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### Successful Workshop on

## Future Training Needs in Pharmaceutical Sciences; Establishing a Dialogue between Academia and Industry



Dr Carolyn Hynes (left) and Dr Cindy Lumley (right), CMR International, worked hard to make the Workshop a success.

There was strong support for the concept of a pan-European post-graduate training programme in pharmaceutical sciences from delegates at a recent workshop organised by CMR International. This was just one of several recommendations to emerge after wide ranging discussions within syndicate groups. Held in conjunction with EUFEPS, The European Federation for Pharmaceutical Sciences, this joint workshop provided an opportunity for university and industry representatives to address the perceived 'shortfall' in the skills of graduates relative to the needs of industry.

Figure 1: EUFEPS – The European Federation for Pharmaceutical Sciences

- An umbrella organisation whose mission is to support the development of high quality pharmaceutical sciences and innovative drug research in Europe. Founded in 1991, it links 34 Member Societies in 22 countries. In addition, there are approximately 500 individual Members and 25 Corporate Members of EUFEPS.
- EUFEPS is the only pan-European body to represent the interests of scientists in industry, academia, government and other institutions engaged in drug research, development, regulation and policymaking through Europe. To achieve its objectives EUFEPS e.g. organises, co-organises and co-sponsors conferences, short courses and workshops on specialised themes.

### Background to meeting

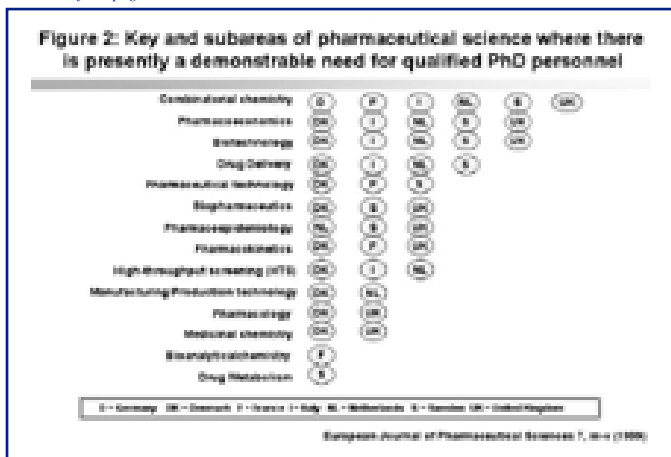
Prof. Malcolm Rowland (University of Manchester, UK) opened the proceedings by providing a background to EUFEPS, the only pan-European body to represent the interests of pharmaceutical sciences in industry, academia, government and other bodies. He described the survey conducted by EUFEPS in 1997 that had highlighted an apparent gap between the graduate output of universities and industry's requirements. The two-day workshop had therefore been

convened to assess whether the gap is real and, if so, to identify underlying reasons and possible solutions. Held at the Oatlands Park Hotel in Weybridge, Surrey (UK) on May 22nd–23rd 2000, the workshop attracted over 40 participants from a dozen different countries.

*Continued on page 2*

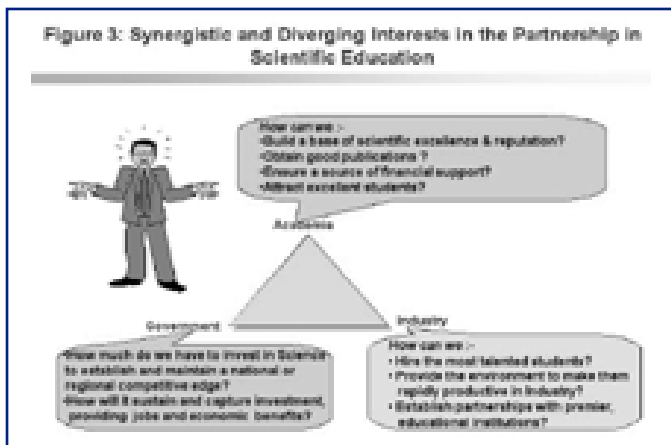
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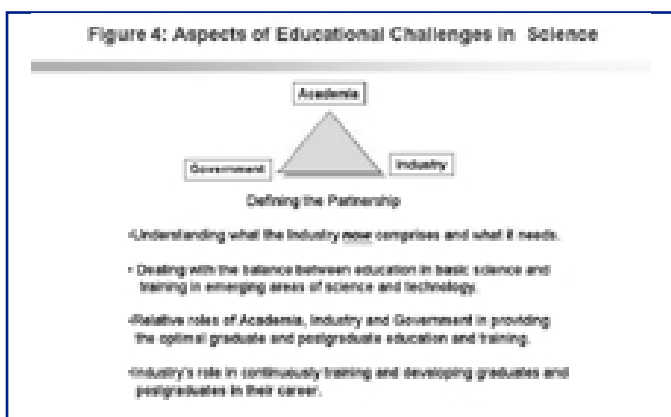
### The challenge to industry

Dr George Mooney (Pfizer Central Research, Europe) articulated the challenges faced by an industry where significant growth over the past two decades has increased demand for graduates in science and engineering who also are creative, good problem solvers and able to work in multi-disciplinary teams. In trying to tackle these challenges he emphasised the need for a "partnership" that includes not only industry and academia but also government. These three bodies have both synergistic and diverging interests in scientific education.



Pharmaceutical R&D has changed dramatically in the past 15 years and evolution is certain to continue. The industry now finds it difficult to recruit staff with appropriate skills particularly in new areas such as combinatorial chemistry and pharmacoepidemiology. The challenge comes from dealing with the balance between education in basic science, and training in the emerging areas of science and technology.

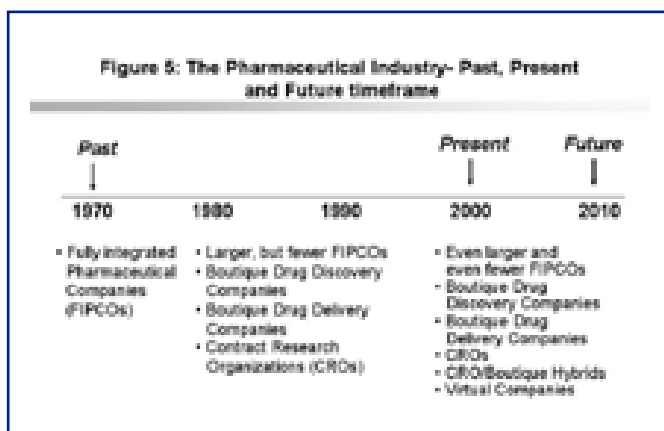
On the education-training continuum, industry should recognise



what it most values from academia, while universities must question their ability to fulfil their traditional role in the face of current rates of adoption of new sciences and technology. Dr Mooney concluded that while disciplinary excellence is vital, multi-disciplinary programmes are going to be increasingly important.

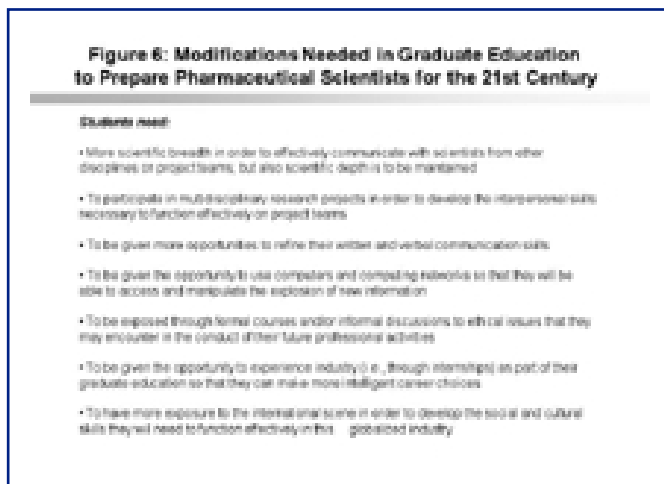
### Problems faced by academia

In identifying and addressing the needs of the pharmaceutical industry, academia faces a multitude of problems and challenges. The increasing need for efficiency in pharmaceutical R&D, the emergence of pharmacogenomics and pharmacoproteomics, the challenge to cure rather than just treat diseases, and the changing face of the industry, were some of the issues outlined by Prof. Douwe Breimer (University of Leiden, The Netherlands).



Prof. Breimer suggested that the traditional disciplines, such as pharmacokinetics or medicinal chemistry, should not be studied in isolation. Disciplines per se are a major stumbling block, even in emerging areas such as biotechnology, bioinformatics or in silico technologies, and a multi-disciplinary approach is called for.

Greater breadth of study, development of interpersonal skills, use of computers and refinement of communication skills were among the many modifications suggested by Prof. Breimer to prepare pharmaceutical scientists for the 21st century. He proposed a future model of harmonised academic education in the EU, based on research institutes that are able to take account of the scientific environment while developing strategic alliances within and between universities, and with the pharmaceutical industry.





*Workshop speakers and chairmen, from left to right: Prof. A.A. Hincal, Prof. T. Dingermann, Prof. M-I. Nilsson, Prof. O.J. Bjerrum, Prof. S.R. Walker, Dr H.H. Linden, Prof. M. Rowland, Prof. D.D. Breimer, Dr L. de Leede, Dr M. van der Waart, Dr G. Mooney, and Prof. B. Clement.*

*Syndicate Group discussants, from left to right: Prof. Jonathan Seville, Prof. D.J.A. Crommelin and Prof. A.A. Hincal...*



*Photos: Carolyn Hynes*

*... Prof. M. Rowland, Prof. M-I. Nilsson, Dr G. Mooney and Dr J. Kipling.*

### ***Brain storming begins***

Following these informative presentations, Dr Leo de Leede (Yamanouchi Europe BV, The Netherlands) outlined the objectives for the first syndicate sessions, during which participants were divided into industry or academic groups. Each group was asked to ‘brain-storm’ in order to identify, characterise and thereafter prioritise the training issues faced by industry.

From these initial, fairly brief sessions, a number of key questions emerged:

Is the problem structural; if so, how can it be resolved? (e.g. ‘organisational’ problems in academia, barriers between disciplines).

Is the content right; are the right things being taught? (e.g. balance between ‘hard’ and ‘soft’ skills; balance between learning in academia vs. on the job).

Is the output from academia relevant; for today and for the future? (e.g. what, if anything, is ‘wrong’ with current academic output; what (if any) changes are needed?).

Is there an appropriate level of commitment; from government, academia and industry? (e.g. what level of involvement is wanted by industry ; to what extent is it willing to help: with money, time, lecturers, students, placements, lobbying government?).

How can training needs of industry be met; now and in the future? (e.g. the view of industry’s needs is unclear (both current and future); should academia respond to perceived needs?)

### ***Into the melting pot***

At this point the five syndicate groups were reconfigured so that each contained a mixture of representatives from both industry and academia. One question from the above list was assigned to each individual group; the members were charged with producing recommendations as to how the issues might be addressed and outlining proposals as to how those recommendations might be taken forward. The process for doing this was described by Dr Cyndy Lumley (CMR International, UK).

Far ranging discussions ensued, ably led by the chairmen of each group. Such syndicate sessions provide a unique opportunity for the

delegates to learn from each other and to build on their own experience and perceptions. It falls to the rapporteur within each group to capture the essence of these discussions and to report back to the assembled delegates.

### ***Proposals and recommendations***

In the final session of the workshop, under the chairmanship of Prof. Stuart Walker (CMR International), the conclusions reached by each syndicate group were presented, debated and then prioritised. The following table lists the resulting proposals and recommendations:

1. Establish a European based ‘Masters course in drug development’.
2. Provide a mechanism for gaining ‘transferable’ academic credit across Europe. Universities would work together to provide components for a modular (post-graduate) degree. Standard fees and money for mobility should be considered. Proposals to be made through the Commission’s EU/RTD Framework Programme.
3. Identify and examine best practice models for industry: academic collaboration.
4. Establish a database of post-graduate educational/training courses, of relevance to pharmaceutical sciences, which are available throughout Europe. This should be non-judgemental; evaluation to be possible through access to previous students.
5. Develop a co-ordinated/ collaborative structure to allow for accurate data collection on the ‘shortfall’ in appropriately qualified graduates and post-graduates. This in turn will lead to a commitment to discuss and implement solutions.
6. Promote the value of education in Europe; emphasise the strong synergy between industry and academia in Europe.

### ***The next step***

Both EUFEPS and CMR International will review in detail the outcomes from this workshop and endeavour to facilitate implementation of the recommendations.

*Brenda Mullinger  
Wordpower Projects*

## New in the EUFEPS Secretariat



Janne Tolstrup will spend three months in the EUFEPS Secretariat, from mid August to mid November 2000. Janne has a Master of Science Degree in Human Biology from the University of Copenhagen, Denmark. She will design and start completing two EUFEPS databases, one on expertise in the pharmaceutical sciences, and one on pharmaceutical sciences training programmes, primarily post-graduate courses. Her stay in Stockholm was made possible by a generous grant from the Royal Danish School of Pharmacy.



Maria Norrlander is the new, full-time conference person in the EUFEPS Secretariat, effective October 2, 2000. Her premier task will be to help organise, market and manage EUFEPS' congresses, conferences and short-courses. Maria has a university degree in English, French and business economics. Her current experience include e.g.: project and conference administration on health care technology assessment, travel management, sales, tourism and customer service, computer training and support.

# EXECUTIVE SUMMARY

## August 2000

On May 20-21, 2000, the Executive Committee met at the Leeuwenhorst Congress Center in Noordwijkerhout, The Netherlands, in conjunction with the symposium celebrating the 25th Anniversary of Prof. D. Breimer's appointment as Full Professor of Pharmacology at the Leiden University. Prof. L. de Leede, Chair of the Committee on Industrial Relations (CIR), participated in part of this meeting. The Executive Committee also met on August 12-13, 2000, in Ankara, Turkey, a gathering perfectly organised by Prof. A. A. Hincal.

### Major Items

Major item of business, dealt with at both meetings, was the usual and immediate one of preparing for the upcoming Council Meeting in Budapest. Issues addressed were the election of new representatives to the Executive Committee, the mid-term assessment of the Strategic Plan 1998-2002, as well as proposals from the Working Party reviewing Council. Another issue discussed was the future format and organisation of the European Congress of Pharmaceutical Sciences. Also following the elections to the Executive Committee there will be a change in the EUFEPS' presidency.

### Membership

A primary objective of the organisation is to increase membership and, as previously indicated, the formation of a Committee for Membership Management is under consideration. The number of Member Societies, presently 24, is expected to increase to 25 with the application of newly constituted Portuguese Society of Pharmaceutical Sciences. Membership issues are being discussed also with some other organisations. The number staying on as paying Individual Members steadily increases, while the Corporate Membership has somewhat deducted, reflecting the increasingly trend for mergers. The total share of the revenues for 1999 coming from membership fees was only 25 per cent, as income from other sources increased.

### Membership representation at Council

The Working Party reviewing Council has suggested that the representation at Council should be changed. A new model will be proposed to the Council. The model is based on a weighting of votes in relation to the number of members in Member Societies and of the

group comprising Individual Members. The number of individuals represented at Council will depend on how many votes should be in the hand of a single individual. It is suggested that this should be left to the Member Societies to decide upon. As part of this model it is suggested that the Membership Fee should reflect the size of the Society.

### Nominations for Elections

For the election to the Executive Committee at the forthcoming Council Meeting, the six candidates, and nominating body, are:

Prof. Simon Benita, Association de Pharmacie Galenique Industrielle (APGI)  
 Prof. Anders Grahnén, Swedish Pharmaceutical Society  
 Prof. Henk de Jong, Dutch Association of Pharmaceutical Sciences  
 Prof. Atilla A. Hincal, Turkish Pharmaceutical Technology Scientists' Association  
 Dr József Lipták, Hungarian Pharmaceutical Society  
 Prof. Rodolfo Paoletti, Italian Society of Pharmaceutical Sciences

### Finance

The proposed total expenditure for the year 2001 amounts to EUR 210 000. This sum includes, for the first time, the employment of a full time secretarial assistant at the Secretariat. The contribution by the Swedish Academy of Pharmaceutical Sciences is according to plan now decreased with about 20 per cent, on the income side. The total membership dues are budgeted to be about EUR 60000, an increase of close to 10 per cent, mostly derived from an increase in numbers. Income from congresses is also planned to increase, by at least 50 per cent.

### Congresses and Conferences

With regard to the 6th European Congress of Pharmaceutical Sciences in September in Budapest a major issue concerns the attendance and submission of abstracts, with about two thirds coming from the former eastern European countries. Announcements of the forthcoming 7th EUFEPS Conference on Optimising Drug Development, to be held on November 13-15, 2000, in Basel, Switzerland, have been widely circulated. Concerning the 3rd European Graduate Student Meeting, on February 23-25, 2000, in Frankfurt, much more of a "faculty driven

# Third International Intensive Course and Workshop on Cell Culture and Other Alternative Methods for Drug Delivery Research

Saarland University • Saarbrücken • Germany • February 23 • March 3 • 2000

This international 10-days course, held at Saarland University, was organized by Prof. Claus-Michael Lehr and Dr Ulrich Schäfer. It was supported by the EU-program SOCRATES, and co-sponsored by EUFEPS, APV, the local chapter of CRS, DPhG, GD, (German Society for Dermopharmacy). 44 speakers and more than 100 participants, mainly from Europe, but also from overseas (USA, Middle East and Asia) participated. The program of the Workshop was basically structured into two major sections; skin as a biological barrier; and mucosal and other barriers

## **The skin as a biological barrier**

In the first session of section one, fundamentals of this barrier, and electro-assisted delivery systems were discussed. Different *in vitro* test models were dealt with in the second session, followed by test models based on reconstructed skin, by phototoxicity and by skin corrosivity issues. In a separate session, microdialysis, *in vivo* test methods, including pharmacokinetic and pharmacodynamic assessments, together with some regulatory aspects were addressed.

The seminars of this first part were followed by a laboratory course with practical demonstrations covering the following topics: 1) Franz diffusion cell, 2) Saarbruecken skin penetration model, 3) Drug liberation from ointments *in vitro*, and 4) Confocal laser scanning microscopy as a functional imaging tool for the evaluation of drug penetration.

## **Mucosal and other barriers**

Section two of the course comprised six sessions. Regulatory aspects were introduced

first, focusing on the standardisation and validation of *in vitro* test models as alternative methods to animal studies, patent licensing issues of cell culture systems, and the FDA guidance for industry on waiver of *in vivo* bioavailability and bioequivalence testing. The biological barriers of the GI tract were covered in two sessions. One session dealt with monitoring of GI transit, gut wall metabolism and proteins, validation of epithelial cell cultures for drug transport studies, vesicular trafficking in epithelial cells and bioelectrical characterisation of epithelial tissues. The other dealt with physiological dissolution testing, Ussing chamber, intestinal perfusion techniques and secretory carriers affecting intestinal permeability and drug absorption.

In an additional session, the emphasis was moved to nasal and pulmonary drug delivery, and a profound description of the available and newly characterized *in vitro* test models, such as those for nasal drug absorption, upper and lower airway epithelium together with some drug delivery applications. The blood-brain barrier issue was discussed in two lectures, dealing with *in vitro* cell culture models and enhancement of the transport of drugs through this barrier.

Computational methods for estimating rate and extent of absorption, transmembrane modeling, epithelial permeability as well as molecular simulation for drug delivery then followed, in a separate session. The closing session was dedicated to visualisation and analytical tools, including fluorescence correlation spectroscopy, modern scanning probe techniques, scanning force microscopy, cryo-electron microscopy and surface plasmon resonance spectroscopy.

This last section, not unlike the first one, was followed by a practical course, in which the participants came into closer contact with live tissue culture systems and had the opportunity to do some classical cell binding assays, transport experiments, ion transport and bioelectrical characterization of epithelial cells and a demonstration of the use of atomic force microscopy as a visualization technique for drug receptor interaction. The studies were mostly carried out using Caco-2 cells.

## **Poster Session and Social Program**

Over 30 poster presentations were displayed throughout the entire workshop, and on the 'students' day' students had the opportunity to hold a short communication about their posters and present it to the others.

The social program of the course provided an opportunity for the participants to experience and enjoy German hospitality and to see some tourist attractions of the Saarland. The President of Saarland University hosted a reception party, and the Minister of Science and Culture personally welcomed the participants from all over the world. He emphasised that he would be ready to support such gatherings again, in the future. The organisers of this course wish to thank all the speakers for their valuable contributions.

## **Next course**

The next course will be held in February/March 2002. For more information, send message to: [lehr@rz.uni-sb](mailto:lehr@rz.uni-sb)

*Prof. Claus-Michael Lehr, Course Leader  
Saarland University, Saarbrücken, Germany*

participation" from outside of Germany is planned. Also supervisors of graduate students in pharmaceutical sciences will get involved. The main theme for the 7th European Congress of Pharmaceutical Sciences, in October 2002, in Stockholm, will be New Safe Medicines Faster. Prof. M. Rowland has accepted to be President for this Congress, while Prof. J. Vessman will chair the Organising Committee.

## **Anniversary**

In September 2001, EUFEPS will return to Strasbourg, its place of origin, to celebrate its 10th Anniversary. The official celebration will immediately follow the 2001 Council Meeting, which will be held in conjunction with a Symposium on Material Science, scheduled for September 20-22, 2001 in Strasbourg.

## **Next meeting**

The next Executive Committee meeting will take place in Budapest, September 15, 2000, prior to the Council meeting.

*Prof. Björn Lindeke  
Secretary-General & Treasurer*



Photo: J. Conway

Members of the Executive Committee of the Academy of Pharmaceutical Scientists of Great Britain (left to right): Geoff Hanlon, Bill Dawson, Martyn Davies, Ben Jones, Paul Spencer, Howard Stevens, Graham Buckton, Tony Moffat, John Clements. Carol Thomsom, Duncan Craig, Rosemary Leak, and Colin Pouton. Absent are Gordon Appelbe, Chris Doherty, Peter Houghton, Paul Nicholls, David Thurston, and Peter York.

## UK Scientists Associations merged

– The merger of the *Royal Pharmaceutical Society's Pharmaceutical Sciences Group* and the *UK Association of Pharmaceutical Sciences* into the *Academy of Pharmaceutical Scientists of Great Britain* is a major step forward for pharmaceutical sciences in the United Kingdom, said the chairmen of the two bodies.

The new Academy will have the benefit of enlarged membership, economy of scale in the staging of conferences and symposia, and a consolidated international image. It will

promote collegiality among pharmaceutical scientists in the UK, and the Academy will have greater autonomy than the Pharmaceutical Sciences Group, while remaining under the auspices of the Royal Pharmaceutical Society. The Society will continue to provide financial support, and the Academy's executive will include two members of the Society's Council.

The Executive Committee of the new Academy initially consisted of the combined Executives from both the merging organisations. At a Committee meeting in February

2000, new chairman and officers were elected, comprising nine elected members. Prof. Graham Buckton, University of London, is the new Chairman, Prof. Howard Stevens, University of Strathclyde, new Vice-Chairman, and Prof. Paul Nicholls, University of Cardiff, new Treasurer.

A draft constitution has been drawn up and will be put to members of the Academy of Pharmaceutical Scientists, at the AGM which will be held at the annual British Pharmaceutical Conference in September 2000 in Birmingham for endorsement. Currently, the total membership of the Academy of Pharmaceutical Scientists of Great Britain is about 1500.

The principal activity of the Academy thus far has been to finalise the science programme for the 2000 British Pharmaceutical Conference.

## Timely report delivered to the European Commission

On June 29, 2000, Dr Bruno Hansen, European Commission's Director of Life Sciences – Coordination, in his Office, at Square de Meuse 8, Brussels, received the first copy of the Report from the Workshop on New Safe Medicines Faster, held in March 2000 in Brussels (see June 2000 issue of the EUFEPS Newsletter). It was presented to Dr Hansen by Prof. Ole J. Bjerrum, EUFEPS Executive Committee Member, Dr Leo de Leede, Chair EUFEPS Committee on Industrial Relations (CIR), and Assoc. Prof. Maj-Inger Nilsson, EU Liaison Officer for EUFEPS.

In the report, there are detailed proposals on research topics, methodologies, techniques

and other means of promoting the drug development process, to the benefit of European citizens, reflecting the bottom-up outcome of the seven sessions and the final discussion of the March 2000 Workshop. It was edited by the Workshop Organising Committee, i.e. Prof. G. Alderborn, Uppsala University, Sweden, Prof. O.J. Bjerrum (Chair), Novo Nordisk A/S, Denmark, Prof. C.-M. Lehr, University of Saarbrücken, Germany, Mr. H. H. Lindén, EUFEPS Secretariat, Assoc. Prof. M-I. Nilsson, Pharmacia Corporation, Belgium, Dr. J. Reden, EFPIA, Dr J. Renneberg, Danish Medicines Agency, and Prof. J. Vessman, AstraZeneca, Sweden.

The Report was very well received by Dr Hansen, as being timely, well structured and



Prof. Ole J. Bjerrum, Dr Bruno Hansen, Assoc. Prof. Maj-Inger Nilsson, and Dr Leo de Leede.

dealing with the right topics for a possible incorporation in the EU's 6th RTD Framework Programme. It will be a pleasure, he said, to bring it personally to the responsible Commissioner, Dr Phillip Busquin.

## 7<sup>th</sup> EUFEPS Conference on

# Optimising Drug Development: Strategies to Assess Drug Metabolism/Transport Interaction Potential – Towards a Consensus

November 13-15 • 2000 • Convention Center • Basel • Switzerland

Register now for this unique discussion forum for scientists from the pharmaceutical industry, regulatory agencies, and academic institutions, organised by EUFEPS.

### Key Issues

Questions to be addressed in this Conference include:

What complexities in enzyme kinetics need to be considered? • Can interactions be predicted in silico? • How reproducible are *in vitro* data and is quality control required? • Microsomes or hepatocytes or both? • Can probe substrates/inhibitors be standardised? • Can predictive pharmacokinetic models be constructed? • What are the decision points for initiating an *in vivo* study? • Is population PK going to help? • Can clinicians agree on what is important?

### Scientific & Planning Committee

Geoffrey T. Tucker (Co-Chair) • Shiew-Mei Huang (Co-Chair) • Brian Houston (Vice-Chair) • Lawrence J. Lesko (Vice-Chair) • Gunnar Alvan • Les Benet • Steve Clarke • Berndt Clement • Uwe Fuhr • Anders Grahnén • Kenneth Thummel • Steve Wrighton

### Sessions

SESSION I: Mechanistic considerations  
Moderators: Steve Clarke, Welwyn, UK & Steve Wrighton, Indianapolis, IN USA  
SESSION II: *In vitro* assessment  
Moderators: Brian Houston, Manchester, UK & Ken Thummel, Seattle, WA USA  
SESSION III: *In vitro* prediction  
Moderators: Geoff Tucker, Sheffield, UK & Les Benet, San Francisco, CA USA  
SESSION IV: *In vivo* assessment  
Moderators: Shiew-Mei Huang, Rockville, MD USA & Uwe Fuhr, Cologne, DE  
SESSION V: The regulatory view  
Moderator: Gunnar Alvan, Uppsala, SE  
INTEGRATION SESSION: Reports from

evening break-out sessions and discussion of position statements.

POSTER SESSION: Abstracts welcome for consideration.

### Arrival & Departure

The Conference Programme starts on Monday, November 13, 2000, at 8.15, a.m., and the formal programme will close on Wednesday, November 15, 2000, at 1 p.m.

### Exhibition & Sponsorship

There will be an exhibition featuring companies at the leading edge of the field. For exhibition application form and information, as well as on how to sponsor this important event, contact the Conference Secretariat.

### Information, registration and reservation

For additional information on the programme, as well as for conference registration form, poster submission form and hotel reservation form, contact the EUFEPS Secretariat (see below), or consult the Conference Website: [www.pharmweb.net/conference/eufeps7.html](http://www.pharmweb.net/conference/eufeps7.html)  
Registration fees (Industry Delegate: EUR 975; Academic Delegate: EUR 750; Members of EUFEPS 10 percent reduction) include all conference documentation, all coffee breaks, lunches and buffet dinners for conference delegates. Confirmation and joining instructions will be sent once the full payment in EUR is received.

### Conference Secretariat

Please address all correspondence and enquires etc. to: 7<sup>th</sup> EUFEPS Conference, EUFEPS Secretariat,  
Attn: Maria Norrlander,  
PO Box 1136, SE-111 81, Stockholm,  
Sweden Tel +46 8 7235000  
Fax +46 8 4113217  
Email [secretariat@eufeps.org](mailto:secretariat@eufeps.org)

## IMPORTANT MESSAGE:

Dear Professor

May we suggest that you encourage your students to participate in the **3<sup>rd</sup> European Graduate Student Meeting, on February 23-25, 2001, in Frankfurt/Main, Germany.** At this Meeting, graduate students from all pharmaceutical disciplines, and from as many countries as possible, should meet to discuss their current research. The Meeting language is English.

All contributions to this important event should be presented as posters, a number of which will also be selected for oral presentations. Oral presentations are strictly restricted to 10 minutes talk and 5 minutes discussion.

Any member of any European education, training or other institute can participate in this meeting, but only graduate students will be allowed to present their scientific achievements.

The Meeting will be held at the Biozentrum of the Johann Wolfgang Goethe-Universität, Frankfurt/Main, Germany. Registration fees are: Euro 100/DEM 200 (graduate students), and Euro 150/DEM 300 (others). Special rate bedrooms (incl. breakfast) are available, at nearby hotels – DEM 110 (single), DEM 160 (double), and DEM 150 (triple). First come/first service.

Consult the virtual German Pharmaceutical Society at: [www.biozentrum.uni-frankfurt.de/DPHG/EGSM2001.html](http://www.biozentrum.uni-frankfurt.de/DPHG/EGSM2001.html) for more information, also including an electronic Registration Form. Or check the back page calendar of this Newsletter for additional contact co-ordinates.

And – send your students!

With kind regards

Organisers and Co-sponsors of the  
European Graduate Student Meeting

## Watch out for



[www.eufeps.org](http://www.eufeps.org)



**ESCP 29<sup>th</sup> European Symposium on  
Clinical Pharmacy**

*October 11-14, 2000, Basel, Switzerland*

**Contact:** ESCP International Office,  
A. Floor-Schreudering, Theda Mansholtstraat  
5 b, NL-2331 JE Leiden, The Netherlands  
Fax 31 71 5722431, Email office@escp.nl

**Biological Membranes**

**– Permeation Barriers and Drug Targets**

*October 23-27, 2000, Copenhagen, Denmark*

**Contact:** Harald S Hansen, Royal Danish School  
of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**Analysis of Biopharmaceuticals**

*October 19, 2000, London, UK*

**Contact:** Dr J A Clements, Room 403  
Royal Pharmaceutical Society of Great Britain  
1 Lambeth High Street, London SE1 7JN, UK  
Fax +44 20 7582 0397  
Email kelder@rpsgb.org.uk

**Bibliographic Software. Use the Reference  
Manager with Hands-on**

*November 9, 2000, Copenhagen, Denmark*

**Contact:** Alice Noerhede, Royal Danish School  
of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**7<sup>th</sup> EUFEPS Conference on Optimising Drug  
Development: Strategies to Assess Drug  
Metabolism/Transport Interaction Potential  
– Towards a Consensus**

*November 13-15, 2000, Basel, Switzerland*

**Contact:** EUFEPS Secretariat, PO Box 1136  
SE-111 81 Stockholm, Sweden  
Fax +46 8 4113217  
Email secretariat@eufeps.org

**Herbal Medicinal Products: Quality  
Evaluation. Contribution of the European  
Pharmacopoeia**

*November 16-17, 2000, Nice, France*

**Contact:** Caroline Larsen Le Tarneq  
European Directorate for the Quality of  
Medicines, Council of Europe  
BP 907, FR-67029 Strasbourg, France  
Fax +33 3 88412771

**2<sup>nd</sup> Conference of the International Coenzyme  
Q10 Association**

*December 1-3, 2000, Frankfurt, Germany*

**Contact:** Dr Franz Enzmann  
Louisenstrasse 114, DE-61348 Bad Homburg,  
Germany, Fax +49 6172 928618  
Email q10congress@gmx.de

**Cellular Pharmacology and Toxicology**

*December 4-8, 2000, Copenhagen, Denmark*

**Contact:** Arne Schousboe, Royal Danish School  
of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**GTRV 15<sup>th</sup> Annual Meeting**

*December 7-8, 2000, Paris, France*

**Contact:** Groupe Thematique de Recherche sur  
les Vecteurs, 5 Rue J.B. Clément  
FR-92296 Chatenay-Malabry, France  
Fax +33 1 46835853  
Email gillian.barrat@cep.u-psud.fr

**Advanced Techniques in Synthetic Organic  
Chemistry**

*January 8-19, 2001, Copenhagen, Denmark*

**Contact:** Mikael Begtrup, Royal Danish School  
of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**Bibliographic Software. Use the Reference  
Manager with Hands-on**

*January 25, 2001, Copenhagen, Denmark*

**Contact:** Alice Noerhede, Royal Danish School  
of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**The Future Face of the European  
Pharmacopoeia – Current Concerns in  
Pharmaceutical Analysis**

*February 8-9, 2001, Cannes, France*

**Contact:** Caroline Larsen Le Tarneq, European  
Directorate for the Quality of Medicines  
Council of Europe, BP 907  
FR-67029 Strasbourg, France  
Fax +33 3 88412771

**Sample Preparation and Separation  
Techniques in Bio-Analytical Chemistry**

*February 19-March 2, 2001, Copenhagen, Denmark*

**Contact:** Steen Honoré Hansen, Royal Danish  
School of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**3<sup>rd</sup> European Graduate Student Meeting**

*February 23-25, 2001, Frankfurt/Main, Germany*

**Contact:** Prof. Theo Dingermann  
Institute for Pharmaceutical Biology  
Biozentrum, Marie-Curie-Strasse 9  
DE-60439 Frankfurt/Main, Germany  
Fax +49 69 79829662  
Email dingerman@em.uni-frankfurt.de

**Drug Design and Discovery**

*March 5-9, 2001, Copenhagen, Denmark*

**Contact:** Povl Krosgaard-Larsen, Royal Danish  
School of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**Advanced Structural Chemistry and  
Molecular Modelling**

*March 12-23, 2001, Copenhagen, Denmark*

**Contact:** Flemming Steen Joergensen  
Royal Danish School of Pharmacy  
Universitetsparken 2, DK-2100 Copenhagen  
Denmark, Fax +45 35 306001

**5<sup>th</sup> Winter Research Conferences**

**(Oxidative Damage to DNA:**

**Measurement and Repair - Metals in Cancer:  
Redox carcinogenesis and antioxidant  
protection - Regulation of iron metabolism)**

*March 17-24, 2001, Val Cenis, France*

**Contact:** Arlette Alcaraz, CHU A. Michallon  
BP 217, FR-38043 Grenoble Cédex 09, France  
Fax +33 4 76765664  
Email CERLIB@ujf-grenoble.fr

Website www.sante.ujf-grenoble.fr  
/PHARMA/cerlib/ValCenis/html

**1<sup>st</sup> Conference of the Portugese Society for  
Pharmaceutical Sciences**

*April 4-7, 2001, Lisbon, Portugal*

**Contact:** SPCF, Faculdade de Farmácia de  
Lisboa, Av. Das Forças Armadas, Lisbon  
Portugal, Fax +351 21 7937703  
Email spcf@ff.ul.pt

**Chemical Kinetics in Prodrug Design  
and Drug Stability**

*April 23-27, 2001, Copenhagen, Denmark*

**Contact:** Claus Selch Larsen, Royal Danish  
School of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**New Analytical Approaches to the  
Development of Biotechnology Products: the  
Science and the Regulatory Process**

*April 26-27, London, UK*

**Contact:** J.A. Clements, Royal Pharmaceutical  
Society of Great Britain, 1 Lambeth High Street  
London SE1 7JN, UK, Fax +44 20 75820397  
Email jclements@rpsgb.org.uk

**Drug Delivery**

*April 30-May 4, 2001, Copenhagen, Denmark*

**Contact:** Sven Froekjaer, Royal Danish School  
of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**Receptor Structure and Function**

*May 14-18, 2001, Copenhagen, Denmark*

**Contact:** Jette Sandholm Kastrup, Royal Danish  
School of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**1<sup>st</sup> International FESTEM Symposium on  
Trace Elements and Minerals in Medicine and  
Biology**

*May 17-19, 2001, Venice, Italy*

**Contact:** 2001 FESTEM Meeting in Venice  
c/o Dipartimento di Scienze Igienistiche  
Microbiologiche e Biostatistiche  
Università di Modena, Via Campi 287  
IT-41100 Modena, Italy, Fax +39 0592055483  
Email vivoli@unimo.it

**Clinical Evaluation of Drug Products**

*May 28-June 1, 2001*

**Contact:** Sven Froekjaer, Royal Danish School  
of Pharmacy, Universitetsparken 2  
DK-2100 Copenhagen, Denmark  
Fax +45 35 306001

**XVI Helsinki University Congress of Drug  
Research**

*June 7-8, 2001, Helsinki, Finland*

**Contact:** Prof Raimo Tuominen, Dept of  
Pharmacy, Div. of Pharmacology & Toxicology  
PO Box 56, FIN-00014 University of Helsinki  
Finland, Fax +358 9 191 59471  
Email raimo.tuominen@helsinki.fi

**World Conference on Drug Absorption and  
Drug Delivery**

*June 18-20, 2001, Copenhagen, Denmark*

**Contact:** EUFEPS Secretariat, PO Box 113, SE-  
111 81 Stockholm, Sweden, Fax +46 8 4113217  
Email secretariat@eufeps.org  
Website www.pharmweb.net/conference/  
absorptiondelivery.html