

HARVARD CLUB OF AUSTRALIA Foundation

2010 Australia - Harvard Fellowships

Harvard Club of Australia Foundation is pleased to announce the award of Fellowships to six distinguished Harvard University researchers who intend to undertake collaborative scientific research in Australia during 2010. As in previous years, the Foundation's Fellowship grants take the form of co-funding donations to their host Australian institutions to assist with Fellows' travel and living expenses.



Professor Richard L Stevens PhD, Dept. Med. at HMS; and Division of Rheumatology, Immunology and Allergy at Brigham & Women's Hospital. Professor Stevens is a world leader in studying an immune cell known as the "mast cell" (MC), with a special focus on "inflammatory bowel disease" (IBD) for which there is no long term cure. He is collaborating with **Professor Steven A Krilis**, MB BS UNSW, PhD Syd, FRACP, Dept of Medicine, UNSW and St George Clinical School, St George Hospital, and with **Professor Paul Foster** at Uni of Newcastle. Having recently discovered that MCs and their tryptase mediators play key roles in a mouse model of IBD, their research is aimed at understanding the biology involved in specified medical conditions. Professor Stevens will be based at UNSW for a six month sabbatical from Feb to Aug 2010.



Assistant Professor Ali Khademhosseini PhD (MIT), Dept. of Med. at HMS; also Div. of Health Sciences & Technology (HST) at MIT, Assoc Bio-engineer at Brigham & Women's Hospital. Ali's field is tissue engineering, focussing on micro-scale techniques in applications using biodegradable biomaterials such as polymers including synthetic and natural hydro-gels. His collaborator will be **Assoc Professor Fariba Dehghani**, PhD (UNSW), Director of Postgraduate studies, School of Chemical and Bio-molecular Engineering, Univ of Sydney. Their overall aim is to develop long term collaboration between USyd and Harvard / MIT, and to underpin future substantial research grants. Several papers are already in preparation. Ali will visit for a month in late January and again in June 2010.



Dr James Macklin Dir of Collections & Informatics and **Dr Paul J Morris**, Biodiversity Informatics Manager, HU Herbaria. Their topic is Biodiversity informatics. They have an ongoing collaboration with ANU / CSIRO and Aust National Herbarium Centre for Biodiversity Research (CBR), specifically with **Drs Greg Whitbread** and **Jim Croft** at CSIRO/ANU.

Their visit to ANU is aimed at advancing the International Plant Names Index (IPNI), an ongoing collaboration between HU's Herbaria and Aust National Herbarium in A.C.T., to continue their work in helping develop the IPNI, to test and prototype available technologies, and to prepare a technical implementation proposal of international significance for consideration by the Harvard - Kew Gardens - Australia IPNI management team.



Professor Jonathan B Losos, PhD (UCal. Berkeley), M & P Lerner Professor for the Study of Latin America, HU, Curator of Herpetology, Museum of Comparative Zoology. This highly awarded academic will conduct research here on evolutionary diversification of agamids, a family that includes crocodiles. His goal is to address the question: are there general patterns of evolutionary diversification that apply to disparate groups evolving in different parts of the world? Or are the contingencies of history so great that every group follows its own evolutionary path?

His collaborators are **Professor Rick Shine** FAA, Professor of Evolutionary Biology, ARC Federation Fellow, and **Dr Mike Thompson**, School of Biological Sciences, University of Sydney. Professor Losos will spend four months in Australia from Sep. to Dec 2010, based in Sydney but will collect specimens in the far north, and visit Australian and Victorian museums and several other universities.



Professor John Quackenbush, PhD (UCLA), Professor of Biostatistics and Computational Biology and Professor of Cancer Biology, Dana-Farber Cancer Institute, and Professor of Computational Biology and Bioinformatics, Department of Biostatistics, Harvard School of Public Health. His topic is the study of cell networks and cell differentiation, building models to help understand how cells transition from one state to another, as in development (egg to daughter cells) and diseases, eg cancer - normal cells transition to tumours. His principal collaborator is **Dr Christine Wells**, National Centre for Adult Stem Cell Research and Eschitis Insitute for Cell and Molecular Therapies at Griffith University, Queensland. Also **Professors Emma Whitelaw** (QIMR, Brisbane) and **Louise Ryan** (CSIRO, Sydney). Over his four month sabbatical Jun to Aug 2010, Prof Quackenbush will utilise Dr Wells' existing database of olfactory stem cells, induce them to differentiate into a predetermined variety of cells, then build predictive models to understand the transitions from one state to another. Then analyse these systems to identify the core pathways and create models that include stochastic elements believed to have wide application in basic and translational research. They will extend those by incorporating ideas borrowed from theoretical quantum physics "to model the way in which cells explore the collection of possible state space trajectories that [may] improve our ability to predict responses to cellular perturbations". Results are to be published in several scientific and methodology papers. He will be based in Brisbane but travel to Sydney, Melbourne, and elsewhere to visit other nominated collaborators who have sought meetings.

12 January 2010

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