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Thanks once again to all our readers who have submitted items for inclusion in this section. Can I remind you that we advertise readers' items at the interface of the physical and life sciences **free of charge** including illustrations and colour. Any contributions that might be of interest to researchers in the Chemical Biology field concerning studentships, job vacancies courses or conferences, book reviews or news items would be most welcome.

Please send to

Dr C A Rosser
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Studentships

GRADUATE STUDIES IN BILBAO, SPAIN

The University of the Basque Country offers Master and PhD degrees in Molecular Biology and Biomedicine. The one-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**

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

PhD Supervisor: Dr P Borri
Dept: Cardiff School of Biosiences
Deadline:31th July 2014

Novel multiphoton microscopy of living cells using nanodiamonds

The purpose of this project is to demonstrate a new imaging modality with NDs as optical labels that will enable the observation of living cells with a superior combination of photostability, absence of phototoxicity, high three-dimensional spatial resolution and molecular specificity. The technique will visualise NDs via coherent nonlinear light-matter interaction effects, namely electronically resonant Four-Wave Mixing (FWM) and vibrationally resonant Coherent Antistokes Raman Scattering (CARS) [2]. In a recent pilot study we have demonstrated CARS of single NDs in the 100 nm size range, and deduced a sensitivity limit down to the 20 nm size. The purpose of this project is to push the technology further into imaging small NDs inside living cells, and use specifically-designed surface bioconjugation such that NDs are internalised via targeted endocytic pathways.

Link:
http://www2.warwick.ac.uk/fac/sci/dst/about/how-to-apply/
http://www.cardiff.ac.uk/regis/general/applyonline/biosipgr.html

PhD Supervisor: Prof R Sinkus
Dept: Division of Imaging Sciences & Biomedical Engineering, Department of Imaging Chemistry & Biology
Deadline: All year round

Affecting cancer cell motility non-invasively via focussed low frequency shear waves

The majority of cancer-related deaths are a consequence of the dissemination of cancer cells from the primary tumour site and subsequent outgrowth at a secondary metastatic site. Pivotal factors in this process are the microenvironment the cancer cells reside in with the various signals it provides resulting in cancer cell spread throughout the body; such signals can be of (bio) chemical or mechanical nature.

Previous work has shown that the translation of mechanical forces (stresses), displacements (shear) and deformations into biochemical signals within the cancer cells (i.e. mechanotransduction) affects their adhesion, spread and survival. The goal of this project is to study a novel route to non-invasively affect cancer cell metastasis, first in vitro and subsequently *in vivo*.

Link:
http://www.kcl.ac.uk/health/study/studentships/div-studentships/imaging/sinkus.aspx

Contact:
Gilbert.Fruhwirth@kcl.ac.uk and/or Ralph.Sinkus@kcl.ac.uk

PhD Supervisor: Dr A MacDonald
Dept: Faculty of Biological Sciences
Deadline: All year round

Targeting host cell ion channels to treat virus-associated kidney transplant rejection

Polyomavirus-associated nephropathy (PVAN) is a serious, emerging complication in kidney transplant recipients. It is caused by the BK polyomavirus (BKV), which establishes a life-long infection in the kidneys. In healthy individuals, this virus is kept in check by the immune system. In kidney transplant patients, where the immune system is suppressed by therapeutics that prevent rejection, the virus can reactivate and cause disease. Prevalence of PVAN is increasing and afflicts up to 10 % of all kidney transplant patients. Crucially, ion channels are an emerging therapeutic target for many medical conditions. As such, compounds that target these channels and impede BKV may represent a novel strategy for developing therapeutics to treat PVAN.

Link:
http://www.findaphd.com/search/ProjectDetails.aspx?PJID=41511& LID=735
http://www.fbs.leeds.ac.uk/staff/Macdonald_A/

Contact:
A.Macdonald@leeds.ac.uk

THE UNIVERSITY of York

PhD Supervisor: Dr L Wilson
Dept: Department of Physics
Deadline: 30th September 2014

Inter- and intra-species variation in extremophile swimming behaviour

The ability to move enables microorganisms to survive and compete. New microscopy techniques allow us to get a better grasp on the underlying physics and biology of this microscopic motion. One such technique is digital holographic microscopy (DHM), in which three-dimensional images are acquired using a standard microscope with coherent (or partially coherent) illumination. By coupling DHM and a high-speed camera, it is possible to track hundreds of swimming microorganisms simultaneously, with millisecond time resolution.

We have recently started working with a team at the Great Salt Lake in Utah (USA), where several new microbial strains have been isolated. The lake is up to eight times saltier than seawater, so only specially adapted 'extremophile' microorganisms can live there. Such extremophiles include bacteria and algae, but also a large number of archaea. The last of these are of particular interest because very little is known about swimming behaviour in this domain of life. Moreover, due to the harsh living conditions, the total number of species present is relatively small, but those that survive are often found in abundance. By comparing the variation in swimming behaviour both between and within species, we hope to build up a picture of the motility strategies demanded by such an extreme environment. This project will involve software development, microscopy and other 'wet lab' work to culture bacterial and archael strains (previous microbiological experience is helpful but not necessary). The student will develop holographic microscopy techniques to study swimming in archaea.

Link:
http://www.york.ac.uk/physics/jobs-and-studentships/inter-intra-species-variation-extremophile/

Contact: laurence.wilson@york.ac.uk

MRC Medical Research Council

PhD Supervisor: Dr P Thorpe
Dept: National Institute for Medical Research
Deadline: All year round

Characterising the mechanism of the mitotic checkpoint

This is a collaborative project, joint funded between NIMR and Imperial College London. The successful candidate will benefit from working in labs at both the NIMR and Imperial. The student will register for their degree at Imperial.

This project will involve extensive use of automated multiwell plate FLIM instrumentation and analysis of the resulting large data sets. Consequently, candidates should ideally have a physics/bioengineering degree coupled with strong analytical and computational skills. The project will also involve learning basic genetics and molecular biology. Dual-tagged yeast strains will be created by the student at NIMR using high-throughput genomics approaches. At Imperial FLIM FRET will then be used to assay for interactions within this array of dualtagged strains using an automated high-throughput approach to FRET FLIM (Kumar et al. 2011. ChemPhysChem 12; 609–626 and Alibhai et al., 2013, J. Biophotonics 6, 398–408).

Link:
http://www.nimr.mrc.ac.uk/phd/projects/Characterising-the-mechanism-of-the-mitotic-checkpoint

Contact: pthorpe@nimr.mrc.ac.uk

Post-doctoral Training Fellow - Cancer Bioinformatics

Molecular Pathology, The Institute of Cancer Research

www.icr.ac.uk

We seek a Post-doctoral Training Fellow to work on machine learning in cancer research. Our lab develops novel approaches that combine statistical modelling with pathological image analysis to generate robust and objective predictions of pathological outcome in patients. Our goals are to foster new development of statistical applications in biology and pathology, and to develop novel therapeutic strategies through working with the therapeutic unit at ICR. In particular, our lab focuses on developing image processing tools for pathological images to revolutionize the field of pathology, turning qualitative observations into quantitative measurements (Yuan et al. Sci Trans Med 2012). This allows us to then catalogue both rich 'omics' data and pathological features to draw on the power of both molecular and pathological diagnosis. The responsibility of this post holder is to develop machine learning methodologies for large sets of in-house data including large clinical trials.

The successful applicant will enjoy working in the interdisciplinary fields and collaborating with our internal and external biology, clinical, and pathology collaborators. The post holder will excel in coordinating between programming and exploring medical research areas through interacting with these collaborations, be a fast learner, and is motivated to explore new scientific subjects.

Job Vacancies

Applitracker

Position: Manager of Protein Analysis
Location: South Germany
Company: Applitracker

Applitracker is searching for an experienced scientist to join my client-a leading European Biotech who develop innovative Regenerative Pharmaceuticals- as a Team Leader/Line Manager of Protein Analysis.

This is a very visible role reporting directly to senior management, in an exciting and expanding company. As such, the successful applicant can expect to benefit from the opportunity to make a real impact into this company's scientific development, great potential for internal progression and the change to work on some of the most innovative products in the Biotech industry.

The role will be based in an English speaking office in a beautiful part of South Germany. The role is an English speaking position and no German is required. A relocation package is available for those applying from outside of Germany and you will find it easy to settle due to the large expat community in this wonderful city.

The successful Manager/Team Leader of Protein Analytics will have:

- a strong background in protein analysis (e.g. SDS-PAGE, ELISA, MS, HPLC, protein binding/peptide binding (biacore or Octet)
- Leadership experience
- Experience in the pharmaceutical or Biotech industry

Link:
https://www.appli-tracker.com/job/apps/31385

Research Associate

Craniofacial Development & Stem Cell Biology, King's College London

Applications are sought for a post-doctoral research position working in the laboratory of Prof. Jeremy Green in the Department of Craniofacial Development, Guy's Campus at King's College London. This three-year BBSRC-funded project is to find out how cells drive epithelial bending involved in development of teeth, hair follicles, salivary glands and other organs.

This project will use advanced microscopy and image analysis to study this important motif of development. It will involve mouse embryology, immunohistochemistry, mammalian tissue culture and advanced imaging. Suitable applicants would include those with a background in developmental or cell biology.

Fixed-term contract for 36 months. The appointment will be made on the Grade 6 scale, currently £31,331, per annum, plus £2,323 London Allowance per annum.

For an informal discussion of the post please contact Jeremy Green via email at jeremy.green@kcl.ac.uk

Further details and application packs are available on the College's website at www.kcl.ac.uk/jobs. All correspondence should clearly state the job title and reference number R6/NCC/1037/13-MM.

Research Associate/Senior Research Associate : Photoacoustic Imaging Instrumentation

UCL Medical Physics and Bioengineering, University College London

www.ucl.ac.uk/hr/jobs

The appointment will be full time on UCL Grade 7. The salary range will be Grade 7 (Research Associate) £32,375–£39,132 per annum; Grade 8 (Senior Research Associate) £40,216–£47,441 per annum, inclusive of London Allowance.

Applications are invited for a postdoctoral research position to develop novel photoacoustic imaging instrumentation for guiding minimally invasive medical procedures. The project involves developing a new imaging system based upon a clinical ultrasound scanner and conducting in vivo imaging studies. It offers an opportunity to undertake translational research within an internationally leading research group, in close collaboration with clinical partners at local hospitals.

This post is funded for 3 years in the first instance. Further funding to support the post may be available.

A physicist or engineer at postdoctoral (or equivalent) level is sought. Sound experimental skills in ultrasound and electrical engineering/applied physics, and proficiency with programming in C and Matlab are required. Experience with some or all of the following would be advantageous: ultrasound signal processing and transducer arrays, biomedical optics, optical spectroscopy, pulsed lasers and in vivo ultrasound or optical measurements. Creativity, self motivation and a willingness to work collaboratively in a multidisciplinary team are essential.

Position: Research Fellow **Reference**: 018749
Location: Edinburgh
Institute: Infection and Immunity Division at The Roslin Institute
Deadline: 29 th November 2014

The post is available within the Infection and Immunity Division at The Roslin Institute, University of Edinburgh. We require a BBSRC -funded post-doctoral research fellow to contribute to our ongoing programme of work to map disease resistance genes in the chicken. The overall aim is to identify markers (SNPs), candidate genes and ultimately causative mutations for resistance to infection and differential responses to vaccination with the protozoan parasite Eimeria in chickens. The resistance-associated genotypes will inform commercial breeding programmes to reduce the incidence of Eimeria in poultry and therefore improve their health and welfare. This post will require a skilled post-doctoral scientist who is experienced in quantitative molecular genetics.

The post-holder must have a PhD in a Biological Science, preferably with a background in quantitative molecular genetics. A minimum of 3 years relevant laboratory experience is preferred. This post is available on a fixed-term basis for 3 years.

Link: https://www.vacancies.ed.ac.uk/pls/corehrrecruit/erq_search_package.search_form?p_company=5&p_internal_external=E

Courses

The Dynamic Cell
4—7 September 2014 Robinson College, Cambridge, UK

Dynamic cell growth, division and movement are hallmarks of life and are essential for the formation of an organism, yet our understanding of the molecular basis of these processes is far from complete. The Dynamic Cell 2014, jointly organized by the British Society of Cell Biology and the Biochemical Society, will focus on the molecular biology underpinning the dynamic nature of these key cellular processes.

Investigators using different model organisms and both in vivo and in vitro approaches will showcase the most exciting and topical findings from the UK and around the world in dynamic cell biology. Areas of particular focus will be the role of membrane traffic, chromosome and centrosome behaviour, the functioning of the cytoskeleton and structure and function of motor proteins in regulating and co-ordinating dynamic cellular behaviour.

Topics:

- Cell migration and the cytoskeleton
- Cargo sorting in the endocytic and secretory pathways
- Molecular control of chromosome segregation and mitosis
- Membrane dynamics during cytokinesis
- *In vitro* analysis of molecular motors

Link: http://www.jointbscbbs.org/2014/Home.aspx

Single Biomolecules – in silico, in vitro and in vivo

11—13 September 2014 University of Hertfordshire, UK

Meeting background

Single molecules play an important role in biology, since most cells contain one or two copies of genomic DNA molecules, which eventually determine the fate and function of the organism. This focused meeting aims to bring together researchers, who study biomolecules in silico with molecular simulation and researchers who use lab-based single-molecule methods in vitro and in vivo.

Topics include:

- Single molecule methods
- Molecular dynamics simulation
- Molecular modelling
- Multiscale modelling
- Fluorescence
- Force spectroscopy
- Super-resolution imaging
- RNA structure
- Protein structure

Link:
http://www.cvent.com/events/single-biomolecules-in-silico-in-vitro-and-in-vivo/event-summary-19a8ba5b01d6420b88ab82fcf44bce6c.aspx

Abstract submission deadline: 10 th July 2014.

Earlybird registration deadline: 11 th August 2014.

Cell Symposia

Systems Approach to Metabolic Diseases

October 1-3, 2014 - Chicago, IL, USA

Meeting background

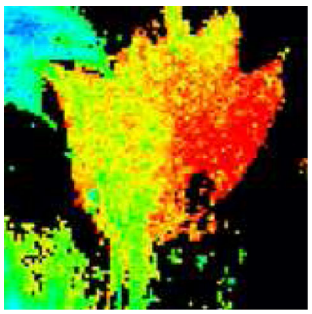
In order to develop a complete understanding of a biological system, information must cover multiple dimensions. Over the last ten years, we have witnessed decisive advances in bioinformatics, genome sequencing, and high-throughput technologies, that have highlighted the need for approaching biological systems as a whole. Metabolic diseases, including type 2 diabetes and cardiovascular disease, as well as cancer, involve complex genetic, molecular, and environmental interactions, and systems-based approaches have proven to be instrumental in tackling this complexity by integrating genomic, molecular, and physiological data.

This meeting will provide a unique opportunity to bring together experts in systems biology and metabolism to discuss how ‘Omics’ approaches can be exploited in an effort to understand the perturbations that take place in the pathogenesis of metabolic diseases. We will discuss novel approaches for studying metabolic alterations in a high-throughput scale and explore how epigenomics, non-coding RNAs, and environmental factors control metabolic pathways in disease settings.

Link:
http://www.cell-symposia-metabolic-diseases.com/

Calcium Signalling: **The Next Generation**

9—10 October 2014 Charles Darwin House, London, UK



Meeting background

The aim of this meeting is to cover advances and controversies relating to intracellular Ca2+ channel function and dysfunction. Sessions will be led by early career scientists in order to engage "The next generation" of Ca2+ signallers. The meeting will cover contemporary developments in Ca2+ signalling mediated by the three main classes of intracellular Ca2+ release channels sensitive to NAADP, IP3 and ryanodine.

Topics:

- Molecular basis for Ca2+ release.
- Ca2+ release channel regulation.
- Acidic Ca2+ stores.
- Ca2+ store communication.
- Ca2+ and disease.

Link:
http://www.biochemistry.org/Conferences/AllConferences/tabid/379/Page/2/MeetingNo/SA166/view/Conference/Default.aspx

ZING CONFERENCES

7th International Electron Tomography Conference

17th November 2014 – 20th November 2014, Riviera Maya, Mexico
Meeting background

The conference will bring together researchers working on hardware development, software development, and applications of electron tomography, particularly in biology. It will showcase breakthroughs in both electron tomography technology and cell biology applications.

Topics covered will include

- Recent developments in cryosectioning and FIB-milling
- Correlative light and electron microscopy
- Automatic tilt-series acquisition and reconstruction software
- Direct detectors
- High-throughput, large-scale reconstructions of plastic embedded samples
- Latest developments in sub-tomogram classification and averaging software
- Map interpretation, model fitting
- Example recent high impact biological results

Link:
http://www.zingconferences.com/conferences/electrontomography/