

Paul Mullins
Athro Dysgu ac Ymchwil
Ysgol Seicoleg a Gwyddor Chwaraeon



Trosolwg

Director of the Bangor Imaging Centre in the School of Human and Behavioural Sciences, home to a research dedicated 3T whole body MRI system used for functional and structural imaging studies.

Liaising with researchers from the College of Human Sciences on study design, data acquisition and processing and resources available to help with their research questions, my aim is to keep the Bangor Imaging Unit a world-class center for neuroimaging research in North Wales.

My personal research falls into three broad areas: development and validation of MRS techniques for the detection of neurotransmitters; the use of these techniques to measure changes associated with neurotransmission and neural activity in health and disease; and the use of magnetic resonance imaging to investigate basic neurologic and physiologic processes in health and disease. My current ongoing research however is focused on two of these areas: the study of functional neurochemical changes through the use of functional magnetic resonance spectroscopy (fMRS); and measurement of changes in cerebral physiology and blood flow.

fMRS

Based on the same principles as MRS, fMRS collects multiple MRS spectra in a dynamic series to study metabolite concentration changes during brain function. fMRS is able to measure changes in neurotransmitters over very short time scales, in seconds rather than minutes, either alone, or combined with other measures of neural activity such as EEG and BOLD. Direct measurement of neurotransmitter and neurometabolite changes allows fundamental questions to be addressed regarding the excitatory, inhibitory and metabolic processes underlying neural activity.

Cerebral Physiology

Understanding the what, how, and why, of cerebral blood flow (CBF) changes, has implications for many fields of research, from clinical conditions (stroke, brain injury, hypoxia, Alzheimers) to basic cognition (fMRI is based on blood flow changes). Similarly, it is important to understand the physiologic drivers for change, and what other changes in physiology affect CBF. Current work is investigating the effects of prolonged hypoxic exposure as might be experienced at altitude on CBF and cognition, the effects of healthy ageing, and possible relationships between resting levels of neurotransmitters and blood flow.

Teaching activities

I am the course director of the MSc in Neuroimaging, and lecturer for the "Introduction to Neuroimaging", "Introduction to Neuroimaging analysis", "Advanced Techniques in Neuroimaging" and "Advanced Neuroimaging analysis" modules. I have supervised 4 PhD students to completion, and currently have co-supervision of 4 others. I also supervise several MSc students' neuroimaging research projects that intersect with my labs research interests in neurochemistry and cerebral physiology, having already successfully supervised 28 MSc students to completion.

Wider Scientific Involvement

Recognizing the importance of open and shared science I am actively involved in collaborative research with colleagues in the USA, Ireland, Norway and the UK. I am also a well-respected member of the international magnetic resonance spectroscopy (MRS) research community, having been on the organizing committee for several international symposia, and recently involved in developing the Minimum Reporting Standards for Magnetic Resonance Spectroscopy.

[Lab Website](#)

Cymwysterau

Oi-Raddedigol, PhD, Application of Magnetic Resonance Imaging (MRI) to animal models of cerebral ischaemia, University of Queensland

Dyddiad Dyfarnu: 15 Meh 2002

Oi-Raddedigol, Arall, Biochemistry Honours, James Cook University of Far North Queensland, Townsville

Dyddiad Dyfarnu: 15 Mai 1995

Israddegigol, BSc, Chemistry and Biochemistry, James Cook University of Far North Queensland

Dyddiad Dyfarnu: 15 Mai 1993

Cyflogaeth

Professor in Psychology

Athro Dysgu ac Ymchwil

Ysgol Seicoleg a Gwyddor Chwaraeon

Prifysgol Bangor

1 Awst 2019 → 31 Rhag 2099

Vice Chair

NHS Wales Research Ethics Committee 5
Y Deyrnas Unedig
1 Meh 2012 → present

Gweithgareddau

Ethics and consent for clinical trials
Paul Mullins (Siaradwr)
14 Meh 2021

Validation of the MSc in Cognitive Neuroscience
Paul Mullins (Cyfrannwr)
3 Meh 2021

PHOENIX GLOBAL RESEARCH ETHICS WORKSHOP
Paul Mullins (Siaradwr)
5 Hyd 2020

External Examiner for MSc in Cognitive Neuroscience
Paul Mullins (Cyfrannwr)
1 Medi 2020 → ...

Review and validation of the Masters in Psychiatric Research
Paul Mullins (Arholwr)
20 Tach 2019

Towards a Theory for Functional MRS
Paul Mullins (Siaradwr)
1 Ebr 2019

Towards a Theory for Functional MRS
Paul Mullins (Siaradwr)
12 Maw 2019

Editing School
Paul Mullins (Siaradwr)
3 Rhag 2018 → 6 Rhag 2018

Magnetic Resonance Spectroscopy
Paul Mullins (Siaradwr)
13 Tach 2018

International Society for Magnetic resonance in Medicine
Paul Mullins (Siaradwr)
16 Meh 2018 → 21 Meh 2018

External Examiner for the undergraduate Neurosciences Program at Kings College London.
Paul Mullins (Arholwr)
1 Meh 2018 → 30 Meh 2020

Towards a Theory for Functional Magnetic Resonance Spectroscopy

Paul Mullins (Siaradwr)

17 Mai 2018

Headway North Wales Conference

Paul Mullins (Siaradwr gwadd)

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International Society of Magnetic Resonance in Medicine Workshop on MR Spectroscopy

Paul Mullins (Cadeirydd)

16 Awst 2016

International Society of Magnetic Resonance in Medicine Workshop on MR Spectroscopy

Paul Mullins (Trefnydd)

15 Awst 2016 → 17 Awst 2016

International Society for Magnetic resonance in medicine workshop on MR spectroscopy

Paul Mullins (Siaradwr)

14 Awst 2016 → 17 Awst 2016

Allbwn ymchwil

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Mullins, P. G., McGonigle, D. J., O'Gorman, R. L., Puts, N. A. J., Vidyasagar, R., Evans, C. J., Edden, R. A. E. & Cardiff Symposium on MRS of GABA, 1 Chwef 2014, Yn: Neuroimage. 86, t. 43-52 10 t.

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Lally, N., Mullins, P. G., Roberts, M. V., Price, D., Gruber, T. & Haenschel, C., 15 Ion 2014, Yn: Neuroimage. 85, Part 2, t. 823-833

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Mullins, P. G., Rowland, L., Bustillo, J., Bedrick, E. J., Lauriello, J. & Brooks, W. M., Hyd 2013, Yn: Magnetic Resonance in Medicine. 50, 4, t. 704-707 4 t.

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Optic Nerve Sheath Diameter Is Not Related to High Altitude Headache: A Randomized Controlled Trial
Lawley, J. S., Oliver, S. J., Mullins, P. G., Morris, D., Junglee, N. A., Jolleyman, C. & Macdonald, J. H., 1 Medi 2012, Yn: High Altitude Medicine and Biology. 13, 3, t. 193-199

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Kirkman, D., Junglee, N. A., Mullins, P. G. & Macdonald, J. H., 27 Awst 2012, Yn: British Medical Journal Case Reports.

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