. The consensus of the conference was that an ERC might solve some of the current problems. Ernst-Ludwig Winnacker, for instance, then head of the German Research Foundation (DFG), expressed his strong support for the ERC project, and his commitment helped to mobilize his own government as well as other national funding organizations. In his closing speech, Commissioner Busquin supported the idea of an ERC, but emphasized that there should not be a duplication of structures already in place; an ERC should have a clear added value, and the approach towards its establishment should be gradual.

Given that the scientific community was not properly represented at the Copenhagen conference, Julio Celis offered, on behalf of the ELSE, to organize a follow-up meeting early in 2003 to gather the opinion of scientists and to provide a forum for nurturing and discussing the ERC initiative in the years to come. As a result of the Copenhagen conference, many organizations became involved in the ERC discussions, including the European Science Foundation (ESF), EuroScience, the European Research Advisory Board (EURAB), the Academia Europaea, the European Academy of Sciences and Arts, the European Heads of Research Councils (EUROHORCs), the European University Association (EUA), the All European Academies (ALLEA), the European Governmental Scientific Research Organizations (EIROforum) and the Harris High Level Expert Group, among others.

The Summary Report of the Copenhagen conference was sent to the EU Ministers for research, who at their meeting on 26 November 2002 agreed to explore options for the creation of the ERC in cooperation with relevant national and European research organizations. The Danish Minister of Science, Technology and Innovation, Helge Sander, then Chair of the Competitiveness Council,

had only a few days before the Danish Presidency of the EU ended to find the right scientific figure to lead the exercise. Federico Mayor, former Director General of UNESCO, had been Chair of the FEBS Science and Society Committee for a year or so and FEBS, aware of his commitment to science and to the welfare of society, was delighted to put his name forward for the post.

Federico Mayor was appointed as chair of a small ERC expert group (the ERCEG or Mayor Group) with Mogens Flensted-Jensen as vice-chair. The group embodied a broad spectrum of insight into academia, research policymaking, and public as well as private research in Europe. Moreover, the group consulted with scientific organizations, representatives of research ministries, as well as individual scientists. The group's final report, presented to Minister Sander on 15 December 2003, recommended the creation of 'a new European dimension for research funding – the ERC – that allows a researcher in any European State to compete with all other researchers on the basis of excellence'. It also addressed the autonomy of the ERC, funding, accountability and governance issues, and stressed that the EU needed to make a political commitment to ensure that the ERC was fully operational at the very start of FP7.

Support from beyond the scientific community indeed came from the meeting of heads of state and government in March 2004. There was a consensus on the need to support basic research of the highest quality. Clearly, the Mayor Group had had a major impact in promoting basic science at a European level. Evidently, there was still much work to be done. A new and enlarged European Parliament and the appointment of a new Commission were expected to introduce new players and possibly new policies. The scientific organizations pledged to maintain the momentum, and to ensure that the views of the broad scientific community were heard in the official debate.

ELSF nurtures the initial steps of the ERC

To engage the life sciences community in the initial steps of the ERC, the ELSF organized two meetings early in 2003 to discuss its needs and priorities. These meetings were sponsored by FEBS, EMBO, the EMBL and the UNESCO Division of Basic and Engineering Sciences. The first meeting, held in Paris, aimed at gathering the opinion of scientists about the ERC, was attended by 300 participants, including Commissioner Philippe Busquin, three Nobel Laureates (Sir John Sulston, Christiane Nüsslein-Volhard and Rolf Zinkernagel), science policymakers, as well as other leading scientists. The meeting concluded that there was a need for a European instrument such as the ERC to support excellent basic science. Many also supported the idea that it should include all basic disciplines including social sciences and humanities. The address by Commissioner Busquin in closing the meeting was extremely encouraging in this direction. A follow-up conference in Venice discussed the research grants that should be allocated by the ERC, infrastructures and centres of excellence, and delivery mechanisms. Sixty participants attended, including science policymakers, representatives from funding and other organizations, but unfortunately not representatives from the humanities and social sciences. All participants supported bottom-up, scientist-driven programmes of high quality.

As a result of these two meetings, the ELSF prepared a position paper in October 2003 that, together with reports from ESF, EUROHORCs, EUA, ALLEA, the Academia Europaea, EIROforum, the European Academy of Sciences and Arts and others, provided momentum to the idea of an ERC and made clear that all disciplines should be engaged, from the humanities to mathematics and other basic sciences, in order fully to achieve the objectives that were being pursued. In October 2003, representatives of the life sciences, physics, mathematics, social sciences and humanities, met in Dublin at the Ireland Academy

for the Sciences and Humanities to discuss the ERC initiative. A document was generated, reflecting the views of the whole scientific community on the creation of an ERC, its general principles and its structure, as well as specific needs with respect to research grants and infrastructures for each discipline. This meeting was organized by ELSF and EuroScience with the financial support of FEBS, EMBO, EMBL and the European Plant Science Organization (EPSO). An important outcome of the Dublin meeting was the realization that the scientific community, through its economic support and engagement, had provided a much-needed forum to discuss science policy issues. The forum has been instrumental in maintaining continuity in the ERC discussions and has grown to accommodate the opinions of all the stakeholders. There was a clear consensus among the participants about the need to think European, to speak with a single voice, and to set up clear directions for how to proceed in order to ensure the success of the ERC initiative.

At the Dublin meeting, representatives of leading European organizations also agreed to create a working group (the Initiative for Science in Europe or ISE) to coordinate and prepare development actions, maintain the momentum, and most importantly ensure that all scientific disciplines would be involved in the debate on the ERC. The ISE included delegates from EMBL (Fotis Kafatos, later replaced by Iain Mattaj), EMBO (Frank Gannon), FEBS (Julio Celis), ELSF (Luc van Dyck), EPSO (Karin Metzloff), EuroScience (Patrick Connerade and Peter Tindemans), ESF (Bertil Andersson and Reinder van Duinen), the European Physical Society (EPS, Martin Huber and David Lee), EUA (Inge Knudsen), the Stifterverband (E. Winter) and the Group of European Nobel Laureates (Sir Tim Hunt). The group also included José Mariano Gago (a particle physicist and former Portuguese Minister of Science and Technology). At this stage, ISE acquired a political operational status.

***Engaging all basic sciences to achieve the ERC:
The Initiative for Science in Europe (ISE)***

On 25 October 2003 the ISE was formally launched at a conference in Paris. The launch marked the coming-together of some 35 European scientific organizations to structure and give greater weight to the input of the scientific community on science policymaking and to promote the ERC initiative. The assembly unanimously supported the appointment of José Mariano Gago as Chair and the ISE secretariat was provided by the ELSF and located at EMBO/EMBL in Heidelberg.

In February 2004, the ISE organized a meeting with members of the European Parliament in Brussels, to reiterate the need for establishing an ERC to support high-quality basic research in Europe and to engage in a wider debate with the Commission, representatives of national governments and parliamentarians. The meeting was sponsored by the ELSF, the Stifterverband für die Deutsche Wissenschaft and the ESF, and was attended by Nobel Laureates, representatives from all scientific disciplines (life sciences, natural sciences, humanities and social sciences), the universities, industry, the Mayor Group, the Commission and the European Parliament.

The contribution by Achilleas Mitsos, head of the Commission's Research Directorate-General, was eagerly awaited, as the Commission's communiqué on 'Europe and Basic Research' recognized the need for supporting basic research in Europe, and signalled support for introducing a new funding mechanism in the context of FP7, with funds coming directly from the EU along the lines suggested by the Mayor Report. Mitsos confirmed that the Commission had indeed adopted the financial perspectives for FP7, which proposed a 60% increase in the budget for research by 2013 and additional funding for several new areas including basic research.

Mitsos's speech implied that a shift of position in favour of the creation of the ERC was under way, and that decisions related to specific scientific areas should in the

future be driven by science and not politics. Furthermore, excellence should be the exclusive criterion for funding projects and there must be competition at the European level. Finally, there would be a move towards grants as a funding mechanism, as the existing cost-sharing model was recognized to create much bureaucracy, a topic that had been of major concern to the life sciences community. Those were exactly the options for which the scientific community had campaigned. Mitsos mentioned that the Commission would present a second communiqué in May containing details about how the ERC facility might be organized and implemented. Also, he stressed the importance of proving the case for promoting basic research at the European level since, in his opinion, the final decision would be a political one. How the Commission planned to organize the consultations with the scientific community on such a tight schedule remained a matter of much concern, as Mitsos was not yet prepared to elaborate on this topic.

The industry representative, H. Soboll, Director of Policy Research at Daimler-Chrysler, reiterated that industry needs basic research and told the audience that it might expect industry as a partner. In his opinion, however, money for basic research could be better distributed through existing mechanisms rather than through a new facility. R. Linkohr, MEP for Germany, did not endorse this view and warned the participants that if the ERC were to fall into the hands of the existing Framework Programmes there would be all sorts of problems. In his opinion, decisions should be left to scientists, who should be courageous enough to ask for what was needed and flexible enough to accommodate all variables. In summarizing the event, the ISE chair, José Mariano Gago, praised the role that the scientific organizations, working together, were playing in bringing the ERC discussions to this point, but cautioned that the debate had just begun, and urged the scientific community to be prepared for a lively and difficult political debate at national level.

Even though the idea of a European basic research facility, with funds provided through the EU budget, was becoming widely accepted by the various stakeholders, a political decision allowing for funding basic research from the EC (Framework Programme) budget, was still needed. To this end, in February 2004 the Irish Presidency of the EU in collaboration with the Commission organized a meeting in Dublin Castle on 'Europe's Search for Excellence in Basic Research'. At this meeting, the Tánaiste and Minister for Enterprise, Trade and Employment, Mary Harney TD, invited Ministers for Research and senior ministerial representatives from EU Members, Accessing and Associated States, and the EC, together with representatives from national research councils, the scientific community and industry, to discuss issues concerning the promotion of basic research, and to identify areas of consensus at European level. Among other things, it was agreed

that the Commission should bring forward to the Competitiveness Council proposals for the governance, management and accountability of a European initiative. This initiative, which must have the complete trust and confidence of the scientific community, should involve a new facility characterized by minimum bureaucracy, involve the scientific and engineering communities, both enterprise and academia, in its strategy and overall management. It should award individual grants on a competitive basis.

The Irish Presidency was thus committed to advance the cause for basic research in Europe, and placed the item on the agenda of the Competitiveness Council, the body within the EU with responsibility for scientific research, which met on 11 March 2004 in Brussels. In its conclusions, the Council

acknowledged the need, in the context of the preparation of the next research framework programme and taking into account an analysis of the respective merits of existing national approaches and a possible European initiative, to examine the case for specific funding within that Programme to support basic research of the highest quality. At the same time, an appropriate balance should be maintained with other priorities, approaches and activities in research, technological development and innovation.

The document also noted

the intention of the Commission to bring forward, by May 2004, an initiative on operational mechanisms which should add value to existing national approaches and provide a European dimension, with the objective of reinforcing the creativity and excellence of basic research in Europe, through encouraging more competition at the highest European level amongst individual research teams while enhancing cooperation between national programmes.

Finally, the document acknowledged the role of the scientific organizations in promoting basic research in Europe. Clearly, the political process was now under way and it was up to the Commission, the Competitiveness Council and the European Parliament to hold on to the promise of making Europe a knowledge-based society by responding positively to the initiative by the scientific community.

In August 2004, the ISE published a document summarizing the position of the whole scientific community. The document was presented to the President of the EU, the Commissioner and the

President of the European Parliament, as well as to heads of government and ministers of research of the EU Member, Acceding and Associated States. To give more substance to the ISE, the initial group decided to formalize its links with the signatories of the appeal in the form of a loose platform, a 'coalition of the willing', with the aim of providing support à la carte for the ISE initiatives. This was done during an ISE conference on the ERC held at UNESCO in Paris in November 2004. In June 2005, following his reappointment as Portuguese Minister for Science and Technology and Higher Education in March, José Mariano Gago resigned from his post of ISE chair and was succeeded by Julio Celis.

In July 2005, before the first informal Competitiveness Council under the UK Presidency, the ISE sent a letter to the Research Ministers of the 25 EU Member States as well as to the European Commission and the Members of the European Parliament, calling for an ERC that would be autonomous and whose budget would be commensurate with the needs and aspirations of the Lisbon agreement. This letter was signed by 42 organizations related to the ISE.

As a final stroke, ISE organized a conference to celebrate the first concrete steps towards the creation of the ERC at UNESCO in Paris on November 2005. In 2006, the European Council formally approved the budget for the ERC in the context of FP7 for Research, and the ERC was officially launched on 27 September 2007 at an inaugural conference in Berlin hosted by the German Presidency of the EU.

Angelika Niebler, member of the European Parliament, and Helga Nowotny, Vice-Chair of the ERC Scientific Committee, at the ERC Launch conference in Berlin in 2007.

The ERC: A reality

The political decision concerning the creation of the ERC and, in very general terms, its mandate and budget, was taken at Meetings of the Competitiveness Council in June and September 2005. After José Mariano Gago was reappointed Portuguese Minister for Science, Technology and Higher Education in March 2005, direct links between the scientific community (ISE) and the Competitiveness Council naturally became more fluid. In order to reach an agreement, a compromise solution was roughly sketched out in two main directions: (1) industry should get almost the same amount of extra funding as basic science in FP7, with decisions on the ERC and on the Joint Technology Initiatives (JTIs) progressing in parallel, and (2) the ERC, as a totally independent scientific body, should deliver exclusively individual grants, in any scientific field, to research freely proposed by the scientist themselves, through EU-wide competition.

This agreement was respected in subsequent formal decisions of the Council. It allowed for the creation of the ERC and for the funding of basic sciences, the social sciences and humanities, by the Framework Programme



budget, based upon no other criteria than scientific excellence as defined by independent peer-review process, just as requested by the scientific community.

However, two other key points could not be part of the initial political agreement and remain open today: (1) the creation of the ERC as an institution, and not simply as a delivery mechanism of an EU Framework Programme for R & D, to be decided each time a Framework Programme is approved, and (2) the creation of a mechanism, preferably under the ERC, to fund collaborative (bottom-up) basic research.

A large majority of Member States, supported by the EC, objected to the creation of the ERC as an institution, and to its stabilization for longer than the duration of each Framework Programme. However, such stability was granted to the JTI's from the beginning, as well as to the European Institute of Technology (EIT), a new top-down institution with vague objectives that was finally set up under pressure from the President of the EC. Those who were against the creation of the ERC and had reluctantly accepted it, had been replaced by those who declared that too much power and independence, and too much money, was already granted to the scientists, and that enough was enough! Today, such positions still act as powerful blocking factors to a greater contribution by scientists

to the scientific strategic steering of EU science policy and of its Framework Programmes for R & D.

The discussion of the second point surfaced again very recently in the discussion of Horizon 2020 (H2020, the successor to FP7) in the proposed amendments by the European Parliament. A very modest compromise was reached between Council and Parliament concerning the so-called FET (Future and Emerging Technologies) programme proposed by the EC to be part of H2020. However, the funding of collaborative basic research is still absent from current Framework Programme instruments. The ERC is now effectively able to fund a researcher working in cosmology or mathematics or sociology in any EU country, but it is unable to fund the same research activities developed by a team of researchers in two or three different nations. This seriously limits the capacity of the ERC in promoting frontier research in the EU, as such research is increasingly the result of teamwork through international collaboration.

Although intergovernmental scientific organizations were considered part of the initial concept of ERA, this aspect has not yet been consistently addressed in the EU general institutional framework. In particular, the EU still has difficulty in addressing the dynamics, flexibility and global dimensions of large, successful European intergovernmental organizations such as CERN and ESA.

Fotis Kafatos, first President of ERC and Chair of its Scientific Council, and Matthias Kleiner, President of the German Research Foundation (DRG) at the ERC Launch conference in Berlin in 2007.



Lessons learnt

The campaign for the ERC, and for the funding of bottom-up research by the EU Framework Programme exclusively on scientific grounds, was a unique event in the history of European science policy. For the first time, the scientific community acted collectively in Europe for the sake of a better science policy for Europe. And, it won, in a surprisingly short time, most of what it had campaigned for! The creation of the ERC was the direct result of an uncommon upheaval of the scientific community in Europe. How this campaign was established and how it was developed deserves careful consideration.

First, this was a movement led by some large European scientific societies (like the EPS), European federations of scientific societies (like FEBS) and EUA, joined by a few independently managed organizations such as the (then) ESF, EMBO and EMBL, together with individual scientists, and by other governmental and non-governmental organizations. Leadership was established from the very start, as the actions of a core group of strongly motivated representatives gained momentum.

The strong joint commitment of FEBS, EMBO and EMBL played a decisive role in this process, serving as a driver for action and as a solid guarantee for the continuity of the initiative. Such a commitment was not only solidly established institutionally, but was also driven by a strong and permanent personal representation at top level (by Frank Gannon from EMBO, Julio Celis from FEBS, and Fotis Kafatos of EMBL who later became President of the ERC). This was key to sustaining a difficult and initially hazardous process of collective mobilization and debate. With the creation of the ISE, the movement sought successfully to attract European scientific societies from all fields and to broaden its constituency.

Secondly, this was a movement with no disciplinary bias. At a crucial meeting of the ISE core

group, held in 2004 at the Business Centre of Frankfurt Airport, it was recognized that the creation of an ERC for just the life sciences, with the exclusion of all other areas, would probably be achievable almost immediately. However, the life sciences decided not to accept changing the objective of inclusivity for the sake of narrow advantage but to stick together with all sciences, including the social sciences and the humanities. This was fundamental to the process.

Thirdly, the movement managed successfully to attract new supporters and partners across Europe by organizing successive public meetings in different countries; by calling for new contributors at each meeting; and by engaging national and international institutions as new partners. The support of UNESCO, channelled through Maciej Nałęcz, then its director for the basic sciences, was important in making its objectives and its growing support publicly visible and in the media.

The creation of the ERC somehow marked the end of the movement itself. Hopes of maintaining the ISE as a permanent base for a growing and steady engagement of the scientific community in European science policy faded away progressively. However, as usually happens, new forms of organization of scientists for European science policy objectives emerged as a result of the experience gained during the ERC process. New specialized science policy bodies were developed in some important European areas, such as the European Cancer Organization (ECCO) or, more recently, the European Alliance for Biomedical Research (BioMed Alliance). In their particular fields, they were the only organized voices of the scientific community strong enough to play a role in the debate and decision-making process of H2020, engaging with the European Parliament in 2012 and 2013.

European scientific societies and their platforms, national and international learned societies, institutions like EuroScience and events like the Euroscience Open Forum (ESOF), as well as the very innovative action

groups created by scientists aiming at better science policies and appealing to a wide European audience, are slowly changing the traditional divide between scientists and science policymaking in Europe. They are preparing a better future for science and contributing to better public debate of science policies.

We hope these changes will be vigorously supported by increasing numbers of concerned scientists and by their organizations across Europe.

THE IMPACT OF FEBS IN THE LANDSCAPE OF SCIENCE IN EUROPE

by Federico Mayor

The financial resources provided by the *European Journal of Biochemistry* (*The FEBS Journal*) and *FEBS Letters* have enabled FEBS to put into practice not only its own projects but also those agreed with other important scientific organizations, such as the promotion of basic research in the European Union. This has been secured through the allocation of funding in the 7th Framework Programme (FP7) (2007–2013) to be administered by a European Research Council (ERC).

I was very honoured to chair the ERC Expert Group, with such impressive members as Helga Nowotny and Mogens Flensted-Jensen. There were in FEBS two particularly ‘policy-sighted’ scientists, whose role facilitated the bridge between science and society. Julio Celis and Joan Guinovart were crucial in promoting the associations of scientific communities in Europe – the only way to convince the European Parliament to allocate the important amounts that were requested. The Initiative for Science in Europe (ISE), which I chaired for the three first years, was aimed at achieving more influence in the European Parliament in Brussels as an adviser on scientific issues and as a ‘watchtower’.

To promote social awareness of the immense influence and benefits provided by biochemistry and molecular biology, it is necessary to demonstrate the progress made in terms of better health care; physiopathology (protein, metabolic processes, oncology); genetics and epigenetics; ageing and longevity; neurosciences; stem cells; infrequent diseases; personalized therapy. ‘Science to avoid or reduce human suffering’ is the permanent point of reference for all those working in biochemistry and molecular biology. The setting up of the National Plan



Federico Mayor receiving the Diplôme d'Honneur from Israel Pecht in 2012.

for the Prevention of Mentally Retarded Children, with perinatal biochemistry and molecular pathology, was planned as a leitmotif to tirelessly work for scientific knowledge and promote its eventual application.

Science *for* society and science *in* society are important in achieving the main objective of equal dignity for all human beings.

'There is no applied science if there is no science to apply', said Bernardo Houssay. To foster scientific achievements is extremely relevant in order to give permanent hope to all in need of assistance.



FEBS SCIENCE AND SOCIETY COMMITTEE

*by Jacques-Henry Weil,
Chair of the FEBS Science
and Society Committee*



FEBS Science and Society Committee was established at the 41st FEBS Council Meeting in Lisbon in July 2001 in an attempt to bridge the gap between scientists and society. As science increasingly deals with issues that concern society at large (such as climate change, genetically modified (GM) foods and resource scarcity), citizens want to understand the problems and the possible solutions, and to participate more actively in decisions concerning science or science policy.

FEBS members are biochemists and molecular biologists. Research in these molecular life sciences makes major contributions to societal goals, such as understanding and controlling human, animal and plant diseases, and developing new medicines, materials and foods. Policymakers and the media are, of course, interested in many issues related to this research, often focusing on the ethical dimensions. Some of the public debates on issues such as embryonic stem cell research and assisted human reproduction can become emotional and irrational, rather than addressing the scientific facts.

The case of genetically modified organisms (GMOs) provides a good illustration of the conflicts between science and society. The applications of genetic engineering to medicine are well accepted worldwide and a number of products of therapeutic interest (insulin, anti-haemophilic factors, growth hormones) are routinely obtained from GMOs. These GMO products are without contamination by viruses (such as HIV) or prions and constitute a major improvement over the products obtained previously from 'natural' sources. But the situation concerning applications to agronomy is quite different. In many European countries

growth of GM or biotech plants is banned by law. In other countries, field trials are legally authorized, but are often destroyed by activists. Paradoxically these opponents are often the same people who are asking for more experiments to check that GM plants are safe before they are released in the environment. In fact people have consumed billions of meals containing GM foods during the past 17 years since they were first commercialized, and no adverse effect on human health has been documented. Important benefits have also been obtained for the farmers and the consumers: reduced use of chemical herbicides and insecticides, development of pathogen- or drought-resistant plants, plants with increased nutritional value enriched in oligo-elements or vitamins. An example of the latter is 'golden rice' which is enriched with beta-carotene, a precursor of vitamin A which is essential to prevent blindness or more serious diseases in populations eating mainly white rice. More research is necessary on GM plants, and also on plants obtained by conventional breeding methods (an accepted form of GM) and the results should be made available to the public, in order to allow rational, science-based discussions of the best solutions to the global problems that sustainable agriculture, and thus society, are facing.

To win greater public acceptance of biotechnologies in general, the information provided on all aspects (scientific, medical, societal) of these methodologies and their applications must be objective and reliable, showing the benefits and risks, targeting various sectors of society, and using all media channels. Younger people, who are close to the science courses they have taken, are perhaps the easiest to engage with. In some countries 'citizens' debates' have been organized to describe the projects, explain the issues, and answer questions. These discussions are helpful not only in facilitating public acceptance of new technologies, but also in improving relations between the scientists and society.



The Science and Society Committee was created to consider and advise the FEBS Executive Committee and Council on problems arising from advances in science, whether current or anticipated. It interacts with other organizations engaged in similar activities, participates in public debates, and makes recommendations on behalf of FEBS. The Committee also organizes a symposium or colloquium at the annual FEBS Congress and other ad hoc events. Its first chairman was Frederico Mayor, former UNESCO Director General, followed by Giorgio Semenza (2008–2010). I became chairman on 1 January 2011.



Jeff Schatz (Chair) and Helga Nowotny (Speaker) at the Science & Society round-table at the FEBS|EMBO Conference in Paris, 2014.

'Teaching Molecular Evolution: A Unifying Principle of Biochemistry', and the other 'Science in School: Biodiversity and Evolution'. The topic for the session at the FEBS|EMBO Conference 2014 in Paris was Biosafety. There was also a round-table discussion, chaired by Gottfried (Jeff) Schatz, on 'New Trends in Scientific Policy in Europe'.

The Committee also sponsored two lectures at the FEBS 3+ Meeting in Opatija, Croatia in 2012, organized jointly by the Croatian, Hungarian and Slovenian biochemical societies. One of these lectures, 'What It Takes to Succeed in Science, and How European Institutions Could Help', was delivered by Jeff Schatz. Lectures at future FEBS 3+ Meetings could be considered, upon request of the host societies, if the budget permits. The Committee will also consider sponsoring lectures on Science and Society topics at other events, such as national society meetings. For example, a public lecture entitled 'European Science Policy Challenges and Possible Solutions' was delivered by Lars Rask to coincide with a meeting of the Science and Society Committee organized by Joan Guinovart in Barcelona in November 2011. At the suggestion of the Executive Committee at its meeting in Rome in March 2013, a message was recently sent to all FEBS Constituent Societies to ask if they have a Science and Society committee or are considering creating one, and to find out the activities they have, or plan to have, in this area.

European science policy

In 2011 the FEBS Council gave the Science and Society Committee a new task: to follow European science policy and to make recommendations to national and/or European bodies, using various channels, on all

Science and Society lectures and symposia

Since 2002, the Committee has organized a Science and Society session at each annual FEBS Congress on topics which have often been suggested by the national biochemical society hosting the Congress. For example, we have debated stem cell research (Warsaw, 2004), GM plants (Istanbul, 2005), biofuels (Göteborg, 2010), genetic diseases (Turin, 2011), AIDS (Seville, 2012) and personalized cancer medicine (St Petersburg, 2013). At the FEBS Congress 2012 in Seville, the Committee also co-sponsored, together with the FEBS Education Committee and IUBMB, two workshops: one entitled

Below and right: 'Genes in a bottle' activity for non-scientists associated with the 37th FEBS Congress & 22nd IUBMB Congress in Seville, 2012.

aspects of scientific activities. It has been doing so under the umbrella of two multidisciplinary European organizations, the Initiative for Science in Europe (ISE) and the Alliance for BioMedical Research in Europe (BioMed Alliance).

ISE is an independent platform of European learned societies and scientific organizations. It provides a common forum for the scientific communities to advocate independent scientific advice in European policymaking, and to stimulate the involvement of European scientists in the design and implementation of European science policy. It was launched in October 2004, as described by Julio Celis (*see p.155*).

The main reasons for founding the BioMed Alliance included concerns of European scientists that international competitiveness was decreasing due to insufficient funding and excessive administrative burdens on scientists applying for and/or receiving EU support, and the hope of promoting the influence of active scientists on European research plans and implementation. It was established in December 2010 and Julio Celis is currently its Vice-President.



At present, ISE and the BioMed Alliance each represent about 20 European societies, but the scope of ISE is somewhat wider as it covers fields from mathematics to human and social sciences. During the past two years efforts have been made by both organizations to obtain from the EU the best research budget possible for the next Framework Programme (Horizon 2020). ISE efforts, for instance, consisted of preparing documents in working groups, and contacting members of the EC and of the national or European parliaments (including rapporteurs of the Horizon 2020 document). ISE organized a conference in Barcelona, 3–4 May 2012, entitled 'Strengthening the European Research Area: What Does Science Need to Flourish?', which was attended by the EC Director for Research and members of the European Parliament. ISE also launched a petition, which obtained over 150,000 signatures, to support a declaration of about 40 Nobel Laureates (published in





WORLDWIDE LECTURES

Research in the molecular life sciences is a global activity. Journals owned by FEBS publish papers from researchers working across the world, often representing collaboration between scientists in different countries and continents. Moreover, our journals are receiving increasing numbers of articles submitted from Asia and other emerging economies. Likewise, subscribers to our journals are also scattered around the globe and the open access options we offer, together with our schemes for facilitating access to our journals' content in developing countries, help to ensure an ever-increasing worldwide readership. Independently, the annual FEBS Congress and Advanced Courses Programme attract participants from well beyond Europe, and our Fellowships Programme is open to FEBS members of all nationalities working in the FEBS area.

With these considerations in mind, FEBS has long had close ties with the International Union for Biochemistry and Molecular Biology (IUBMB). It is also developing links with learned societies in the molecular life sciences in regions where interest, investment and output in this area of research has taken root and is growing rapidly – including the Society of Biological Chemists (India) (SBCI), the Chinese Society for Cell Biology (CSCB), the Chinese Society of Biochemistry and Molecular Biology (CSBMB), the Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB), the PanAmerican Association for Biochemistry and Molecular Biology (PABMB), the Brazilian Biochemistry and Molecular Biology Society (SBBq) and the Federation of African Societies of Biochemistry and Molecular Biology (FASBMB).

In particular, FEBS contributes to the quality and range of scientific communication and education at large meetings of such societies by funding the travel of distinguished speakers. The sponsored lectures also provide opportunities to draw attention to our journals among potential authors and readers, and to raise awareness of other FEBS activities.

major European newspapers) recommending no cuts in the European research budget. European scientists, and particularly molecular life scientists, have a specially keen interest in the future budget of the ERC, a funding agency whose foundation is described by Julio Celis (*see p.151*).

As some of the objectives of ISE and the BioMed Alliance are quite similar, a meeting of representatives of the two organizations took place in June 2013 to identify areas where common action might be possible (in addition to continued efforts in support of the European research budget): namely raising public awareness of scientific research issues, proposing better criteria for research assessment in evaluation procedures, facilitating transition to open access publication, recommending principles for sharing research data (including clinical data). The two organizations must now discuss these suggestions and decide which one(s) should get priority.

ENVOI

In its 50 years of existence, FEBS has been a ‘bottom-up’ organization, aiming to bring the highest-quality biomolecular science to the widest-possible audience, first in Europe and now worldwide. It has always placed great emphasis on support of young scientists at various stages of their careers, from undergraduate to post-doctoral fellow and newly appointed faculty member. We have tried in this 50th Anniversary book to bring this story to life, chiefly in the words of those who worked to make it happen and those who have benefited from it in various different ways.

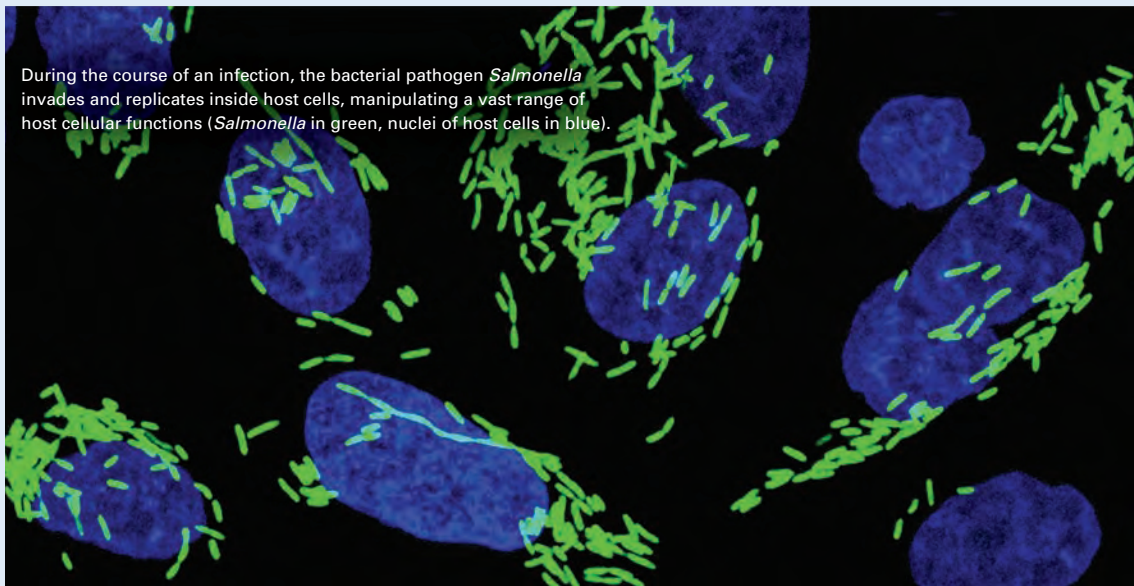
It seems only appropriate to end on a scientific high-note. We conclude with brief research reports,

originally published in *FEBS News*, of four young scientists now moving on as principal investigators and holders of research grants in their own right. Their successes speak for themselves, not least in that they have been achieved in what is progressively a more competitive environment. Their gratitude to FEBS shines through; in turn FEBS can look on them with a justifiable touch of pride.

Those who founded FEBS five decades ago perhaps did not recognise how wonderfully well they were building. As new generations take over, we look forward with confidence to the next 50 years and further developments in this fine story.

Richard Perham and Mary Purton

During the course of an infection, the bacterial pathogen *Salmonella* invades and replicates inside host cells, manipulating a vast range of host cellular functions (*Salmonella* in green, nuclei of host cells in blue).



CONSTANCE CIAUDO

Supported by a FEBS Long-Term Fellowship from 2010 to 2013, I joined the laboratory of Olivier Voinnet at ETH Zurich, Switzerland for my postdoctoral studies. I defined several classes of dynamic small RNA populations in differentiating male and female mouse embryonic stem cells (mESCs). We then revealed an unexpected level of complexity in LINE-1 silencing in these cells, where siRNA-directed RNAi processes are confounded by the effects of general RNA-surveillance pathways. Finally, we also investigated the role of RNAi pathways to protect mESCs against RNA virus infections and showed a novel defensive role for the endogenous siRNA pathway.

The FEBS Distinguished Young Investigator Award allowed me to start a new independent project in my laboratory at ETH Zurich, where I was appointed Assistant Professor in April 2013. My current research interests focus on the role of small RNA populations in the maintenance of genome integrity in mammals.

www.mhs.biol.ethz.ch/Research/Ciaudo

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ANA EULALIO

As a FEBS Long-Term Fellow with Mauro Giacca at the International Centre for Genetic Engineering and Biotechnology (ICGEB) in Trieste, Italy, from July 2010 to March 2012, I applied microscopy-based high-throughput functional screening to try to discover novel approaches to promote cardiac regeneration, an un-met clinical need. I identified microRNAs that are able efficiently to promote proliferation of cardiomyocytes in both neonatal and adult animals. Importantly, these microRNAs stimulated marked cardiac regeneration and led to a complete recovery of cardiac function after acute myocardial infarction in mice.

In April 2012, I started my own research group at the Institute for Molecular Infection Biology (IMIB) at the University of Würzburg, Germany. We are focusing on the impact of bacterial infections on host cell RNA metabolism, as well as the reciprocal role of host



RNA metabolism, in particular the host microRNA pathway, on the bacterial life cycle.

With the support of a FEBS Distinguished Young Investigator Award we demonstrated for the first time that the bacterial pathogen *Salmonella typhimurium* renders host cells more susceptible to infection by controlling cell cycle progression through the active modulation of host cell microRNAs.

www.imib-wuerzburg.de/research/eulalio/research

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THIJS POLS

I held a FEBS Long-Term Fellowship from 2009 until 2012 in the research group of Kristina Schoonjans at the Laboratory of Integrative and Systems Physiology at the École Polytechnique Fédérale de Lausanne in Switzerland. We discovered that the G protein-coupled receptor TGR5 acts as a brake to inhibit activation of the pro-inflammatory transcription factor NF- κ B. In models of cardiovascular disease, we showed that activation of TGR5 resulted in smaller vascular plaques with a more stable phenotype. This suggested that activation of TGR5 provides protection against plaque rupture, a devastating event that often underlies myocardial infarction and stroke. In addition to their publication in scientific journals, these results also reached Swiss national television and several newspapers.



The valuable experience gained in my postdoctoral research helped me to obtain a prestigious Veni grant of The Netherlands Organization for Scientific Research (NWO) in 2012. Since 2013, I have worked in the Department of Medical Biochemistry of the Academic Medical Center in Amsterdam with Carlie de Vries. A current aim is to determine whether TGR5 agonists present in our daily food could modulate cardiovascular disease via immune-modulatory mechanisms. The FEBS Fellowship Follow-up Research Fund has provided me with vital support in this endeavour.

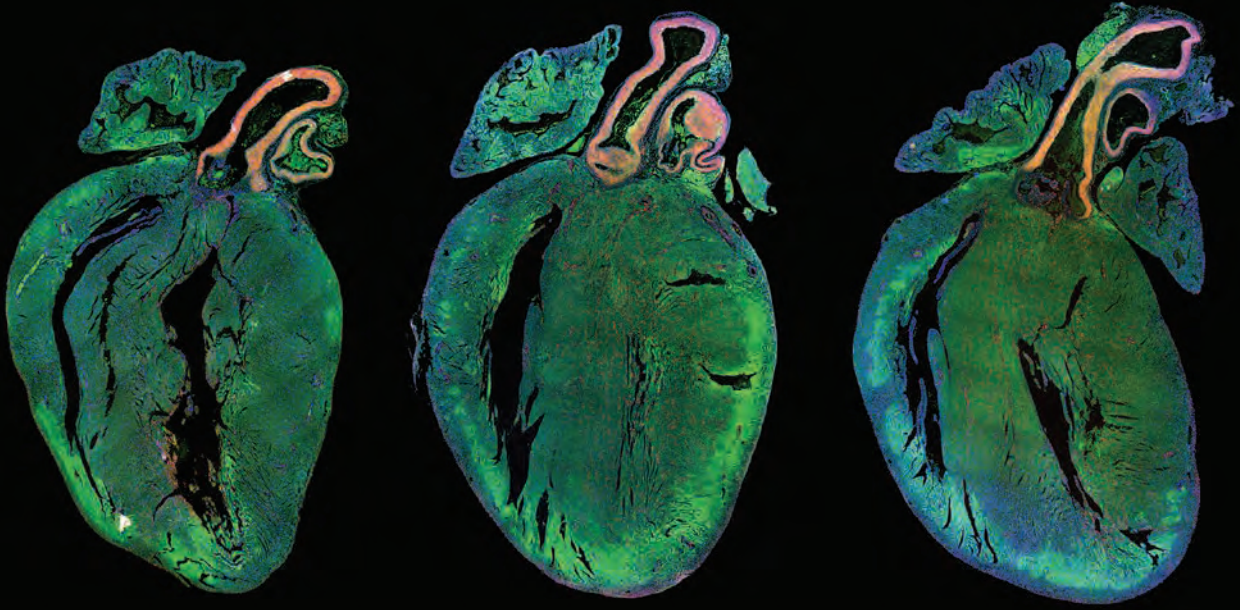
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ANNA WREDENBERG

I was a FEBS Long-Term Fellow from 2010 to 2012 at the Max Planck Institute for Biology of Ageing in Cologne, Germany. I was trying to understand mitochondrial gene expression and how errors in the basic machinery might lead to mitochondrial dysfunction and disease. I decided to use the fruitfly, *Drosophila melanogaster*, as a model system. We established that many of the factors involved in mitochondrial biology





Neonatal rat hearts treated with a control microRNA (left) or two microRNAs strongly increasing cardiomyocyte proliferation (middle and right) (nuclei in blue, cardiomyocytes in green and replicating cells in red).

were conserved, allowing us to compare mechanisms in the fruitfly with those in mammalian systems.

I have now returned to a position at the Karolinska Institute and Karolinska University Hospital in Stockholm, Sweden, combining training in clinical genetics and inherited metabolic disorders with basic research. My research as a FEBS Fellow allowed me to attract funding from various sources, including the Swedish Research Council, the Foundation for Strategic Research and the Ragnar Söderberg Foundation, and establish my own research group. I am focusing on mitochondrial RNA processing and modification, in close collaboration with the Centre for Inherited Metabolic Diseases (CMMS), where I am a clinical resident, investigating a range of patients with metabolic and especially mitochondrial diseases. We now have the possibility to combine our basic research questions with findings from the clinic. The FEBS Fellowship Follow-up Research Fund has been vital in supporting this work.

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