# **Editorial**

#### Dear Colleague

The year 2009 has been a quite exciting one for EFMC and for Medicinal Chemistry in general. We faced a lot of challenges and several important decisions had to be made. First of all, the year started with hiring Nele Coulier as part time secretary working in the office of Ly Differding in Brussels. Nele gives not only great support to Koen, Rasmus and me in our daily tasks, but finally supports all of us by creating a sustainable infrastructure for EFMC

Due to the global financial crisis, the year 2009 was economically extremely difficult, and a lot of meetings had to be cancelled or made a loss. It is thus a pleasure for me to inform you that all events EFMC was involved in were a success. In March I had the honour to open the first EFMC Short Course - Improving Compound Quality: Physical Chemistry and DMPK Properties in Drug Discovery. Priciples, Assays and Predictions. The Course took place in Oegstgeest, The Netherlands, and was fully booked. We received a lot of positive feedback and I am very grateful to Peter Matyus, the chair of the Education and Training Committee, and to Henk Timmerman and Han van de Waterbeemd, who organised the course. The second EFMC Short Course will focus on Safety and Attrition and will be organised again in Oegstgeest from April 11-14. This intensive course is intended for scientists working in the field and the presentations will be given by senior scientists both from industry and academia. The number of participants will be limited to 35, to favour in depth discussion. Should the number of applications exceed the maximum, preference will be given to applicants from EFMC adhering countries and employees of EFMC corporate members.

In August the third edition of the International Symposium on Advances in Synthetic and Medicinal Chemistry (ASMC), jointly organised by ChemBridge Corporation and EFMC and supported by the ACS Division of Medicinal Chemistry, took place in Kiev, Ukraine. Although this time "only" about 350 scientists attended the meeting, it still was a big success, both scientifically and also financially. The successful outcome of this meeting, which represents a unique flair of covering hot topics from organic and medicinal chemistry, is definitely due to the top quality programme put together by the two chairs of the meeting. Scott Biller (Novartis) and Eric Carreira (ETH Zuerich). Without their invaluable contributions, the enthusiasm of Edmond Differding (UCB), Gene Vaisberg, Sergey Altshteyn (ChemBridge Corporation), Andrey Tolmachev and Aleksander Kostyuk (Enamine) as well as the perfect organisation of the event by Ly Differding and her team, this meeting would not have been possible. I also want to thank the members of the International Scientific Committee for all their contributions. The next meeting will take place in 2011 in Moscow, the city where this successful series started in 2004

Finally, in October EFMC and the Sociedad Espanola de Quimica Terapeutica organised the second edition of Frontiers in Medicinal Chemistry in the wonderful city of Barcelona. This meeting is unique in its setting, as half of the speakers are nominated by the hosting country and the other 50% are complemented by the EFMC. This time, the meeting was organised under the topic "Emerging Targets, Novel Candidates and Innovative Strategies". The symposium was overbooked and we had to close the registration two months ahead of the event. I want to take the occasion to

sincerely thank Maria-Luz Lopez-Rodrigues and all her colleagues from the Spanish Society of Medicinal Chemistry for their key role in organising this event. We already started exploring the possibilities for the third edition, which will take place in 2011, most probably in the Scandinavian Region.

Besides these key-events, which are organized or co-organised directly by EFMC, we sponsored numerous scientific events organised by our National Adhering Organisations. Among them, I particularly want to mention our educational events, the Medicinal Chemistry Schools. Besides the Summer School in Urbino (Italy), which is the only accredited school by now, EFMC supports also Medicinal Schools in Leiden (The Netherlands), Leysin (Switzerland), Nottingham (UK) and Vienna (Austria). This year, the Executive Committee also approved the application of the Summer School on Pharmaceutical Analysis (Italy), organised by Vincenza Andrisano. Welcome on board!

In June, on occasion of the 6th Joint Meeting on Medicinal Chemistry, organised in Budapest, the Council approved the proposal to join the Royal Chemical Society in launching a new journal, Medicinal Chemistry Communications (MedChemComm). Starting a new journal is not only a challenge, it is also a big responsibility and requires the commitment of all of us. The two editors in chief, Gregory Verdine from Havard and Anthony Wood from Pfizer are in place and two out of three regional editors accepted the invitation. MedChemComm will focus on concise articles and reviews, and the submission site will go online very soon, so have a look and submit your article. It's a tough time schedule and we hope to have the first issue ready for distribution at the ISMC in Brussels.

In 2010, the most important event will be the 21st International Symposium on Medicinal Chemistry (EFMC-ISMC), organised by our two Belgian Member Societies in Brussels, Sep 5-9. The registration is already open, so please

do not miss to register to this most important Medicinal Chemistry event for this year. As for previous editions, the meeting will cover all major therapeutic areas, new technologies and hot topics. Special emphasis will be put on case studies and first time disclosures. On occasion of this event, also the three EFMC Awards will be conferred. These are the Nauta Award for Pharmacochemnistry, the UCB-Ehrlich Award for Excellence in Medicinal Chemistry, and the Prous Institute - Overton and Meyer Award for New Technologies in Drug Discovery. For the first time EFMC will also acknowledge a young medicinal chemist from Industry and one from Academia. The call for applications for the awards and the prizes is open till end of January, and I strongly encourage you to have a look on our web-page www.efmc.info for further information and to submit an application.

In November 2009 the second call of the Innovative Medicines Initiative has been published and applications are due on Feb 8. Further information as well as detailed reports on selected events mentioned above can be found in our newsletter MedChemWatch. I want to take the occasion to thank Gabriele Costantino and his team for their fantastic work. MedChemWatch develops extremely well and it is nice to see how the visibility and impact steadily increases.

Finally, I want to take this occasion to thank all members of the Executive Committee for the friendly and very constructive atmosphere we had during the whole year. I also wish to express my gratitude to the members of the Council, our committees and all colleagues who participated in the organization of our events. With the help of all of you we are looking forward to another productive and successful year for EFMC.

With my very best regards
Gerhard Ecker
President EFMC

# **Premium Sponsors**

EFMC Premium Sponsors are CROs, Service Providers, Publishers that directly sponsor EFMC activities through major financial contributions. Their contribution helps the EFMC towards its main objective of developing a strong Medicinal Chemistry community in Europe that is well-equipped for the challenges of the future and enables the discovery of innovative new medicines for patients.



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EFMC offers any company the opportunity to become an official corporate member. Corporate membership will help EFMC with its objective of advancing the science of medicinal chemistry and can be achieved in several ways:

- By sponsoring an EFMC International Symposium with a minimum of €10 000
- By sponsoring an official EFMC Award
- By paying an annuel fee of €2000 to EFMC

Companies interested to become a corporate member should contact Mark Bunnage at mark.bunnage@pfizer.com

# Table

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# **Executive Committee**

The EC consists of seven members: the President, the President Elect or the Past President, the Secretary, the Treasurer and three additional members. All members of the EC, except the President and the Past President, are elected by secret ballot by the Council during a meeting of the Council. After a term of one year, the President Elect will automatically become President.

The members of the EC are not delegates of their respective countries. All details about the election process can be found in the statutes of the EFMC on the EFMC official website: www.efmc.info

President Prof. Dr Gerhard ECKER

University of Vienna

Department of Medicinal Chemistry Althanstrasse 14 - 1090 Wien Austria

Tel: +43-1-4277-55110 - Fax: +43-1-4277-9551

E-mail: gerhard.f.ecker@univie.ac.at

Past President Prof. Dr Roberto PELLICCIARI

University of Perugia

Dipartimento di Chimica e Tecnologia del Farmaco

Via del Liceo 1 - 06123 Perugia Italy

Tel: +39-075-585-51-20 / 585-51-64 - Fax: + 39-075-585-51-24

E-mail: rp@unipg.it

Secretary Prof. Dr Koen AUGUSTYNS

University of Antwerp Medicinal Chemistry

Campus Drie Eiken - Building A, Room 2.07

Universiteitsplein 1 - 2610 Antwerpen Belgium Tel : +32-3-265-27-17 - Fax : +32-3-265-27-39

E-mail: Koen.Augustyns@ua.ac.be

Treasurer Prof. Dr Rasmus CLAUSEN

University of Copenhagen

Department of Medicinal Chemistry
Universitetsparken 2 - 2100 Copenhagen Denmark

Tel: +45-353-36566 - Fax: +45-353-06040

E-mail: rac@farma.ku.dk

Member Prof. Dr Péter MÁTYUS

Semmelweis University

Department of Organic Chemistry and Drug Discovery and Safety Centre

Högyes E.u.7 - 1092 Budapest Hungary Tel: +36-1-2170-851 - Fax: +36-1-2170-851 E-mail: peter.matyus@szerves.sote.hu

Member Dr Javier FERNANDEZ

Johnson & Johnson Pharmaceutical R&D

C/ Jarama s/n 45007 Toledo Spain

Tel: +34-925-245-750 - Fax: +34-925-245-771

E-mail: jfernan0@its.jnj.com

Member Dr Mark BUNNAGE

Pfizer Global Research & Development

ipc 326 Sandwich - CT13 9NJ Kent United Kingdom

Tel: +44-1304-648974

E-mail: mark.bunnage@pfizer.com

Activities The current affairs of the Federation are handled by the EC. Among its members, the EC will assign the responsibilities of International Liaison, Communication and Planning.















### Council

The Council consists of the members of the EC and one delegate of each Adhering Organisation. According to the statutes, the voting rights are allotted according to the following rules: members of the EC: 1 vote, countries with up to 99 members: 2 votes, countries with 100-199 members: 3 votes, countries with 200-399 members: 4 votes, countries with 400-599 members: 5 votes, countries with 600-899 members: 6 votes, countries with more than 899 members: 7 votes. As for countries with more than one Adhering Organisation, votes will be proportionally distributed among them, taking into a resulting number will be rounded off to the closest digit.

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David Alker Associates

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Society, Israel

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Sanofi-Aventis

Division of Medicinal Chemistry of the German Chemical

Society (GDCh), Germany

#### Prof. Dr Henk TIMMERMAN

Vrije Universiteit Amsterdam / LACDR

Section of Medicinal Chemistry, Royal Netherlands Chemical Society (KNCV), The Netherlands

### Prof. Dr Anna TSANTILI-KAKOULIDOU University of Athens

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Universiteit Gent

Medicinal and Bioorganic Chemistry Division of Royal Flemish Chemical Society (KVCV), Belgium

#### Prof. Dr János WÖLFLING

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#### Prof. Dr Nikolay S. ZEFIROV

Moscow State University

The D.I. Mendeleev Russian Chemical Society, Medicinal Chemistry Section, Russia

# **EFMC** Objectives

The European Federation for Medicinal Chemistry (EFMC) is an independent association founded in 1970. Free from any political convictions, it represents the scientific organisations from 21 European countries and covers a geographical area the size of the USA with a similar scientific population. Its objective is to advance the science of Medicinal Chemistry by promoting cooperation and encouraging strong links between the National Adhering Organisations, in order to promote contacts and exchanges between medicinal chemists in Europe and around the World. Moreover, it offers medicinal chemists an opportunity to present their work internationally by organising the biennial International Symposium on Medicinal Chemistry (EFMC-ISMC). These symposia, with an average attendance of 1,200 delegates, are highly international with a broad range of speakers and attendees representing well in excess of 40 countries.

The EFMC pursues its activities via the Executive Committee, the Council and 3 Committees devoted to Education and Training, Industry Liaison and Information & Communication. These Committees strengthen the links between Council and EC and help to define the mission, vision and goals of EFMC.

The EFMC has very strong links with the Medicinal Chemistry Division of the American Chemical Society. Through this collaboration the ACS convenes sessions for the biennial ISMC Symposia, and conversely the EFMC convenes sessions for ACS National meetings. In addition, the two societies regularly exchange observers at their committee meetings. Furthermore, the EFMC has a specific representative on the Editorial Advisory Board of the Journal of Medicinal Chemistry, thus demonstrating the quality of European science and its scientists. EFMC also has strong links with the European Federation for Pharmaceutical Sciences (EUFEPS). Besides

exchanging sessions at various scientific congresses, EFMC and EUFEPS joined forces in establishing a European Pharmaceutical Sciences Leadership Forum. EFMC also reaches out to former USSR and Eastern European scientists through its successful series of ASMC Symposia, organised with the support of ChemBridge Corporation, in Russia or in Ukraine. In addition, the EFMC also collaborates with the Asian Federation of Medicinal Chemistry by participating in meetings organised by the AFMC and vice versa, giving the EFMC a broad international footprint.

An important part of the EFMC activities is sponsorship of national scientific meetings and Medicinal Chemistry Schools. Supported by Bentham, it also awards bursaries for younger scientists to attend ISMC meetings. The EFMC also acknowledges the excellence of medicinal chemists' work, by conferring three major awards: the Nauta Award on Pharmacochemistry, the UCB-Ehrlich Award for Excellence in Medicinal Chemistry and the Prous Institute-Overton and Meyer Award for New Technologies in Drug Discovery, which are given every two years for outstanding achievements in the field of Medicinal Chemistry. From 2010 on, EFMC establishes two new prizes to acknowledge the scientific accomplishments of young medicinal chemists, both in industry and academia.

The EFMC homepage is now hot-wired to the web sites of many national organisations, thus facilitating the flow of information, and the e-newsletter MedChemWatch as well as the yearbook "Medicinal Chemistry in Europe" help to further develop cooperation between member organisations as well as their industrial partners and therefore advance medicinal chemistry in Europe, and by extension, around the globe.

### **ETC**

### **Education and Training Committee**

#### **Current Committee Membership:**

• Péter MÁTYUS – ETC Chair (EFMC Executive Committee Member, Hungary)

• Javier FERNANDEZ (EFMC Executive Committee Member, Spain)

• Danijel KIKELJ (EFMC Council Member, Slovenia)

• Peter MOHR (EFMC Council Member, Switzerland)

• Giuseppe RONSISVALLE (Università degli Studi di Catania, Italy)

• Alan STOBIE (Pfizer, United Kingdom)

• Henk TIMMERMAN (EFMC Council Member, The Netherlands)

• Anna TSANTILI-KAKOULIDOU (EFMC Council Member, Greece)

#### **Committee Objective:**

To ensure the training of the next generation of medicinal chemists within Europe at both the undergraduate and postgraduate levels, based on strong industry-academia cooperation, and to provide a platform to address future development training needs.

#### **Committee Goals:**

- Undertake a comprehensive analysis of the structure and profile of European teaching and education systems for medicinal chemistry
- Agree the core skills medicinal chemists should acquire during their Masters level and PhD level training
- Quantify existing undergraduate and postgraduate level training courses within Europe
- Identify best practice from this analysis and publish an overview and conclusions
- Summarise career destinations for Masters and PhD level medicinal chemists, and identify core skills gaps in each country from both the industrial and academic perspective
- Identify deficiencies in the current teaching and education of medicinal chemistry in Europe, and establish means of addressing these
- Summarise currently available software for e-learning of medicinal chemistry

- Continue to support the European School of Medicinal Chemistry (Urbino), accredited by EFMC, and the official EFMC sponsored schools; the Leiden/Amsterdam Center for Drug Research School on Medicinal Chemistry, the Swiss Course on Medicinal Chemistry, the Vienna Summer School, the Residental School: Medicinal Chemistry (Nottingham) and the Summer School on Pharmaceutical Analysis (Rimini)
- Facilitate the establishment of additional local residential Medicinal Chemistry Schools in other European countries
- Incorporate medicinal chemistry trends in future Medicinal Chemistry Schools
- Include sessions on the teaching and education of medicinal chemistry on a regular basis in EFMC-sponsored symposia
- Hold a satellite session at each ISMC on the future trends and direction of medicinal chemistry
- Raise the awareness and importance of appropriate medicinal chemistry training and education with other relevant learned societies e.g. IUPAC, EUFEPS

In order to achieve these challenging goals the Education Committee would welcome your knowledge, experience and ideas. If you wish to contribute towards our objectives, please contact Péter Mátyus at peter.matyus@szerves.sote.hu

### **Industry Liaison Committee**

#### **Current Committee Membership:**

• Mark BUNNAGE – ILC Chair (EFMC Executive Committee Member, United Kingdom)

Javier FERNANDEZ (EFMC Executive Committee Member, Spain)
 David ALKER (EFMC Council Member, United Kingdom)
 Brigitte LESUR (Institut de Recherches Servier, France)

• Graeme ROBERTSON (Siena Biotech, Italy)

#### **Committee Objective:**

To promote and improve liaison and cooperation between EFMC and Industry so that the EFMC can better achieve its over-arching objective to advance the science of medicinal chemistry. This includes increasing the visibility of EFMC activities within companies which employ medicinal chemists as well as those related industries for whom medicinal chemistry is an enabling science or for whom medicinal chemists represent a significant customer base.

#### **Committee Goals:**

- To act as a link between industry and academia for the exchange of ideas, information and knowledge on medicinal chemistry
- To understand and champion the views of industry within EFMC and, where appropriate, to promote these on a wider, European stage
- To provide a forum for industrial and academic medicinal chemists to discuss the evolution of medicinal chemistry in Europe

- To encourage, recognise & support medicinal chemistry talent in industry (e.g. through EFMC prizes, industry sessions at EFMC meetings, etc)
- To support sharing of job offers and candidate CV through the EFMC website
- To establish a directory of European centres of specific expertise in drug research

In order to achieve these challenging goals the ILC would welcome new committee members. If you are interested please contact Mark Bunnage at mark.bunnage@pfizer.com

#### **Information & Communication Committee**

#### **Current Committee Membership:**

- Koen AUGUSTYNS ICC Chair
- Gabriele COSTANTINO
- Anders KARLÉN
- Jordi MESTRES
- László MOLNÁR
- David REES
- Yves ROLLAND

(EFMC Executive Committee Member, Belgium)

(Università degli Studi di Parma, Italy)

(EFMC Council Member, Sweden)

(Universitat Pompeu Fabra, Spain)

(Gedeon Richter, Hungary)

(Astex Technology, United Kingdom)

(EFMC Council Member, France)

#### **Committee Objective:**

To improve and strengthen the communication to the EFMC member societies and individual Medicinal Chemists. The main goals are to increase the visibility of the EFMC and its activities via extensive use of internet-based technology and to establish an information platform for all issues related to Medicinal Chemistry in Europe. In addition, the ICC Committee will also support the other Committees in coordinating their activities and disseminating information.

 To explore possibilities for creating benefits for Corporate Members and individual Medicinal Chemists who are members of our National Adhering Organisations

In order to achieve these challenging goals the committee is open to suggestions and comments. Please send your ideas to Koen Augustyns at koen.augustyns@efmc.info

#### **Committee Goals:**

- To strengthen and improve communication with our National Adhering Organisations
- To support the National Adhering Organisations by ensuring that their information is communicated electronically in an efficient manner via EFMC channels
- To provide a Web-portal for Medicinal Chemistry activities in Europe and to broadly disseminate information on EFMC sponsored events

# MedChemWatch

#### The official EFMC e-newsletter

#### **Editor**

• Gabriele COSTANTINO (University of Parma, Italy)

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(Université de Genève, Switzerland)

(Martin-Luther-Universität Halle-Wittenberg, Germany)

(The Danish University of Pharmaceutical Sciences, Denmark)

(Pfizer, United Kingdom)

MedChemWatch will provide you with regular updates on the activity of our committees, give information on EFMC-approved schools and EFMC-sponsored meetings, and alert you on calls for medicinal chemistry related grants and funding opportunities. Furthermore, in each issue you will find a perspective article from a leading scientist and the presentation of a Medicinal Chemistry research group in Europe.

With MedChemWatch we intend to provide more than just one of those e-mails announcing the next meeting and promoting some activities. This should become a forum for exchange of ideas, thoughts and visions for the future of Medicinal Chemistry, accompanied by useful information on events, grants and news from our member societies.





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Editor-in-Chief: Professor David Thurston, London School of Pharmacy, UK

Series Editors: Dr David Fox, Pfizer Global Research and Development, Sandwich, UK | Professor Salvatore Guccione, University of Cataria, Italy | Professor Ana Martinez, Instituto de Química Médica-CSIC, Spain Dr David Rotella, Wyeth Research, USA

Advisor to the Board: Professor Robin Ganellin, University College London, UK

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#### Also of interest

official journal of:



Molecular BioSystems - a journal with a focus on the interface between chemistry and the -omic sciences and systems biology. www.molecularbiosystems.org

Organic & Biomolecular Chemistry - an international journal covering the breadth of synthetic, physical and biomolecular chemistry. www.rsc.org/obc

Natural Product Reports (NPR) - a critical review journal which stimulates progress in all areas of natural products research, www.rsc.org/npr

Integrative Biology - focusing on quantitative multi-scale biology using enabling technologies and tools to exploit the convergence of biology with physics, chemistry, engineering, imaging and informatics. www.rsc.org/ibiology

Metallomics - covering the research fields related to metals in biological, environmental and clinical systems. www.rsc.org/metallomics

Photochemical & Photobiological Sciences - publishing high quality research on all aspects of photochemistry and photobiology, encouraging synergism between the two areas. www.rsc.org/pps



# **ASMC 2009**

#### Report

# 3<sup>rd</sup> International Symposium on Advances in Synthetic and Medicinal Chemistry

Kiev, Ukraine, August 23 - 27, 2009

ASMC 09 in Kiev was organised by EFMC and ChemBridge Corporation, in the series of events which started with ASMC 04 in Moscow, followed by ASMC 07 in St. Petersburg. Prof. Erick Carreira (ETH Zürich, Switzerland) and Dr Scott Biller (Novartis Institutes for BioMedical Research, Cambridge, USA) were the Chairmen of this Symposium, where American and Western European chemists met Eastern European scientists in the areas of synthetic and medicinal chemistry.

The third edition of ASMC can be considered as a high point of the world's chemistry events of 2009, with 36 distinguished academic and industrial speakers, 10 oral communications and 81 poster presentations. ASMC 09 attracted about 300 participants, coming from 33 different countries, and 17% originating from former USSR countries. 36% of the attendees were from academia, 47% from industry.

The topics covered during the symposium included: New Synthetic Methodologies, Total Synthesis of Natural Products and Heterocyclic Chemistry, Diversity- and Target-Oriented Synthesis and Chemical Biology, Medicinal Chemistry and Drug Discovery & Development.

The outstanding scientific programme was completed by an attractive cultural programme. All participants have been invited to attend a guided bus tour of Kiev and had the opportunity to participate in the excursion to Lavra. Kiev, a lively and culturally rich city

on the banks of the Dnieper River, turned out to be a surprising destination and well worth the visit. In addition to this, Enamine, the main sponsor of the symposium, opened their doors and allowed interested participants to have a closer look at their laboratories. The warm welcome by the local participating companies helped making of ASMC 09 a successful event.

The programme also included a commercial exhibition and a half day Business Mini-Symposium.

The next ASMC will take place in 2011 in Moscow.



# Frontiers in Medicinal Chemistry

Report

### Frontiers in Medicinal Chemistry: Emerging Targets, Novel Candidates and Innovative Strategies

Barcelona, Spain, October 4-6, 2009

Last October the International Meeting "Emerging Targets, Novel Candidates and Innovative Strategies" took place in Barcelona (Spain). This event was the second in the series "Frontiers in Medicinal Chemistry" initiated in Siena (Italy) in 2007. On this occasion and under the auspices of the European Federation of Medicinal Chemistry (EFMC) and the Spanish Society of Medicinal Chemistry (SEQT), the meeting has brought medicinal chemists and related scientists together in order to share exciting new results and first-time disclosures in the different areas of drug discovery and development.

Toward this aim, twenty-three internationally recognized invited speakers presented the current trends on emerging targets, novel drug candidates and new strategies and technologies. Additionally, two poster sessions showed the latest results on a wide range of medicinal chemistry topics.

Inaugurated by the presidents of the EFMC, Gerhard Ecker, and SEQT, María Luz López-Rodríguez, the Symposium was opened with the lectures of Prof. Luis Serrano (Centre for Genomic Regulation, Spain) and Prof. Leonardo Pardo (Universitat Autònoma de Barcelona, Spain). During the following days, professors, lecturers, students and representatives of the pharma industry attended a busy programme organised in twenty half hour lectures and two poster sessions, which covered all key aspects of medicinal chemistry including sessions on CNS, pain, cancer, infectious diseases, inflammation, metabolic disease and chemical biology.

The meeting concluded with the outstanding presentation delivered by Prof. Gregory L. Verdine (Harvard University, USA) and the EFMC and SEQT awards to posters presented by young researchers.

Besides the scientific aspects of the programme, Barcelona as the host city had many cultural highlights and tourist attractions and all of the participants enjoyed the fantastic venue of the meeting as well as the weather during those days.

This symposium fulfilled its primary objective, which was to provide a dynamic environment to foster interaction and discussion and to contribute to strengthen ties between scientists. Of the total of 298 participants, slightly more than one third belonged to the pharmaceutical industry of a wide variety of countries.

"Frontiers in Medicinal Chemistry" was made possible by the generous financial support of our institutional and industrial sponsors and the assistance of our collaborators. Also, the organising and scientific committee would like to acknowledge the speakers and participants for sharing their science and, more importantly, for their key contribution to the outstanding scientific level of the event.





#### Call For Abstracts

Abstracts for oral communications and poster presentations can be submitted via the symposium website. Deadline April 2, 2010.



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### PLENARY LECTURES

#### 3 INVITED PLENARY LECTURES 2010 IUPAC-RICHTER PRIZE LECTURE

#### EFMC AWARD LECTURES

- The Nauta Award for Pharmacochemistry
- The UCB-Ehrlich Award for Excellence in Medicinal Chemistry
- The Prous Institute-Overton and Meyer Award for New Technologies in Drug Discovery

#### **EFMC PRIZE LECTURES**

- Prize for Young Medicinal Chemist in Industry
- Prize for Young Medicinal Chemist in Academia

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EFMC-Industry Liaison Committee

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David Parry (Cyclofluidic, United Kingdom)

#### FINDING THE RIGHT BINDING POCKETS: ALLOSTERIC MODULATORS OF G-PROTEIN COUPLED RECEPTORS FOR NON-CNS DISEASES (ACS Session)

Robert A. Fecik (University Of Minnesota, United States)

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# G-PROTEIN COUPLED 7TM RECEPTORS - NEW INSIGHTS INTO THEIR STRUCTURE AND LIGAND RECOGNITION

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John Butera (Wyeth Research, United States)

#### TOXICITY CHALLENGES IN DRUG DESIGN AND STRUCTURE-TOXICITY RELATIONSHIPS

Ferran Sanz (Universitat Pompeu Fabra, Spain)

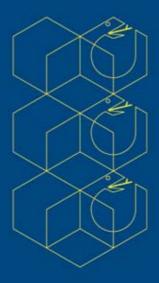
#### VIRTUAL SCREENING AND PROFILING

Didier Rognan (University of Strasbourg, France)









# **EFMC 2010 AWARDS**

Call for nominations

DEADLINE: JANUARY 31, 2010

Nominations for these Awards consist of a nomination letter, a brief CV, including a list of selected publications and two supporting letters. The nominations should be submitted to the Chairman of the Juries, Professor Gerhard Ecker, President of EFMC, Department of Medicinal Chemistry, University of Vienna, Althanstrasse 14, A-1090 Wien, Austria. fax: +43 I 4277 9551 e-mail: awards@efmc.info



# THE NAUTA AWARD FOR PHARMACOCHEMISTRY

For the advancement of medicinal chemistry and the development of international organizational structures in Medicinal Chemistry. The Award will be given for outstanding achievements in the field of Medicinal Chemistry.



# THE UCB-EHRLICH AWARD FOR EXCELLENCE IN MEDICINAL CHEMISTRY

To acknowledge and recognise outstanding research in the field of Medicinal Chemistry in its broadest sense by a young scientist. This Award has been established with the support of UCB Pharma.



# THE PROUS INSTITUTE-OVERTON AND MEYER AWARD FOR NEW TECHNOLOGIES IN DRUG DISCOVERY

To encourage innovation and investigation in technological development related to drug discovery, this Award established with the support of Prous Institute will be given for the discovery, evaluation or use of new technologies.

The Awards will be conferred on the occasion of the XXIst EFMC 'International Symposium on Medicinal Chemistry" (ISMC) to be held in Brussels, Belgium, September 5-9, 2010



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The **prize** is given annually and consists of a diploma, € 1.000 and an invitation to give a short presentation at an EFMC symposium. Two runners up will also be identified and acknowledged.

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- · A brief CV of the candidate
- · Abstract of potential oral presentation

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# Calendar

# of Events

organised by the National Adhering Organisations 2010 EFMC sponsored events highlighted in blue EFMC - ISMC events highlighted in yellow EFMC Schools highlighted in green

#### Young Research Fellow Meeting

February 5, 2010 Paris. France

www.sct-asso.fr

Contact Person: Luc Demange Tel: +33 153739685 Email: luc.demange@univ-paris5.fr

Organised by: Société de Chimie Thérapeutique (France)

#### Frontiers in Medicinal Chemistry

March 14-17, 2010 Münster, Germany

www.gdch.de/medchem2010

Contact Person: Prof. Dr Bernhard Wünsch Tel: +49 251 83 33311 Fax: +49 251 83 32144 Email: wuensch@uni-muenster.de

Organised by: Division of Medicinal Chemistry of the German Chemical Society (GDCh) (Germany) German Pharmaceutical Society, Section of Pharmaceutical/Medicinal Chemistry (Germany)

#### Spring Symposium: **Crossing Decades** and Borders in Medicinal Chemistry

#### March 19, 2010 Eindhoven, The Netherlands

Contact Person: Jac Wijkmans Tel: +31 - 412-665 464 Email: jac.wijkmans@spcorp.com

Organised by: Section Medicinal Chemistry. Royal Netherlands Chemical Society (KNCV)

#### Joint Meeting SCT - SFC -Académie Nationale de Pharmacie (ANP)

March 23, 2010 Paris, France

www.sct-asso.fr

Contact Person: Robert Dodd Email: robert.dodd@icsn.cnrs-qif.fr

Organised by: Société de Chimie Thérapeutique (France), French Society of Chemistry, French National Academy of Pharmacy

#### 2<sup>nd</sup> Short Course on Medicinal Chemistry -EFMC Safety and Attrition Workshop

#### April 11-14, 2010 Oegstgeest, The Netherlands

Course Organisers: Alan Stobie, Pfizer, UK Henk Timmerman, VU Amsterdam, NL

#### www.efmcshortcourses.org

Contact: administration@efmc.info

Organised by:
Education and Training Committee of EFMC

#### 28<sup>th</sup> Camerino-Cyprus-Noordwijkerhout Symposium Trekking Through Receptor Chemistry

#### May 16-20, 2010 Camerino, Italy

www.unicam.it/farmacia/symposium/index.html

#### Contact:

Dipartimento di Scienze Chimiche via S. Agostino 1 - 62032 Camerino, Italy Tel: +39 0737402237; +390737402368 Fax: +39 0737637345 Email: secretariat.camerino@unicam.it Organised by: Medicinal chemistry Division of the Italian Chemical Society

#### 14th Hellenic Symposium on Medicinal Chemistry

#### April 23-25, 2010 Thessaloniki, Greece

#### www.helmedchem2010.gr

Contact Person: Vassilis Demopoulos Tel: +30 21310997626 - Fax: +30 21320 997612 Email: vdem@pharm.auth.gr

Organised by:
Hellenic Society of Medicinal Chemistry (Greece)
and the Division of Organic and Medicinal
Chemistry of the Association of Greek Chemists
(DOM/AGC)

#### Minisymposium on «Channels and Transporters»

#### May 27, 2010 Institute of Organic Chemistry, University of Basel

Contact Person: Dr Hans Peter Märki Tel: +41 61 688 5055 Fax: +41 61 688 6459 Email: hans\_p.maerki@roche.com

Organised by: Division for Medicinal Chemistry (DMC), Swiss Chemical Society (SCS) (Switzerland)

# Summer School on Pharmaceutical Analysis (SSPA 2010)

June 14-16, 2010 Rimini, Italy

www.scpaweb.org

Contact Person:
Manuela Bartolini
Tel: +39 (0)51 2099729 - Fax: +39 (0)51 2099741
Email: secretariat@scpaweb.org

Organised by: Division of Medicinal Chemistry of the Italian Chemical Society (Società Chimica Italiana) (Italy) RICT2010 - 46<sup>th</sup> International Conference on Medicinal Chemistry - 46<sup>èmes</sup> Rencontres Internationales de Chimie Thérapeutique

> June 30 - July 2, 2010 Reims, France

www.medchem.fr

Contact Person:
Prof. Janos Sapi
Tel: +33 326918022 - Fax: +33 326918029
Email: janos.sapi@univ-reims.fr

Organised by: Société de Chimie Thérapeutique (France)

#### **European School of Medicinal Chemistry (ESMEC)**

July 4-9, 2010 Urbino, Italy

www.esmec.eu

Contact Person: Gloria Cristalli Tel: +39 0737 40 2255/2331 - Fax: +39 0737 40 2295 Email: gloria.cristalli@unicam.it

#### Organised by:

Division of Medicinal Chemistry of the Italian Chemical Society (Società Chimica Italiana) (Italy)

#### XX<sup>th</sup> National Meeting on Medicinal Chemistry

September 12-16, 2010 Abano Terme (Padova), Italy

www.nmmc2010.sistemacongressi.com

Contact Person: Francesco Dall'Acqua Tel: +39 049 827 5708 - Fax: +39 049 827 5366 Email: francesco.dallacqua@unipd.it

Organised by:

Division of Medicinal Chemistry of the Italian Chemical Society (Società Chimica Italiana) (Italy)

# XXI<sup>st</sup> International Symposium on Medicinal Chemistry

September 5-9, 2010 Brussels, Belgium

www.ismc2010.org/

Contact Person: Dr Edmond Differding (UCB S.A.)

Organised by: European Federation for Medicinal Chemistry (EFMC)

Medicinal and Bioorganic Chemistry Division of Royal Flemish Chemical Society (KVCV) (Belgium) Société Royale de Chimie (SRC), Medicinal Chemistry Division (Belgium)

# Medicinal Chemistry Section at Fall Meeting of the Swiss Chemical Society

September 16, 2010 ETH Zürich, Switzerland

Contact Person:
Dr Hans Peter Märki
Tel: +41 61 688 5055 - Fax: +41 61 688 6459
Email: hans\_p.maerki@roche.com

Organised by:

Division for Medicinal Chemistry (DMC), Swiss Chemical Society (SCS) (Switzerland)

18<sup>th</sup> European Symposium on Quantitative Structure – Activity Relationships

> September 19-24, 2010 Rhodes, Greece

www.euroqsar2010.gr

Prof. Anna Tsantili - Kakoulidou Tel: + 30 210 7274530 - Fax: +30 210 7274 747 Email: tsantili@pharm.uoa.gr

Organised by: Hellenic Society of Medicinal Chemistry (Greece) and International Cheminformatics and OSAR Society 3<sup>rd</sup> RSC-SCI Symposium on GPCRs in Medicinal Chemistry

September 20-22, 2010 Schering-Plough, Oss, The Netherlands

www.rsc.org/bmcs

Contact Person: Dr Caroline Low Email: c.low@imperial.ac.uk

Organised by: The Biological and Medicinal Chemistry Sector (BMCS) of the Royal Society of Chemistry (RSC) (United Kingdom), SCI-FCG

#### 3rd Polish Meeting on Medicinal Chemistry

#### September 20-22, 2010 Lublin, Poland

#### www.ptchm.pl

Contact Person:
Prof. Dariusz Matosiuk
Tel: +48-81-535 73 55
Fax: + 48-81-535 73 55
Email: ptchm@ptchm.pl / darek.matosiuk@am.lublin.pl

Organised by: Polish Society of Medicinal Chemistry (Poland)

# 5<sup>th</sup> IMMPC (International Meeting on Medicinal and Pharmaceutical Chemistry)

#### October 2010 Istanbul, Turkey

Contact Person: Prof. Dr Erhan Palaska Tel: + 903123051872 Fax: + 903051872/120 Email: eoalaska@hacetteoe.edu.tr

Organised by: Turkish Association of Medicinal and Pharmaceutical Chemistry (Turkey)

#### **FIGON Dutch Medicine Days**

#### October 4-6, 2010 Lunteren, The Netherlands

#### www.figon.nl

Organised by: Section Medicinal Chemistry, Royal Netherlands Chemical Society (KNCV)

#### 19th LACDR School on Medicinal Chemistry

#### October 19-22, 2010 Noordwijkerhout, The Netherlands

#### www.lacdr.nl

Organised by: Section Medicinal Chemistry, Royal Netherlands Chemical Society (KNCV)

#### 9th Swiss Course on Medicinal Chemistry

#### October 10-15, 2010 Leysin, Switzerland

#### www.swiss-chem-soc.ch/smc/leysin/leysin.html

Contact Person: Prof. Dr Beat Ernst Tel: +41 61 267 15 50 Email: Gabi.Lichtenhahn@unibas.ch

Organised by: Division for Medicinal Chemistry (DMC), Swiss Chemical Society (SCS) (Switzerland)

#### IX<sup>th</sup> Jornadas de la SEQT

November 2010 Baeza-Jaén, Spain

#### www.segt.org

Contact Person: Dr Joaquín Campos Tel: +34 958243848 - Fax: +34 958243845 Email: jmcampos@ugr.es

Organised by: SEQT/Granada University Sociedad Española de Química Terapéutica (Spain)

# FFMC YFARBOOK 2010

#### **RSC-SCI Flow Chemistry Symposium**

November 3-4, 2010 GSK, Stevenage

www.rsc.org/bmcs

Contact Person: Dr Jason Tierney Email: jason.tierney@glpg.com

Organised by: The Biological and Medicinal Chemistry Sector (BMCS) of the Royal Society of Chemistry (RSC) (United Kingdom) and BMCS/SCI-FCG

# **SCT Annual Workshop** in Medicinal Chemistry

December 2010 Paris, France

www.sct-asso.fr

Contact Person: Prof. André Tartar Tel: +33(0)6 13 26 25 41 Email: andre.tartar@univ-lille2.fr

Organised by: Société de Chimie Thérapeutique (France)



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- · Mass spectroscopy
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   HPLC (preparative)
- · Elemental analysis
- · Water contain

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- Product for
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- References
- · Templates for DOS
- · Elements for SFBDD Privileged structures
- Building blocks
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# From Virtual to Real Screening

Achievements and Challenges for Similarity Searching

#### Gisbert Schneider

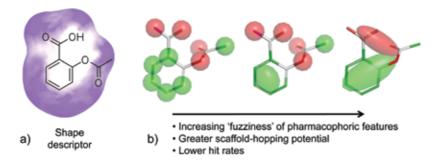
Professor of Computer-Assisted Drug Design Eidgenössische Technische Hochschule (ETH) Institute of Pharmaceutical Sciences Wolfgang-Pauli-Str. 10 8093 Zürich – Switzerland gisbert.schneider@pharma.ethz.ch

The term 'virtual screening' emerged in the 1990s describing a rather loosely defined set of computational approaches to predicting novel bioactive compounds. Ever since, methods for automated ligand-receptor docking and techniques for molecular similarity searching have emerged as workhorses for computational and medicinal chemists alike to assist in the task of compound selection for activity screening and hitto-lead optimization (1-6). There is no longer doubt that a smart application and combination of virtual screening tools can actually help find novel chemotypes with a desired pharmacological activity profile (7-9).

While in the early years mere hit identification, library shaping, and rapid database searching was pursued, more advanced tasks are being aimed at today, such as scaffold— or lead-hopping (10, 11), multi-dimensional (multi-objective) optimization of lead structure properties

(12), repurposing of known drugs (13, 14), prediction of activity profiles rather than individual targets (15-17), just to name a few. Most importantly, as a main lesson from many virtual screening studies, it has been realized that 'similarity' between two molecules is a context- and target-dependent property, and cannot be expressed by a single universally applicable compound representation or description.

As a general guideline for rapid firstpass similarity searching, it is advisable to represent molecules by shape and pharmacophoric features (Fig. 1). Although this concept has been known for many years, it has been re-discovered for practical virtual screening that these two features capture essential aspects of receptordrug interactions (18, 19). Ideally, such models implicitly code pharmacologically important molecular properties like lipophilicity. While atomistic and substructure-based molecular descriptors



**Figure 1.** Representation of acetyl salicylic acid by shape (a) and various degrees of 'fuzzy' pharmacophoric points (b). Here, green ellipsoids represent lipophilic centers and red ellipsoids indicate polar, potentially hydrogen-bonding sites. Depending on the degree of abstraction, atomistic models and coarse-grained pharmacophoric models can be obtained. It is important to realize that hit rates in real screening usually decrease with increasing 'fuzziness' of the molecular representation that was used for screening compound selection by similarity searching.

(e.g., 'fingerpints' like MACCS keys (20), Ghose-Crippen fragment keys (21)) are preferred for compound database searching aiming at the rapid retrieval of derivatives of a particular underlying chemotype, shape and pharmacophore descriptors facilitate the identification of bioisosters scaffold-hops (22-24). It is safe to say that with an increasing abstraction from atomand-bond (molecular graph-based) models fewer similar but more diverse chemotypes are retrieved from a compound database, which immediately mirrors in reduced hit rates. It is mandatory to realize and accept this dependency, as there are sometimes unrealistically high expectations of hit rates and abundant novel scaffolds among the hits. A weak hit compound featuring a novel scaffold can be a valuable starting point for additional rounds of virtual screening that eventually lead to potent lead structures.

To illustrate the potential of concerted virtual screening, modeling and optimization, an example is presented in Fig. 2.

Starting from a known cannabinoid-1 receptor (CB1R) ligand, researchers at Roche employed pharmacophore-based de novo design for scaffold-hopping and first hit identification (25), which was followed by further refinement by pharmacophore compliance, chemical tractability, and druglikeness considerations, and eventually resulted in a series of benzodioxoles as potent novel CB1R inverse agonists. This strategy of extensive multidimensional optimization involved tight interaction between virtual and real screening and was rewarded by the identification of promising lead compounds with significant in vivo activity (26).

Another hallmark example of broad virtual screening and similarity searching in tight combination with real screening has recently been given by Roth and coworkers who found several new targets for marketed drugs and conclude that "The chemical similarity approach is systematic and comprehensive, and may suggest side-effects and new indications for many drugs." (14)

Figure 2. Example of a strategy for multidimensional optimization by iteratively applied virtual screening methods. Starting from the known cannabinoid-1 receptor (CB1R) effector 1 ( $K_i = 0.11~\mu\text{M}$ ) (51) as a reference compound, fragment-based *de novo* design with the software TOPAS (52) led to weakly active hits 2 in small combinatorial libraries that were derived from design. Using these hit compounds as queries for pharmacophore-based similarity assessment and subsequent medicinal chemical optimization finally resulted in lead compound 3 ( $K_i = 0.03~\mu\text{M}$ ), a potent CB1R agonist featuring a novel scaffold compared to the original reference 1.

# Guidelines for fast and successful similarity searching

There are some basic guidelines for first-pass virtual screening by *similarity* searching that may be deduced from various recent research reports. These tips should be understood as empirical findings (supported by personal experience and preferences) rather than analytically obtained rules:

- Use all potent reference compounds as queries. This will increase the chance of finding potent hits (27).
- Describe molecules by their topology or shape plus pharmacophoric features to capture two complementary molecular features that are generally relevant for ligand-receptor interaction (23, 24).
- Whenever possible, describe molecules by few features (28). This will help avoid artifacts resulting from high-

dimensional compound descriptions (the "curse of dimensionality") (29).

- For each of the molecular representations perform individual similarity searches in large compound collections (30).
   This will help increase the number of different chemotypes among the topscoring compounds.
- by two complementary techniques: a *metric* (*e.g.*, Manhattan distance, Euclidian distance) and a *similarity index* (*e.g.*, Tanimoto-index) (29). This can help avoid artificial bias towards certain chemotypes.
- Combine individual ranked compound lists, *e.g.* by 'group fusion' (31, 32).
- Trust the results and consider the topscoring compounds for biochemical testing, irrespective of your own or your colleagues' opinion.

 Look at the top-scoring compounds and select additional screening candidates manually.

In any case, at least two subsequent rounds of virtual and real screening should be performed before an assessment of the overall outcome of the screening campaign should be made. Numerous studies have shown that initial weak hits can be optimized to potent ligands in subsequent select-and test cycles. It is always a good idea not to blow all screening capacity in one shot but to learn in iterative steps. This can be done, for example, by using initially poor hits as queries for a second or third virtual screening triage (33).

Notably, a description of 'two-dimensional' molecular structure (in particular descriptors of molecular topology) has repeatedly led to surprisingly good results. One reason might be that threedimensional representations by shape and pharmacophores as well as molecular docking methods have to explicitly cope with conformer generation and flexibility, while some of the available topological descriptors have the ability to implicitly capture relevant aspects of conformational preferences and restrictions (34, 35). This does by no means render three-dimensional approaches like docking useless but pinpoints to a general issue of virtual screening protocols. Recently, Bajorath and coworkers successfully transferred information about relevant receptor-ligand interaction sites from three-dimensional binding complexes to two-dimensional fingerprints, which resulted in improved hit rates (36).

#### What's next?

Ignoring various technological aspects, publication policies, the 'human factor' and obvious project-specific considerations, it is fair to say that a main achievement of virtual screening as a whole has been to provide methods that help eliminate the bulk of inactive compounds, rather than actually predict actives (37). While this statement is certainly simplifying (and grossly inadequate for individual studies and techniques) it pinpoints to one of the major limitations we are currently facing, namely the accurate and rapid quantitative computation of binding free energies (respectively  $pK_d$ ,  $pIC_{50}$ ) for arbitrary ligand-receptor complexes (38). This poses a problem not only for threedimensional receptor-ligand and proteinprotein docking (scoring problem (39, 40)) but also for advanced OSAR techniques and machine learning approaches. While there are elegant and analytically exact solutions algorithmic for compound placing in a binding site and mathematical model finding and optimization, we still lack sufficiently accurate approximations of basic physical and chemical phenomena of receptor-ligand binding or fail to model them with sufficient accuracy within a reasonable time. These include in particular

- entropic contributions to ligand binding
- dynamic behavior of both ligands and macromolecular targets
- role of solvent (water, ions) in complex formation and stability

 dynamic conformational ensembles of ligands and ligand-receptor complexes.

Explicit consideration of the flexibility of ligands and receptors in docking and pharmacophore modeling has already led to some progress. For example, ligandbased virtual screening by pseudoreceptor models (41) was combined with molecular dynamics simulations to obtain ligand binding sites in comparative protein models ('homology' models) of the histamine H4 receptor, a G-protein coupled receptor (42). Comparative protein models have also gained attractiveness for ligand docking and scoring during the last year due to developments in consensus scoring and flexibility considerations (43). DOCK Blaster is an expert system for unsupervised high-throughput ligand docking with multiple targets that reassesses the correctness of ligand binding poses in three-dimensional protein models (44). Another innovative concept was realized in the HYDE scoring function, namely the use of logP-derived atomic increments for the computation of free dehydration and hydrogen bonding energies, which resulted in improved accuracy and in particular fewer falsepositives (45).

While these approaches focus on complex scoring and molecular flexibility, other seemingly trivial problems remain largely unsolved until now, for example the accurate prediction of tautomerization equilibria (46) or computation of  $pK_a$  values (47, 48).

Developments in computer hardware have always led to an improvement of

modeling capabilities. We are currently witnessing an exciting development of specialized graphics processor chips and parallel computing technology as potential workhorses for molecular dynamics and other computationally very demanding calculations (49, 50). No doubt this will enable long time (beyond 100 ns) dynamics simulations of macromolecular targets on a routine basis, which can help understand allosteric effects, flexible fit phenomena of druglike ligands and effector molecules consequence, (51).As а dynamic molecular features (in contrast to 'static' properties like molecular mass, log P, and other time-invariant molecular properties) that cannot be accurately modeled today, will be within our grasp and improve the accuracy of future predictions of novel bioactive compounds.

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Austria

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> office@GOECH.at http://www.goech.at

E-mail Website

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1966

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RICT 2010 - 46<sup>th</sup> International Conference on Medicinal Chemistry - 46<sup>èmes</sup> Rencontres Internationales de Chimie Thérapeutique

(June 30 - July 2, 2010) Reims, France

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Activities

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750

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Germany

Telephone Fax +49-69-7917-363 +49-69-7917-1363

E-mail

U.Bechler@gdch.de

Website

http://www.gdch.de/medchem

Activities

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**Activities** 

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Mission

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Founded

1991, 2004 - united with the Israel Association for Medicinal Chemistry

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School of Pharmacy – Faculty of Medicine

Hebrew University of Jerusalem

PO Box 12065 91120 Jerusalem

Israel

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ICS

(Medicinal Chemistry Section)



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Mission

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1979

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Trade and Industry: 13% Research Institute: 5.5%

University: 81% Other: 0,5%

Postal address

**Activities** 

Divisione di Chimica Farmaceutica University of Genova-Dipartimento di Scienze Farmaceutiche Viale Benedetto XV, 3 - 16132 Genova, Italy

> + 39-010-353-8350 + 39-010-353-8358

Telephone Fax

E-mail mosti@uniae.it http://dcf.frm.uniroma1.it/cgi-bin/home.pl Website

Summer School on Pharmaceutical Analysis (SSPA 2010) (June 14-16, 2010), Rimini, Italy

> European School of Medicinal Chemistry (ESMEC) (July 4-9, 2010), Urbino, Italy

> XX<sup>th</sup> National Meeting on Medicinal Chemistry (September 12-16, 2010), Abano Terme (Padova), Italy

> > Prof. Dr Luisa MOSTI President (University of Genova)

Prof. Dr Antonello MAI Secretary (University of Rome La Sapienza)

Prof. Dr Carlo FRANCHINI Treasurer (University of Bari)

Prof Dr Luisa MOSTI (University of Genova) **EFMC-Delegate** 

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#### Latvian Association for Medicinal Chemistry LatVIK



Founded Members

1992 12

Member profile

Research Institute and University: 83%

Other: 17%

Postal address

Latvian University Institute of Microbiology and Biotechnology

4-402 Kronvalda Boulevard

LV-1586 Riga

Latvia

Telephone Fax +371 7034890 +371 7323065

E-mail

vina@lanet.lv

Activities

Promotion of medicinal chemistry

President

Dr Ilmara VINA (Latvian University)

**EFMC-Delegate** 

Prof. Dr Gunars DUBURS (Latvian Institute of Organic Synthesis)



#### Section of Pharmacochemistry, Royal Netherlands Chemical Society (KNCV)

To promote scientific research and education in the area of pharmacochemistry. To bring together scientists in the field and to offer them a platform for discussion and exchange of ideas. To identify talent in the field. To organise meetings in the field.

> 28<sup>th</sup> August 1970 350 (including student members)

> > Trade & Industry: 20% Research Institute: 10% University: 40%

> > > Other: 30%

Dr J.C.H.M. Wijkmans MSD

Department of Medicinal Chemistry, Room RK 3111
P.O. Box 20 - 5340 BH Oss
The Netherlands

+31-412-665464 +31-412-662546

jac.wijkmans@spcorp.com www.kncv.nl

Organisation of one annual scientific meeting (1 day).
Co-organisation of Dutch Medicine Days (FIGON) (2 days).
Co-organisation of annual NWO platform meeting (2 days).
Co-organisation of sessions at KNCV Winter/Summer Congress.
Participation in KNCV, NWO, FIGON and EFMC platforms.
Dutch Medicinal Chemistry Award every 2 years for the best Dutch
Ph.D. thesis in the field.

Spring Symposium: Crossing Decades and Borders in Medicinal Chemistry

joint meeting with Société Royale de Chimie, Medicinal Chemistry
Division (SRC) and Medicinal and Bioorganic Chemistry Division of
Royal Flemish Chemical Society (KVCV)

(March 19, 2010), Eindhoven, The Netherlands FIGON Dutch Medicine Days

(October 4-6, 2010), Lunteren, The Netherlands

19th LACDR School on Medicinal Chemistry

(October 19-22, 2010), Noordwijkerhout, The Netherlands

Prof. Dr A.P. IJZERMAN (Medicinal Chemistry / LACDR)

Dr J.C.H.M. WIJKMANS (MSD)
Dr H.K.A.C. COOLEN (Solvay Pharmaceuticals BV)
Prof. Dr Henk TIMMERMAN (Vrije Universiteit Amsterdam / LACDR)

Mission

Founded Members

Member profile

Postal address

Telephone Fax

E-mail Website

**Activities** 

President Secretary Treasurer EFMC-Delegate

#### **Polish Society of Medicinal Chemistry**



Mission

Basis for mutual contacts and integration for scientists who represent different profile of their activity in the following areas of medicinal chemistry: organic and bioorganic synthesis, analytical chemistry, computational chemistry, biochemistry, molecular biology, biotechnology, pharmacy and medicine.

Founded Members 2006 50

Postal address

Jagiellonian University Medical College, Pharmacy Faculty Medyczna 9 30-688 Kraków Poland

Telephone Fax +48 12 620 55 81; +48 12 620 55 80 +48 12 620 55 96

E-mail Website ptchm@ptchm.pl www.ptchm.pl

#### **Activities**

- Organisation of meetings where various theoretical and practical topics of drug research and development are discussed.
- Participation in organisation of national and international conferences on medicinal chemistry.
- Propagation of news and information on medicinal chemistry activity in the scientific society interested in medicinal chemistry.

#### **Executive Committee**

Prof. Dr Andrzej BOJARSKI

Prof. Dr Janina KAROLAK-WOJCIECHOWSKA Prof. Dr Katarzyna KIEC-KONONOWICZ

Prof. Dr Dariusz MATOSIUK Dr Marek ZYLEWSKI

#### 3rd Polish Meeting on Medicinal Chemistry

(September 20-22, 2010 Lublin, Poland)

**EFMC-Delegate** 

Prof. Dr Katarzyna KIEC-KONONOWICZ (Jagiellonian University)



## **Group of Medicinal Chemistry of the Portuguese Chemical Society**

To diffuse the knowledge of Medicinal Chemistry.
To foster interdisciplinary bridges between Chemistry,
Biology, Medicine and Pharmacy.
To encourage research among young students.
To promote the interaction between medicinal chemists in
academia and professionals in industry.

Mission

2007 62 Founded Members

Sociedade Portuguesa de Química Av. da República, 37-40 1050-187 Lisboa Portugal Postal address

+351 21 793 4637 +351 21 795 2349 Telephone Fax

sede@spq.pt www.spq.pt E-mail Website

Assisting and promoting regular courses in Medicinal Chemistry targeted for (undergraduated and postgraduated) students. Organisation of short meetings and seminars on recent advances in the area of Medicinal Chemistry.

**Activities** 

A National Meeting in Medicinal Chemistry is planned biennially.

Prof. Dr M. Luisa SÁ E MELO (University of Coimbra) President

Prof. Dr Rui MOREIRA (University of Lisbon)

**EFMC-Delegate** 

PCS (Group of Medicinal Chemistry)

**NAO Secretariat** 

# National Adhering Organisations

#### The D.I. Mendeleev Russian Chemical Society

#### **Medicinal Chemistry Section**



Mission Education in medicinal chemistry.

Organisation of regular scientific seminars.

Founded 2000 Members 150

Member profile Research Institute: 67%

University: 26% Other: 7%

Postal address RU-119899 Moscow

Russia

Telephone + 7 095 939 1620

Fax + 7 095 939 0290

**E-mail** zefirov@org.chem.msu.ru

Activities Organising regular and specific seminars in medicinal chemistry.

Assisting in the organisation of regular courses for undergraduate students of Moscow State University in medicinal chemistry. Providing interaction between Russian academician research in the

field of medicinal chemistry and industrial institutions.

President Prof. Dr Nikolay S. ZEFIROV

(Moscow State University)

EFMC-Delegate Prof. Dr Nikolay S. ZEFIROV

(Moscow State University)



To establish communication and co-operation between academia and industry, promote scientific research and education in the area of medicinal chemistry and encourage research among young students through meetings, seminars and workshops.

> Industry 6% Research Institute and University 86%

> > Karnegijeva 4 11120 Belgrade Serbia

Others 4%

+381-11-3370-467 +381-11-3370-467

SHDoffice@tmf.bg.ac.yu www.shd.org.rs

Promotion of medicinal chemistry by academy-industry interaction, co-operations with other organisations and support of the education in medicinal chemistry.

Prof. Dr Miroslav J. GASIC (Serbian Academy of Sciences and Arts)

Prof. Dr Dragana MILIC (Faculty of Chemistry University of Belgrade)

Prof. Dr Miroslav J. GASIC (Serbian Academy of Sciences and Arts)

Mission

Member profile

Postal address

Telephone Fax

E-mail Website

Activities

President

Secretary

**EFMC-Delegate** 

## Section for Medicinal Chemistry of the Slovenian Pharmaceutical Society



Mission

The mission of the Section for Medicinal Chemistry of the Slovenian society is the advancement and promotion of medicinal chemistry in Slovenia and Europe. It will pursue its mission by organising scientific meetings, schools and working-group in order to encourage discussions and exchange of ideas in the field of medicinal chemistry. This section will cooperate with similar associations in the country and abroad.

Founded Members

23 February 2004

28

Member profile

Trade and Industry: 20 % Research Institute: 15 %

University: 60 % Others: 5 %

Postal address

University of Ljubljana Faculty of Pharmacy Aškerceva 7 1000 Ljubljana Slovenia

Telephone Fax +386 1 4769561 +386 1 4258031

E-mail Website danijel.kikelj@ffa.uni-lj.si www.sfd.si

President

Dr Lucija PETERLIN MAŠIČ (University of Ljubljana)

**EFMC-Delegate** 

Prof. Dr Danijel KIKELJ (University of Ljubljana)



#### Sociedad Española de Química Terapéutica

To assist in the development and improvement of research and training in the different areas of Medicinal Chemistry throughout Spain.

1977

390

Trade & Industry: 25% Research Institute: 30%

> University: 35% Other: 10%

Juan de la Cierva,3 28006 Madrid Spain

+34 91 56 22 900

+34 91 56 44 853

seqt@iqm.csic.es www.seqt.org

Supporting the participation of young researchers at meetings and other educational events. Organising symposia on topics related with research and education towards the discovery of new drugs.

Sponsoring the Spanish Society of Medicinal Chemistry Award. Administrating six Awards addressed to young scientists to acknowledge outstanding research in the field of Medicinal Chemistry.

#### IX Jornadas de la SEQT

(November 2010), Baeza-Jaén, Spain

Prof. Dr María L. LÓPEZ-RODRÍGUEZ (Universidad Complutense de Madrid) Dr Ana Rosa SAN FÉLIX GARCÍA (IOM-CSIC)

Dr Sonsoles VELÁZQUEZ DÍAZ

Prof. Dr María L. LÓPEZ-RODRIGUEZ (Universidad Complutense de Madrid)

SEQT (Sociedad Española de Quimica Terapéutica Mission

Founded Members

Member profile

Postal address

Telephone Fax

E-mail Website

**Activities** 

President

Secretary

Treasurer

**EFMC-Delegate** 

**NAO Secretariat** 

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#### The Swedish Academy of Pharmaceutical Sciences

Section for Medicinal Chemistry



Mission To strengthen the Medicinal Chemistry Discipline through the

arrangement of conferences, seminars and other educational initiatives.

Founded 1972 Members 276

Member profile Trade & Industry: 70%

Research Institute: 1% University: 19% Other: 10%

Postal address Wallingatan 26A

SE Stockholm Sweden

Telephone +46 8 723 50 00

+46 8 20 55 11

E-mail Agneta.Larhed@lakemedelsakademin.se

Website www.swepharm.se

Activities Symposia, seminars, courses.

President Prof. Dr Anders KARLÈN

(Uppsala University)

Secretary/ Anna-Lena GUSTAVSSON Treasurer (Karolinska Institutet)

Secretary Dr Agneta LARHED

(Swedish Academy of Pharmaceutical Sciences)

EFMC-Delegate Prof. Dr Anders KARLÈN

(Uppsala University)



#### Division for Medicinal Chemistry (DMC), **Swiss Chemical Society (SCS)**

The DMC provides a forum for scientists interested in medicinal chemistry and related fields by organising symposia, seminars, presentations and courses.

Mission

1990 580 Founded Members

Trade & Industry: 75% University: 15 %

Other: 10%

Member profile

Schwarztorstrasse 9 3007 Bern Switzerland Postal address

+41 31 310 40 90 +41 31 310 40 29

Telephone Fax

info@scg.ch

E-mail Website

www.scg.ch

**Activities** 

Minisymposium on «Channels and Transporters»

(May 27, 2010), Institute of Organic Chemistry, University of Basel, Switzerland

> Medicinal Chemistry Section at Fall Meeting of the Swiss Chemical Society

(September 16, 2010), ETH Zürich, Switzerland

9th Swiss Course on Medicinal Chemistry (October 10-15, 2010), Leysin, Switzerland

Dr Hans Peter MAFRKI

President

(F. Hoffmann-La Roche)

**EFMC-Delegate** 

Dr Peter MOHR

**NAO Secretariat** 

(F. Hoffmann-La Roche)

SCS

(Division for Medicinal Chemistry (DMC))

#### **Turkish Association of Medicinal** and Pharmaceutical Chemistry



Mission

Establish communication and cooperation between the members. Establish policies in medicinal chemistry teaching and research in the country. Organise scientific meetings and conferences, get in touch with international related bodies.

Founded Members 1994 170

Member profile

Academics: 100%

Postal address

Department of Pharmaceutical Chemistry Faculty of Pharmacy - Gazi University 06330 Ankara

Turkey

Telephone Fax +90 312 222 72 25 +90 312 223 50 18

E-mail Website mfsahin@gazi.edu.tr www.medchem.org

Activities

5th IMMPC

(International Meeting on Medicinal and Pharmaceutical Chemistry) (October 2010), Istanbul, Turkey

President

Prof. Dr M. Fethi SAHIN (Gazi University)

**EFMC-Delegate** 

Prof. Dr M. Fethi SAHIN (Gazi University)



## The Biological and Medicinal Chemistry Sector (BMCS) of the Royal Society of Chemistry (RSC)

The BMCS aims to further the interests of all members of the RSC, both industrial and academic, involved in the pursuit and understanding of biologically active molecules. It also acts to promote public awareness of the crucial role played by chemistry in the modern industrial environment.

1995 (Formerly Fine Chemicals & Medicinals Group) 897 in total; 600 of whom are medicinal chemists Predominantly industry

Royal Society of Chemistry - Burlington House - Piccadilly W1J 0BA London, United Kingdom +44 207 437 8656 +44 207 437 8883

www.rsc.org/Membership/Networking/InterestGroups/BMCS

Mission

Founded Members Member profile

Postal address

Telephone Fax Website Activities

The Biological and Medicinal Chemistry Sector (BMCS) is a Sector of the Industry & Technology Forum of the Royal Society of Chemistry (RSC) in the UK. The annually elected committee is primarily responsible for the organisation of scientific meetings and symposia, supporting educational activities in the UK, and advising the Society on policies that directly affect the BMCS. Specifically, the BMCS aims to further the interests of all members of the RSC, both industrial and academic, involved in the pursuit and understanding of biologically active molecules. The predominant areas thus include pharmaceuticals, agrochemicals, flavours and fragrances. It also acts to promote public awareness of the crucial role played by chemistry in the modern industrial environment. The BMCS is particularly active in the organisation of scientific meetings and does so in collaboration with a wide variety of other groups both within and external to the RSC. Over the past few years the BMCS has been especially active in promoting some of the important interfacial areas in which chemists are intimately involved. In recent years, it has held internationally attended meetings with the EFMC, the Society for Chemical Industry, the Society for Medicines Research and with the Biochemical Society. On average six or more scientific meetings are held each year. Support for educational activities, such as the running of lectures and day schools, and the provision of equipment are also an important component of BMCS activities. Indeed, some of these initiatives are now established as annual events. The BMCS also administers annual awards that acknowledge major scientific achievements in both academia and industry that have been carried out within the UK. The BMCS provides a significant input into Royal Society of Chemistry strategic initiatives.

#### 3rd RSC-SCI Symposium on GPCRs in Medicinal Chemistry

(September 20-22, 2010), Schering-Plough, Oss, The Netherlands

#### **RSC-SCI Flow Chemistry Symposium**

(November 3-4, 2010), GSK, Stevenage, United Kingdom

Dr Phil JONES (Schering Plough) Dr Stuart CAMERON (Peakdale) Dr David ALKER (David Alker Associates) President Secretary EFMC-Delegate Impact Factor:
3.150



www.ChemMedChem.org

ChemMedChem has rapidly developed into a first-class journal that is highly regarded amongst scientists from industry and academia.

Rainer Metternich (Merck, West Paint, USA)



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#### **Directory of Companies**

An alphabetical list of pharmaceutical companies, as well as manufacturers and suppliers of products and services for medicinal chemistry in Europe



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#### **American Chemical Society Publications**



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Tel: 800-227-9919 (U.S. and Canada) or 202-872-4357 (outside North America)

The American Chemical Society publishes high quality journals at the interface of chemistry, biology and medicine, including the most-cited journal in medicinal chemistry, the Journal of Medicinal Chemistry. In 2010 we introduce ACS Medicinal Chemistry Letters publishing brief communications on experimental or theoretical results of exceptional timeliness in all aspects of medicinal chemistry and its extension into pharmacology.

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Gewerbestrasse 16
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Olympus House Mil Green Road
400 Seaks Run Road PO BOX 100
3 Pendleside Lomeshaye Industrial Estate
Sportweg 38
PO BOX 15
Spring Bank Ind. Estate Watson Mill Lane - Sowerby Bridge
Pegasus Park - De Kleetlaan 12A bus 12
Unit 33 Riverside Medway City Estate
Velperweg 76
6201 S. Freeway (T1-3)
Hollins Lane Tilstock
Kippdorfstrasse 6-24
Postbox 11 07 65
Hans Stahles vag
P.O. Box 19534
Unit 5 Gateshead Close- Sunderland Road
Byk-Gulden-Strasse 2
Works Road
Kwakelkade 28 Postbus 396
Timothy's Bridge Road
Amersham Place Little Chalfont
One Amgen Center Drive
Záhony u. 7
Reibroekstraat 13
Wiingaardveld 34 C

7 Ryhill Way

121 High Street

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83209	PRIEN	+49 8051 965 16 60	DE
4123	ALLSCHILL	+41 61 487 45 45	CH
1330	RIXENSART	+32 2 653 00 01	BE
	LEEDS LS25 2JY	+44 1132 320 066	
	HAYWARDS HEATH RH16 1XQ	+44 1444 440 091	GB
	GLEN ROCK PENNSYLVANIA 17327	+1 7172 357 979	US
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3097	LIEBEFELD/BERNE	+41 31 978 88 88	CH
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	HALIFAX HX6 3BW	+44 1422 317 200	GB
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	FORT WORTH TEXAS 76134-2099		US
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	IRVINE CA 92623	+1 714 246 4500	US
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