BBSRC AND JAPAN

- **BBSRC holds Japan 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 Japan through our bottom-up Japan Partnering Awards and through BBSRC's general travel schemes**
- **BBSRC has signed agreements with JST, under which workshops are organised to stimulate UK-Japan partnerships in strategic areas**
- **Japan Partnering Awards are now funded under a joint scheme with JST**

BBSRC support for facilitating international collaboration with Japan

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 Japan Partnering Awards is a scheme implemented by BBSRC to specifically support UK-Japan collaborative activity. Our other interactions include visits and scoping studies to Japan, as well as welcoming Japanese 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 for initiating and pump-priming collaborations, which allows BBSRC-supported scientists to explore potential international linkages and funding opportunities. Since 2000 BBSRC has spent over £118k to fund 46 visits involving Japan, which encompassed a range of scientific areas including chicken genomics, hormone induced apoptosis, fungal biotechnology and cyanobacterial proteomics.

International Workshops

BBSRC sponsored workshops have created good international synergy, due to many having led to successful international research projects that have provided considerable added value to UK science. The workshops endeavour to match numbers of UK scientists with those in other countries, in order to identify areas of commonality and to explore the potential for international collaboration. The workshops also aim to provide some input to the formulation of policies in emerging areas of science and/or stimulate joint working with other countries that are active in a particular area. In addition, BBSRC holds workshops on areas that are of strategic relevance to the council and our Japanese counterparts, e.g. Japan Science and Technology Agency (JST). One example of a workshop that was co-funded by the UK (BBSRC and FCO) and Japan (JST) was on "The Future Challenges for Systems Biology" held in Tokyo in February 2008. In total, BBSRC have contributed to 21 workshops involving Japan at a cost of over £192k.

Human Frontier Science Programme (HFSP)

HFSP is an international programme which was initiated in 1989 and is supported by Australia, Canada, India, Japan, the Republic of Korea, New Zealand, Switzerland, USA 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. HFSP continues to support UK and BBSRC-funded

scientists by furthering collaborations, offering HFSP Fellowships and encouraging 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 (e.g.UK) from any other country (e.g. Japan) - International Incoming Fellowships, or to go out to other countries from the EU - International Outgoing Fellowships. Additionally, the current Seventh Framework Programme (FP7) provides the opportunity for non-EU involvement in the projects and activities funded under its 10 thematic programmes.

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

Japan Partnering Awards (JPA)

The JPA scheme is designed for BBSRC-supported scientists to gain access to the rapidly developing research base in Japan and to take advantage of the tremendous opportunities that collaborative activity represents. The first call for the Japan Partnering Awards Scheme was announced by BBSRC in 2000 and the first awards started in 2001. Each year the call is announced during September, with a closing date in November.

The key objectives for a JPA are:

- to set up partnership links between UK and Japanese life science laboratories;
- to promote the exchange of scientists, particularly young post-docs;
- to promote access to facilities;
- to access Japanese funding for UK scientists.

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 Japanese equivalents. Funding is normally used to support researchers travelling in either direction and for workshops in emerging areas of science, 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 and for visits to access facilities that are not available in the UK. Since the introduction of the JPA scheme, 45 awards have been made with a total BBSRC contribution of £1.83M. Similar BBSRC schemes operate with China, Brazil, the US and India.

In 2008 and 2009 and 2011 BBSRC ran this scheme jointly with the Japan Science and Technology Agency (JST) and focused awards on proposals which utilised a systems biology approach to research. The 2010 call was run as a BBSRC only award, but it is likely that subsequent Partnering Awards with Japan will be run jointly with JST and will be focused in one or more areas of mutual priority. 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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PREVIOUS AWARDS

2011 Call

Japan-Systems Approaches to Addressing Food Security: Novel methodology for pest control using key regulators of insect survival against infection
£40,500
UK lead Partner: Prof. Shireen Davies, College of Medical, Veterinary & Life Sciences, University of Glasgow
Japanese partner: Prof. Shoichiro Kurata, Graduate School of Science, Tohoku University

2010 Call

A complete transcriptional map of the human body: systems biology in toto
UK lead Partner: Dr Geoffrey Faulkner, The Roslin Institute, University of Edinburgh
Japanese partner: Dr Piero Carninci, RIKEN Omics Science Centre, RIKEN Genomic Sciences Research Complex

Prediction of Factors to Induce Cell Differentiation
UK lead Partner: Dr Julian Gough, Computer Science Department, University of Bristol
Japanese partner: Dr Carsten Daub, RIKEN Omics Science Centre, RIKEN Genomic Sciences Research Complex

The Systems Biology of Exercise
UK lead Partner: Dr Harry Rossiter, Institute of Membrane & Systems Biology, University of Leeds
Japanese partner: Professor Shunsaku Koga and Professor Nari Kondo, Graduate School of Design Research, Kobe Design University; Professor Yoshiyuki Fukuba, School of Health Sciences, Hiroshima Prefectural University; and Dr Takeshi Nishiyasu, University of Tsukuba

2009 Call - Joint call with the Japan Science and Technology Agency, focus on Systems Biology

Dynamics and Robustness in Biological Networks
£32,910
UK lead partner: Professor Judith Armitage, Department of Biochemistry and Oxford Centre for Integrative Systems Biology
Japanese partners: Hisao Moriya, Research Core for Interdisciplinary Sciences, Okayama University Seiji Kojima, Division of Biological Science, Nagoya University and Tohru Minamino, Protonic NanoMachine Group, Graduate School of Frontier Biosciences, Osaka University

Systems biology of pluripotent stem cells: meta-analysis and simulation of transcriptional circuitries to understand robust-yet-flexible heterogeneity
£54,764
UK lead partner: Professor Austin Smith, Centre for stem cell research & Department of Biochemistry, University of Cambridge
Japanese partners: Hiroaki Ueda, Laboratory of Systems Biology, RIKEN CDB, Kobe Hitoshi Niwa, Laboratory of Pluripotent Cell Studies, RIKEN CDB Kobe and Shinichi Nishikawa, Laboratory of Stem Cell Biology, RIKEN CDB, Kobe

Modelling the transcriptional, proteomic and metabolic redox regulation in

Saccharomyces cerevisiae* and *Candida glabrata
£50,000
UK lead partner: Professor Ken Haynes, Division of Investigative Science, Imperial College London
Japanese partners: Professor Masaru Tomita, Director, Institute for Advanced Biosciences, Keio University and Dr Douglas Murray, Institute for Advanced Biosciences, Keio University

Dynamic mathematical modelling of diversification of transcriptional regulatory networks underlying the genetic variation of E. coli species
£22,600
UK lead partner: Dr Dov Stekel, School of Biosciences, University of Nottingham
Japanese partners: Naotake Ogasawara and Shigehiko Kanaya, Nara Institute of Science and Technology, andToru Tobe, Osaka University

2008 Call - Joint call with the Japan Science and Technology Agency, focus on Systems Biology

From text to pathways: text mining techniques for reconstructing signalling pathways
£32,100
UK lead partner: Dr Sophia Ananiadou, Department of Computer Science, University of Manchester
Japanese partners: Professor Hiroaki Kitano, Systems Biology Institute, Tokyo
Professor Jun'ichi Tsujii, Department of Computer Science, University of Tokyo

Development of a high-throughput quantitative immunofluorescence method and stochastic modelling of signalling networks.
£48,800
UK lead partner: Professor Michael Stumpf, Division of Molecular Biosciencs, Imperial College London
Japanese partner: Professor Shinya Kuroda, Department of Biophysics and Biochemistry, University of Tokyo

UK-Japan collaboration on microbial systems biology
£48,760
UK lead partner: Professor Johnjoe McFadden, faculty of Health and Medical Sciences, University of Surrey
Japanese partner: Kazuyuki Shimizu, Kyushu Institute of Technology

Development and analysis of technologies for measurement of protein interactions in living cells
£29,250
UK lead partner: Professor Michael White, School of Biological Sciences, University of Liverpool
Japanese partners: Prof. Takeaki Ozawa, Department of Chemistry, University of Tokyo
Prof. Yoshihiro Ohmiya, School of Medicine, University of Hokkaido

2007 Call

Integrated approaches to the study of plant peroxisome transport processes
£36,000
UK lead partner: Dr Alison Baker, Centre for Plant Sciences, University of Leeds

Japanese partners: Dr Makoto Hayashi, National Institute for Basic Biology, Okazaki and Dr Motoaki Seki and Dr Minami Matsui, RIKEN Plant Science Centre, Yokohama

Understanding how the Estrogen (ER) and ErbB receptor pathways influence cell fate
£37,500
UK lead partner: Professor Igor Goryanin, Centre for Systems Biology, University of Edinburgh
Japanese partners: Professor Yoshiyuki Sakaki and Dr Mariko Hatakeyama, RIKEN Genomic Sciences Centre

Proteins in action: real-time biomolecular imaging using rapid-scan atomic force microscopy
£30,000
UK lead partner: Dr Robert Henderson, Department of Pharmacology, University of Cambridge
Japanese partner: Professor Kunio Takeyasu, Kyoto University

TSE diseases: defining the role of the mucosal immune system in disease pathogenesis
£35,000
UK lead partner: Dr Neil Mabbott, Roslin Insitute
Japanese partner: Professor Hiroshi Ohno, Research Centre for Allergy and Immunology, RIKEN, Yokohama

Post-genomic analyses on veterinary apicomplexan parasites: genome sequence utilisation
£50,000
UK lead partner: Professor Fiona Tomley, Institute for Animal Health, Compton
Japanese partners: Dr Junichi Watanabe, Institute of medical Science, University of Tokyo, and Professor Chihiro Sugimoto, Obihiro University of Agriculture and Veterinary Medicine

2006 Call

Cardiac electro-mechanical function: Cell-organ cross-talk revealed via integration of experiments and models
£49,945
UK lead partner: Dr Peter Kohl, Department of Physiology, Anatomy and Genetics, University of Oxford
Japanese partner: Professor Akinori Noma, Department of Physiology and Biophysics, Kyoto University

Interfacing Standards and Ontologies in Systems Biology
£45,000
UK lead partner: Dr Nicolas Le Novere, Department of Computational Neurobiology, EMBL-EBI
Japanese partners: Dr Hiroaki Kitano, Symbio, and Dr Ken Fukuda, Computational Biology Research Centre, AIST

Cell free synthesis of proteins for X-ray crystallographic and NMR analysis
£49,800
UK lead partner: Professor Michael Overduin, Division of Cancer Studies, University of Birmingham
Japanese partner: Dr Motoo Watanabe, Cell Free Sciences Co. Ltd., Yokohama

Japan – UK Collaboration in Bionanotechnology
£35,000
UK lead partner: Professor J Ryan, Bionanotechnology IRC, University of Oxford
Japanese partner: Professor Masamitsu Futai, Japan Science & Technology Corporation, Tokyo

2005 Call

Resource management and exploitation in Werner's syndrome
£48,000
UK lead ppartner: Dr Richard Faragher, School of Pharmacy and Biomolecular Sciences, University of Brighton
Japanese partner: Professor Makoto Goto, School of Bioengineering, Toin University, Yokohama

Systems Neuroscience: From cellular mechanisms of neural circuitry to behaviour
£49,800
UK lead partners: Professor Colin Ingram and Professor Anya Hurlbert, Institute of Neuroscience, University of Newcastle upon Tyne
Japanese partner: Inter-institute partnership with the RIKEN Brain Sciences Institute, Wako

From waste management to bone replacement: Synthesis and functionally-related UK properties of hydroxyapatite
£50,000
UK lead partner: Professor Lynne Macaskie, Unit of Functional Bionanomaterials, School of Biosciences, University of Birmingham
Japanese partner: Professor Kunio Ishikawa, School of Dentistry, Kyushu University

Development of new collaborative approaches in Fermentation Technology and Metabolic Network Modelling
£48,760
UK lead ppartner: Professor Johnjoe McFadden, Molecular Genetics, School of Biomedical and Molecular Sciences, University of Surrey
Japanese partner: Professor Kazuyuki Shimizu, Metabolic Engineering, Kyushu Institute of Technology

2004 Call

The amphibian pronephric kidney - a model for regeneration and organogenesis in vertebrates
£30,800
UK lead partner: Dr Elizabeth Jones, Biological Sciences, University of Warwick
Japanese partner: Professor Makoto Asashima, Department of Life Sciences, Tokyo University

Advanced scientific discovery tools for bioinformatics
£39,750
UK lead partner: Professor Ross King, Department of Computer Science, University of Wales, Aberystwyth

Japanese partner: Professor Setsu Arikata, Department of Informatics, Kyushu University

Structural hierarchies in fibrous polymers
£30,000
UK lead partner: Dr Andrew Quantock, School of Optometry and Vision Sciences, Cardiff University
Japanese partner: Dr Naoto Yagi, Life and Environment Division, Japan Synchrotron Radiation Research Institute, SPRING-8

Experimental frontiers in bionanoscience.
£38,000
UK lead partner: Dr D. Alistair Smith, Institute of Molecular Biophysics, University of Leeds
Japanese partner: Professor Atsushi Ikai, Graduate School of Bioscience and Biotechnology, Tokyo Institute of Technology, Yokohama

Exploiting emerging bovine genome information for improving quality in cattle production
£21,300
UK lead partner: Professor Alan Archibald, Genomics and Genetics, Roslin Institute
Japanese partner: Professor Yoshikazu Sugimoto, Shirakawa Institute of Animal Genetics, Odakura

From gene to function during development
£45,000
UK lead partner: Dr Stephen Wilson, Department of Anatomy and Developmental Biology, University College London
Japanese partner: Dr Hitoshi Okamoto, Neural Growth and Regeneration Research Group, RIKEN Brain Science Institute, Tokyo

2003 Call

Dynein motor proteins: Molecular structures and mechanisms
£49,000
UK lead partner: Dr Peter Knight, School of Biomedical Sciences, University of Leeds
Japanese partner: Professor Ritsu Kamiya, Department of Biological Sciences, University of Tokyo

Applying gene transfer technologies to study dendritic neuropeptide release mechanisms and functions
£46,000
UK lead partner: Dr Mike Ludwig, Department of Biomedical Sciences, University of Edinburgh
Japanese partner: Professor Yoichi Ueta, Department of Physiology, University of Occupational and Environmental Health, Kitakyushu

Stem cell engineering: Knowledge, understanding, control
£25,000
UK lead partner: Professor Austin Smith, Institute for Stem Cell Research, University of Edinburgh
Japanese partner: Professor Shin-ichi Nishikawa, RIKEN Centre for Developmental Biology, Kobe

Biological biomaterials – from concept to clinic
£50,000
UK lead partner: Professor Jennifer Southgate, Department of Biology, University of York
Japanese partner: Professor Junzo Tanaka, Biomaterials Center of the National Institute for Materials Science, Tsukuba

2002 Call

Towards a Predictive Biology of *Escherichia Coli*
£47,000
UK lead partner: Professor Stephen Busby, Department of Biochemistry, University of Birmingham
Japanese partner: Professor Hirotada Mori, Research and Education Centre for Genetic Information, Nara Institute of Science and Technology

IFR/JIC joint functional genomics programme on plant metabolism, stress response and development
£49,500
UK lead partner: Dr Tony Michael, Division of Food Safety Science, Institute of Food Research
Japanese partner: Professor Kazuo Shinozaki, Laboratory of Plant Molecular Biology, RIKEN Tsukuba Institute

UK-Japan Bio-Nanotechnology collaboration
£50,000
UK lead partner: Professor John Ryan, Bionanotechnology IRC, Oxford University
Japanese partner: Professor Toshio Yanagida, Laboratories for Nanobiology, Osaka University

2001 Call

Construction of nano-devices based on bacterial light-harvesting complexes
£48,000
UK lead partner: Professor Richard Cogdell, IBLS Division of Biochemistry and Molecular Biology, University of Glasgow
Japanese partner: Professor Hideki Hashimoto, Faculty of Engineering, University of Shizouka

X-ray crystallography and single molecule observation of membrane proteins
£25,000
UK lead partner: Professor So Iwata, Department of Biological and Biomedical Sciences, Imperial College London,
Japanese partner: Professor Masasuke Yoshida, Chemical Resources Laboratory, Tokyo Institute of Technology

Development and characterisation of heat stable biocatalysts
£20,000
UK lead partner: Professor Jennifer Littlechild, Department of Chemistry and Biological Sciences, University of Exeter
Japanese partner: Professor Tairo Oshima, Department of Molecular Biology, Tokyo University of Pharmacy and Science

2000 Call

Protein-protein interactions; neurobiology of circadian rhythms; macromolecular assemblies
£49,547

UK lead partner:	Dr Caroline Bowsher, School of Biological Sciences, University of Manchester
Japanese partner:	Professor Toshihara Hase, Institute for Protein Research, University of Osaka

Sub-piconewton force spectroscopy at solid and cell surfaces
£30,000

UK lead partner:	Dr Alastair Smith, Department of Physics and Astronomy, University of Leeds
Japanese partner:	Professor Toshio Yanagida, Department of Physiology, University of Osaka

Stem cell engineering: Knowledge, understanding, control
£49,400

UK lead partner:	Professor Austin Smith, Centre for Genome Research, University of Edinburgh
Japanese partner:	Professor Masatoshi Takeichi, RIKEN Centre for Developmental Biology, Kobe

Development of technology for solving solution structures of difficult proteins
£14,940

UK lead partner:	Dr M Williamson, Department of Molecular Biology and Biotechnology, University of Sheffield
Japanese partner:	RIKEN Genomic Sciences Centre

International Relations Unit
BBSRC
March 2011