Welcome to this edition of the JoCB Bulletin containing items of information for the Chemical Biology Community

To reflect the expanded membership of the editorial board a wider range of conferences have been gathered together. As editor of this section I would welcome any contributions or suggestions about its content that would be of interest to the expanding Chemical Biology Community

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Studentships

Graduate Studies in Bilbao, Spain

The University of the Basque Country offers Master and Ph.D. degrees in Molecular Biology and Biomedicine. The 1-year Master degree (60 ECTS) consists of lecture courses (30 ECTS) and a research project (30 ECTS).

No knowledge of Spanish required.
Info at: www.masterbiologiamolecular.ehu.es

MSc in Chemical Biology

Subject to approval by Cardiff University, this course is expected to be available from September 2009.

Duration
1 year full-time, 3 years part-time.

Entry Requirements:
Suitable for graduates in chemistry or a related discipline, e.g., chemistry, biology, microbiology, chemical engineering, physics, pharmacy, pharmacology, and biochemistry, with a First or Second class UK Honours degree or equivalent.

Applicants whose first language is not English will be required to demonstrate competency in English language (at least 6.5 in IELTS or a TOEFL score of 580 or 232CBT).

This program is currently Subject to Validation. Applications can be submitted at this point using our paper-based application form, which you can download from www.cardiff.ac.uk/postgraduate/pgapply.

Once the program has been made available for online applications, you can access the Apply Online link from the above webpage.

For further enquiries, please contact:
Dr. Thomas Tatchell
Tel: +44 (0)29 2087 0759
Email: TatchellT@cardiff.ac.uk
School Website: http://www.cardiff.ac.uk/chem
Conferences

Gordon Research Conferences

Bioorganic Chemistry

Date: June 14-19, 2009

Venue: Proctor Academy Andover, New Hampshire USA

Chairs: Nicole S. Sampson & Stewart L. Fisher

Vice Chairs: Christine S. Chow & Arthur M. Hanel

http://www.grc.org/programs.aspx?year=2009&program=bioorg

Application Deadline: Applications for this meeting must be submitted by May 24, 2009.

The Gordon Research Conference on Bioorganic Chemistry was founded in 1992 to bring together scientists from a range of disciplines to present and discuss cutting-edge research at the interface between chemistry and biology. Both fundamental and applied research relevant to academia and industry are highlighted. To maintain a balance between these areas, the conference is organized by two co-chairs, one from academia and one from industry. The conference emphasizes the presentation of techniques or approaches that are broadly applicable across multiple areas of chemical and biological research. Traditionally, small molecules that probe, modulate, or mimic cellular components or processes as well as studies of biology at the molecular level have been of particular interest.

The meeting in 2009 will continue the tradition of showcasing interdisciplinary biological research in the areas of metabolomics, medicinal chemistry and drug discovery, infectious disease, cell signaling, natural products, and peptides and biomaterials.
The School of Biological and Chemical Sciences
Queen Mary, University of London presents a

Half-Day Symposium on Chemical Biology

Date: Friday 24th July 2009, 1–5 pm

The aim of the symposium will be to bring together academic and industrial chemists, biologists, biochemists, medics, etc., who have a common interest in the application of chemical solutions to biological problems. There will be three lectures by internationally renowned speakers, Professors Cravatt (TSRI), Trauner (Munich), and Davis (Oxford) and a poster competition for PhD students. This free event will be capped with a wine mixer that will give all those involved a chance to discuss the afternoon’s events. The winners of the poster competition will be announced and prizes presented.

Registration
The meeting is free, but registration is required for catering purposes. To register send you name and contact details to Mrs. Carole Allen, Fogg Building, Queen Mary, University of London, Mile End Road, London, E1 4NS (c.a.allen@qmul.ac.uk) by Friday 10th July.

Further details from
http://qmulchembiosymposium.com/
The 23rd Annual Symposium of the Protein Society

Proteins in Motion
Date: July 25-29, 2009
Venue: Boston, Massachusetts, Boston Marriott Copley Place

Two Plenary Sessions will be featured on the topics of “Dynamics and Thermodynamics” and “Allostery.” The 2009 Society Awards will be presented in two Awards Plenary Sessions, and awardees will present plenary lectures. Scientific sessions will address folding, design, trafficking, membrane remodeling, therapeutics and targets, dynamics of protein nucleic acid interactions, disorder, drug resistance, cytoskeleton dynamics, dynamic complexes and networks, signaling, and translocation and transport.

Gordon Research Conferences
Natural Products
Date: July 26–31, 2009
Venue: Tilton School Tilton, New Hampshire USA
Chair: Marvin M. Hansen
Vice Chair: Jef K. De Brabander
http://www.grc.org/programs.aspx?year=2009&program=natprod

Application Deadline: Applications for this meeting must be submitted by July 5, 2009.

The 58th Natural Products Gordon Research Conference will continue a tradition of excellence in a broad range of areas relating to natural products chemistry and isolation, novel synthetic methods, chemical biology, and bioorganic and medicinal chemistry. While remaining true to its foundation of organic synthesis of natural products, the speakers in this year’s outstanding lineup will deliver lectures in topics as diverse as catalytic synthetic methodology, the use of natural products as tools to probe and better understand biological systems, and recent advances in drug discovery. Continuing a trend that has held for many years, the conference will have geographically diverse representation and will include speakers from both academic and industrial settings around the world. Consistent with previous meetings, this year’s Natural Products GRC will also include a series of poster presentations that will afford an ideal opportunity to exchange findings and ideas in an informal setting. It is anticipated that the exciting topics, diverse range of speakers and attendees, and highly interactive tradition of this conference will make this year’s conference both memorable and enjoyable.
The scientific program will be prepared jointly by the European Crystallographic Association and the leading persons of the Special Interest Group network. The congress will cover all topics of crystallography, including Biological and Macromolecular Crystallography, Materials and Minerals, Chemical Crystallography, Experimental and Computational Techniques and Fundamental Crystallography. Internationally renowned speakers will be invited to present these topics, in order to create an enjoyable scientific atmosphere for interactive discussions.

The Conferences

Each year, ICBL offers the lipid community to meet at venues organized by groups representing a center of lipid research. Most conferences are held in Europe, but in its long-standing history, ICBL has also visited Israel, Japan, and the USA. During these conferences, experts in the field present and discuss the most recent developments in lipid bioscience. Traditionally, the warm and friendly atmosphere of ICBL has always been a melting pot for fruitful collaborations between laboratories and close personal relationships. Attendees also enjoy an appealing social program and the culture of the host cities which includes sightseeing tours for accompanying persons, and the traditional half-day excursion and congress dinner for all.

More information about ICBL 2009 and the upcoming events can be found on this website: www.icbl.unibe.ch

International Conference on the Bioscience of Lipids

The next ICBL will be held in Regensburg, Germany, 1–5 September 2009 (see picture below)

The World of ICBL

ICBL is a conference format designed for scientists with common interest in lipid research. It was founded more than 50 years ago and is a prominent forum for the exchange of ideas, communication of novel developments, and discussion of a broad variety of aspects related to lipid bioscience. ICBL is proud of attracting colleagues from all continents to the frontiers of lipid research presented and discussed during the conferences. Another major aim of ICBL is supporting research of young scientists, giving them the opportunity to meet renowned scientists, and thus providing the scientific inspiration for future careers in lipid research.
ISABC 10
10th International Symposium on Applied Bioinorganic Chemistry
25–28 September, 2009 Debrecen, Hungary

http://www.isabc10.unideb.hu

The symposium is organized by the University of Debrecen.
e-mail:isabc10@dragon.unideb.hu

51st International Conference on the Biosciences of Lipids

Bilbao, Spain
7–11 September 2010
Lipids and Biomembranes

Preliminary Scientific Programme:
• Physical chemistry of lipids
• Lipids and biomembranes
• Bioactive lipids and lipidomics
• Lipids in health and disease
• Lipid–protein interactions and lipid trafficking
• Plant lipids
• Microbial lipids

Info at: www.icbl.unibe.ch

NANO2009
Perspectives in nanoscience and nanotechnology

San Sebastian, Spain, 28–30 September 2009.
Info at: http://atombyatom.nanogune.eu
Recently, Springer published two medicinal plant books, ‘Herbal Drugs: Ethnomedicine to Modern Medicine’, edited by K.G. Ramawat, and ‘Bioactive Molecules and Medicinal Plants’, edited by K.G. Ramawat and J.M. Merillon. Both books consider the above-mentioned issues using a chemical and molecular biology-oriented approach towards the assessment of potential activities of traditionally used medicinal plants and the efficient and renewable sourcing of their bioactive principles using biotechnology.

Reflecting current trends in the life sciences, most of the plant-derived pharmaceuticals dealt with in both books refer to conditions directly or implicitly involving inflammatory signaling and apoptosis (e.g., cancer, the immune system, and neuronal protection). These two informative books complement each other. Their layouts are very similar, clearly sub-structured, supported with skeletal formulas, and illustrated mainly with black and white photographs, schemes, tables, and graphs.

The following reviews outline the approach adopted by each book for their suggested audiences. As the books complement each other, potential readers would be advised to consult the table of contents to see which book best fits their needs. These can be downloaded from the Springer webpages:

http://www.springer.com/chemistry/book/978-3-540-79115-7 and

http://www.springer.com/chemistry/biotech/book/978-3-540-74600-3.

Bioactive Molecules and Medicinal Plants

Demand for medicinal plants is on the rise and, as a result, the need for sustainable agricultural production systems for these is becoming increasingly important. According to the World Health Organization, one of the key challenges for the future of herbal medicine is ‘to preserve both plant populations and knowledge on how to use them for medicinal purposes’. For an expanding population in poor countries, their local, traditional plant medicine is the only choice of treatment, whereas in developed countries, herbal products have become increasingly popular and commercially profitable.

‘Bioactive Molecules and Medicinal Plants’ focusses on the biotechnological production of certain sought-after secondary plant metabolites. It is a compilation of 20 practically oriented articles that will be most useful for all interested in biotechnology and agricultural sciences, and in particular, researchers dealing with pharmacognosy or ethnobotany. Two stimulating general chapters that would also appeal to a less specialised audience inform the reader of the history of medicinal plants and recent developments.

The question of whether natural production can meet the demand is a central one. Many chapters deal directly or indirectly with the impact of environmental factors, e.g. age of the plant, harvesting time and location and on the quantity and quality of the required compounds. ‘Bioactive Molecules and Medicinal Plants’ suggests biotechnological methods such as plant cell culture of genetically modified species for a sufficient yield of the desired molecules, especially for precious alkaloids with a complicated structure and therefore inefficient chemical synthesis.

[One technology reviewed in this book is Hairy Roots, a symptom of a bacterial infection integrating genes into a plant host. Transgenic root systems are versatile, not only as a biological study model of metabolic pathways, but also they can be used for the industrial scale production of recombinant animal proteins and plant secondary metabolites.]

Finally, with natural products comes the need for research into safety and standardisation. This is covered by a chapter on standardisation methods and efficacy and safety of phytomedicins, of particular interest for the pharmaceutical technologist.
Herbal Drugs: Ethnomedicine to Modern Medicine presents pharmacological profiles for selected medicinal plants. Whilst emphasising the elucidation of molecular action mechanisms, it also considers historical aspects, facts around the drug’s use, plus social and clinical implications. Among the topics are circulatory diseases including stroke, memory enhancement, neuronal protection, sexual malfunctions, immunological disorders, cancer and parasitology.

The introductory chapters are overviews of traditional medicinal plant knowledge and subsequent drug identification as well as general principles of the biosynthesis and chemical diversity of secondary metabolites.

Several chapters review generally observed data concerning the use of medicinal plants (e.g. safety in paediatrics and pregnancy, plants used for drug abuse, safety in cancer prevention and treatment) or deal with the description of ill-reported systems of traditional medicine (Ethnobotanical Study from Rajasthan).

Whilst some readers might find the article on a suggested ‘nutriceutical’, a vitamin E analogue to ‘Golden Rice’, controversial, the majority of articles in ‘Herbal Drugs: Ethnomedicine to Modern Medicine’ are highly informative and excellently written by medicinal plant experts not only for researchers but also a wide range of health professionals and pharmacognosy students.

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Programmed assembly of three-dimensional microtissues with defined cellular connectivity

Zev J. Gartner and Carolyn R. Bertozzi
www.pnas.org/cgi/doi/10.1073/pnas.0900717106

Researchers at Berkeley are building towards a future where specific human tissue could be engineered using a process akin to organic synthesis. This ‘bottom-up strategy’ was used to couple cells together using simple complementary small molecules, in this case DNA oligonucleotides.

Jurkat cells were dyed fluorescently and then labelled metabolically to provide azido sialic acid moieties on the cell surface, which could then be coupled to single stranded DNA using click chemistry. Two sets of cells with complementary sequences, when mixed, were able to form large aggregates. As in a chemical reaction, controlling the stoichiometry of the reacting cells allowed the formation of the desired product, in this case a smaller, organised cell cluster. Usefully, FACS sorting was employed to purify the desired cell clusters away from the undesired, using the fluorescence properties of the fluorescently labelled cells.

The DNA linkages used to hold the cells together were reversible in nature. The application of heat (to surpass the melting temperature of the complimentary DNA) or addition of DNase disrupted the cells from binding to each other. This could prove useful for templating experiments.

This method was also applied to create a tissue with a functional hormonal signalling network where one group of cells expressed growth factor interleukin-3 and another was an untransformed hematopoietic progenitor cell line. When the DNA-labelled cells were mixed and coupled using the described chemistry, the progenitor cells underwent growth after 16 h. In comparison uncoupled cells, which were allowed to randomly mix, entered apoptosis.

Not only could this method be used for the building of human tissues, but also for the study of tissue architecture and function.

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