

National University of Ireland Galway

NCBES - National Centre for Biomedical Engineering Science

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Launch of Biomedical Distinguished Lecture Series

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Friday, 24 July, 2009: Spinal cord regeneration will be the first topic of the Biomedical Distinguished Lecture Series commencing on Thursday, 30 July, at NUI Galway. The lecture series will be hosted by the University's National Centre for Biomedical Engineering Science (NCBES), which this year celebrates its tenth anniversary. Over the coming months, a range of international speakers involved in ongoing research collaboration with the NCBES will share their insights and experiences with fellow scientists and the general public.

Topics during the seminar series will include: the latest developments in breast cancer research; furthering understanding of the cause of multiple sclerosis and other neurodegenerative disorders; the social-psychology of exercise and its use in helping stroke and spinal cord injury patients; and the discovery of new therapies for the treatment of cancer.

According to Professor Frank Barry, Director of the NCBES: "The lecture series will bring some of the most accomplished research leaders to Galway and will provide a forum for discussion of the latest and most significant advances in life sciences research. It will provide good opportunities for NCBES scientists to develop new collaborations and will lead to enhanced quality and productivity in our research efforts."

On Thursday, 30 July, a husband and wife team from Arizona State University will provide an overview of a number of projects at the Center for Adaptive Neural Systems. Professor James J. Abbas and Professor Ranu Jung focus on developing systems to promote recovery after spinal cord injury by controlling movements using electrical stimulation of paralyzed muscles. An innovative technology by this prominent engineer-scientist pair, which interfaces with the nervous system, has already benefitted patients with spinal cord injury and with neurodegenerative diseases.

Lokesh Joshi, Stokes Professor of Glycosciences at the NCBES, heads up the Centre's collaboration with the team in Arizona. He comments: "A cutting-edge approach is being taken in Arizona to current medical challenges in the areas of spinal cord injury and neurodegenerative diseases such as Parkinson's. The Jung-Abbas team is truly translational and unique because it brings together electrical and mechanical engineering, physiological science and clinical research. This has been tried successfully in patients".

In its collaboration with the Center for Adaptive Neural Systems, the team at the NCBES are investigating the role played by the "sugars" involved in cell to cell communication. These complex carbohydrates or glycans play crucial roles in the development and regeneration of tissues and organs, during growth, disease and injury.

As Professor Joshi explains: "The central nervous system (CNS), found in the brain and spine, is a complex organ and does not regenerate after injury at the pace of other organs and tissues. Studies have shown that removal of certain glycans can promote some growth on a cellular level, thereby facilitating CNS regeneration. The burning question is ? what exact role do glycans play by inhibiting neuroregeneration? Our project involves the mapping of glycans so we can better understand their presence in healthy, injured or rehabilitating tissue."

The field of Neuroglycoscience is rapidly emerging and scientists at NUI Galway are working on discovering novel glyco-biomarkers, glycoimaging tools, therapeutic targets and molecules and drug delivery systems to promote neuro-regeneration.