Porto Conte Ricerche

PARCO SCIENTIFICO E TECNOLOGICO DELLA SARDEGNA

Nell'ambito delle attività previste nel progetto cluster "Nuovi sistemi diagnostici con applicazioni al settore agroalimentare e zootecnico" Porto Conte Ricerche organizza:

Seminario di aggiornamento tecnologico

PROGETTAZIONE E SVILUPPO DI BIOSENSORI

Ore 10.30 **- Robert D. O'Neill** (School of Chemistry and Chemical Biology, University College Dublin)

Biosensors for Neurochemical Applications: Constructing analysis parameters for in-vitro design and characterisation.

Ore 11.30 - **John P. Lowry** (Department of Chemistry, National University of Ireland, Maynooth)

Biosensors: In Vivo Neurochemical Applications

Sala Anghelu Ruiu - Porto Conte Ricerche
Alghero (SS)

Per informazioni
079. 998400 – ricerca@portocontericerche.it

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Robert D. O'Neill
(School of Chemistry and Chemical Biology, University College Dublin)

Robert D. O'Neill, PhD, is professor of Electrochemistry at UCD, Dublin, and a founding member of the Neuroanalytical Chemistry Laboratories (www.naclgroup.org). He received his BSc in Chemistry (1976) and PhD in Electrochemistry (1980) from UCD, and was awarded research fellowships in Oxford University for postdoctoral studies in physiology and neurochemistry (1980 - 1985). Professor O'Neill's research program focuses on design and application of microsensors and biosensors for electrochemical monitoring of brain signalling systems.

Biosensors for Neurochemical Applications: Constructing analysis parameters for in-vitro design and characterisation.

"This talk will explore some of the issues faced in monitoring intercellular chemical signalling in brain ECF *in vivo*. The design and characterisation of electrochemical sensors will be the main focus, with special emphasis on the influence of enzyme kinetic parameters on biosensor functionality."

John P. Lowry
(Department of Chemistry, National University of Ireland, Maynooth)

John P. Lowry received his BSc in Chemistry from University College Dublin (UCD) in 1988. He received his Ph.D in Bioelectroanalytical Chemistry from UCD under the direction of Prof. Robert D. O'Neill in 1992. Prior to his first academic appointment he was a Marie Curie Fellow at the University of Oxford where he worked in the University Laboratory of Physiology with Dr. Marianne Fillenz. Hewas appointed as a University Lecturer in Analytical Chemistry at the National University of Ireland, Maynooth (NUIM), in 1998. In 2004 he became a lecturer in Pharmacology at the Conway Institute UCD and returned to NUIM in 2006 to take up the Chair of Chemistry. His research interests are in the area of bioanalysis particularly in the development, characterisation and application of sensor and biosensor systems for in vivo neurochemical monitoring.

Biosensors: In Vivo Neurochemical Applications

"The development of new technologies for long-term *in-vivo* electrochemistry (LIVE) in the conscious brain is now possible following major advances in the fabrication of sensing devices using polymer-enzyme composites (PECs) synthesised *in situ* on the electrode surface. We have already demonstrated the feasibility of using classical microelectrodes to monitor brain ascorbate, oxygen and blood flow, and PEC-based biosensors to monitor brain glucose *in vivo*. New *in-vivo* sensors for glutamate, hydrogen peroxide, NO and lactate, based on both classical and PEC designs are presently at various stages of development. In this presentation these LIVE devices will be described along with their application in novel studies of brain energy metabolism and animal models of psychiatric disease."