University of Birmingham

Dr Doug Richards

Honorary Research Fellow

Neurobiology

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About

Dr Richards has published over 40 research papers in scientific journals, as well as reviews and book chapters. He is an expert in analytical biochemistry and, in particular, high performance liquid chromatography with electrochemical detection. He has also applied the technique of microdialysis in both basic science (absence epilepsy) and in clinical studies.

Qualifications

- D. Phil
- M.I.Biol

Biography

Dr Richards began his career as a biomedical scientist (clinical chemistry) in the NHS, and was awarded a D. Phil. by the University of Sussex in 1984 for research in the field of depression. In 1990 he became a Research Fellow at the Institute of Neurology in London, investigating cerebral ischaemia and absence epilepsy, and in 1996 he moved to the University of Birmingham to continue the work on absence epilepsy, employing the technique of microdialysis. Subsequently he has applied this technology to clinical studies, including traumatic brain injury in children, liver transplantation and burns injury.

In teaching, Dr Richards created and developed a new course 'Good Brain Bad Brain' which was aimed at all students of the University of Birmingham as an elective module, as well as being available to members of the public. Dr Richards edited a textbook to accompany this course (The Human Brain and its Disorders) which was published by Oxford University Press in 2007.

Teaching

- MBChB
- BMedSc
- BDS
- Chemistry with Pharmacology
- Physician Assistant
- Good Brain Bad Brain (module outside the main discipline)

Research

Applications of microdialysis in clinical settings (eg traumatic brain injury, liver transplantation, burns injury). Laboratory research currently focuses on high performance liquid chromatography with electrochemical detection in various formats, and the application of this to translational metabolomics studies.

Other activities

Module lead for the College's module outside the main discipline 'Good Brain Bad Brain', available to undergraduate students from other Colleges in the University, as well as to members of the public.

Publications

Ouyang, G., Dang, C., Richards, D.A. and Li, X. (2010) Ordinal pattern based similarity analysis for EEG recordings. **Clin. Neurophysiol.** 121, 694-703**.**

Hrydziuszko, O., Silva, M.A., Perera, M.T.P.R., Richards, D.A**.,** Murphy, N., Mirza, D. and Viant, M.R. (2010) FT-ICR mass spectrometry metabolomics and coulometric electrochemical array detection investigation of ischemia/reperfusion injury during human orthotopic liver transplantation: a pilot study. **OMICS: a Journal of Integrative Biology** 14, 143-150.

Ouyang, G., Li, X., Dang, C. and Richards, D.A. (2009) Deterministic dynamics of neural activity during absence seizures in rats. **Physical Review E** 79 (4 Pt 1), 041146.

Ouyang, G., Li, X., Dang, C. and Richards, D.A. (2008) Using recurrence plot for determinism analysis of EEG recordings in genetic absence epilepsy rats. **Clin. Neurophysiol**. 119, 1747-1755.

Li, X., Ouyang, G. and Richards, D.A. (2007) Predictability analysis of absence seizures with permutation entropy. **Epilepsy Res.** 77, 70-74**.**

Richards, D.A., Silva, M.A., Murphy, N., Wigmore, S.J. and Mirza. D.F. (2007) Extracellular amino acid levels in the human liver during transplantation: a microdialysis study from donor to recipient. **Amino Acids** 33, 429-437**.**

Silva, M.A., Mirza, D.F., Buckels, J.A.C., Bramhall, S.R., Mayer, D., Wigmore, S.J., Murphy, N. and Richards, D.A. (2006) Arginine and urea metabolism in the liver graft: a study using microdialysis in human orthotopic liver transplantation. **Transplantation** 82, 1304-1311.

Richards, D.A.,Silva, M.A. and Devall, A.J. (2006) Electrochemical detection of 3-nitrotyrosine: optimisation for microdialysis studies. **Anal. Biochem.** 351, 77-83**.**

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