BBSRC AND THE US

- **BBSRC holds the US as a high priority for collaborative activity**
- **We consider workshops to be a key mechanism for pump-priming collaborations and for supporting the plans of researchers**
- **BBSRC continues to encourage interactions with the US through our bottom-up US Partnering Awards and through BBSRC's general travel schemes**
- **BBSRC has agreements with NSF, NIH, DoE and USDA**

BBSRC support for facilitating international collaboration with the US
BBSRC's International Relations Unit (IRU) strives to enhance BBSRC's influence and involvement at the forefront of international science, to exploit international funding opportunities in the interests of BBSRC's scientific community and to capitalise on international links, both at policy and scientific levels. It achieves this through a number of mechanisms.

The US Partnering Awards is a scheme implemented by BBSRC to specifically support UK-US collaborative activity. Our other interactions include visits and scoping studies to the US, as well as welcoming American researchers and policy makers to the UK.

Full details of BBSRC international activities are on the BBSRC website at: www.bbsrc.ac.uk/international

Visits

BBSRC's International Scientific Interchange Scheme (ISIS) provides a mechanism to initiate and pump-prime collaboration to allow BBSRC-supported scientists to explore the potential of an international linkage and possible funding opportunities. Since 2000 BBSRC has funded 122 such visits involving the US at over £227k. These visits spanned a range of scientific areas including predictive microbiology, transgenic mouse models, wound healing and stem cell characterisation.

International Workshops

BBSRC sponsored workshops have created good international synergy in that many have led to successful international research projects that have provided considerable added value to UK science. The workshops match numbers of UK scientists with other countries to identify areas of commonality and explore the potential for international collaboration. The workshops aim to input to policy formulation in emerging areas of science, and/or stimulate joint working with other countries active in a particular area.

In total, BBSRC has contributed to 44 workshops involving the US at a cost of over £259k.

Human Frontier Science Programme (HFSP)

HFSP is an international programme initiated in 1989, supported by the Australia, Canada, India, Japan, the Republic of Korea, New Zealand, Switzerland, US and the EU. (www.hfsp.org). It promotes international collaboration through research grants and fellowships in the life sciences. The UK subscription to HFSP (total budget almost US$56M) is currently £1223k, split between the Medical Research Council (£962k) and BBSRC (£261k). Both Councils are represented on the HFSP Board of Trustees. UK and BBSRC supported scientists continue to gain support from HFSP in furthering collaboration, HFSP Fellowships and in joint research projects.

EU Framework Programme

Marie Curie Fellowships under EU Framework Programmes now offer the opportunity for fellows to come in to the EU (eg UK) from any other country (eg America) – International Incoming Fellowships or out to other countries – International Outgoing Fellowships. The current Seventh Framework Programme (FP7) includes the opportunity for non-EU involvement in the projects and activities funded under its 10 thematic programmes.

Also new to Marie Curie is the International Research Staff Exchange Scheme, the aim of which is to create closer links between staff working in research organisations in Europe and their counterparts in other international partner countries. The scheme will support staff exchanges of up to 12 months per staff member.

United States Partnering Awards (USPA)

Partnerships with the US are producing benefits to the UK and the BBSRC community. It is therefore important that BBSRC continues to try to ensure that strong linkages are developed and sustained in the biosciences. The aim of the BBSRC-US Partnering Scheme is to provide resources to leading BBSRC-supported research groups, which allow them to forge long-term relationships with US scientists in areas of research that are of direct relevance to BBSRC's current scientific strategy.

The primary objective of an award is to provide pump-priming, which enables UK research groups who are already funded by BBSRC to embark on creating links with US scientists. The overall aim is to build long-term partnerships that will ultimately lead to new collaborative research programmes. Awards cover activities such as exchanges of personnel, scoping studies and access to facilities and workshops. Similar BBSRC schemes operate with Japan, Brazil, India and China.

Typically, awards of up to £50,000 are made over a four-year period, with funding being awarded to a leading UK laboratory that is partnered with one or more US equivalents. Funding is normally used to support researchers travelling in either direction, although no prescribed mechanisms have been set as to how the award should be used. Preference was given to applications that propose the exchange of young researchers, workshops in emerging areas of science and for visits to access facilities that are not available in the UK.

Since the introduction of the USPA scheme in 2007, 45 awards have been made with a total BBSRC contribution of £1.66M. We hope that the partnership awards will lead to researchers submitting proposals to the responsive mode lines of BBSRC and to our partner organisations in the US or to the EU Framework Programme, for joint research projects. The full list of awards that have been made by BBSRC is shown below.

For further details on any of BBSRC's international activities please contact:

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2012 Call

Emergence of Japanese Encephalitis in the highlands of Nepal
£47,500
UK lead partner: Professor Matthew Baylis, Institute of Infection and Global Health, University of Liverpool
US lead partner: Professor William Reisen, Veterinary Medicine School, University of California Davis

US partnering on the use of neutron scattering to study aggregation in therapeutic proteins during manufacture and storage
£42,500
UK lead partner: Dr Paul Dalby, Department of Biochemical Engineering, Unversity College London
US partners: Dr Paul Butler, Centre for Neutron Research, National Institute of Standards and Technology; Dr Chris Roberts, Department of Chemical Engineering, University of Delaware

US-UK Biorefining Collaboration
£30,290
UK lead partner: Dr Joseph Gallagher, IBERS, Aberystwyth University
US lead partner: Dr Daniel Inman, Biotech Division for Fuels and Chemicals, National Renewable Energy Laboratory

Advanced iron-specific spectroscopies for the study of iron-sulfur cluster transcriptional regulators
£36,400
UK lead partner: Professor Nicolas Le Brun, Department of Chemistry, University of East Anglia
US lead partner: Professor Stephen Cramer, Department of Chemistry, University of California Davis

More than skin deep: from blood to hair and return. In vivo imaging and functional manipulation of stem cell niches.
£30,000
UK lead partner: Dr Christina Lo Celso, Department of Life Science – Cell & Molecular Biology, Imperial College London
US lead partner: Dr Valentina Greco, Genetics Department, Yale University

US-A transatlantic partnership to identify novel factors that influence the development and function of M cells in the gut epithelium
£36,200
UK lead partner: Dr Neil Mabbott, The Roslin Institute, University of Edinburgh
US lead partner: Professor Ifor Williams, Department of Pathology, Emory University

Assessing keel health in commercial laying hens and potential methods for improvement
£43,000
UK lead partner: Dr John Tarlton, Department of Clinical Veterinary Sciences, University of Bristol
US partners: Dr Darrin Karcher, Department of Animal Science, Michigan State University; Dr Heng-Wei Cheng, Agricultural Research Service, U.S. Department of Agriculture; Dr Maja Makagon, Department of Animal Sciences, Purdue University

US-UK partnership in NMR structure validation
£30,000
UK lead partner: Professor Geerten Vuister, Department of Biochemistry, University of Leicester
US lead partner: Professor Gaetano Montelione, Department of Molecular Biology and Biochemistry, Rutgers State University of New Jersey

2011 Call

US Partnership: Developing research on cognitive and emotional system interactions in older human adult
£46,680
UK lead partner: Professor Jane Raymond, School of Psychology, Bangor University
US lead partner: Professor Steve Luck, Centre for Mind and Brain, University of California Davis

USA - Novel insights into the mechanisms of salt appetite
£49,000
UK lead partner: Professor David Murphy, Clinical Science at South Bristol, University of Bristol
US lead partner: Professor Jonathan Sweedler, Department of Chemistry, University of Illinois

Development of complementary strategies for the analysis of dietary bioactives in foods and biofluids
£38,810
UK lead partner: Dr Colin Kay, Norwich Medical School, University of East Anglia
US lead partner: Professor Andrew Waterhouse, Department of Viticulture & Enology, University of California Davis

Sphingolipidomic analysis
£26,700
UK lead partner: Dr Dominic Campopiano, School of Chemistry, University of Edinburgh
US partners: Professor Alfred Merrill, School of Biology, Georgia Institute of Technology and Professor Teresa Dunn, Department of Biochemistry and Molecular Biology, Uniformed Services University

US - Phylogenetic approaches to network analysis
£33,250
UK lead partner: Dr John Pinney, Division of Molecular Biosciences, Department of Life Sciences, Imperial College London
US lead partner: Dr Dannie Durand, Department of Biological Sciences, Carnegie Mellon University

US Partnering Award: Campylobacter 'omics' and their contribution towards food safety
£31,000
UK lead partner: Dr Arnoud van Vliet, Food Borne Bacterial Pathogens Programme, Institute of Food Research
US lead partner: Dr Craig Parker, Agricultural Research Service, United States Department of Agriculture

Regulatory networks for asymmetric cell division
£48,800

UK lead partner: Dr Ive De Smet, School of Biosciences, University of Nottingham
US partners: Professor Siobhan Brady, Department of Plant Biology, University of California Davis and Professor Jonathan Minden, Department of Biological Sciences, Carnegie Mellon University and Professor Philip Benfey, Institute for Genome Sciences & Policy, Duke University

2010 Call

Establishing a trans-atlantic partnership for studying the neural networks for motor skill learning in the human brain
£ 46,000
UK lead partner: Dr Sven Bestmann, Institute of Neurology, University College London
US lead partner: Professor John Krakauer, Neurology and Neuroscience, Johns Hopkins University

Establishing transatlantic links between groups investigating managed pollinator populations
£45,326
UK lead partner: Dr Giles Budge, Plant Health Group, Food & Environment Research Agency
US partners: Professor Keith Delaplane, Department of Entomology, University of Georgia and Dr Jay Evans, Bee Research Laboratory, U.S. Department of Agriculture

Exploring the Life Cycle Methodology and Impacts of Bioenergy Production
£33,930
UK lead partner: Dr Marcelle McManus, Mechanical Engineering Department, University of Bath
US lead partner: Dr Caroline Taylor, Bioenergy Analysis Team, Energy Biosciences Institute

Resources for the Study of the Beneficial Symbioses in Model Legumes
£23,140
UK lead partner: Dr Jeremy Murray, Department of Disease and Stress Biology, John Innes Centre
US lead partner: Professor Michael Udvardi, Plant Biology Department, Samuel Roberts Noble Foundation

The development and application of complementary biophysical methods enabling the study of biomacromolecular dynamics
£ 48,660
UK lead partner: Dr Arwen Pearson, Astbury Centre, University of Leeds
US partner: Dr Edward Snell, Hauptmann-Woodward Institute

Computational reconstruction of stochastic regulation: from transcriptional modules to network remodelling
£35,200
UK lead partner: Dr Guido Sanguinetti, School of Informatics, University of Edinburgh
US lead partner: Professor Edoardo Airoldi, Statistics Department, Harvard University

Optimising processes for the deconstruction of plant biomass
£38,500
UK lead partner: Professor Gregory Tucker, School of Biosciences, University of Nottingham
US lead partner: Professor Blake Simmons, Deconstruction Department, Joint Bioenergy Institute

Probing light touch contributions to elderly balance
£20,240
UK lead partner: Professor Alan Wing, School of Psychology, University of Birmingham
US lead partner: Professor Mark Redfern, University of Pittsburgh

Development of new analytical tools to study the physiology/pharmacology of the ageing gastrointestinal tract
£25,249
UK lead partner: Dr Mark Yeoman, School of Pharmacy & Biomolecular Sciences, University of Brighton
US lead partner: Dr Greg Swain, Chemistry Department, Michigan State University

2009 Call

Systems analysis of G-protein dynamics in *D. discoideum*: a pilot study using novel 3D microscopy, computational modelling, and micromanipulation
£18,160
UK lead partner: Dr Andrew Goryachev, School of Biological Sciences, University of Edinburgh
US lead partner: Assist. Professor Christopher Janetopoulos, Department of Biological Sciences, Vanderbilt University

Genomic approaches to understanding and exploiting interactions between the parasitic weeds *Striga* spp. and their hosts
£38,100
UK lead partner: Professor Julie Scholes, Department of Animal and Plant Sciences, University of Sheffield
US lead partner: Professor Michael Timko, Department of Biology, University of Virginia

Development of metaproteomics for in situ investigation of microbial activity both in vivo and in soil and faeces
£32,477
UK lead partner: Professor Elizabeth Wellington, Department of Biological Sciences, University of Warwick
US partners: Dr. Nathan VerBerkmoes, Organic and Biological Mass Spectrometry, Oak Ridge National Laboratory, Dr Woutrina Millar Wildlife Health Center, School of Veterinary Medicine, University of California
Dr Matthew Wallenstein Natural Resource Ecology Laboratory Colorado State University Fort Collins, Dr Nikos Kyrpides, Genome Biology Program, DOE Joint Genome Institute

Establishing a transatlantic platform for plant lipidomics
£29,500
UK lead partner: Professor Johnathan Napier, Department of Biological Chemistry, Rothamsted Research
US partners: Dr Ed Cahoon, Depart of Biochemistry, University of Nebraska
Dr Jonathan Markham, Donald Danforth Plant Sciences Centre (DDPSC), St. Louis

Exploring greatly expanded mutational variant space in key target biomolecules - technological innovation driving novel solutions
£22,960
UK lead partner: Professor John McCarthy, Director of Manchester Interdisciplinary Biocentre, University of Manchester
US partners: Professor Virginia Cornish, Department of Chemistry, Columbia University, Professor David Stokes, NYSBC

Towards an international plant genome database
£33,600

UK lead partner:	Dr Ewan Birney, European Bioinformatics Institute (EBI), European Molecular Biology Laboratory
US partners:	Doreen Ware, United States Department of Agriculture (USDA) Agriculture Research Service, Cold Spring Harbor Laboratory (CSHL)

New insights into using lignocellulose degradation mechanisms for biofuel generation gaining by sharing expertise in wood-degrading animals and fungi
£32,950

UK lead partner:	Dr Simon Cragg, School of Biological Sciences, University of Portsmouth
US partners:	Professor Barry Goodell, School of Forest Resources, University of Maine, Professor Jody Jellison, School of Biology and Ecology, University of Maine and Dr Xinfeng Xie, School of Forest Resources

2008 Call

Developing Synchrotron Radiation Circular Dichroism (SRCD) Spectroscopy Methods and Applications for Structural Biology
£42,280

UK lead partner:	Professor B. A. Wallace, Department of Crystallography, University of London
US partners:	Professor John Sutherland, Biology Department, Brookhaven National Lab Professor Stephen Benkovic, Chemistry Department, Pennsylvannia State University

Establishing the Heliconius Genome Consortium
£37,500

UK lead partner:	Dr Chris Jiggins, Department of Zoology, University of Cambridge
US partners:	Owen McMillan, Genetics Department, North Carolina State University, Robert Reed, School of Biological Sciences, University of California at Irvine, Marcus Kronforst, FAS Centre for Systems Biology, Harvard University and Sean Mullen Department of Biological Sciences, Lehigh University

New Technology to study T lymphocyte ageing *in vitro* and *in vivo*
£36,300

UK lead partner:	Professor Arne N. Akbar, Department of Immunology, University College London
US partners:	Dr Elias E Coutavas, Laboratory for Cell Biology and Professor James G. Krueger, Laboratory for Investigative Dermatology, The Rockefeller University, New York

Collaborative Tool Development to Promote the Adoption of Visual Representation Standards in Systems Biology
£49,780

UK lead partner:	Professor Igor Goryanin, School of Informatics, University of Edinburgh
US partners:	Mirit I Aladjem, DNA replication Group, Laboratory of Molecular Pharmacology, Huaiyu Mi, Evolutionary Systems Biology Group, SRI International, Mike Hucka, Control and Dynamical Systems, California Institute of Technology, Chris Sander, Computational Biology Center, Memorial Sloan Kettering Cancer Center and

Herbert M Sauro, Department of Bioengineering, University of Washington

Sphingolipid biosynthesis in man and microbes
£18,600
UK lead partner: Dr Dominic J. Campopiano, School of Chemistry, University of Edinburgh
US partners: Professor Teresa M. Dunn, Department of Biochemistry & molecular Biology and Professor Jeff M. Harmon, Department of Pharmacology Uniformed Services University of the Heath Sciences
Professor Robert H. Brown Jr., Department of Neurology, Massachusetts General Hospital and Dr Florian Eichler, Department of Neurology, Harvard Medical School

Outpacing infectious disease: African swine fever virus vaccine development
£34,300
UK lead partner: Linda Kathleen Dixon, Microbiology Division, Institute for Animal Health, Pirbright Laboratory
US partners: Professor Bertram Jacobs and Dr Kathym Sykes, School of Life Sciences, The Biodesign Institute, Centre for Infectious Disease and Vaccinology, Arizona State University

UK - US Collaboration on Exploring the Cancer Epigenome in Animals
£48,400
UK lead partner: Professor Venugopal Nair, Department of Microbiology, Institute for Animal Health, Compton
US partners: Professor Jean-Pierre Issa and Professor Bessie McGoldrick, Haematological malignancies program, Centre for Cancer Epigenetics, Houston and Professor Stephen B. Baylin, John Hopkins University School of Medicine

CMMB/MBI partnership for multiscale mathematical modelling in systems biology
£50,000
UK lead partner: Professor Markus Owen, School of Mathematical Sciences, University of Nottingham
US partners: Professor Marty Golubitsky and Professor David Terman, Mathematical Biosciences Institute, Ohio State University

2007 Call

A microarray for rhizosphere soil, a key driver of climate change
£49,480
UK lead partner: Dr Elizabeth Baggs, University of Aberdeen (UCB)
US partners: Professor Mary Firestone, College of Natural Resources, University of California and Professor Josh Schimel, Ecology, Evolution and Marine Biology, University of California

Systems approaches to study hormone regulated root growth
£49,000
UK lead partner: Professor Malcolm Bennett, University of Nottingham
US partners: Dr Tobias Baskin, Biology Department, University of Massachusetts, Amherst, Professor T Guilfoyle, Biochemistry Department, University of Missouri-Columbia and Professor M Estelle, Biology Dept, Indiana University Bloomington

Technology development for solving the structures of mammalian membrane proteins
£36,800

UK lead partner: Professor Richard Cogdell, University of Glasgow
US lead partner: Professor Ray Stevens, Molecular Biology, The Scripps Research Institute, US

Underpinning genetics of biomass yield, quality and sustainability in *Miscanthus* and switchgrass
£44,800
UK lead partner: Dr Iain Donnison, Institute of Grassland and Environmental Research
US partners: Malay Saha, Joe Bouton, Brindha Narasimhamoorthy, Francis Kirigwi, Forage Improvement Division, The Samuel Roberts Nobel Foundation, Inc. US

Lifelong learning and cortical plasticity in the human brain
£30,000
UK lead partner: Professor Zoe Kourtzi, University of Birmingham
US partners: Professor Dennis Levi, University of California, Berkeley
Professor Mark D'Esposito, Helen Wills Neuroscience Institute, University of California, Berkeley

The CCPB-NBCR Partnership Programme
£47,000
UK lead partner: Dr Charles Laughton, University of Nottingham (CCPB – Collaborative Computational Project for Biomolecular Simulation)
US partners: Dr Peter Arzberger, Dr Wilfred Li and Professor and Andrew McCammon, University of California, San Diego (NBCR – National Biomedical Computing Resource)

International Relations Unit
BBSRC
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