

## **EDUCATION COMMITTEE**

## **ANNUAL REPORT**

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**[01.01.2011 - 31.12.2011]**

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## 1. Introduction

FEBS Education Committee started officially on 1st January 2007, following the historical decision of the FEBS Council which convened in Istanbul in June 2006, to transform the “Working Group on Teaching Biochemistry”, Chaired by Prof. Jean Wallach (2001-2007) into an “Education Committee (2007-), with Prof. Edward J Wood as “Founding Chair”.

As is known, FEBS Education Committee faced the sad event of losing its first Chair on December 14th, 2008. Prof. Gül Güner-Akdogan was agreed by FEBS governing bodies to take over as acting Chair until 31<sup>st</sup> January 2009. Gül Güner was elected as Chair at Prague Council (July 2009) and started as of 1st January 2010.

This report on the activities of the Education Committee comprises the one-year period from 1.01.2011 to 31.12.2011.

## 2. Structure and Composition of the Committee

According to the latest version of FEBS Statutes, the Education Committee is composed of “a chair elected by Council, four ordinary members elected by Council” and ex-officio members with voting rights, Secretary General of FEBS, Treasurer of FEBS, and Chair of Advanced Courses Committee”.

**The four ordinary members who served on the Committee in 2011 are:**

Jason Perret (Belgium) (Elected at Vienna FEBS Council, 2007 and started as of 1<sup>st</sup> January 2008)  
Miguel Castanho (Portugal) (Elected at Vienna FEBS Council, 2007 and started as of 1<sup>st</sup> January 2008))  
Karmela Barisic (Croatia) (Elected at Athens FEBS Council, 2008 and started as of 1<sup>st</sup> January 2009)  
Constantin Drinas (Greece) (Elected at Athens FEBS Council, 2008 and started as of 1<sup>st</sup> January 2009)



Unfortunately, FEBS Education Committee faced the tragic loss of Costas Drinas in July 2011. A Tribute to Costas Drinas from the Education Committee appeared in the September issue of FEBS News.

**Chair:** Gül-Güner Akdogan (Turkey) (Elected at Prague FEBS Council, 2009- started as of 1<sup>st</sup> January 2010).

For the two members rotating out at the end of 2011 (Jason Perrett and Miguel Castanho) ,two membership positions were announced by FEBS General Secretariat for the elections during Turin FEBS Council. The criterion required, as agreed by the Education Committee, was, “experience in biochemistry and molecular biology education”. There were ten candidates and the members elected were Tomas Zima (Czech Republic) and Angel Herraез (Spain).

### **New Education Committee Members – as of 01.01.2012**

#### **Professor H. Angel Herraез**

Dep. Bioquímica y Biología Molecular  
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#### **Professor Tomáš Zima**

Dean, First Faculty of Medicine, Charles University  
Institute of Clinical Chemistry and Laboratory Diagnostics  
First Faculty of Medicine, Institute of Clinical Chemistry and Laboratory Diagnostics, Building N, 2nd floor

#### **Co-Opted:**

Keith Elliott (UK) (Since January 1st, 2008)  
Peter Ott (Switzerland) (Since May 14th, 2010)  
Wolfgang Nellen (Germany) (Since London EX-COM Meeting, November 26th)

**Ex-Officio Members:** Israel Pecht (FEBS General Secretary), John Mowbray (FEBS Treasurer), and Jaak Jarv (Chair, FEBS Advanced Courses Committee).

### **3. Education Committee Meetings**

In 2011, the Committee held two meetings, both of which were annexed to the Workshops organised by the FEBS Education Committee (to be more economical and also save time):

- **First (Spring) Meeting in Tallinn on 14<sup>th</sup> May, 2011:**

On May 14<sup>th</sup>, 2012, the spring meeting of the FEBS Education Committee was held in the Estonian Academy of Sciences, Tallinn, following the PBL Workshop on May 13<sup>th</sup>. The Meeting was attended by K Barisic, C Drainas, K Elliott, J Perret, J Mowbray, and I Pecht and chaired by G Güner-Akdogan. Apologies were received from P Ott. The first part of this meeting was dedicated to reflections on the educational events to take place at FEBS Turin Congress 2011 and on the report of the late Croatia (Opatija) Workshop (September 2010). Then, future arrangements for Sevilla (2012) IUBMB-FEBS Congress and the two workshops to take place in Slovakia (September 14-16<sup>th</sup>) and Slovenia (November 3-4<sup>th</sup>) were discussed. Among other issues was the collaboration with other organisations, as well as the organisation of the interactive web site.

**ED-COM Tallinn Meeting**

**(Saturday, May 14th, 2010)  
(Venue: Estonian Academy of Sciences)**

**09:00- 17:30**

**1. Welcome, apologies**

**2. Review of the Minutes of Opatija Meeting, 17th September 2010**

**3. Review of the status of Committee Members –Candidates Nominated by Constituent Societies for Election**

**4. Future FEBS Congresses:**

- **Torino 2011**
- **Sevilla 2012 (FEBS-IUBMB)**

**5. Education Workshops**

- **Report on Opatija Workshop ( 18-19th September 2010)**
- **Review and revision of the questionnaire (Workshop topic proposals)**
- **Planning for Slovakia Workshop (12-14th September 2011)**
- **Planning for Slovenia Workshop (3-4 November 2011)**
- **Planning for 2012**
- **Other issues concerning the Workshops**

**6. FEBS Education Platform (P OTT)**

**7. Collaborations**

- **IUBMB**
- **FEBS Working Group on Integration (WGI)**
- **Science and Society Committee**

**8. Project proposal:**

**“Programme on Promoting Teaching Skills ”**

**(Short term teaching fellowships and bursaries to attend FEBS Education Workshops)**

**9. Any other business and date and lieu of the NEXT Meeting.**

**Second (Autumn) Meeting, Ljubljana, November 5<sup>th</sup>, 2011:**

The second Education Committee Meeting during the year 2011 was held in Hotel SLON, Ljubljana, on November 5<sup>th</sup> following the Ljubljana FEBS Education Workshop which took place on 3<sup>th</sup>-4<sup>th</sup> November. Attendance was the following: K Barisic, M Castanho, K Elliott, P Ott, I Pecht (FEBS General Secretary), and Gül Güner-Akdogan. Apologies were received from J Perret and J Mowbray. The main issues discussed were the arrangements for the educational events at the Turin FEBS Congress 2011, the organisation of Workshops to take place in 2012, and future activities of FEBS Education Committee. In addition, two important projects were thoroughly discussed: Interactive web site with Wiley and Guidelines for initiating Education Fellowships.

## **ED-COM Ljubljana Meeting**

**(Saturday, November 5th, 2011)**

The Education Committee meeting took place on the indicated date and time in Club 3 of Hotel SLON between 09:00 and 15:30.

1. Welcome, apologies:

I Mowbray and J Perret could not join the meeting due to family constraints.

2. Adoption of the Agenda and Review of the Minutes of Tallinn Meeting, 14th May 2011

The agenda was approved as indicated with the addition of a new issue (Proposal of the Croatian Society of Biochemistry and Molecular Biology) and deleting of the item on "Guidelines for the organisation of FEBS Education Workshops", to be discussed later.

3. Review of the status of Committee Members –Candidates Elected

#### **4. Future FEBS Congresses:**

- Sevilla 2012 (FEBS-IUBMB)
- St. Petersburg 2013 (FEBS)

#### **5. Proposal of Croatian Society of Biochemistry for an Education Session during the Congress in Opatija (How to Enthuse Undergraduate Students for research?)**

#### **6. Proposal for launching a new Programme on "Education Training Visits in Europe: Promoting teaching skills"- Guidelines**

#### **7. Education Workshops**

- Report on Tallinn Workshop (5th November, 2011)
- Report on Slovakia Workshop (12-14th September, 2011)
- Preliminary Feedback on Slovenia Workshop (5th November, 2011)
- Review and revision of the questionnaire (Workshop topic proposals)
- Planning for 2012 (Izmir, Cambridge, Yerevan)
- Other issues concerning the Workshops

#### **8. Launching a new Project with the Advanced Courses Committee (J Jarv)**

Project on "Electronic Resources on Enzyme Kinetics"

#### **9. FEBS Education Platform (P Ott)**

##### **10. Collaborations**

- IUBMB (Workshops in Iran-Sept 2011)
- WGI (Report on visits to Vilnius (Lithuania) and Yerevan (Armenia))
- Advanced
- Science and Society
- Fellowship

11. Any other business and date and lieu of the NEXT Meeting

#### **4. Representation at EX-COM Meetings and Council:**

- The Committee was represented by Gül Güner-Akdogan at the Athens EX-COM Meeting on April 10<sup>th</sup>, 2011, at FEBS Turin Council (June 30<sup>th</sup> and July 1<sup>st</sup>) and EX-COM Meeting (June 25<sup>th</sup>) during FEBS Congress 2011 and London EX-COM Meeting on November 26<sup>th</sup>, 2011.

#### **5. Educational Events Organized by the Committee**

- Tallinn Workshop on Problem-Based Learning (May 13<sup>th</sup>, 2011)

Around 30 participants attended this one-day workshop.

The aims, scope, and programme of Tallinn Problem-Based-learning Workshop are given below:

#### **FEBS Education Workshop on "Problem-Based-Learning" (PBL)**

**Tallinn, Friday, May 13th, 2011**

**Venue: Estonian Academy of Science**

From FEBS: K Elliott, J Perret, P Ott, and G Güner

Coordinated by M Rannikmae

Hosted by J Järve, President, Estonian Society of Biochemistry and Molecular Biology

#### **Aim and Scope of the Workshop**

The aim of this workshop is to introduce the philosophy and practice of Problem Based Learning as an educational method.

#### **The objectives are:**

- To give a brief introduction on "What is PBL" and its applications in the world
- To discuss the main characteristics of PBL as compared with other educational methods
- To demonstrate examples from applications in Manchester and in Izmir- two different ways of approaching PBL (First with a lot of freedom-another, more structured)
- Work on real PBL cases to understand the mechanics of how a PBL session Works
- What is facilitation? How is it different from other educational techniques?
- To introduce how a PBL curriculum is designed

#### **Who Can Attend?**

Faculty, post-docs, PhD students, and high school teachers. As PBL is applied in a wide range of disciplines, the education and research staff from medicine, pharmacy, science education, and all disciplines of basic sciences as well as other related fields are invited to attend.

#### **Who are the Workshop Trainers?**

Members of FEBS education Committee, who have experience with PBL and who have participated in several FEBS Workshops on PBL conducted in many European countries since 2005.

#### **Programme:**

10.30-11.00 Registration (with coffee)

11.00-11.15 Introduction

11.15-12.45 Talks on Manchester and Izmir PBL experiences

- 12.45-13.45 Lunch
- 13.45-14.45 First PBL session
- 14.45-15.45 Second PBL session (possibly with coffee)
- 15.45-16.15 Designing the curriculum/Facilitation
- 16.15-17.00 General discussion and Close

The participants formed two small-groups and two cases, representing two different approaches to case-writing, were used for discussion. While both cases were excellent for motivating learning through problem-solving, there were differences in the way the cases were written. Izmir case, Melis Bora, a case on obesity, was structured in consecutive sections, each giving new data on the case, and asking questions for discussion. This case represented the “New Mexico” style. The case from Manchester on diabetes was designed with a different approach, being less structured and allowing more space for independent learning. Both groups worked well and enjoyed the way the PBL functioned.



The results of the written feedback obtained from the participants are summarized on the following table:

**FEBS EDUCATION WORKSHOP FEEDBACK FORM**  
**“Problem-Based Learning”**  
**May 13th, 2011 (Tallinn)**

“5” is “excellent” “1” is “very poor”

	1	2	3	4	5
Lecture: “PBL in Manchester”	%	%	%	%	%
Explanation of the workshop outline	0	0	9.25	47.61	23.80



Clarity of the content	0	0	4.76	33.33	61.90
Effective use of audiovisual aids	0	0	14.28	33.33	52.38
Time management	0	0	9.52	42.85	47.61
Overall evaluation of the efficiency			10.0	45.0	45.0
<p>Suggestions:</p> <ul style="list-style-type: none"> <li>❖ Talk quickly sometimes</li> <li>❖ Was not loud enough</li> <li>❖ Native English speaker in a bit hard to follow</li> <li>❖ At the beginning too quick speech</li> <li>❖ Too “ medical”, expectation was more toward gym education</li> </ul>					

Lecture: “PBL in Dokuz Eylül”	1 %	2 %	3 %	4 %	5 %
Explanation of the lecture outline	0	4.76	0	33.33	61.90
Clarity of the content	0	0	4.76	33.33	61.90
Effective use of audiovisual aids	0	0	4.76	28.57	66.66
Time management	0	0	4.76	33.33	61.90
Overall evaluation of the lecture efficiency	0	0	9.52	19.04	71.42
<p>Suggestions:</p> <ul style="list-style-type: none"> <li>❖ Excellent structure of the lecture however “medical”----- easy to transfer!</li> </ul>					

Inter active session	1 %	2 %	3 %	4 %	5 %
Title of the Case discussed:					
Introduction to the Session (effectiveness)	0	0	14.28	28.57	57.14
Quality of the case	0	4.76	4.76	23.80	66.66
Effectiveness of tutoring	0	0	9.52	28.57	61.90
Time management	0	9.52	4.76	28.57	57.14
Overall evaluation of the session	0	0	4.76	23.80	71.42

Suggestions for the interactive session:

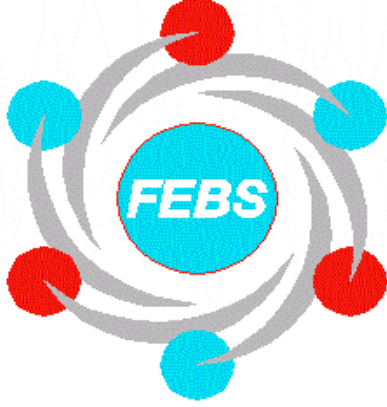
- ❖ I'd like to have learned more about the method- how it worked out,....
- ❖ More time in methodological discussion.
- ❖ Excellent! thank you!!

General Suggestions for the Workshop:

- ❖ More time
- ❖ Very good and wonderful
- ❖ This was nice workshop and as it matched my research area, then it was interesting to hear about familiar topics. It came clearer that there is one PBL, but lots of different approaches about PBL, I suggest following time limit more strictly.
- ❖ More suggestion to the teacher (how I could apply the method in school, at high school level)
- ❖ Would be useful to do a homework and get keep back as it, to make sure that one should not have problem in the preparing problem
- ❖ This is too interesting do it for a so short period of time, want to deal with it longer.
- ❖ More about how this is here, less actual working through material.
- ❖ Maybe more diversity on examples?  
Medicine vs humanity subjects?
- ❖ There was a good balance between lecture and interactive sessions  
The two cases was an excellent idea
- ❖ More recommendation to gym Teachers?

- **Turin FEBS Congress (25-30<sup>th</sup> June 2011)**

**The educational events organised by FEBS Education Committee were disseminated in many ways: FEBS web-site, FEBS news, and flyers distributed during the Congress. The flyers contained the following information:**



**"EDUCATIONAL EVENTS"**  
AT  
TORINO FEBS 2011

**Sunday, June 26<sup>th</sup>: 13:00-15:00 Londra 220**

**"High School Scientific Education: a Bridge towards Medicine, Biology and Biotechnology University Courses"**

**"Educazione Scientifica nella Scuola Media superiore: un Ponte verso i Corsi Universitari di Medicina, Biologia e Biotecnologie"** (This session-only-is in Italian)

*(Organised by Italian Society of Biochemistry and Molecular Biology)*

1. **"Cultura scientifica di base ed accesso alla formazione universitaria in area biomedica"**  
Coordinators: Paola Izzo (Napoli), Amalia Bosia (Torino)  
Speakers: Giovanni Boniolo, Alberto Calatro, Roberto Cirio, Carla Migliavacca
2. **"Nuovi approcci all'insegnamento delle discipline biomolecolari nella scuola media"**  
Coordinators: Fiorella Altruda (Torino)-Fabiola Sinigaglia (Piemonte)  
Speakers: Lanfranco Masotti, Giovanni Paoletta, Rita Trisoglio, Maria Chiara Rossi - Elisabetta Gaita, Elisabetta Gaita - Maria Chiara Rossi

**Monday, June 27<sup>th</sup>: 13:00 - 15:00 Sala 500**

**WORKSHOP: "PhD Training in Europe: Where Are We Heading?"**

*(Organised by FEBS Education Committee)*

Co-Chairs: Gül Güner-Akdogan (Izmir)- Jason Perret (Brussels)

1. **"European Vision in PhD Education"**  
Michael J. Mulvany (Denmark)  
*Aarhus University Graduate School of Health Sciences, Vice-President, ORPHEUS*
2. **"What Pharma- and Biotec Industry Expects from University Graduate Education?"**  
Detlev Riesner (Germany)  
*Düsseldorf University, Co-Founder, Chairman of the Supervisory Board Qiagen N.V.*

**Panel Discussion**

**Wednesday, June 29<sup>th</sup>: 13:00-15:00 Sala 500**

**WORKSHOP: "Integrating Molecular Bioscience Education with Medical Training"**

*(Organised by FEBS Education Committee)*

Co-Chairs: Kieth Elliott (Manchester) and Karmela Barisic (Zagreb)

1. **"Undergraduate Medical Curricula: Why integrate? The evidence to support integration of scientific and clinical learning within undergraduate medical curricula"**  
Karen Mattick, *Peninsula College of Medicine and Dentistry (UK)*
2. **"Integrating Molecular Biosciences within the Medical Curriculum: the Maastricht Approach"**  
Jan F. C. Glatz, *Director of Education, Biomedical Sciences, Maastricht Univ. (Netherlands)*
3. **"How to Integrate Molecular Bioscience in Medical Training"**  
Tomáš Zima, *Dean of the 1st Medical Faculty, Charles University Prague (Czech Republic)*

**Panel Discussion**

**FEBS Education Web-Site: <http://edu.febs.unibe.ch>**

**Workshop: "PhD Training in Europe- Where are we heading?"**

**Monday, June 27<sup>th</sup>, 13:00-15:00 Salle 500**  
**Co-Chairs: Gül Güner (Izmir) and Jason Perret (Brussels)**

**1. “European Vision in PhD Education” Michael J. Mulvany (Denmark)**



Born on 1<sup>st</sup> January 1941, in Buxton, England. British by birth. Danish citizenship since April 1985. Graduated 1962 from Oxford in Mathematics and Engineering Science. PhD (1978) and Doctor of Medical Sciences (1983), Aarhus University.

Since 1997, Professor of Cardiovascular Pharmacology Aarhus University. Head, Aarhus Graduate School of Health Sciences (2002-2011).

Scientific work: Structure and function of small arteries and their role in the development of high blood pressure (hypertension). Recent work: (a) Investigation of abnormal structure of small arteries in hypertension; (b) Drug treatments which can normalize the abnormal structure; (c) cellular and molecular mechanisms which determine small artery structure.

Other activities. Fourth Sir George Pickering Memorial Lecture, British Society of Hypertension (1986); Folkow-award, European Society of Hypertension (1993); Malphigi Award, European Society of Microcirculation (2002); Main Editor, Journal of Vascular Research (1992-2002); Secretary-General, 16th World Congress of Basic and Clinical Pharmacology, 2010.

“Since its inception at the Humboldt University, Berlin in the early 1800s, the PhD degree – given for successful completion of a research project under supervision – has spread to the rest of the World. In Europe, doctoral education is now the third cycle of the Bologna process and supported as a means for increasing competitiveness of European higher education and in creation of a “knowledge society”. Currently there are over half a million PhD students in Europe, and increasing at about 4% per year. As part of the Bologna Process, in 2005, the European Universities Association formulated 10 “Salzburg principles” for doctoral education. These emphasized that the PhD is based on the advancement of knowledge through original research, and that the PhD programmes should be structured and performed under qualified supervision. In 2008 the EUA established a Council for Doctoral Education which in 2010 provided a report on the progress with the Salzburg principles (“Salzburg II”). Here it was emphasized that the goal of doctoral education is to cultivate the research mindset, and to nurture flexibility of thought, creativity and intellectual autonomy through an original, concrete research project. Here it was recognized that only a minority of PhD graduates will fill positions and that most will use their talents in non-university positions. It is therefore essential to ensure that completion of a PhD project is not only concerned with the research itself, but also project management, scientific ethics, oral presentation at conferences, writing and publishing papers, teaching, networking, etc., commonly known as transferable skills. However, it is important to recognize that completion of a research project is in itself a transferable skill, equipping the graduate for either an academic career or a career outside university.

Traditionally, the standard required for a PhD degree has been successful completion of a research project as demonstrated in the PhD thesis. However, the large increase in numbers of PhD students and the increased international mobility has created a need to define the standard more rigorously to ensure that the PhD remains a research degree and to maintain its quality. Despite the diversity of doctoral education, the following points will probably have general acceptance.

(1) PhD programmes must be performed in a strong research environment. (2) Admission to a PhD programme requires a level corresponding to a bachelor and 2-year Masters, and based on research potential rather than past experience. (3) PhD programmes are structured and based primarily on a 3-4 year hands-on, original research project. (4) PhD programmes should include project-related course work covering at most about 6 months, including courses on ethics and transferable skills. (5) PhD students

should have qualified and regular supervision (6) A PhD thesis should demonstrate an intellectual ability to be expected from completion of a 3-4 year research project at international level. (7) The PhD thesis should be evaluated by an assessment committee consisting of active scientists, who should be independent and preferably international. Creation of such standards can safeguard the reputation of the PhD and thus strengthen career opportunities for those with PhD degrees."

## 2. "What Pharma- and Biotech-Industry Expects from University Graduate Education"

**Detlev Riesner, Chairman, Qiagen, N.V.**



Detlev Riesner, born 1941, had held the chair of Biophysics at the Heinrich-Heine-University in Düsseldorf since 1980 and retired in 2006. He has held the position of Dean of the Science Faculty (1991-92), Vice President of the University (Research) (1996-99), Director of Technology (1999-2006), and became a member of the University's board of trustees in 2007. Prior to that, he was Professor of Biophysical Chemistry at the Darmstadt Institute of Technology and from 1975 to 1977 Lecturer of Biophysical Chemistry at Hannover Medical School. He is a co-founder of the Company Qiagen N.V., a member of the Supervisory board since 1996 and Chairman of the supervisory board since 1999. He is a member of the boards of several biotech-companies and scientific agencies. His main research areas were infectious molecules, i.e. viroids in plants and prions in humans and animals.

"Industry has defined qualities and competencies which should be met by young scientists when they move from university to industry. As a good example five core competencies (innovation, problem solving, customer focus, business impact and accountability) and two leadership competencies (planning, people management) are listed. These competencies are translated into daily life requirements and discussed for project management, competence mapping, communication and consequences for the job application. It is shown that some competencies needed are very similar in university and industry but others are clearly different. Knowing the requirements of the industry young scientists do better in job applications and first position."

**WORKSHOP. "Integrating Molecular Biosciences with Medical Training"**

**Wednesday, June 29<sup>th</sup>, 13:00-15:00 Salle 500**

**Co-Chairs: Ketih Elliott ( Manchester) and Karmela Barisic (Zagreb)**

### 1. "Why integrate? The evidence to support integration of scientific and clinical learning within undergraduate medical curricula."

Karen Mattick (UK)



“I am a Clinical Scientist in microbiology who has gone on to an academic career at the Peninsula Medical School. My current position (Associate Director of Undergraduate Medical Studies) combines a senior educational role, with formal training and significant experience in education research. I have 38 peer reviewed publications, including 19 in the field of clinical education research, and currently manage education research funding in excess of £150k.”

“Curriculum integration refers to the blurring of boundaries between the teaching of scientific and clinical content within medical programmes. Curriculum integration is rapidly becoming the norm in many undergraduate medical programmes, as a result of policy documents arising from different organizations across different continents. There is a reasonable body of theory that suggests that curriculum integration might lead to better learning outcomes and integrated programmes have largely been introduced on that basis. However, now that curriculum integration has been happening for some time, there ought to be some empirical evidence available to say whether it is working as predicted. In this talk, I will outline the theoretical basis that suggests curriculum integration should be beneficial, and the empirical evidence that exists as to its effectiveness. “

## **2. Integrating Molecular Biosciences within the Medical Curriculum: the Maastricht Approach Jan F.C. Glatz (Maastricht)**





**Jan Glatz, PhD** is Professor of Cardiac Metabolism at the Cardiovascular Research Institute Maastricht (CARIM), and Director of Education for the Biomedical Sciences/ Life Sciences program, Maastricht University, the Netherlands. Dr. Glatz studied chemistry and biochemistry (Nijmegen and Utrecht) and received his PhD degree from Nijmegen University in 1983. Following a post-doc period in Human Nutrition at Wageningen University, he joined Maastricht University in 1986 to be trained as molecular physiologist and study cardiac lipid metabolism with special reference to the functioning and significance of fatty acid-binding proteins. His current interest is in membrane substrate transporters and their application for so-called metabolic modulation therapy. For >20 years he was involved in various aspects of the medical training program, a.o.as course coordinator and as chair of the Board of Studies. More recently he constructed the masters program on Molecular Life Sciences before becoming Director of Education for the entire (bachelor and master) program on Biomedical Sciences. Dr. Glatz is a member of the Editorial Board of several journals, including *J Lipid Research*, *Obesity* and *PLEFA*. In addition, he has organized several international conferences including the 5th conference of the *Society for Heart and Vascular Metabolism* (SHVM, 2007), the 49th *International Conference on the Bioscience of Lipids* (ICBL, 2008), and the 9th Congress of the *International Society for the Study of Fatty Acids and Lipids* (ISSFAL, 2010).

## 2. “Integrating Molecular Biosciences within the Medical Curriculum: the Maastricht Approach”

**Jan F.C. Glatz PhD**

Institute for Education, Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, the Netherlands

“Today’s medical doctors need the knowledge and skills to properly diagnose and subsequently manage a broad variety of medical problems thereby applying the latest evidence-based insights. To reach this goal, medical education programmes should prepare them to be full-fledged problem solvers who can rely on a broad knowledge base and the ability to gain access to new knowledge. With this in mind, at Maastricht University the medical curriculum has been developed according to the so-called Problem-Based Learning (PBL) model. Clinical problems are the trigger for learning. In small tutorial groups students analyse real-life problems, conduct discussions, exchange knowledge and formulate their learning goals as a group. By actively addressing the issues, students better grasp the theory and learn to apply their insights to various questions. In addition, they gain essential skills such as presenting viewpoints, debating, writing texts and working together. As a result, teaching is based on an integrative rather than a disciplinary approach. Our graduates’ achievements demonstrate that PBL is effective; they are assertive, independent and expert professionals, skilful in analysing complex issues and working in (international) teams, and well-prepared for life-long learning. This educational model has been at the core of Maastricht University ever since it was founded and is applied in all its programmes, including Biomedical Sciences, Health Sciences, Law and Economics. The basic characteristics and new developments in PBL will be outlined during the lecture.”

## 3. “How to Integrate Molecular Bioscience in Medical Training – A Model from Prague”

Tomáš Zima , First Faculty of Medicine, Charles University, Prague, Czech Republic



Tomáš ZIMA was born in Prague in 1966. He finished Medical Faculty Charles University with honors in 1990. In Charles University, he received PhD degree in Biochemistry in 1993 and DSc degree of Medicine in 2000. He held the positions of associate professorship between 1996-2001 and is professor of medical chemistry and biochemistry since 2001. From 1999 on, he has been Head of Institute of Clinical Chemistry and Laboratory Diagnostics 1st Medical Faculty, Charles Univ. General University Hospital Prague and Head of Reference Laboratory for Clinical Chemistry of Ministry of Health Czech Republic. Since 2005, he is the Dean of the First Faculty of Medicine, Charles University. In 2009, he was a visiting professor to Faculty of Medicine, Zagreb University. He received many awards among which, "Professor Honoris Causa, State Medical University JY. Horbachevski in Ternopol, Ukraine, "Research Award"-12th Asian-Pacific Congress of Clinical Biochemistry, Seoul (2010) and "Award of President of medical Chamber for contribution in continual education" (2010). He is the co-applicant of 23 grants. His main research interests include oxidative stress, AGE's, experimental nephrology, tumour markers, and laboratory accreditation. He has 187 published original research articles and is first author on 29 papers. He also has published 105 review articles. He has four monographs and is the co-author of 50 chapters in monographs. He is the Editor in Chief –Folia Biologica, Addictology .He has memberships in many learned societies and in 2011, he is the Chair of Executive Committee of FEBS.

"Molecular Bioscience – mostly biochemistry and molecular biology, is integrated part of curriculum of general medicine study. Bioscience is implemented to the subjects during whole six year study programme. The basic knowledge the students receive in the first year – cytology and histology (e.g. structure of the cell, cell cycle). Biology and genetics (1<sup>st</sup> and 2<sup>nd</sup> year) is the core subject for the bioscience – DNA, RNA, onco- and immunogenes. The key subject is also biochemistry in the 2<sup>nd</sup> year. There are lectures, seminars and also practical courses including the DNA analysis, PCR and basic biochemistry techniques – chromatography, spectrometry, electrophoresis. Other theoretical or preclinical subjects such as immunology, pathology, pharmacology are focusing on applied bioscience. One example is pharmacogenetics for personal medicine – treatment in oncology etc. Clinical application of molecular biology is placed in Clinical genetics (4<sup>th</sup> year). Some parts of clinical biochemistry are tightly connected to modern bioscience techniques and their applications – e.g. cytogenetic analysis, chip arrays etc. During the clinical training such as internal medicine, oncology, neurology, psychiatry, infection diseases etc. students receive information about basic molecular principles of diseases, diagnostic tests (genotyping, gene arrays ,FISH, etc.), treatments which include the use of biology (e.g. blocators of TNF-alpha receptors) and possibilities of monitoring of diseases (different lab techniques). The Faculty organises annual student's scientific conference and about 2/3 of all presentations are focusing on bioscience. Few years ago we started with e-learning courses in different subjects including biochemistry. The increasing tendency to create efficient e-learning system resulted in establishment of Medical Faculties Network (MEFANET), an open project aimed to advance medical teaching and learning in Czech and Slovak Republics with the use of modern information technology."



The report, a shorter version of which appeared in the FEBS News(September 2011 issue), is presented below:

### **FEBS Education Committee Events at 2011 Turin FEBS Congress**

FEBS 2011 witnessed a number of educational events, organised by the Education Committee, with a strong support from the organisers - the Italian Society of Biochemistry and Molecular Biology.

(1) Workshop on "PhD Training in Europe: Where Are We Heading?"

(2) Workshop on "Integrating Molecular Bioscience Education with Medical Training"

(3) CV Support for YSF (Young Scientists' Forum) participants

(4) In addition, a workshop in Italian on "'High School Scientific Education: a Bridge towards Medicine, Biology and Biotechnology University Courses"

"Educazione Scientifica nella Scuola Media superiore: un Ponte verso i Corsi Universitari di Medicina, Biologia e Biotechnologie" (Organised by the ISBMB), targeted to science teachers from the region and to faculty members in the science curricula, was held in Italian on Sunday, June 26<sup>th</sup>, (13:00-15:00). It was organised by the ISBMB and co-chaired by Prof. Fabiola Sinigaglia.

The Workshop on "PhD Training in Europe-Where are we heading?", Co-Chaired by Gül Güner-Akdogan (Izmir) (Chair, FEBS Education Committee) and Jason Perret (Brussels) (Member, FEBS Education Committee) was held on Monday, June 27<sup>th</sup> between 13:00 and 15:00 at Sala 500. This event, treating a primordial issue on post-graduate education, was attended by about 120 participants, both faculty and PhD students from all over Europe. The workshop was introduced by Gul Guner-Akdogan- she explained the mission and vision of the Education Committee and some of its activities over the past few years. This workshop clearly presented an opportunity for dialogue between academia and industry- Prof. Michael Mulvany (Denmark) from Aarhus University Graduate School of Health Sciences, Vice-President, ORPHEUS and Prof. Detlev Riesner from Düsseldorf Heinrich-Heine-Universität and Co-Founder and Chairman of the Supervisory Board Qiagen NV Hilden, Germany, were the two invited speakers who first gave their presentations and then a lively discussion ensued with the interested participants.

Workshop on "PhD Education in Europe: Where are we heading?"

M Mulvany's talk, "European Vision in PhD Education", focused on the present European trends in PhD education. He traced the development of the PhD leading to inclusion of PhD training as the third cycle of the Bologna Process. Inclusion in the Bologna Process has supported efforts to improve the structure of PhD training, with clear 3-4 yr time limits, and relevant course work. The new structures also recognize that only a minority (15 %?) of PhD students continue to an academic research career, emphasising the need for courses in transferable skills. However, as pointed out by the European Universities Association (EUA), PhD education differs fundamentally from pregraduate education, being research based. Furthermore the emphasis on PhD education has resulted in a dramatic increase in the number of PhD students in Europe. There is therefore a need for standards in PhD education to safeguard the reputation of the PhD as a research degree, and also to strengthen career opportunities for those with PhD degrees. Initiatives to produce standards have been taken by a number of organizations including EUA-Council for Doctoral Education and ORPHEUS (Organization for PhD education in Biomedicine and Health Sciences in the European System).

Prof. M Fragoulis (Greece) asked Prof. Mulvany "to elaborate further on the recommendation of ORPHEUS for a prerequisite of having published three papers applied to the PhD candidates before their defense of thesis":

- "What kind of paper? How many authors? "etc.

The answer was the following:

- "The papers should be able to represent 3-4 years of extensive research work. If the candidate would publish an article in 'Nature', only one would certainly be enough".

Prof. Detlev Riesner's talk, "What industry, in particular Pharma- Biotec Industry expects?" gave an excellent view of the expectations of the industry from the candidates. Introducing the flow of PhD graduates in Germany, he stressed the fact that only 4% of PhD graduates are getting, finally, professor positions and 2.5%, other permanent staff positions in the academia... He presented a very interesting comment: "Talent Outweighs Experience" in industry. He explained thoroughly, using lively examples, the core competencies looked-for in the industry: "Innovation/Creativity", "Problem solving", "Customer focus", "Business impact", "Accountability (character)"; in addition, the leadership competencies needed were "Planning/research management" and "People management". He mentioned that experience in another country is important for a candidate in the industry. He also discussed the possible collaborations between university and industry. It could be direct, by focusing together on some problems; however, the best way that he suggested was through "spin-off" companies from the university- which were more successful. Following Riesner's talk, many participants were active in asking questions.

Q: "Is there a danger that companies are directing the research areas (through financing?)"

A: "Industry should give money in general terms!"

Q: "Why is experience in another country important?"

A: "You see how other people do it better!"

Q: "When is the right time to transfer from academia to industry?"

A: "You should come as early as possible to our company-this is over what you bring as technology-this is important".

These very stimulating talks were followed by a lively panel discussion including the two speakers, moderated by Gül Güner Akdogan (Izmir) and Jason Perret (Brussels), during which many more issues regarding the PhD training in Europe were discussed.

Q: "What are some requirements to make PhD more universal?"

A: "Competences in other areas", "Inviting a jury member from a different country", "PhD students visiting other labs".

Q: "What is the importance of ethics in PhD training?"

A: "Ethical behavior is very important; collegiality has to be controlled-some companies broke apart".

Q: "What are some other criteria important for PhD in Europe?"

A: "Networking is important; financing PhD students is very important; Marie Curie actions is a very useful approach".

From the lively discussions which continued up to the very end of the workshop session and from the feedback of the participants, it was concluded that the Workshop had been well-received. We thank deeply our two invited speakers for having presented their expertise in both a modest and a brilliant manner.

### **Workshop on "Integrating Molecular Bioscience Education with Medical Training"**

The second workshop ("Integrating Molecular Bioscience Education with Medical Training") took place on Wednesday, June 29<sup>th</sup>, between 13:00 and 15:00, again at Sala 500. This time, it was attended by about 45 participants, mostly faculty members from science and from medicine, interested in learning more about integration. This workshop was co-chaired by K Barisic (Dean, Faculty of Pharmacy, Zagreb University) and K Elliott (Manchester), from FEBS Education Committee.

*The Workshop was introduced by Keith Elliott, emphasizing what integration means and the need for integrating molecular biosciences in the medical curriculum and then talks emphasizing examples of integration from different perspectives followed. The first talk aimed at explaining why medical programmes should integrate scientific and clinical learning within undergraduate medical curricula. Karen Mattick (UK) focused on the evidence base available via the educational literature to determine whether curriculum integration led to better learning outcomes than more traditional 'pre-clinical/ clinical' curricula. She explored the educational theories that suggest that integration should work and then presented four "good news" studies that suggest that curriculum integration is working as intended. She highlighted that further research into the impact of curriculum integration on educational outcomes, and a better understanding of the mechanisms underlying any impact, is urgently required. The second and third talks were focused on "How to Integrate". Prof. Jan F. C. Glatz, Director of Education, Biomedical Sciences Maastricht University (Netherlands), in his informative talk on "Integrating Molecular Biosciences within the Medical Curriculum: the Maastricht Approach", started with "How do we learn best?". He described the Maastricht solution to this question emphasizing the approaches and methods used in integration, in a completely PBL curriculum-Maastricht example. Some of the questions asked were:*

Q: "Are the cases used in the clinical years or both basic and clinical years?"

A: "Both- we start with cases".

Q: "How are the teachers adopted to this new situation?"

A: "The teachers no longer have their 'own central role'. The visibility of disciplines is lost. This is point for long discussion, but teachers adapt".

Q: "How is the programme at Maastricht comparable to that of other medical schools?"

A: "At first, we had NO lectures. Now, some lectures are there, but AFTER the cases are discussed".

Jan Glatz (Maastricht University) giving his talk.

The third speaker was Tomáš Zima, Dean of the 1st Medical Faculty, Charles University Prague (Czech Republic). He gave an excellent presentation, an example from Prague, Charles University, on "How to Integrate Molecular Bioscience in Medical Training". He focused on integration and he also presented an excellent example of an "e-learning platform" designed to enhance integration and learning in an international network.

A question posed to T Zima was:

Q: "What are some techniques used in integration?"

A: "We make sure that the basic concepts are integrated in the clinical context- in the textbooks, we assure a two-way integration. In addition, clinicians are invited to the basic sciences sessions to enhance this integration".

Then, a lively panel discussion was moderated by K Barisic (Zagreb), and K Elliott (Manchester), with support from the three speakers.

Some of the questions posed further, were the following:

Q: "How to solve the problems (cases) without the basic knowledge?"

A: "The cases are designed in such a way that the students first investigate more of the basic issues, through solving the cases. Later on, progressively, the cases have more and more focus on clinical issues. This is a curricular task".

Q: "What is the long-term retention of students in PBL?"

A: "There are many studies on this issue. Generally, it is accepted that the long-term retention is significantly more that the learning in the classical curriculum".

We thank wholeheartedly both three speakers who presented their experiences in their schools, at the same time, allowing for “harmonical integration” of their talks...  
The slides of talks of both the workshops can be found at FEBS Education Platform, through a registration process which can be quickly done with no prerequisites:

### ***CV Advising Sessions***

How to make the most of yourself!” For many of the YSF participants this was the first time that anyone had formally talked to them about preparing a CV.

This year 55 of the young scientists took advantage of the offer of a one-to-one session at the main congress where Keith (and Jason Perret) discussed the CV in detail. This is the largest number of participants we have seen – coming from 23 different countries.

A happy “spin-off”, as a direct result from this activity, was that Keith has been invited to run sessions in Naples (in April) and in Basel (to be run in October). Congratulations, Keith!

The Education Committee will participate in the YSP (Young Scientists’ Programme) next year during the IUBMB-FEBS Congress where we hope to meet many more young scientists and perhaps have some small influence on their future success.

In addition we will organise a session on “Molecular Evolution-A Unifying Principle of Biochemistry”.

- **Slovakia (Smolenice-Bratislava) Workshop on Biochemistry and Molecular Biology Education (12-13th September, 2011)**

For this workshop, the flyer which was distributed by the Constituent Society is presented below, giving information on the general scope and programme of the Workshop:

#### ***FEBS “Biochemistry Education” Workshop***

*Slovakia, 12-13 September, 2011*

*Venue: The Castle Smolenice, Zamok*

*From FEBS: K Elliott, J Perret, P Ott, and G Güner Akdogan*

*With Kind Support of M Sprinzl, Chair of WGI*

*Coordinated by K Mikušová*

*Hosted by M Kollarova, Vice Rector, Comenius University, Bratislava and*

*J Turna, President, Slovakian Society of Biochemistry and Molecular Biology*

#### ***Aim and Scope of the Workshop***

*The aim of this workshop is to promote biochemistry and molecular biology education at undergraduate and post-graduate levels. Special focus will be given to post-graduate education, problem-based learning, and quality of education.*

#### ***The aims are:***

- *To discuss post-graduate education: Programme, supervision, student perspective, quality, and the ongoing projects in Europe to promote its quality*
- *To give a brief introduction on PBL and its applications*
- *To discuss the main characteristics of PBL as compared with other educational methods*
- *To demonstrate examples from applications in Manchester and in Izmir - two different ways of approaching PBL. (First with a lot of freedom-another, more structured)*

- *Work on real PBL cases to understand the mechanics of how a PBL session works*
- *What is facilitation? How is it different from other educational techniques?*
- *To introduce how a PBL curriculum is designed*
- *To discuss quality indicators for education.*
  - *How can the quality of education be assured?*
  - *Who Should Attend?*
  - *Faculty, post-docs and PhD students from medicine, pharmacy, science education, and all disciplines of basic sciences are invited to attend.*
  - *Who are the Workshop Trainers?*
  - *Members of FEBS Education Committee, who have participated in several FEBS Workshops conducted in many European countries since 2005.*

**Programme:**

*Monday, September 12th 2011:*

*13.00-13:30 Registration*

*13:30 -13:50 Introduction to the Workshop*

*13:50- 14.20 Biochemistry Education in Slovakia K Mikusova*

*14.20-14.30 Discussion*

*14.30-18.30 Workshop on Post-Graduate Education*

*14.30–14.40 Introduction.*

*14.40–15.10 “Quality in Post-Graduate Education”*

*15.10–15.30 Short coffee break and dividing into groups*

*15.30 -16.30 Small Group Discussions on 1. Student abilities and supervisor’s skills, 2. Role of the supervisory committee, 3. PhD curriculum, 4. Experimental research-based thesis. 5. Assessment of thesis*

*16.30–17.15 Presentations of small groups to the whole group*

*17.15- 18.00 “What abilities are needed by the student and what skills are needed by the supervisor”*

*18.00–18.30 General Discussion on Post-Graduate Education and Close*

**Tuesday, September 13th, 2011:**

*Workshop on Problem-Based –Learning (PBL)*

*08:45- 09:00 Introduction*

*09:00-10.30 Talks on Manchester and Izmir PBL experiences*

*10.30-10:45 Coffee and Dividing into Groups*

*10:45-11.45 First PBL session*

*11.45-12.45 Second PBL session*

*12.45-14:00 Lunch*

*14:00-14:30 designing the curriculum/Facilitation*

*14.30-15:00 General discussion on PBL*

**15.00-17.15 What is Quality in Education** *(Interactive Session with coffee)*



The feedback received from the participants is summarized below:

### FEBS EDUCATION WORKSHOP FEEDBACK FORM

September 12-13th, 2011, Smolenice, Bratislava, Slovakia

("5" is "excellent" "1" is "very poor")

<b>Lecture: "Quality in Post-Graduation Education"</b>	<b>1</b> %	<b>2</b> %	<b>3</b> %	<b>4</b> %	<b>5</b> %
Explanation of the lecture outline	0	0	14.28	37.14	48.57
Clarity of the content	0	2.85	11.42	42.85	42.85
Effective use of audiovisual aids	0	0	18.18	45.45	36.36
Time management	0	0	8.57	28.57	62.85
Overall evaluation of the lecture efficiency	0	0	8.82	52.94	38.23
<b>Suggestions:</b>					

<b>Small Group Discussions: "Post-Graduate Education"</b>	<b>1</b> %	<b>2</b> %	<b>3</b> %	<b>4</b> %	<b>5</b> %
Explanation of the plan	0	0	8.57	37.14	54.28
Clarity of the content	0	0	23.52	38.23	38.23
Time management	0	0	2.09	27.27	63.63
Efficiency of the small group discussion	0	0	23.52	23.52	52.94

Efficiency of the general discussion	0	0	21.21	48.48	30.30
Overall evaluation of the session	0	0	8.57	40	51.42
<b>Suggestions:</b> <ul style="list-style-type: none"> <li>❖ If I may suggest a “round table” for the small group discussion.... It may seem like a detail, but it helps to make a more friendly atmosphere.</li> <li>❖ Discussion was very stimulated. But I think that the topic of my group(on the role of ...) is not aim to students. For me as young PhD student it was hard to say something , because I have no experience with that.</li> <li>❖ What about spending more time discussion? 4 groups &amp; 4 topics but 2 topics each group??</li> <li>❖ More time to discussion; maybe</li> <li>❖ I would suggest that we would have the theme of discussion earlier to think e about it a bit before the discussion.</li> </ul>					

Lecture: “What abilities are needed by the student and what skills are needed by the supervisor?”	1 %	2 %	3 %	4 %	5 %
Explanation of the lecture outline	0	0	5.71	22.85	71.42
Clarity of the content	0	0	5.71	28.57	65.71
Effective use of audiovisual aids	0	0	11.76	38.23	50
Time management	0	0	0	34.28	65.71
Overall evaluation of the lecture efficiency	0	0	0	29.41	70.58
<b>Suggestions:</b> <ul style="list-style-type: none"> <li>❖ Helpful</li> <li>❖ This was a really great presentation. Several good thoughts were pointed out. Thanks</li> </ul>					

**FEBS “Biochemistry Education” Workshop  
Ljubljana, Slovenia, 3-4 November, 2011**

**From FEBS Education Committee: K Elliott, P Ott, K Barišić and G Güner**

**Kind Support from: Felix Goni (Chair, FEBS Publications Committee) and**

**Michel Claessens, Communication Head, ITER Organization, France**

**Keith Burdett, Manchester University (UK)**

**Coordinated by: Blaž Cigić, University of Ljubljana**

**Hosted by: Marinka Drobnič-Košorok, President, Slovenian Biochemical Society**

**Aim and Scope of the Workshop**

The aim of this workshop is to promote biochemistry and molecular biology education at undergraduate and post-graduate levels. Special focus will be given to “problem-based learning”,



“scientific communication (writing a scientific article)” and “communication of science to ‘non-scientific’ audience”.

**The objectives are:**

- **To give a brief introduction on problem-based learning (PBL) and its applications**
- To discuss the main characteristics of PBL as compared with other educational methods
- To demonstrate examples from applications in Manchester and in Izmir - two different ways of approaching PBL (First with a lot of freedom-another, more structured)
- Work on real PBL cases to understand the mechanics of how a PBL session works
- What is facilitation? How is it different from other educational techniques?
- To introduce how a PBL curriculum is designed
  
- **To present recent developments related to science communication which are particularly (but not exclusively) relevant in Europe**
- Provide an overview of new science communication initiatives and address issues such as: trends in science journalism, technology and communication, public perception of science
- Discuss how to communicate science with non-scientific audience
- Analyse specific case studies
- Share experiences and good practices in this area and design strategies to reach non scientific audiences
- **To discuss “how to write a scientific article”**

**Who Should Attend?**

Faculty, post-docs and PhD students from biochemistry, molecular biology, medicine, pharmacy, science education, and all disciplines of basic sciences are invited to attend.

**Who are the Workshop Trainers?** Members of FEBS Education Committee, who have participated in several FEBS Workshops conducted in many European countries since 2005, and world experts from related areas.

**Venue: Large Lecture Room of Biotechnical Faculty, Jamnikarjeva 101, Ljubljana**

**Programme:**

**Thursday, November 3<sup>rd</sup>, 2011:**

09:00 -09:30 Registration

09:30-10:00 Opening

**Session 1: (10:00-11:00) “Biochemistry and Molecular Biology Education in Slovenia”**

10:00-10:40 “Biochemistry and Molecular Biology Education in Slovenia” A Plemenitaš, M Dolinar

10:40-11:00 Coffee

**Session 2: (11:00-17:30) “Problem-Based Learning” (K Elliott, G Guner, K Burdett, P Ott, K Barišić)**

11:00-12.30 Talks on Manchester and Izmir PBL experiences (K Elliott - G Guner)

12.30- 14.00 Lunch

14.00-14.15 Introduction to Small Groups - Dividing into groups

14:15-15.15 First PBL session (Possibly with coffee at tables)

15.15-15:30 Change groups

15:30-16:30 Second PBL session

16:30-17.00 Coffee break

17:00-17:30 Designing the curriculum/Facilitation (K Elliott)

17:30-18.00 General discussion on PBL



**Friday, November 4<sup>th</sup>, 2011:**

**Session 3 (09:00-12:30): “Communication of Science to Non-scientific Audiences” (M Claesson)**

09:00- 09:45 Recent trends in science communication  
 09:45- 10:15 Case study: building a communication strategy for ITER  
 10:15- 10:40 Group discussion and exchanges  
 10:40-11:00 Dividing into Groups and coffee break  
 11:00-12:00 Small groups work on Communicating biochemistry and molecular biology  
 12:00-12:30 Group Discussion and Conclusions  
**12:30-14:00 Lunch**

**Session 4 (14.00-16.00) : “Writing a Scientific Article” (F Goni)**

16:00-17.00 Closing with Coffee

**PBL workshop:**

The participants formed two small-groups and two cases, representing two different approaches to case-writing, were used for discussion. While both cases were excellent for motivating learning through problem-solving, there were differences in the way the cases were written. Izmir case, Melis Bora, a case on obesity, was structured in consecutive sections, each giving new data on the case, and asking questions for discussion. This case represented the “New Mexico” style. The case from Manchester on diabetes was designed with a different approach, being less structured and allowing more space for independent learning. Both groups worked well and enjoyed the way the PBL functioned.

Both groups were observed to be very enthusiastic about the process of Problem-Based-Learning. The teachers played the role of students and tried to think the way students would receive this active learning process. They asked questions to each other, discussed, formed hypotheses, approached the limit of their knowledge, and, finally created learning issues on which to work independently till the next session.

At the end, there was a discussion session for the whole group and this time, the teachers discussed the philosophy and mechanism of PBL from the pedagogical points.

**November 3-4<sup>th</sup>, 2011, Ljubljana, Slovenia**

**(“1” is “very poor” and “5” is “excellent”)**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>
<b>“Introduction to the Workshop”</b>			<b>7</b>	<b>46</b>	<b>46</b>
<b>“Biochemistry and Molecular Biology Education in Slovenia”</b>		<b>17</b>	<b>17</b>	<b>51</b>	<b>17</b>
<b>“Problem-Based-Learning: Talks on Manchester and Izmir PBL experiences “</b>			<b>10</b>	<b>50</b>	<b>40</b>

<b>“ Problem-Based-Learning - Small Group Case Discussions”</b>				<b>24</b>	<b>76</b>
<b>Talks after the PBL session- “Designing the curriculum/Facilitation/Case Writing”</b>		<b>8</b>	<b>19</b>	<b>50</b>	<b>27</b>
<b>Session: “Communication of Science to Non-scientific Audiences”</b>	<b>3</b>	<b>27</b>	<b>50</b>	<b>13</b>	<b>6</b>
<b>Session: “Writing a Scientific Article”</b>			<b>3</b>	<b>17</b>	<b>80</b>
<b>Session: “General discussion and close”</b>			<b>3</b>	<b>23</b>	<b>73</b>

<b>General Evaluation of the Workshop</b>			<b>8</b>	<b>52</b>	<b>40</b>
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General Suggestions for the Workshop:

- “I loved working in groups; presentation of “communication” could be more alive”
- “Group work and case discussions- I like it”
- “Session on communication of science to “non-scientific” should be more practical-should teach how to present a topic through an example”
- “The topics are great. Some of the speakers should be more energetic”
- “Very lovely workshop”
- “Discussion on Thursday evening too long and most of the questions asked (by the participants) not to the point”
- “Even more small group discussions”
- “Free lunch!”
- “Too much time for coffee breaks in my opinion. And, perhaps use a smaller lecture room for lectures, with better acoustic properties”
- “Good timing!- Keep the lecture up to 20 minutes!”
- “More guidance in small group sessions; Introduction of biochemistry education in Slovenia was unnecessary and boring; designing the curriculum session should be more based on example and this is part where end-users’ feedback should be implemented in session
- “Continue with the good work!”
- “the part “communication of science to non-scientific audience” was not very comprehensible - problems were not defined well”.
- “Small group case discussions were not guided enough; I understand that the facilitator should not interfere too much, but in case of a demonstration to audience which encounters this kind of method for the first time, it would be appreciated;
- “Group session “communication of science” should be more defined- One problem-one topic for every group; otherwise: very good”
- “The ‘communication of science to non-scientific audiences’ is a very important subject. It should be presented better, with examples from life-sciences and with more emphasis on teaching us how to communicate. The small group discussion was all right. Overall the workshop was a great experience. Thank-you FEBS for making the workshop free of charge!

- **Future Workshops**

As decided during the Ljubljana Education Committee Meeting (Nov 5<sup>th</sup>, 2011), three workshops will be organised in 2012:

1. FEBS Izmir Workshop on Biochemistry and Molecular Biology Education (March 29-30th)
2. FEBS Yerevan Workshop on Biochemistry and Molecular Biology Education (October 2012)
3. FEBS Cambridge Workshop on Biochemistry and Molecular Biology Education (17-18<sup>th</sup> December 2012)

For the Izmir Workshop the programme is the following:

- **FEBS Izmir Workshop:**

**FEBS Workshop on Biochemistry and Molecular Biology Education**

**Trends & Tips**

**Trends** in Undergraduate Biomolecular Science Education

**&**

**Tips** for Postgraduate Students and Beyond

Izmir - Turkiye, 29-30 March, 2012

<http://febseducationworkshopizmir.blogspot.com>

**FEBS Education Committee:** : K. Barisic, K. Elliott, A. Herraez, W. Nellen, P. Ott, T. Zima, and G. Güner-Akdoğan (Chair)

**FEBS General Secretary:** I. Pecht

**With Kind Support from:** F. Goni, D. Riesner, K. Mattick, H. Abacioğlu, F. Sağın

**Workshop Coordinator:** F. Sağın (Chair-Educational Activities Committee, Turkish Biochemical Society)

**Hosted by:** N. Özer (President-Turkish Biochemical Society)

**March 29, 2012-Thursday**

09:00-09:30 Registration

09:30-10:15 Welcome and Opening remarks

*F. Sağın-Workshop Coordinator*

*G. Güner Akdoğan-Chair, FEBS Education Committee*

*K. Elliott – FEBS Education Committee*

*N. Özer-President, Turkish Biochemical Society*

10:15-10:30 Coffee break

**Session 1 Trends in Undergraduate Basic Science Education - Integration**

10:30-11:00 “Integration of biomolecular sciences in undergraduate medical curriculum “

*K. Mattick (UK)*

11:00-11:45 Great Ideas and Best Practices (Short presentations)

- 1) Group Work that Works! - Use of team-based learning (TBL) for effective integration of basic science concepts into real life cases

*F. Sağın (Turkiye)*

2) *Pending (Open to applications from the participants)*

3) *Pending (Open to applications from the participants)*

11:45-12:00 General Discussion – Q&A

12:00- 13.30 Lunch

## **Session 2 Trends in Undergraduate Basic Science Education - New Educational Technologies**

13:30-14:00 New technologies and making educational use of them

*A. Herraez (Spain)*

14:00-14:45 Great Ideas and Best Practices (Short presentations)

1) Medical Faculties Network (MEFANET) aimed to advance learning with the use modern information technology

*T. Zima (Czech Republic)*

2) *Pending (Open to applications from the participants)*

3) *Pending (Open to applications from the participants)*

14:45-15:00 General Discussion – Q&A

15:00-15:15 Coffee Break

## **Session 3 Meet the Expert**

15:30-17:00 Structured round-table discussions with the experts

<i>Integration (K. Mattick)</i>	<i>Problem-Based Learning-(PBL) Manchester Experience K.Elliott)</i>	<i>Problem-Based Learning-Dokuz Eylül Experience (G.Güner-Akdoğan)</i>	<i>Team-Based Learning (TBL) (F. Sağın)</i>	<i>Educational Technologies (A. Herraez)</i>	<i>Medical Faculties Network (T. Zima)</i>
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## **Session 4 Posters**

17:00-18:30 Poster Viewing Session

19:00-21:00 Welcome Cocktail (Hotel Kaya Izmir)

## **March 30, 2012-Friday**

## **Session 5 Science Communication**

09:00- 09:30 Communication of science: Educating the public

*W. Nellen (Germany)*

- 09:30- 10:00 Small group work (Dividing into groups such as communication ethics, science journalism, perception of science, etc)
- 10:00-10:30 Presentation of group reports & exchange of ideas and general discussion
- 10:30-10:45 Coffee break
- 10:45-12:15 How to write and publish a scientific article- Editor's view (Interactive lecture)  
*F. Goni (Spain)*
- 12:15-13:30 Lunch

### **Session 6 Professional Development of Young Scientists**

- 13:30-14:00 Essential competencies and skills for the industry  
*D. Riesner (Germany)*
- 14:00-14:15 Discussion – Q&A
- 14:15-14:45 Funds and programs for young scientists (FEBS Fellowships and Programmes, EMBO Fellowships, Marie Curie, EU Programmes)  
*T. Zima (Czech Republic)*
- 14:45-15:00 Discussion – Q&A
- 15:00-15:30 Preparing your curriculum vitae (CV) - how to make the most of yourself!  
*K. Elliott (UK)*
- 15:30-15:45 Discussion - Q&A
- 15:45-16:00 Coffee break
- 16:00-16:30 Finding one's way in the Internet: where to search effectively  
*A. Herraез (Spain)*
- 16:30-16:45 Discussion - Q&A
- 16:45-17:15 Tips on how to give a successful scientific lecture  
*H. Abaciođlu (Turkiye)*
- 17:15-17:30 Discussion - Q&A

### **Session 7 Meet the Expert (Upon Registration)**

- 17:30-18:30 Simultaneous face to face consultations of young scientists with experts

<i>Career Planning in the Industry (D. Riesner)</i>	<i>Funds &amp; Programs (T. Zima)</i>	<i>CV Writing (K. Elliott)</i>	<i>Internet Searching (A. Herraез)</i>	<i>Oral Scientific Presentations (H. Abaciođlu)</i>
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- 18:30-18:45 FEBS as a charity to promote molecular life sciences in Europe  
*I Pecht (General Secretary of FEBS) (Israel)*

- 18:45- 19:00 Closing- Poster Awards ( F Sađın, G Güner-Akdođan, N Ozer, I Pecht)

- **FEBS Cambridge Workshop**

**17-18<sup>th</sup> December, 2012**

**Gonville and Caius College**

**Name of Workshop:**

FEBS Education Workshop in Association with the Biochemical Society  
**“Novel approaches to teaching undergraduate biochemistry”**  
 (In memory of EJ Wood, 1941-2008)

Hosted by Prof. Sir Alan Fersht

Coordinated by:

G Güner Akdogan (FEBS Education Committee) and Francesco Michelangeli (Biochemical Society)

- **FEBS Yerevan Workshop on Biochemistry and Molecular Biology Education  
October 2012**

Hosted by Armenian Society of Biochemistry and Molecular Biology

**6. LIAISON WITH OTHER BODIES WITHIN AND OUTSIDE OF FEBS**

- **WGI (Working Group on Integration)**

FEBS Education Committee is in close collaboration with WGI.

Prof. Mathais Sprinzl, Chair of WGI, planned visits to Lithuania and to Armenia, and invited G Güner Akdogan as an ex-officio member of WGI. These visits were hosted by the Constituent Societies and during these visits, Gül had the chance to introduce the activities of FEBS Education Committee and it was agreed that a FEBS Workshop on Biochemistry Education would be hosted by Armenian Society of Biochemistry and Molecular Biology in 2012 and by Lithuanian Society of Biochemistry in 2013.

- **Science and Society Committee**

There is an ongoing collaboration between FEBS Education Committee and Science and Society Committee. Two joint events are planned for Sevilla IUBMB-FEBS Congress: A Workshop on “Molecular Evolution- the Unifying Principle of Biochemistry” and a Science in School event: “Biodiversity and Evolution”.

- **FEBS Constituent Societies**

In order to enhance communication and collaboration with the possible education groups of the Constituent Societies of FEBS, the questionnaires which have been sent to Constituent Societies- are

being collected. These questionnaires provide evidence for the interest of the Societies on educational issues:

- Review and revision of the questionnaire (workshop topic proposals)

*The questionnaires sent to the Constituent Societies were reviewed and up-dated as shown below:*

**Questionnaire 2011 to Constituent Societies  
FEBS Education Committee**

**Name of Society:**.....

**1. Does your Society have an Education Group / Section?**

**Yes: No:**

**2. If your answer is "yes" (to the above question), The Education Group is Chaired by:**

**Name and Surname:**.....

**Institution:**.....

**e.mail:**.....

**3. Are educational sessions or discussions organised at your national meetings?**

**Yes: No:**

**4. Would you accept to have the above information on your Education group/activities post on FEBS website?**

**Yes: No:**

**5. Would you like us to post on FEBS website (under FEBS Education Events) any other information regarding the educational activities of your Society?**

.....  
.....

**6. Would your Society be interested in hosting a Workshop of FEBS Education Committee to discuss issues concerned with education of the future biochemists?**

**Yes:..... (Which year?):..... No:.....**

**7. If "yes" to question No 6, which of the issue/issues listed below would you prefer?**

**Quality assurance in education.....**

**Postgraduate education.....**

**Distance or E-learning.....**

**Curriculum planning.....**

**Designing laboratory practicals.....**

**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 and publish a scientific paper.....**

**How to prepare a scientific presentation (Oral and poster)**

**Scientific communication to non-scientists.....**

**Any Other Areas you would like to consider (please specify).....**

**8. If your Society is interested in hosting a FEBS Education Workshop, what would you offer? (Workshop Venue, participants' registration, accommodation, etc).**

.....  
.....  
.....

**9. ANY OTHER SUGGESTIONS TO FEBS EDUCATION COMMITTEE ARE MOST WELCOME:**

.....  
.....  
.....  
.....

**Thank-you for filling in the Questionnaire..... (FEBS ED-COM)**  
**Please send it to: [gul.guner@deu.edu.tr](mailto:gul.guner@deu.edu.tr)**

- **IUBMB (International Union of Biochemistry and Molecular Biology)**

Collaboration with IUBMB Education Committee is one of the objectives of FEBS Education Committee, as indicated in the FEBS Statutes. Gül Güner Akdoğan is serving as a member of IUBMB Education Committee to enhance the collaboration. In 2011, Gül Güner Akdoğan was invited to be a trainer for three workshops sponsored by IUBMB:

- 1. IUBMB Workshop on Medical Biochemistry Education, organised in Split, Croatia, on May 20-21<sup>st</sup> (One of three trainers) (Irene Hoffmann, Coordinator)**

**Facilitators**

1. Prof. Manuel Joao Costa, PhD; School of Health Sciences, University of Minho, Braga, Portugal
2. Prof. Mary Fleming, EdD; College of Medicine, Nursing and Health Sciences, School of Medicine, Ireland
3. Prof. Gül Güner-Akdoğan, PhD; Chair FEBS Education Committee ; Dokuz Eylül University, Izmir, Turkey

**Participants**

There were **43** participants (28 professors and 15 assistants), from **four** countries:





2. IUBMB Workshop on Student Centred Learning, organised in Mashhad, Iran, 6<sup>th</sup> September 2011 (Together with Prof. Susan Hamilton, Chair of the IUBMB Education Committee)
3. IUBMB Workshop on Student Centred Learning, organised in Teheran, Iran, 10th September 2011 (Together with Prof. Susan Hamilton, Chair of the IUBKB education Committee)

## 2 and 3. IUBMB Workshops on Student-Centred Learning

Theme: Interactive learning strategies in biochemistry and molecular biology

Presenters: Professor Susan Hamilton, Chair IUBMB Education Committee

Professor Gul Guner, Chair FEBS Education Committee

This workshop provided an opportunity for biochemistry and molecular biology educators to meet and discuss a range of strategies for improving student learning outcomes, using interactive techniques. The workshop was relevant to teachers of students in science, medicine and related fields where biochemistry forms a core part of the curriculum. Topics covered were:

- Developing integrated curricula
- Exploring interactive teaching in lectures, labs and workshops
- Using assessment to enhance learning
- Giving students feedback on learning
- Using problem-based learning in the medical curriculum
- Engaging undergraduate students in research

A range of accompanying resources was provided on CD to those attending the workshop for use or adaptation for their teaching.

A draft programme for the workshops is shown below:

Time	Topic	Presenter
8.00 - 8.45	Registration, collect program and resources	
8.45 - 9.00	Welcome, introductions	Iranian host
9.00 - 9.30	Teaching biochemistry in a science degree: challenges	Susan Hamilton
9.45 - 10.15	Teaching biochemistry in a medical program: challenges	Gul Guner
10.00 - 10.30	Interactive student centred learning	Gul Guner and Susan Hamilton
10.30 - 10.45	Categorising learning activities	Group activity
10.45 - 11.00	Break for morning tea	
11.00 - 11.30	Problem based learning: an introduction	Gul Guner
11.30 - 12.30	Problem-based learning: practice	Group activity
12.30 - 1.00	Break for lunch	
1.00 - 1.15	Interactive lectures	Susan Hamilton
1.15 - 1.30	Undergraduate research experiences	Susan Hamilton
1.30 - 1.45	Giving students feedback on learning	Gul Guner and Susan Hamilton
1.45 - 2.00	General discussion	Group activity
	Ask participants to complete feedback survey	
	Close	

## 7. NEW PROJECTS

- A NEW INSTRUMENT PROPOSAL:

### SHORT-TERM TRAINING FELLOWSHIPS FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY EDUCATION IN EUROPE

#### FEBS EDUCATION COMMITTEE

#### GENERAL GUIDELINES

(Draft Version)

##### Programme Perspectives

This programme aims to provide faculty in biochemistry, molecular biology and other molecular life sciences from countries of FEBS Constituent or Associate Societies with educational opportunities (in a country from one of FEBS Constituent Societies) that are tailored toward specific home country needs.

Trainees visiting the host-country institution study aspects of undergraduate or post-graduate education that have the potential to promote and expand education programmes / courses/modules in biochemistry, molecular biology, and other biomolecular sciences in their home country institutions and departments.

##### Programme Aim and Objectives

The programme aims to promote biochemistry and molecular biology education in Europe to the highest quality at both the undergraduate and post-graduate levels.

The objectives of the programme include:

- Assisting European educational institutions in improving and advancing the process of undergraduate or post-graduate education in the molecular life sciences
- Facilitating placement of education training fellows in institutions (faculty, graduate school, research centre providing teaching...) able to provide excellent instructional experiences in areas of recognized home country need
- Advancing the international exchange of information and skills in biochemistry, molecular biology and the molecular life sciences *at large*, and the same, in the context of broader areas, such as biochemistry and molecular biology education in medical training.
- Contributing to the promotion of international understanding and exchange within Europe and with associate countries.

##### Programme Description:

Short-term Training fellowships are awarded on merit, with preference for countries in need, in case of eligible applications. Mentoring will be provided by preceptors in institutions involved with undergraduate or post-graduate teaching within a Constituent Society country. Eligible areas of study include: innovative techniques in education (e-learning, distant learning...), educational methods (problem-based learning, project-based learning...) curriculum planning, designing laboratory practicals, evaluation systems, supervision/mentoring, quality and accreditation.. This study may be conducted in disciplines of molecular biosciences, as well as in educational **disciplines**, provided that they offer some association with a molecular-bioscience discipline. Although the major

emphasis of this programme is to learn educational processes, trainees may concurrently pursue some collaborative research interest with the host-institution research faculty. The time allocated to training in teaching should be at least 80 %.

Under this programme, training awards are not provided for any of the following: basic or clinical research, degree-granting educational programmes, programmes that require tuition payments, grants for short-term courses or conference attendance, specialty training in residency programmes, training solely in laboratory/clinical procedures, or educational programs in schools of public health.

### **Eligibility**

#### **Applicants for this programme must:**

- Reside and work in their home countries at the time of application, acceptance and initiation of the education training award.
- Provide evidence of membership of the Constituent Society (thus of FEBS)
- Have a PhD or equivalent degree
- Hold an academic teaching appointment in a school of science, engineering, or medicine, etc or postgraduate education institute/school.
- Have at least three years of teaching experience in the home country following completion of their PhD (or equivalent) studies
- Demonstrate competence in written and oral English (or in the language of the host country)
- Have a position at the home country institution to which they will return upon completion of the programme.

### **Duration of the Training Programme**

Training programmes range in length from one to three months during the academic year..

### **Application Procedure**

Applications can be made at any time.. Results will be communicated at the latest in two months.

The following documents should be accompanying the application form:

1. CV of the candidate
2. Training programme
3. Nomination-support letter from the host institution, completed by an official of the home country institution.
4. Reference letter: must be completed by the applicant's head of department or equivalent

It is the responsibility of the applicant to submit the Nomination –Support letter of the Institution to the Chairperson of the FEBS Education Committee

### **Review Criteria**

FEBS Education Committee reviews eligible applications and makes recommendations for awards. In reviewing applications, consideration is given to the following:

- Appropriateness and specificity of the educational programme proposed by the applicant and the endorsing home country institution.
- The home country institution's plans for and commitment to utilizing the benefits of the fellowship to meet identified needs.
- Assessment of the overall value of the fellowship experience to the individual, institution, home country, and the European Area..
- Evidence that the applicant will be in a position to implement the proposed educational improvements upon return to the home country institution.

### **Award Announcements**

Applicants will be notified of the final results of the review of applications no later than two months after the submission.

### **Conditions of Appointment**

Training Award recipients must begin their educational programmes no later than four months after the award is communicated.

They are required to devote full time to the educational programme for which the fellowship was awarded. Any substantial change in the educational programme or a change in the host institution requires prior FEBS Education Committee approval.

All Trainees are required to submit a final report upon completion of the programme, approved and signed by the Host Institution.

### **Financial Award**

1. Education Training Awards are intended to cover subsistence and travel costs for the Fellow only; expenses incurred by dependents are not provided for. The daily subsistence allowance, which in 2011 amounts to €60 per day, will be reviewed and adjusted annually by the FEBS Education Committee, in consultation with the FEBS Treasurer. Travel costs will provide for a second-class rail fare or an economy flight between the place of residence and the host laboratory.
2. Applications may be made at any time, but an application should reach the Chairperson of FEBS Education Committee **at least six months before the proposed starting date.**

- **PILOT PROJECT OF FEBS EDUCATION COMMITTEE WITH WILEY**

#### **Aim:**

To provide reading material and other learning resources for the participants of FEBS Education events

#### **Conditions:**

1. Wiley would be prepared to provide online reading material as a pilot project for the education platform in an education workshop. The access would be restricted to workshop participants as in the previous workshops
2. The FEBS Education Committee will identify the workshop that serves as the pilot.
3. Communication to identify and prepare the pilot workshop and the online material will be by e-mail. Workshop material from Wiley should be made available on the platform two weeks before the course starts.
4. The possible distribution of hardcopies of Wiley books to workshop participants will be discussed AFTER completion of the online pilot project and following negotiations for a longer-term agreement.

#### **Coordination of the Pilot Project:**

Gregor Cichetti. Representing Wiley for the pilot Project

Peter Ott: Responsible for issues related to FEBS Education Platform

Gul Guner Akdogan: Representing FEBS Education Committee for general issues related to the coordination of the pilot project (Choice of materials to be linked, coordination with the FEBS Secretariat, workshops, etc)

## **8. CONCLUSIONS**

FEBS Education Committee has largely fulfilled the goals set for the past year. We greatly appreciate all the support of FEBS EX COM and of other committees. Special thanks go to Jason Perret and Miguel Castanho for their outstanding support and contributions to the Committee, while remembering Costas Drainas in deep appreciation of his valuable input. Welcoming the new members to the Committee- Angel Herráez, Tomas Zima, and Wolfgang Nellen (co-opted) FEBS Education Committee is determined to strive forward in its mission and vision of promoting biochemistry and molecular biology to the highest level in Europe.

FEBS Education Committee thanks deeply all bodies and individuals for their interest in FEBS education activities and for their effective support.

**Reported by:**

**Gül Güner-Akdogan**  
**Chair, FEBS Education Committee**

**Izmir, January 20<sup>th</sup>, 2012**