EUFEPS

NEWS Letter

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LEADING ARTICLE

EUFEPS Strategic Plan 2006–2010 Quo Vadis EUFEPS?

What is EUFEPS up to? What are the goals and priorities set for this 15-year old (or young) organisation for the coming four years? During its September 2006 meeting in Copenhagen, the Council of EUFEPS discussed and approved the Strategic Plan, 2006-2010. The strategic plan of EUFEPS: an organisation full of dynamics, with ambitions, on the move, alive and kicking! Let me guide you through the highlights of this plan, quoting or paraphrasing the original text.

Daan J.A. Crommelin, Professor, EUFEPS President-Elect

EUFEPS' Mission

The mission of EUFEPS, as updated in 2002, shall stand. It reads:

The mission of the European Federation for Pharmaceutical Sciences (EUFEPS) is to serve and advance excellence in the pharmaceutical sciences and innovative drug research in Europe, including in training and education, and to represent the interests of scientists engaged in drug research and development, drug regulation, drug utilisation, and drug policy making.

The context

Pharmaceutical sciences have undergone dynamic changes during the last decades. Many new concepts, technologies and disciplines have arisen. EUFEPS is striving to integrate these new disciplines into its scope and activity list, and by this ensuring that EUFEPS covers all relevant aspects of drug research. This goal can be successfully achieved only by aiming for excellence.

Evolution or revolution: That was the question

The EUFEPS Strategic Plan for the period 2006-2010 foresees an evolutionary rather than revolutionary adjustment of the course of EUFEPS, as given in the previous Strategic Plan 2002-2006 and in the midterm progress report. Decision-making in EUFEPS will aim at an appropriate balance between individual academic-industrial-regulatory scientists' interests and a proper voice for all EUFEPS members.

EUFEPS is an organisation for and run by scientists. Therefore, it will do its best to draw the best and most eminent scientists from academia, industry and regulatory to actively support and engage in the organisation in achieving its mission. The recruitment of younger generations of pharmaceutical scientists for EUFEPS activities is another prime goal, and the Executive Committee is now drawing up a plan of action to increase the involvement and membership of younger generation pharmaceutical scientists.

Obviously, it is a main objective of EUFEPS to contribute actively to the ideals of the European pharmaceutical scientific community. The (direct and indirect) members of EUFEPS are spread over the whole of Europe, forming a wide network. In addition to national learned societies and associations in the pharmaceutical sciences and individual members, EUFEPS will nurture the new categories of members, including supporters from

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industry and supporters from the European universities, in particular those with major programmes in pharmaceutical sciences. Whether there will also be a special category for regulatory scientists is an open question for now. But, the intention is definitely there.

Scientific societies and associations

In the globalised world, "learned societies" increasingly grow into a new role, by being platforms and voices to the public on scientific matters with a high degree of independence. EUFEPS, as a federation of learned societies or scientific associations, is fully committed to strengthening the "voice of sciences and scientists", also in the public domain. The EUFEPS Presidents' Conference (made up of the Presidents of the Member Societies of EUFEPS) is a first step towards this.

A second step has also been taken. The presidents of the GA, EUROTOX, EACPT, EFMC, FEBS, EAPB, ECRIN, EFB, EPHAR, ELSO, EMRC/ESF and ESCP -all European science organisations in or with links to the pharmaceutical sciences- were invited by EUFEPS and a number actually met. This EUFEPS initiative was highly appreciated and support for further actions pledged – and the European Pharma Sciences Leadership Forum was born! It will, hopefully, lead to a strong European leadership and voice, representing directly and indirectly more than 100,000 member scientists.

Meeting Platforms and Communication Tools

PharmSciFair– Pharmaceutical Sciences Fair and Exhibition – Focus will be on activities in the framework of PharmSciFair events; the next (second) PharmSciFair coming up in 2009. Due to the success of the PharmSciFair concept, the biennial EUFEPS Congress will not be re-installed but replaced by the PharmSciFair.

Specialised Meetings. There will be regular conferences or other events on specific, hot and attractive topics. EUFEPS will continue to strive to run and expand its meeting programme, preferably in collaboration with its Member Societies, as has been achieved with APGI, DPhG and SAPS. Plans to have joint meetings with APS on regulatory aspects are taking shape. In addition, EUFEPS will continue to co-sponsor meetings set up by other organisations.

In the past, EUFEPS initiated a number of networks to provide a platform for discussion and to create virtual centres of excellence. EUFEPS will continue to support and establish networks, under the aegis of EUFEPS, such as the

- Network on Safety Sciences
- Network on Process Analytical Technology Sciences
- Network on Pharmacogenetics/genomics and Personalised Medicines
- Network on Bioavailability and Biopharmaceutics

Electronic means of knowledge dissemination. The website, EUFEPS Online, will be the centre of EUFEPS' communication with its membership. Additional electronic interactions with its members and services have been established. The NewsLetter will remain an important means of communication with its member associations and its individual membership.

In-silico Activities. The dramatic development of in-silico sciences has already been taken up by EUFEPS by engaging in scientific "*in silico*" activities, such as the BioSim (biosimulation) Network of Excellence. EUFEPS will also consider making "e-learning" programmes accessible through EUFEPS Online, aiming at providing top quality programmes in pharmaceutical sciences.

EUFEPS and its Environment: Recognition and Policy-making

In a competitive world, EUFEPS' task is first of all to promote pharmaceutical sciences in Europe and to be there for scientists in Europe. This task will not prevent EUFEPS being active in ethical discussions with a global dimension and to be aware of global challenges and opportunities encountered by the pharmaceutical scientific community. Therefore, there is a role to play for EUFEPS on the global scene as well.

EUFEPS and the EU platform. The efforts to establish a strong pharmaceutical sciences presence in the EU to keep the pharmaceutical sciences to the forefront in e.g. the 7th Framework Programme for Research and Technological Development will be continued and stepped up, as further support can be secured. Tight connections will be kept to the relevant directorate/s and continuous involvement in EU-funded and other activities like the IMI technology platform is foreseen. Offers from national not-for-profit pharmaceutical scientific organisations, to help with strengthening the position of EUFEPS in 'Brussels', are well received by the EUFEPS Executive Committee.

EUFEPS and other organisations in the region. As stipulated earlier, EUFEPS will continue to be in good contact and to co-operate with other regional organisations engaging in the pharmaceutical sciences, including for joint activities and one-voice initiatives on the global scene.

EUFEPS and FIP. EUFEPS recognises and actively supports FIP/BPS (Board of Pharmaceutical Sciences) as the organisation best suited to represent pharmaceutical sciences on the global level. EUFEPS, at the same time, expects to be recognised by FIP as the organisation representing the European region. EUFEPS aims at arriving at a mutual agreement with FIP/BPS describing mid- and long-term perspectives of co-operation in regional and global matters.

EUFEPS also plans to actively engage in the existing and new outreach programmes of FIP/BPS in geographical areas where the pharmaceutical sciences base is underdeveloped (together with AAPS and APSTJ).

The organisation of EUFEPS

Council - President - Executive Committee. No major changes are foreseen in the way the Executive Committee is run. The Executive Committee will establish a search committee for nomination of EUFEPS officers. Seeking young colleague scientists to be engaged in EUFEPS should be part of the remit of this committee.

Urgent matters and decision-taking. To secure both consistency and flexibility in implementation, the President, the Past-President, the President-Elect and the Executive Director will jointly execute decisions in upcoming matters, along the lines set by the Executive Committee and the Council, respectively.

EUFEPS Senate. To effectively identify and integrate competencies in the pharmaceutical sciences, EUFEPS will identify fertile fields within or close to the pharmaceutical sciences, along the path of drug discovery, development and evaluation, including preclinical, clinical and translational approaches. Eminent scientists, representing one or more of the fields, will be invited to join a 'Senate' of EUFEPS, to provide a firm sounding board to advise the EUFEPS leadership and management regarding future EUFEPS initiatives and activities.

EUFEPS Committees. EUFEPS has a number of committees to perform specific duties. These committees currently include:

- Committee on Awards and Prizes (CAP)
- Committee on Academic Research Relations (CARR)

- Committee on Industrial Research Relations (CIRR)
- Committee on Training and Education (CTE)
- Numerous ad-hoc scientific and organising committees for meetings engaging EUFEPS.

Obviously, CAP should spearhead EUFEPS' recognition of outstanding scientific contributions and advise. As think-tanks, CARR and CIRR advise on existing and new needs in whatever phase of research, short-term and long-term (where there are benefits of EUFEPS involvement). They also help to monitor progress in regional and global efforts to further streamline and develop relevant processes, disciplines and coordinating efforts in the pharmaceutical sciences leading to, innovative and high quality medicines. It is seen as a task of the Executive Committee to discuss the performance, status and plans of these committees in discussion rounds in the coming months. As EUFEPS wishes to strengthen the triangle of academia-industry-regulatory agencies, the possibility of a committee on "Regulatory Research Relations" (CRRR) will be explored.

EUFEPS would also need a Committee for Public Policy (CPP), to prepare policy statements to be published by the Executive Committee and Council. As such statements will be often general in character and/or not only relevant for Europe, EUFEPS will seek co-operation with the FIP/BPS Committee on Public Policy.

Through its Committee on Training and Education (CTE), EUFEPS will continue to coordinate PhD and post-doc level education and training programmes in Europe, as well as engage in educational activities addressing unmet needs. The exciting challenges offered by the IMI (Innovative Medicines Initiative) platform (the joint technology platform initiative of the European Commission and the European pharmaceutical industry) will be exploited.

The membership of all committees should reflect their tasks, and come from 'big' pharma, emerging, small and medium size enterprises, different size academic institutions, regulatory bodies and organisations – and patients, wherever appropriate.

Central Office and Branch Offices

As a consequence of earlier very generous support by the Swedish Academy of Pharmaceutical Sciences (SAPS), at present, all organisational activities of EUFEPS are carried out in the EUFEPS Secretariat at the central office in Stockholm, Sweden. Meanwhile, activities of EUFEPS have reached dimensions, at which other operational schemes should be considered. Branch offices, at selected sites (e.g. near to EU administration, near to the President etc.) could facilitate operations, particularly, concerning office space available and funding for supporting personnel.

Consequently, EUFEPS will accept offers to set up branch offices, towards a "hub model", following, firstly, criteria of efficiency and quality administration and, secondly, criteria of financial support by institutions at the site of the branch office. Stockholm will remain the central office, though, as long as any new concept will not have been proven to be superior to the current one.

The current EUFEPS Executive Director, Hans Lindén, will retire in the period 2006-2010. His retirement will have major consequences for the daily operations and overall performance of EUFEPS. Hence, new models of operation should be considered and implemented, over time.

Finance

Limited funds. Considering its history and ambitions, EUFEPS is an organisation with a tremendous productivity and efficiency: 'lean and mean'. At present, funding of EUFEPS is based on membership fees. But, by far the major sources of income are conferences and workshops and EU grants (after successful applications). This revenue structure leads to major ups and downs in the financial situation. At present, this is a major limiting factor in long term planning and in implementation of EUFEPS' plans. To increase sustainability of activities and stability of financing, the dependence on contributions from conferences has to be decreased. A number of measures are being or will be taken.

Member Societies. Currently, EUFEPS has 24 Member Societies, in as many countries. Efforts will be made to increase the number of Member Societies in the current countries and Member Societies in additional countries.

Individual Members. Attractiveness of Individual Membership, including for students, will be increased by specific measures. A recruitment initiative will be started, along lines such as: a bonus system for conference participation; improved website information; training and education databases (courses and e-learning options). Establishing an informative and attractive "membership journal" would provide additional benefits.

Member Institutions. EUFEPS has announced and also started establishing a new category of membership, 'Member Institutions', comprising universities and research institutions. Up until now, around 10 academic institutions positively responded to an invitation to join EUFEPS in the category of Member Institutions, in a first round. In the coming year – and in years to follow – many more will be approached for positive responses. A list of benefits and 'reasons to join' is available for anybody interested in joining this new scheme.

Industry Sustained Sponsorship Programme. In the last year, efforts have been made to interest major pharmaceutical companies with a strong science-base in Europe to join the *Industry Sustained Sponsorship Programme*. So far AstraZeneca has firmly committed itself to support EUFEPS for 3 years and other companies are following suit with unrestricted grants to EUFEPS.

In conclusion

From the above, one can only derive one conclusion: EUFEPS has a 15-year long history and in the coming four years this society will continue to flourish. The ambitions have been laid down in this Strategic Plan, and the first successes in terms of implementation were already reported above: just a few months after its adoption.

EUFEPS' ambitions are structured around the European pharmaceutical scientists. They should be the first to benefit. But, our ambitions should go beyond that. The 'New Safe Medicine Faster' initiative was launched by EUFEPS and made it very clear: the pharmaceutical sciences have one overriding goal: make better medicines for patients.

The above-defined goals can only be implemented with your help: the membership and the dedication of our small office under the leadership and management of Hans H. Lindén (Executive Director) and Annika Nyman (Project Manager)

As the Executive Committee, we count on you!

Daan Crommelin, your incoming President, Thanking his colleagues of the Executive Committee for their support.

Daan J.A. Crommelin,
Professor, EUFEPS President-Elect

Photo: Søren Toobro

Excellent attendance at EUFEPS Conference on Membrane Drug Transporters, on September 25-27, 2006, Copenhagen, Denmark

EUFEPS Conference on Membrane Drug Transporters

impact on drug discovery, development, regulation and usage Copenhagen, September 25-27, 2006

The fact that this was the fifth in a series of international conference on transporters with EUFEPS involvement is a testament to the complexities and uncertainties that still surround the area. A plethora of transporters, a plethora of molecular biology, a plethora of experimental models, but a real need for some joined-up thinking and assessment of in vivo and clinical relevance. The meeting attracted a good number of participants and was divided into six sessions.

Session I was concerned with structure-function relationships; what transporters actually look like, what we know of how they function, how good are QSAR and computational models in predicting ligands and inhibitors? The ATP Switch Model provides a basis for understanding the catalytic cycle of p-glycoprotein (Pgp) but doesn't identify the four drug binding sites. Beware of amide bonds if you don't want involvement with Pgp at the blood-brain barrier; adding electron-withdrawing groups next to an amide is useful, but other manipulations are likely to limit pharmacological potency. There is a need to amalgamate structural and ligand-based models, to define specificity as a function of both lipid-solubility (access) and active-site binding, and to incorporate the concepts of the Biopharmaceutical Drug Disposition categorisation to extend prediction beyond all-or-none models.

Session II summarised regulatory recommendations and requirements. Since regulation is supposed to follow science, the regulators usually get to speak last. This time they were put up front, just for a change. As expected, the US FDA is more proscriptive in their suggestions than Europe. Although their guidelines are yet to be finalised, preliminary proposals include a decision tree with respect to defining Pgp substrates and inhibitors, with some hard numbers (net flux ratio > 2; [I]/IC50 > 0.1), and the use of digoxin as an in vivo probe for Pgp interactions, based on its clinical relevance. From Sweden there was concern that transporter-mediated changes in tissue (especially brain) drug concentrations are not necessarily reflected in plasma measurements. However, the regulators had not seen much evidence for Pgp inhibition in the CNS in vivo, probably because of low systemic concentrations of inhibitors (e.g. cyclosporine). A contribution from industry endorsed the use of digoxin as an in vivo probe for Pgp interactions, suggested that, despite the 4 binding sites, it may not be necessary to assess multiple inhibitors, and stressed that good substrates are relatively poor inhibitors.

Session III dealt with in vitro – in vivo correlation. There were suggestions about dissecting active from passive transport and that cell transport studies may not disclose Pgp inhibitors efficiently. The keys to a better understanding of Pgp related phenomena in the gut are a knowledge of the absolute expression and abundance of the transporter down the intestine and of relevant luminal drug concentrations. Some progress towards acquiring this fundamental information was described in the rat. An integrated view of the roles of permeability, Pgp and plasma binding in predicting response to drugs in the CNS was presented, as was a review of the use of knockout and knockdown rodents to dissect the roles of different transporters in hepatic drug disposition.

Session IV considered species differences in transporter expression and function. A series of presentations documented key similarities and differences across a range of transporters, mainly between rodents and humans, in various organs and expression systems, and including an assessment of

Photo: Søren Toobro

Professor Hans Lennernäs, Conference Chair, welcoming Conference Delegates

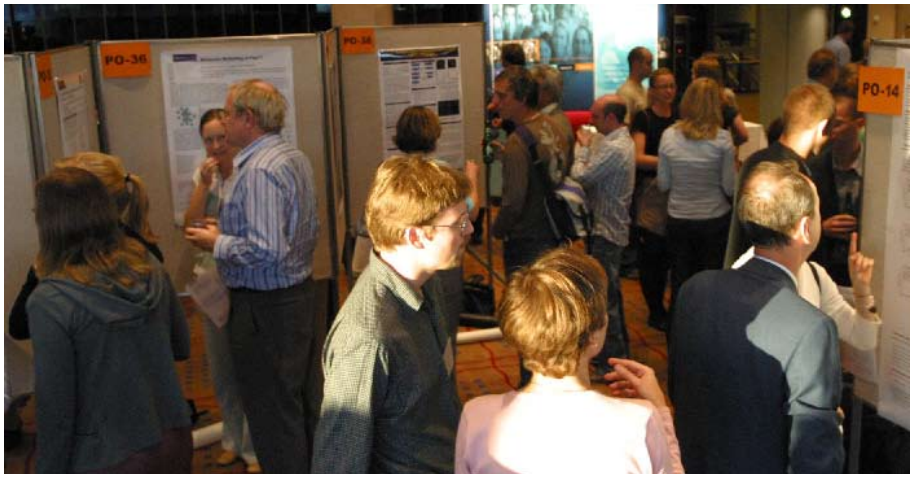


Photo: Søren Toobro

Attractive and lively poster session...

the impact of gender and strain. There was discussion of the beginnings of mechanistic toxicology with respect to predicting drug-induced cholestasis, based on experience with troglitazone and the use of various in vitro, in situ and animal models (in vitro vesicles, isolated perfused rat liver, whole rats). The need to integrate such mechanistic studies with those around metabolic issues relating to covalent binding of active metabolic intermediates was emphasised. A comprehensive review of species differences in CNS drug transport was provided – the bigger your brain the lower the blood flow, apparently; and drug concentrations in cerebrospinal fluid (especially in lumbar samples) are not good predictors of brain uptake. The need to consider how things might change in the diseased brain was also mentioned.

Session V addressed the relevance of transporters in drug development and therapy. The use of the Biopharmaceutical Drug Disposition Classification scheme was advocated as a roadmap for directing thinking about compounds in relation to the interface between drug metabolism and transport. In a view from industry, a case study where a transporter issue was picked up late from an in vivo study in humans was described, posing the question of how this might now be anticipated from in vitro screening and mechanistic studies in animals. We were reminded that intracellular transporters, especially in mitochondria, are as important as those in plasma membranes. The fialuridine story was recounted, where animal studies had totally failed to identify the toxicological problem because of marked species differences in the expression of the key transporter. In vivo methodology for evaluating hepatobiliary drug transport was reviewed, and the Danish pig farmers will be pleased to hear of a new use for their product. The message with regard to the clinical significance of genetic differences in transporters and their involvement in drug-drug interactions was that the current data suggest relatively small effects but, with new investigational tools, we might expect to see increasing evidence of clinical impact. Finally, the place of PET studies of the role of brain transporters in drug disposition was reviewed. This again raised a question as to the magnitude of the problem, especially with regard to drug-drug interactions, as systemic concentrations of potent inhibitors tend to be limited, certainly in humans.

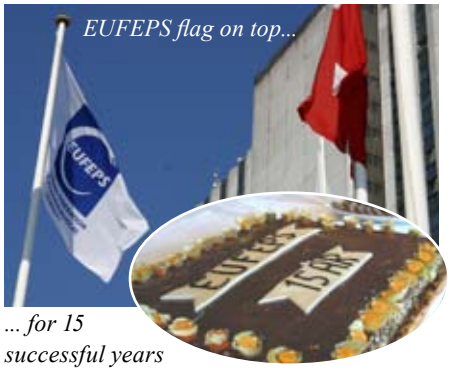
Session VI aimed to assess whether the understanding of transporters is mature enough to allow the development and use of good, predictive, physiologically based models. Essentially, the problem is not with the models but with the need to decide on what the optimal in vitro data are, and the requirement for a better knowledge of the amounts and location of the various transporters within organs, tissues and cells. The derivation of parameters describing the in vitro cellular transport of drugs is not trivial given that the driving concentration is often inside the cell. Very complex whole organ and whole body models may be derived but they may be overly data intensive, especially for industry, where minimal models may be more practical. Nevertheless, the speakers in this session indicated that considerable progress is being made to provide an integrated view of the in vivo impact of transporters on drug absorption and disposition.

This commentary has provided a personal, thumbnail overview of a relevant, productive and enjoyable conference. Together with my Co-Chair, Hans Lennernaes (Uppsala), and Joe Polli (GSK, USA) we plan to document the proceedings more thoroughly in a Meeting Report to be published in the European Journal of Pharmaceutical Sciences.

G.T.Tucker
Conference Co-Chair

... and good company

Photo: Søren Toobro



... for 15 successful years

Anniversary and Awards

A reception was organised at the 2006 EUFEPS Council, on September 24, 2006, to recognise the 15th Anniversary of EUFEPS. At the reception, two awards were presented.

Professor *M. Danhof*, Leiden-Amsterdam Center for Drug Research, The Netherlands, received the **2006 New Safe Medicines Faster Award**, sponsored by sanofi-aventis.

Dr *N. Jonsson*, F. Hoffmann-La Roche, Basel, Switzerland, was awarded the **2006 Giorgio Segré Prize**, which is a special award for young investigators in the field of PK/PD.

In the Opening Session of the EUFEPS Conference on Membrane Drug Transporters, one day later, *M. Bousatta*, Pignan, France, *T. Etrych*, Prague, Czech Republic, *L. Leclercq*, Montpellier, France, and *M. Vert*, Castelnau Le Lez, France, were presented the **2006 Best Paper Award**, sponsored by Elsevier Science, from papers published in the European Journal of Pharmaceutical Sciences during 2005.

Prof. Ole J. Bjerrum and Dr Niclas Jonsson

Profs. Christian R. Noe, EUFEPS President, Meindert Danhof, NSMF Awardee, and Yuichi Sugiyama, University of Tokyo, Japan

EuPAT1

First pan-European Science Conference on Process Analytical Technology

The First pan-European PAT Science Conference was held on November 21st and 22nd in Gothenburg, Sweden. The title of the conference was *Scientific Progress Underpinning Process Analytical Technology (PAT).* The organisers were the Nordic Affiliate of ISPE (the International Society for Pharmaceutical Engineering) and EUFEPS, with sponsorship by EFBE (European Federation of Biotechnology) and by ScanBalt. More than 100 participants from 13 countries met in the Swedish Exhibition Centre. The aim of the meeting was to create a forum for scientists and engineers in Europe, encouraging and promoting progress in the science behind PAT. A longer-term objective is to establish a EuPAT Conference Series as a meeting place for interdisciplinary scientific discussions between the various field underpinning PAT. **EuPAT2** was announced; it will take place in Copenhagen in November 2007.

Staffan Folestad, AstraZeneca, chair of the organising committee, opened the meeting with introduction and purpose of the conference. The programme started with the concept and philosophical ideas behind PAT and the related subject, Quality by Design (QbD), and continued with main focus on the scientific subjects:

- Information-Rich Process Sensors
- Advanced Process and In-Process Material Characterisation
  Process Modelling; Simulation and Control
- Real-Time Process and Quality Informatics

Peter York, University of Bradford, UK gave the first Keynote presentation, **How PAT is changing the boundaries in chemical engineeringscience**. The speaker emphasized the pressure on the pharmaceutical industry to improve manufacturing processes, which have previously been neglected. The European pharma industry continues to be responsible as an important player in the efficient delivery of medicines, which have high quality, efficacy and safety. Prof. York emphasized that "Scientific excellence in the fundamental understanding of material and processes coupled to design science are key requirements for sustaining the vitality of the European pharma industry."

Gert Moelgaard, NNE, DK gave a lecture on the topic **Inventing the future - European industries need for progress in science underpinning PAT**. The speaker described the initiatives among regulators, industry, organisations (ISPE, etc.) and educators to drive innovation and change with focus on science and risk, based on the new ICH guidelines. The US and the FDA are in the lead and Europe has to catch up.

PAT and downstream bioprocessing was the title of the lecture by *Günter Jagschies, GE Healthcare, SE* describing how the PAT concept (design, measurement of critical parameters, developing databases and models, etc.) can be used efficiently to optimise the purification process of monoclonal antibodies.

Kevin Roberts, University of Leeds, UK talked about **Application of process analytical techniques (PAT) for monitoring and controlling the batch crystallisation of organic fine chemicals**. He showed a number of PAT tools to monitor and control crystallisation processes of fine chemicals e.g. pharmaceuticals. The most spectacular tool was digital video microscopy showing real time, on the screen, crystals being formed in a solution.

Jonathan P K Seville, University if Birmingham, UK gave a Keynote lecture on the topic **Towards intelligent simulation tools through mechanistic modelling of process and showed techniques for imaging industrial processes** and in particular Positron Emission Tracking (PEPT) emanating from the similar medical technique. The position and the movement of labelled particles could be followed in fluid beds, mixers, etc. and be visualized in several modes by use of computational modelling.

Fernando J Muzzio, Rutgers University, Piscataway, NJ, USA attended via video link from the US and described the **Major academic research initiatives underpinning PAT in the US** which made it obvious that, in the USA, networks of research institutes are initiating comprehensive programmes of research into PAT, funded by national grant awarding agencies and industry, with links to the regulatory agencies.

Online chemical imaging of tablets by means of Pushbroom Imager was presented by *Rudolf W Kessler, Reutlingen University, DE*, who described an online/inline NIR imaging system for tablets, working in diffuse reflectance mode. Measurements of active pharmaceutical ingredient concentrations are influenced by scattering, excipient variations, etc.

Hugh McCann, University of Manchester, UK spoke about **Process tomography (PT) – process monitoring in 3 dimensions** and gave an overview of the present status of PT, showing that fast and portable instruments are becoming robust enough for use in the production environment.

Carl-Fredrik Mandenius, University of Lindköping, SE gave an update on **The European perspective of bioprocesses and PAT** and showed the organisations active in the field and how their network is spread over Europe.

Rasmus Bro, The Royal Veterinary & Agricultural University, Fredriksberg, DK gave a Keynote lecture on **Multivariate informatics for process understanding and advanced control**. He highlighted the importance of advanced multivariate data analysis to utilize the information-rich PAT measurements and showed a number of practical examples of chemometric applications to large data sets.

Andreas Lübbert, Halle Wittenberg University, Halle, DE talked about **On-line PAT monitoring and control of bioprocesses** and described integrated measurement devices, including multivariate data analysis, to monitor production-scale fermentation processes with option to use feedback control to correct deviations.

Optical 100% inspection of capsules on a filling machine MG2 G100 was a lecture given by *Peter Stöckel, Boehringer-Ingelheim, Ingelheim, DE*. The speaker presented an optical 100% inspection unit integrated with software for fast processing of measurements.


The Swedish Exhibiton Centre Göteborg, Sweden

Nils Johan Trygg, University of Umeå, SE gave a lecture titled **Interpretation of data-driven models demonstrating, visually, data models** being used for multivariate calibrations and how regression methods can be negatively affected by certain variations in the data.

The final Keynote lecture, **On-line PAT monitoring of physical processes**, was given by *Jukka T Rantanen , Danish University of Pharmaceutical Sciences, Copenhagen DK*. The speaker discussed the pharmaceutical production processes and the challenge to evaluate useful information from multiple PAT measurements. The use of neural networks was suggested to provide solutions for analysis of non-linear phenomena.

More than 30 posters were presented. During the closing session the three best and most innovative posters were commended:

In-line nearby infrared quantitative determination of water content and media granule size fluid bed drying by *Florentine Nieuwmeyer et al*

Terahertz pulsed imaging as an analytical tool for tablet film coating by *Louise Ho et al*

Mechanistic Modelling of High Shear Wet Granulation by using a Multi-dimensional Population Balance Equation by *Anders Darelius et al.*

Each winner was awarded one free registration for EuPAT2, 2007.

This very successful and innovative event made us look forward to EuPAT2, to be built on this starting platform and chaired by *Rasmus Bro, The Royal Veterinary & Agricultural University, Fredriksberg, DK*

Anna-Maria Tivert
Secretary EUFEPS European Network on PAT Science

EuPAT1 Poster Prize Winners

Congratulations to three poster prize winners, who were nominated and awarded one free registration per poster for the forthcoming EuPAT2 Conference (November 2007 in Copenhagen, Denmark). They are:

In-line nearby infrared quantitative determination of water content and median granule size during fluid bed drying
F. Nieuwmeyer, M. Damen, A. Gerich, F. Rusmini, K. van der Voort Maarschalk, and *H. Vromans*

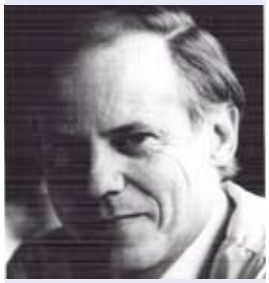
Terahertz pulsed imaging as an analytical tool for tablet film coating
L. Ho, R. Müller, M. Römer, K.C. Gordon, J. Heinämäki, P. Kleinebudde, M. Pepper, T. Rades, Y.C. Shen, C.J. Strachan, P.F. Taday, and *J.A. Zeitler*

Mechanistic Modelling of High Shear Wet Granulation by using a Multi-dimensional Population Balance Equation
A. Darelius, H. Brage, A. Rasmuson, I. Niklasson Björn, and *S. Folestad*

An Interview with the Committee of PSWC 2007

Daan Crommelin

Kamal Midha



Geoff Tucker

Vinod Shah

Yuichi Sugiyama

Hans Lindén

Daan Crommelin (DC), PSWC Chair

Kamal Midha (KM), FIP President

Geoff Tucker (GT), PSWC Programme Chair

Vinod Shah (VS), FIP Vice-President

Yuichi Sugiyama (YS), University of Tokyo

Hans Lindén (HL), EUFEPS Executive Director, (interviewer)

Recently, some of the organisers and Planning Committee of the upcoming Pharmaceutical Sciences World Congress (PSWC) met in San Antonio, Texas, at the annual meeting of the American Association of Pharmaceutical Scientists. Hans Lindén, Executive Director of EUFEPS and a member of the PSWC organizing committee, posed questions to the group to shed light on the key issues to be explored at the event, and why no pharmaceutical scientist should miss this meeting, the most important and comprehensive conference of its kind.

HL: Let me begin by asking, what is this meeting all about? WHY is the PSWC important?

DC: To quote the slogan of the conference, the PSWC is about optimizing drug therapy as an imperative for world health. There are endless new discoveries and innovations surfacing at the moment, for example in the area of genomics, and all of these pose new opportunities for NEW drugs.

GT: But it is more than that as well, it is about the breadth of the pharmaceutical sciences, from development, to uses, to delivery; it is how pharmaceutical investigations are meeting the needs of the world. This diversity enhances all levels where drugs are involved for the ultimate benefit of the patient.

As the PSWC is a world congress, it brings in the needs of the world rather than any particular region. The congress brings together those on the cutting edge of pharmaceutical sciences from all over the globe, while raising awareness of the needs and demands worldwide.

HL: How could this meeting help pharmaceutical scientists achieve their goals?

DC: This meeting is built on three pillars: ACADEMICS, INDUSTRY, and REGULATORS. To bring together these three areas, and really develop a network between the three, to give basic information and allow each of them to gain a better understanding of the others, in the end really should lead to new safe medicines faster…better medicines faster.

YS: When we say we provide a platform, this is indeed true and for all of academia, regulatory, and industry. What is truly unique is that this is a conference for pharmaceutical scientists from all over the world – WE ARE GLOBAL; the PSWC is the only GLOBAL conference for pharmaceutical scientists, and the numbers of participants from different areas of the world are very similar.

HL: Prof Shah – as a leader in a leading organization, the [United States] Food and Drug Administration, do you agree the PSWC, and meetings like it, will lead to better medicines?

VS: Yes, this will provide a wonderful opportunity for all to discuss issues on a neutral platform, and therefore help all to move forward. This is an arena where all cutting edge science issues will be brought together and hopefully lead to better, safer products faster.

HL: As an example, will these lead to, say a cancer therapy in 5 years?

VS: There is much on translational and individualised medicines, and on the translational science, which will result in better drug development, and better treatment for the diseases, which continue to pose challenges for scientists and patients.

GT: "Personalised Medicines" is not just genetics. For example, the PSWC will hold sessions on age, quality of prescribing, and individualized medicines aiming at complete individualized care to achieve individualized results.

HL: So Dr Midha, why a world meeting, and why by FIP? Couldn't national associations, at a lower level, do this?

KM: You have to recognize that drug discovery may be local, but drug development is GLOBAL, and the pharmaceutical sciences have been able to find a global platform, under the umbrella of FIP, to explore such a concept. So

the idea of having pharmaceutical sciences world congress is based on this, and on promoting the idea of using the networks that the international community provides to foster drug development.

For example, you can conduct clinical trials in many different countries, and in all international health care settings. The pharmaceutical sciences must be applicable in a global context to influence effectively where and how drug development takes place. FIP wants to be a part of this phenomenon by providing the platform for knowledge exchange on a global level, to influence drug development beyond the bounds of drug discovery.

HL: So this is not replacing any meeting, but rather is creating something new as an influence on global developments?

KM: The intent is to get the primarily scientific organizations of FIP away from a national focus to a more global focus – we want Europe, Asia, the Americas, and hopefully one day Africa together – discussing both breakthroughs and challenges.

GT: This very much is the PREMIER international event for pharmaceutical scientists – you will not find a more diverse group of participants and presenters.

HL: How many people are involved?

GT: Many were consulted at the outset, and we spread initiatives all over the world. Currently as a core there are myself [Europe], Tomohiko Ohwada from Asia, and Wolfgang Sadee from the Americas. We have 36 symposia, 108 speakers plus Keynote lectures, and additional Roundtable Sessions.

VS: Also the regional committees comprise about 60-70 people, around 20 from each of the regions [Asia, America, Europe].

HL: What will the delegates be able to take back home after attending?

DC: A network. Of course state-of-the-art science, but we hope to have a lot of young people there who can talk to each other, build a network, and go home with that.

KM: The idea for the younger scientists, that is post-docs and graduate students, is to somehow spark them and stimulate them, so that afterwards they have a chance to interact within this platform we have created. If afterwards they are able to recognize which channels they want to become more involved in and focus their energy, then we have done our job.

GT: They should get a broad view of the whole congress. All symposium titles are questions, which was deliberately done to stimulate discussion and debate; to avoid merely providing the information but also to solicit a response to it.

YS: The network is the most important thing to take back home. In addition, young scientists have to be aware of the details within a field, but also of common issues. For example, both the US and EU focus on integration of science into drug development, but Japan focusses on very basic scientific areas of organic chemistry, medicinal chemistry, etc. Many people are trying to understand basic reaction mechanisms that may finally lead to new drug discovery, and it is the same for molecular and cell biology. There are many scientists working in the same basic areas - 60-70% are working in the same area – with SOME regional specificity, and the young scientists should realise the scope of their work.

KM: To address the content more specifically, so far in the developed world we focus on diseases which affect us - in this programme as well – but in the PSWC much attention is also devoted to diseases prevalent in developing countries. And that is another broad appeal of the meeting. On this platform, we highlight and talk about these diseases from all over the world, including neglected and "orphan" diseases.

DC: The conference itself will start with a keynote lecture by Dr. Richard Laing from the World Health Organization who will speak on " Priority Medicines for Europe and the World".

Part of the focus of PSWC is to catalyze the development of drugs so that the developing world may benefit. Much can be done to facilitate this development of drugs but it necessitates the interaction of academia, industry, and regulators within the network that we hope to establish.

VS; We are trying especially to facilitate the development and approval of generic products for use in these underprivileged areas.

KM: We support the science behind multi-source and generic products.

HL: Returning to the young scientists, you also expect them to BRING something- how much room do you have for posters, and how many posters do you expect? How many posters can you accommodate exactly?

DC: We expect over 1000; but in essence, we have unlimited space.

HL: I see there is a special meeting for students and post-docs, why?

DC: They are our hope for the future; this is their chance to meet together and steer the direction of both their careers and the discipline.

HL: Dr Sugiyama you have been noted as saying that the "systems approach" is key to success in the pharmaceutical sciences. So would you say that the PSWC is the "systems approach" to a global pharmaceutical scientists' meeting?

YS: Looking at the whole programme there are so many important topics, especially the "systems approach" or "systems biology" aspects. By using "-omics" you can get quite a lot of data. However, if you don't have the methods of integrating these data, they are JUST data. Over the last 50 years, scientists have always been the "reductionists", but now the integration of all concepts is essential, and a key message of the meeting.

HL: FIP also engages a number of practitioners, should they also attend?

KM: Personally, I think it's most useful to them, as many of the symposia are geared towards not only the product or the practices side. With their participation you would be hastening the transition from discovery to practice. Also, you make certain observations in practice. The scientists may build on these observations and provide a scientific answer to the practical problem.

GT: The PSWC is one of the few scientific meetings completely open to practitioners, which we feel is essential in order to have a balance.

HL: How about the academic teachers? We hear there is no money for research and travel, in addition to teaching. Should they be there?

DC: OF COURSE they should be there; academics are part of the equation. There are numerous programmes in place to help fund scientists, young scientists and academics to attend meetings.

HL: Would they learn as well how to improve their teaching?

DC: We have a session before the actual start of the meeting to talk about strategic horizons and new developments with regards

to pharmacy and pharmaceutical sciences education. We hope they will attend to discuss these issues.

HL: There is also a satellite session on Monoclonal Antibodies (MCAs). Why here, why now?

DC: This particular session is not run by FIP, but by EUFEPS. There are two reasons why we are paying attention to this in a separate session: it is the fastest growing therapeutic area around the world, and therefore offers a new approach to treating diseases. There are already a number of MCAs in the therapeutic arsenal, with many more to come. What do they offer mankind? Who is going to pay? They are expensive, and will definitely have an impact on the budget of those who pay for medicines. These are all issues we feel are worthy of discussion.

YS: This is actually a very timely topic because there are also problems with it as well – the more discussion in the beginning may lead to earlier resolution of problems.

HL: What is the future of PSWC?

KM: There will be a PSWC 2010, and it will come back to where it started, to the United States. Every 3-4 years it has rotated around the different regions, and will continue to do so with what we hope are more participants, only the most world-renowned speakers in the field, and a growing impact on the pharmaceuticals sciences and global health.

As is evident from the discussion that ensued, those involved in the PSWC are excited and extremely optimistic about the opportunities it will bring to students, scientists, practitioners, and the future of drug development. With a goal of integrating the three communities who may most impact the state of innovative medicines and their world-wide accessibility - that is academia, industry, and regulatory bodies – the PSWC will open the door for fruitful communication and remarkable growth of individuals and the science that fuels their work.

As the only global meeting of its kind, the PSWC truly is the premier event in the pharmaceutical sciences, and we invite all to join us at this unforgettable event. The abstract deadline is December 15th 2006. For more information, please see http://www.pswc2007.org/programme.php

Pharmaceutical Press named new publisher of the Orange Guide

Book and Digital versions available January 2007

Rules and Guidance for Pharmaceutical Manufacturers and Distributors 2007, popularly known as The Orange Guide, is soon to be published by Pharmaceutical Press, an imprint of RPS Publishing. For the first time, it will be available digitally on CD-ROM and online via MedicinesComplete, the online database resource.

Previously produced by the Stationery Office, this is the essential guide for all those who manufacture or distribute medicines in Europe. Compiled by the Medicines and Healthcare products Regulatory Agency (MHRA), it provides up-to-date EU guidance on good manufacturing and distribution practice along with relevant information on European and UK legislation.

Paul Weller, Director of Development at RPS Publishing, said: "We are delighted to be working with the MHRA on such an established and respected title. As well as bringing to the partnership our considerable publishing experience, we are excited by the new digital direction we can afford the product. It will inevitably allow for greater accessibility to what is an essential resource."

According to Gerald Heddell, Director of Inspectorate & Standards Division at the MHRA, "The Orange Guide is a unique resource to those engaged in pharmaceutical manufacturing and distribution in Industry and the Public Sector and to their Qualified Persons and Responsible Persons. I am confident that collaboration between the MHRA and Pharmaceutical Press will ensure that the high quality information continues to reach those that rely on its expert guidance".

Scheduled to publish in January 2007, The Orange Guide will be available for purchase at www.pharmpress.com

Innomed spreads its wings

On behalf of EUFEPS, Ole J. Bjerrum participated in the second General Assembly for the EU Integrated project "InnoMed" at University College Dublin, Ireland, in October 2006. The project is a showcase for how precompetitive research can take place within drug development.

InnoMed; an exemplary project

Launched in January 2006, the integrated project: "Innovative Medicine for Europe" (InnoMed) employs the public-private partnership model with 40 consortium members (24 companies, 15 institutions, 2 learned societies). It can already be characterised as a success. This success is most obvious in the excellent coordination, cooperation and collaboration between the consortium members, as the scientific results have not yet emanated.

Especially the "Predictive Toxicity" (PredTox) part of the project fulfils the criteria for very much needed projects that generate knowledge and methodology generally applicable in the drug development process to reduce the attrition rate in the later stages of development. Such a project is exactly as envisioned in the New Safe Medicines Faster initiative, launched by EUFEPS back in 1999.

The project concerns the generation of tissue material by in vivo dosing of rats with 14 different toxic development candidates, which first exhibited their toxicity in late development, leading to discontinuation. Troglitazone and gentamicin act as reference drugs. Kidney, liver, plasma and urine samples will be examined for predictive toxicity markers using various modern '–omics' techniques coupled to 2D-electrophoresis, micro-arrays, LC/MS, NMR as well as histology and clinical laboratory parameters. These attempts are divided into four work programmes focussed on genomics, proteomics, metabonomics and mechanistic investigations.

The grant of 14 million euros are shared equally between EU and Industry. The academic partners get 100% coverage of their research expenses. EUFEPS also participates in the consortium, assisting in the dissemination of the outcomes to generate public awareness of the project.

Great promise

The positive progress and early experience hold great promise for the coming IMI Technology Platform, which is supposed to run the same type of projects. Here, the companies will cover their own contributions, with the exception of SMEs, while academic partners will receive 100% coverage. It is important to note that, when the platform is up and running, the scale of funding will be 50 times larger than the current project.

If the Innomed project has success in identifying predictive biomarkers, it will strongly contribute to the validation, required by the regulatory authorities, before the biomarkers are approved for general applications.

Admirable collaboration

The scientific collaboration is exemplary. There is enthusiasm and open mindedness, as well as willingness to share and to produce the agreed deliverables. At the assembly, the various work programme leaders all reported that the project plan is being followed closely, with respect to the timeline and the milestones. All commitments have so far been fulfilled.

Conclusion

The engagement and sharing of best practices for various analytic procedures and data processing from the involved pharmaceutical companies show great promise for future collaboration on the IMI Technology Platform.

The platform gives hope for medicines at affordable prices and for the preservation of a competitive and sustainable industry in Europe.

Postscript

The Innomed project consists of two separate biomarker projects "Add Neuromed" for identification of early biomarkers for Alzheimer's disease and "PredTox" for predictive toxicity markers. The project consortium consists of 40 partners and has a grant from the EU Commission under Framework Programme 6.

Ole J. Bjerrum
Immediate Past-president of EUFEPS

EUFEPS and Quality Aspects

Innovation, quality and responsibility are leading stars in the EUFEPS Strategic Plan 2006-2010 (cf. page 1). What about EUFEPS and Quality? At the **USP European Stakeholder Forum**, on December 14, 2006, in Basel, Switzerland, Dr *Hilda Köszegi-Szalai*, reported on the following:

- Several scientific papers on pharmaceutical analysis in the European Journal of Pharmaceutical Sciences
- Articles in the EUFEPS NewsLetter on needs, processes and achievements of harmonisation of the texts of the European Pharmacopoeia with the EU law, the regulatory guidance documents and with other prominent compendia, December 2005 and September 2006
- Chair and Vice Chairs of the European Pharmacopoeia Commission meetings with the EUFEPS President and Executive Director, March 2006 and November 2006, Strasbourg, France
- EUFEPS Conference on the problem of poor solubility, April 2006, Verona, Italy
- FIP and EUFEPS joint meeting on Bioequivalence and Dissolution, October 2006, Budapest
- EuPAT1 Science Conference, in November 2006, Göteborg, Sweden
- New EUFEPS Network on Bioavailability and Biopharmaceutics, in 2006 (third meeting in January 2007)
- EUFEPS Afternoon Session on quality in the PSWC 2007, April 2007, Amsterdam

Hilda Köszegi-Szalai and Henk de Jong, Vice Chairs of the European Pharmacopoeia Commission, also representing EUFEPS at the USP Stakeholder Forum

Hans H. Linden, EUFEPS Executive Director recognised for his role as Chair USP Stakeholder Forum, by Angela G. Long, USP Vice President

Optimising Biotech Medicines – 2nd Generation Pharmaceutical Proteins
January 11-12, 2007, Munich, Germany
Contact: EUFEPS Secretariat, Attn. Annika Nyman, PO Box 1136, SE-111 81 Stockholm Sweden, Fax +46 8 4113217 Email conferences@eufeps.org

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Ethics Committees in Europe – How to work with Diversity?
January 30-31, 2007, Brussels, Belgium
Contact: Fax +32 2 5033108 Email conferences@efgcp.be Website www.efgcp.be

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Counterfeit Medicines: Situation and tools to react
February 15-16, 2007, Brussels, Belgium
Contact: Haleh Vignon, EUDIPHARM Fax +33 4 78776917, Email hv@upcl.univ-lyon1.fr www.eudipharm.net

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3rd Anglo-Swedish Medicinal Chemistry Symposium
March 11-14, 2007, Åre, Sweden
Contact: Diana Mickels, Swedish Academy of Pharmaceutical Sciences; P O Box 1136 SE-111 81 Stockholm, Sweden Fax + 46 8 205511 Email diana.mickels@lakemedelsakademin.se

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12th Arden House European Conference: The development and manufacture of parenteral dosage forms: quality and regulatory issues
March 12-14, 2007, London, UK
Contact: Susan Hughes, 3rd floor Royal Pharmaceutical Society 1 Lambeth High Street, London SE1 7JN, UK Fax +44 020 7572 2506 Email science@rpsgb.org

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DUPHAT – The Dubai International Pharmaceuticals & Technologies Conference & Exhibition
March 20-22, 2007, Dubai, United Arab Emirates
Contact: Attracta D'Silva INDEX Conferences & Exhibitions Org. Est. Phone 00971 4 3624717, Fax 00971 4 3624718 Email imdexhibit@index.ae

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Drug Regulatory Affairs in Drug Development
April 16-20, 2007, Copenhagen, Denmark
Contact: Lars Hovgaard, The Danish University of Pharmaceutical Sciences, 2 Universitetsparken, DK-2100 Copenhagen Denmark Fax +45 35306001 Email master@dfuni.dk www.dfuni.dk/postgrad-courses

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PSWC 2007 Pre-Satellite: Young Pharmaceutical Scientists Meet in Amsterdam
April 20-21, 2007, Amsterdam, The Netherlands
Contact: International Pharmaceutical Federation, FIP Congress & Conferences Andries Bickerweg 5, P.O. Box 84200 NL-2508 AE The Hague, The Netherlands Fax +31 70 3021998 Email pswc@fip.org

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3rd World Congress of the Board of Pharmaceutical Sciences of FIP (PSWC 2007)
April 22-25, 2007, Amsterdam, The Netherlands
Contact: International Pharmaceutical Federation, FIP Congress & Conferences Andries Bickerweg 5, P.O. Box 84200 NL-2508 AE The Hague, The Netherlands Fax +31 70 3021998 Email pswc@fip.org

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PSWC 2007 Post-Satellite: Workshop on Monoclonal Antibodies
April 26-27, 2007, Amsterdam, The Netherlands
Contact: International Pharmaceutical Federation, FIP Congress & Conferences Andries Bickerweg 5, P.O. Box 84200 NL-2508 AE The Hague, The Netherlands Fax +31 70 3021998 Email pswc@fip.org

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PSWC 2007 Post-Satellite: 5th Microdialysis in Drug Research and Development Meeting "about the target site"
April 26-28, 2007, Amsterdam, The Netherlands
Contact: International Pharmaceutical Federation, FIP Congress & Conferences Andries Bickerweg 5, P.O. Box 84200 NL-2508 AE The Hague, The Netherlands Fax +31 70 3021998 Email pswc@fip.org

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Molecular Pharmacology
April 23-27, 2007,Copenhagen, Denmark
Contact: Hans Bräuner-Osborne, The Danish University of Pharmaceutical Sciences, 2 Universitetsparken, DK-2100 Copenhagen Denmark Fax +45 35306001 Email master@dfuni.dk www.dfuni.dk/postgrad-courses

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The 5th International Symposium on Solid Oral Dosage Forms
May 7-9, 2007, Stockholm, Sweden
Contact: Jenny Hagberg, Swedish Academy of Pharmaceutical Sciences, P O Box 1136 SE-111 81 Stockholm, Sweden Email jenny.hagberg@lakemedelsakademin.se

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Receptor Structure and Function
May 7-11, 2007, Copenhagen, Denmark
Contact: Jette Sandholm Kastrup, The Danish University of Pharmaceutical Sciences, 2 Universitetsparken, DK-2100 Copenhagen Denmark Fax +45 35306001 Email master@dfuni.dk www.dfuni.dk/postgrad-courses

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6th Training Course on High-throughput (HT) Drug Metabolism/Disposition (DM/D)
May 21 – May 25, 2007, Amsterdam, The Netherlands
Contact: EUFEPS Secretariat, Attn. Annika Nyman, PO Box 1136, SE-111 81 Stockholm Sweden, Fax +46 8 4113217 Email conferences@eufeps.org

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Drug Delivery
May 21-25, 2007, Copenhagen Denmark
Contact: Marco van de Weert, The Danish University of Pharmaceutical Sciences, 2 Universitetsparken, DK-2100 Copenhagen Denmark Fax +45 35306001 Email master@dfuni.dk www.dfuni.dk/postgrad-courses

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9th Advanced Level Workshop on Pharmacokinetic – Pharmacodynamic Data Analysis – a 4 day Hands-on Course Using WinNonlin
May 20-24, 2007, Cambridge, UK
Contact: Susan Hughes, Royal Pharmaceutical Society, 3rd floor, 1 Lambeth High Street London SE 1 7JN, UK, Fax +44 20 7572 2506 Email science@rpsgb.org

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VALDOC Summer School on Decision-Making
June 10-15, 2007, Smögen, Sweden
Contact: Kjell Andersson, Box 6048 SE-18706 Täby, Sweden Email kjell.andersson@karita.se www.karita.se/summer_school/index.php

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Clinical Evaluation of Drug Products
June 11-16, 2007, Copenhagen Denmark
Contact: Mette Rasmussen, The Danish University of Pharmaceutical Sciences, 2 Universitetsparken, DK-2100 Copenhagen Denmark Fax +45 35306001 Email master@dfuni.dk www.dfuni.dk/postgrad-courses

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New Frontiers in the Quality of Medicines
June 13-15, 2007, Strasbourg, France
Contact: www.edqm.eu/site/page_673.php

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Integrated Biomarkers in Cardiovascular Deseases
June 21-23, 2007, Berlin, Germany
Contact: Fondazione Giovanni Lorenzinii Via A. Appia, 7, IT-20121 Milan, Italy Fax +39 02 29007018 Email biomarkers@lorenzinifoundation.org www.lorenzinifoundation.org/

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A one week workshop in Basic Pharmacokinetics, organised by Prof. Malcolm Rowland
July 8-13, 2007, Arosa, Switzerland
Contact: Ms Irene Sung Email irene.sung@pkworkshops.com

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The 2nd BBBB Conference on Pharmaceutical Sciences
September 13-15, 2007, Tallinn-Tartu, Estonia
Contact: Vallo Matto, Institute of Pharmacy University of Tartu, Nooruse 1, 50411 Tartu Estonia, Fax + 372 737 5289 Email vallo.matto@ut.ee

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Innovation in Drug Delivery: From Biomaterials to Devices (organised by APGI and A.D.R.I.T.E.L.F)
September 30 – October 3, 2007, Naples, Italy
Contact: APGI, Fax +33 1 46835308 Email apgi.apgi@cep.u-psud.fr www.apgi.org www.unipv.it.adritelf

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To announce your conference, workshop and course, send brief information to the EUFEPS Secretariat. For full address, see front page.