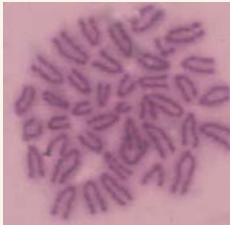




BRoadCast The Babraham Research Campus newsletter

Winter 2003



News from the Babraham Institute

- Awards and fellowships
- Project leaders
- PhD studentships
- Events
- Lab updates

News from Babraham Bioscience Technologies

- Babraham Bioincubator
- Babraham BioConcepts
- Babraham Research Campus development

A message from the Director

Another eventful year has come and gone quickly. At last the diggers have arrived and transformation of the Babraham Research Campus has started – much will be seen to happen in the next twelve months. Of course, much happens that is not seen so readily but also has strong impact. Through all your endeavours we continue to maintain an excellent reputation for our science and the development of young companies. Indeed, because of the high profile that Babraham sustains I believe our reputation has advanced during the year. This is the achievement of all of you and it is an achievement built by working together constructively whether you are a member of the Institute or one of the bioventures on the Campus. Thank you all for working hard and helping us to achieve the goals that mark Babraham as a place that is different, successful and supportive. As I know only too well, the job is never finished and there is always (too) much to do. However, it is also important to relax, to enjoy life with family and friends and to pursue personal interests. The Christmas holiday is the time when we do these things together and – even at a secular level – makes the end of December “something special”. I hope that you have a “special” time.

A handwritten signature in black ink, appearing to be 'J. V. S.', written on a light-colored rectangular background.

News from the Babraham Institute

www.babraham.ac.uk

Awards and fellowships

Scientific Merit Promotion

Dr Sonja Krugmann

Dr Sonja Krugmann was promoted to Band 5SPD, effective from 1st July 2003.

I am interested in signalling through the phosphoinositide 3-OH kinase (PI3K) effector ARAP3, one of the proteins identified in the Inositide Laboratory a few years ago as part of a screen for PtdIns(3,4,5)P₃ binding proteins. ARAP3 acts as a GTPase activating protein (GAP) for Rho and Arf family small GTPases and it is activated by Rap (a Ras family small GTPase) and PI3K. ARAP3 is therefore a likely mediator of cross-talk between different families of small GTPases. These are known to regulate important events such as cellular adhesion, actin dynamics and protein sorting events, all of which feed into very complex processes such as cell motility. It is the aim of my current work to see which role ARAP3 might have in the regulation of cellular motility, and whether it might be involved in the increased cellular motility observed in malignant cancer cells.

Career Progression Fellowships

Dr Emmanuelle Astoul



Emmanuelle is currently supported by a grant from the Association for International Cancer Research and the Fellowship award will extend her funding at the Institute by a further three years. The specificity of the immune response is ensured by cross linking of antigen receptors at the surface of lymphocytes to initiate their activation. The basis of this project was to uncover new links in the intracellular information cascade of lymphocytes, triggered by the antigen receptors. Using a phospho-proteomics approach we identified an as yet undescribed target for antigen receptor regulation: SLY adaptor protein (SH3-containing expressed in LYmphocyte). Bioinformatics studies show that SLY is the prototypical member of a new family of adaptor proteins expressed specifically in haematopoietic cells. We have shown that in T-lymphocytes, SLY is a link between signals initiated by the antigen receptor in response to the transcription factor AP1 in the nucleus. AP1 factors are important regulators of cytokines and activation markers in gene expression. Thus SLY and potentially other members of its family are likely to play an important role in the activation of lymphocyte, leading to an efficient immune response.

Dr Miguel Constancia



Imprinted genes are a class of genes found in placental mammals that are expressed, during development, from only one of the two parental chromosomes. These genes control important aspects of development such as fetal growth and placental development and function. My research interests are focused on the analysis of the role of imprinted genes in fetal growth restriction and on the study of placental and fetal adaptations in response to growth restriction. Intrauterine growth restriction affects up to 10% of all human pregnancies, and is associated with increased risk of morbidity and mortality in the neonatal period. Even within the normal

range, smaller size at birth is associated with an increased incidence of cardiovascular and metabolic diseases in later life. Knowledge of how nutrient supply and demand is genetically regulated is crucial for understanding the mechanisms of fetal growth restriction. The key hypothesis of my research is that "imprinting" provides a genetic link between the provision of nutrients, the intrauterine growth, and the programming of fetal systems determining the risk of disease in adulthood. These studies may eventually lead to diagnosis and potential treatment of fetal growth restriction together with its long term effects on adult health.

Congratulations to two previous CPF holders, Dr Heidi Welch and Dr Paul Evans in winning personal fellowship awards from the MRC and the National Kidney Research Fund respectively.

Project leaders

Dr Michael Coleman has recently joined the laboratory of Neuronal Development and Survival as a Project Leader. As holders of senior external fellowships, Dr Klaus Okkenhaug and Dr Heidi Welch have also been awarded Project Leader status. In addition, Dr Myriam Hemberger from the University of Calgary has received an MRC Career Development Award and will join the Institute as a Project Leader in January 2004.

PhD studentships

In October 2003 the Institute took on 16 new students to its Graduate Studies Programme. These included 12 UK students, 3 overseas students and 1 EU student. Four of the students have been awarded Cooperative Studentships with Industrial Partners and two of the overseas students were awarded prestigious international scholarships to study at the Institute. The arrival of the new students will mean that the Institute has 64 full time graduate students as of 1st October 2003 making it the second largest graduate studies department of the University of Cambridge Graduate School of Biological, Medical and Veterinary Sciences.

Events

Charity Day

The Institute's Charity Day, held on September 18th, raised a total of £2250. £1125 was donated to each of two local charities: the Children's Hospice, Milton, and the Rosie Maternity Ward, Addenbrookes Hospital.

Milton Hospice has added the donation to their general funds to cover essential, everyday expenses such as nurses' wages, running costs and physiotherapy services. The Rosie Maternity Ward will use the donation for everything from cot cards and curtains on the wards, to a CTG machine (for monitoring a baby's heartbeat during labour) and mobile phones for the Community Midwives.

Many thanks to Dr Michael Hinton for organising the event, and to staff of the Institute, Bioincubator companies and Nursery, who ran stalls and games.



Mike Berridge's retirement conference



On September 4th, around 200 guests from national and international research institutes, companies, and organisations watched fireworks illuminate the night sky over the Babraham Institute as part of a celebratory, two-day retirement conference, held in honour of Professor Sir Michael Berridge FRS. Sir Michael has worked at the Babraham Institute in the field of Molecular Signalling for 13 years, and officially retired from research in October 2003. However he will continue to contribute to the work of the Signalling Programme through his appointment as the Institute's first Emeritus Babraham Fellow.

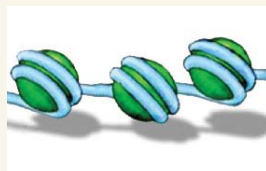
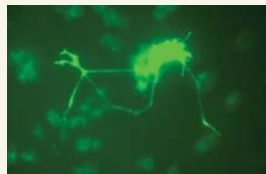


BI Project Leaders Retreat 2003

The Babraham Institute Project Leaders' Retreat is an informal science discussion forum, held offsite, to encourage collaborative links across different research disciplines within the Institute.

The meeting began with talks from Heidi Welch, Paul Evans and Emmanuelle Astoul. The main part of the retreat consisted of two sessions: Chromatin and Cell Signalling, which is an emerging theme at the Institute, and Apoptosis and Cellular Degeneration. The retreat ended with a session on Genetic Manipulation: Emerging Technologies.

The range of presentations was designed to foster a climate of collaboration between Laboratories and Programmes. The fact that many project leaders were still in the bar in the early hours of the morning indicated that such interactions were taking place, which we hope they will translate into new research projects!



Lab updates

Lymphocyte Signalling and Development

A new collaborative grant has been awarded by Genmab, a company in Holland that is working on the use of a humanised CD4 monoclonal antibody currently in clinical trials for psoriasis. David Rider is employed on this grant and is investigating how this antibody exerts its immunosuppressive effects on the immune system. The work includes regular trips to Holland and time spent in a collaborating lab in Debrecen, Hungary.

Suzanne Turner, supported by the Leukaemia Research Fund, has developed a new cancer mouse model for Anaplastic Lymphomas expressing a fusion protein called NPM-ALK. The fusion protein, an oncogenic tyrosine kinase, is generated by a chromosomal translocation and is the cause of about 5-10% of all non-Hodgkin's Lymphomas.

Cognitive and Behavioural Neuroscience

Keith Kendrick, Wolf Reik and Simon Andrews have been awarded a £267k, 3-year grant from BBSRC entitled "Bioinformatic analyses of neuronal ensemble recordings and the evolution of genomic imprinting". This will start in early 2004 and will fund two individuals (a Statistician and a Bioinformatician) who will work in our Bioinformatics Facility.

On October 14th, Keith Kendrick gave an invited public lecture at the National Institutes of Health in Bethesda, Washington entitled "Animal Attraction: You and Me Baby Ain't Nothing but Mammals".

Keith is also participating in this year's public Gresham College Lectures. His forthcoming lectures are:

29 January 2004 - To sleep, perchance to dream

We now have a good understanding of what makes us sleep and even dream, but why do we and other animals need to sleep and do dreams unlock the unconscious or help you remember the day's events?

26 February 2004 - Biological clocks: human and animal concepts of time

The bodies of both human and other animals have biological rhythms but what purposes do they serve and do other species sense and remember the passage of time?

25 March 2004 - Turning back the hands of time: ageing gracefully!

What determines how long we and other animals live and what can animals tell us about how to live longer and maintain our mental faculties?

Technology Research Group

The Babraham Institute will be part of the new MolTools consortium (advanced molecular tools for array-based analyses of genomes, transcriptomes, proteomes, and cells) funded through the EU 6th Framework Programme. The consortium will bring together 15 leading groups from Europe (including 4 SMEs) plus one from the US to create an infrastructure to study the molecules that make up our genomes and all their products. The Babraham connection will be through the Technology Research Group (Mike Taussig), which will carry out array-based protein-protein interaction analysis. Mike will also be part of the project management team.

The suite of microarray-based systems developed in the course of this programme will be of strategic value throughout biological research as well as for the biotech and pharmaceutical industries. The project will run for three years from 1st January 2004. For more information see www.moltools.org.

News from Babraham Bioscience Technologies

www.babraham.com

Industry Days

Babraham Institute Project Leaders presented their research at two "Industry Days", hosted by BBT Ltd.

- Ray Hill, Executive Director, Merck, Sharp and Dome, visited in September, and gave a thought-provoking presentation to the Project Leaders. He then took part in a series of seminars, where representatives of each of the Institute's Programmes presented their team's work.
- A group of scientists from GlaxoSmithKline visited in October, for a morning of presentations. All Programmes were represented. As a direct consequence of Raghu Padinjat's presentation, GSK's Chas Bountra agreed to support an MRC-co-funded studentship in Raghu's lab.

The Babraham Bioincubator

The Babraham Bioincubator now hosts 18 start-up and early-stage bioscience companies. BBT recently welcomed CellFactors plc and Novexin Ltd to the site.

Current Bioincubator companies:



Acaris Ltd
www.acaris.co.uk



Isogenica Ltd
www.isogenica.com



ASM Scientific Ltd
-



MRC Geneservice
<http://www.hgmp.mrc.ac.uk>



Biovation Ltd
www.biovation.co.uk



NeuroServe Ltd
www.neuroserve.co.uk



BioWisdom Ltd
www.biowisdom.com



Novexin Ltd
-



CellFactors plc
www.cellfactors.com



Phico Therapeutics Ltd
www.phicotherapeutics.co.uk



Cyclacel Ltd
www.cyclacel.com



Probe Scientific Ltd
www.probe-sci.co.uk



Discerna Ltd
www.discerna.co.uk



Proteom Ltd
www.proteom.com



Immunobiology Ltd
www.immunobiology.co.uk



Sirus Ltd
www.siruspharma.com



Innova Biosciences Ltd
www.innovabiosciences.com



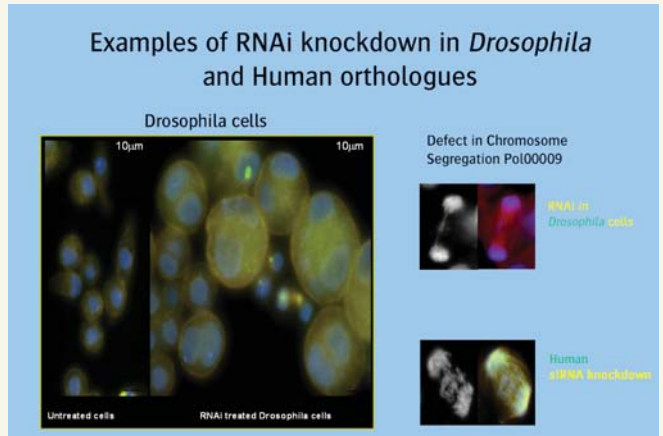
Smartbead Technologies Ltd
www.smartbead.com

CYCLACEL and MRC geneservice forge partnership for distributing *Drosophila* genome RNAi collection

Cyclacel Ltd, a biopharmaceutical company, entered into an agreement with MRC Geneservice, a commercially focused resource centre within the Medical Research Council, for the distribution of its proprietary *Drosophila* RNA interference (RNAi) collection.

RNAi refers to post-transcriptional silencing of genes through sequence-specific degradation of mRNA. This is facilitated through dsRNA, which is processed into small fragments of 20-25 nucleotides called siRNAs (small interfering RNAs). These siRNA strands eventually associate with target mRNA strands and cleave them to block gene functioning.

Cyclacel have produced a collection of 13,605 PCR amplified gene products encompassing the whole *Drosophila* genome, which can be used for the synthesis of dsRNAs. MRC geneservice will make aliquots of these PCR products available first, but also intends to produce and distribute dsRNAs in future that can be used directly in gene knock-down experiments. This resource, scheduled for launch in December 2003, will be made available worldwide.



Babraham BioConcepts

This autumn, the first two companies were selected to join BioConcepts: CTM BioTech Ltd and Innova Biosciences Ltd.

About CTM BioTech:

CTM BioTech was established earlier this year by Jon Mowles and Rod Smith as part of the BioConcepts Programme at Babraham. Jon Mowles says, "CTM offers a fresh approach to alleviating the bottleneck that currently exists in bio-pharma product development by fulfilling the requirements of the increasing number of companies looking to outsource their process development and pre-clinical, non-GMP, manufacturing needs. This outsourcing trend is driven by the lack of available 'in-house' physical resources, finance and/or expertise."

How is CTM BioTech different? "What distinguishes CTM from other contract service companies is the extensive GMP product development and production expertise of CTM's staff together with the integration of these laboratory-based services with later stage project management. These services include advising client companies during the selection of their GMP manufacturing partner, technology transfer and the management, on behalf of the client, of the production process. The merging of these elements enables CTM to offer a seamless transition from process development through to the production of clinical trial material for client companies."

About Innova Biosciences:

Innova Biosciences Ltd is building a portfolio of innovative reagents and kits for high-throughput drug screening. The company is currently developing a universal kinase assay that will work with any combination of enzyme and substrate, and on multiple instrument platforms. The system will effectively eliminate assay development work for kinase targets and thus greatly accelerate kinase-based drug discovery projects.

Babraham Research Campus

BBT is pleased to announce the commencement of construction of BioDevelopment Unit 1 (Building 250). This is the first of three facilities to be built, providing grow-on space for early- to mid-stage bioventures, and represents the first phase of development of the Babraham Research Campus.



Staff and visitors to BBT and the Institute will have no doubt been aware of the alterations to site parking and traffic movement to ensure the safety of pedestrians and vehicles during the construction of Building 250 and, of course, the mound of topsoil!

BioDevelopment Unit 1 will provide a mix of laboratory and office accommodation on two floors of 10,000 sq ft each, and is expected to be completed in December 2004 with a view to occupancy in January 2005. The image shows an artist's representation of BioDevelopment Buildings 1 and 2.

For further information about the Campus development, please contact Dr David Hardman (01223 496205) or Nicola Kinsey (01223 496334).