THE FLOREY INSTITUTE OF NEUROSCIENCE & MENTAL HEALTH	**Melbourne Brain Centre Imaging Unit** Director: Prof Roger Ordidge	THE UNIVERSITY OF MELBOURNE
	Department of Anatomy & Neuroscience	

The Melbourne Brain Centre Imaging Unit is a collaboration between the University of Melbourne and the Florey Institute. The staff members include personnel from the Department of Anatomy & Neuroscience, from Engineering and the Florey. The list of publications below is the output of a number of different staff from the composite Departments.

2015

- Campbell-Washburn AE, Atkinson D, Nagy Z, Chan RW, Josephs O, Lythgoe MF, **Ordidge RJ**, Thomas DL. Using the robust principal component analysis algorithm to remove RF spike artifacts from MR images. *Magnetic Resonance in Medicine* 2015.

- **Cleary JO***, Norris FC*, Siow BM*, Wells JA, De Castro SCP, **Ordidge RJ**, Greene NDE, Scambler PJ, Alexander DC, Lythgoe MF. Diffusion microscopic magnetic resonance imaging of the mouse embryo: protocol and practical implementation in the splotch mouse model. *Magnetic Resonance in Medicine* 2015; **73**(2): 731-9. *Joint first authorship

- Domínguez D JF, **Ng ACL**, Poudel G, Stout JC, Churchyard A, Chua P, Egan GF, GeorgiouKaristianis N. Iron accumulation in the basal ganglia in Huntington's disease: cross-sectional data from the IMAGE-HD study. *J Neurol Neurosurg Psychiatry* 2015; p. jnnp–2014–310183. •

- Summers J, Oehme D, Handley C, Troupis J, Finnie J, Manavis J, McDonald C, Gibbon A, Bhakoo K., Egan G, Eager M, Vreys R, **Ng ACL**, Ghosh P, Goldschlager T, Jenkin G. In vivo MRI tracking of mesenchymal precursor cells labelled with iron oxide fluorescent nanoparticles (IODEX) in an ovine model of disc degeneration. *The Spine Journal* 2015; **3**(15): S69.

- Van der Walt A, Buzzard K, Sung S, Spelman T, **Kolbe SC**, Marriott M, Butzkueven H, Evans A. The occurrence of dystonia in upper-limb multiple sclerosis tremor. *Multiple Sclerosis Journal* 2015; 1352458515577690.

- Tahayori B, Khaneja N, **Johnston LA**, Farrell PM, Mareels IM. Improving the Time Efficiency of the Fourier Synthesis Method for Slice Selection in Magnetic Resonance Imaging. to appear Physica Medica: *European Journal of Medical Physics*, accepted 10 October 2015.

- Swaminathan M, Hill-Yardin EL, Ellis M, Zygomoridas M, **Johnston LA**, Gwynne RM, Borenstein JC. Video imaging and spatiotemporal maps to analyse gastrointestinal motility in mice, to appear *Journal of Visualised Experiments*, accepted 10 September 2015.

- Close TG, Tournier JD, **Johnston LA**, Calamante F, Mareels IM, Connelly A. Fourier Tract Sampling (FouTS): A framework for improved inference of white matter tracts from diffusion MRI by explicitly modelling tract volume. to appear *NeuroImage*, accepted 22 May 2015.

- Tahayori B, **Johnston LA**, Layton KJ, Farrell PM, Mareels IM. A harmonic balance approach to solve the Bloch equation under Rabi modulated excitation. to appear *IEEE Transactions on Medical Imaging*, accepted 8 April 2015.

- Phillips T, **Wright DK**, Johnston LA, Pask A. A comprehensive atlas of the adult mouse penis, to appear *Sexual Development*, accepted 3 March 2015.

- Shultz SR, **Wright DK**, Zheng P, Stuchbery R, Liu S, Sashindranath M, Medcalf RL, **Johnston LA**, Hovens CM, Jones NC, O'Brien TJ. Sodium selenate reduces hyperphosphorylated tau and improves outcomes after traumatic brain injury. *Brain* 2015; **138**(Pt 5):1297-313.

- Warner CE, Kwan WC, **Wright DK**, **Johnston LA**, Egan GF, Bourne JA. Preservation of vision by the pulvinar following early-life primary visual cortex lesions. *Current Biology* 2015; **25**(4): 424-34.

2014

- Beeman SC, Cullen-McEwen LA, Puelles VG, Zhang M, Wu T, Baldelomar EJ, Dowling J, Charlton JR, Forbes MS, **Ng ACL**, Wu QZ, Armitage JA, Egan GF, Bertram JF, and Bennett KM. MRI-based glomerular morphology and pathology in whole human kidneys. *Am. J. Physiol. Renal Physiol*. 2014; **306**(11): F1381–90.

- Goscinski WJ, McIntosh P, Felzmann U, Maksimenko A, Hall CJ, Gureyev T, Thompson D, Janke A, Galloway G, Killeen NEB, Raniga P, Kaluza O, **Ng ACL**, Poudel G, Barnes DG, Nguyen T, Bonnington P, and Egan GF. The multi-modal Australian ScienceS Imaging and Visualization Environment (MASSIVE) high performance computing infrastructure: applications in neuroscience and neuroinformatics research. *Front Neuroinform* 2014; **8**.

- Richards K, Calamante F, Tournier JD, Kurniawan ND, Sadeghian F, Retchford AR, Jones GD, Reid CA, Reutens DC, **Ordidge RJ**, Connelly A and Petrou S. Mapping somatosensory connectivity in adult mice using diffusion MRI tractography and super-resolution track density imaging. *Neuroimage* 2014; **102**: 381-92.

- van der Walt A, **Kolbe SC**, Mitchell P, Wang Y, Butzkueven H, Egan G, Yiannikas C, Graham S, Kilpatrick T, Klistorner A. Parallel changes in structural and functional measures of optic nerve myelination after optic neuritis. *PloS one* 2014; **10**(5): e0121084-e0121084.

- Verghese A, **Kolbe SC**, Anderson AJ, Egan GF, Vidyasagar TR. Functional size of human visual area V1: a neural correlate of top–down attention. *Neuroimage* 2014; **93**: 47-52.

- Adlard P, Tran B, Finkelstein D, Desmond P, **Johnston LA**, Bush AI, Egan GF. A review of β-amyloid neuroimaging in Alzheimer's disease, *Frontiers in Neuroscience* 2014; **8**:327.

- Crack P, Zhang M, Morganti-Kossmann MC, Morris AJ, Wojciak JM, Fleming JK, Karve I, **Wright DK**, Sashindranath M, Goldshmit Y, Conquest A, Daglas M, **Johnston LA**, Medcalf RL, Sabbadini RA, Pebay A. Anti-lysophosphatidic acid antibodies improve traumatic brain injury outcomes. *Journal of Neuroinflammation* 2014; **11**(37): 1-11.

- Layton KJ, Tahayori B, Mareels IMY, Farrell PM, **Johnston LA**. Rabi resonance in spin systems: theory and experiment. *Journal of Magnetic Resonance* 2014; **242**:136-42.

- Shultz SR, Tan XL, **Wright DK**, Liu SJ, Cook AD, Jones NC, Semple BD, **Johnston LA**, Hamilton JA, O'Brien TJ. Granulocyte-macrophage colony-stimulating factor (GM-CSF) is neuroprotective in experimental traumatic brain injury. *Journal of Neurotrauma* 2014; **31**(10): 976-83.

- Liang X, Kuhlmann L, **Johnston LA**, Grayden DB, Vogrin S, Crossley R, Fuller K, Lourensz M, Cook MJ. Extending Communication for Patients with Disorders of Consciousness. *Journal of Neuroimaging* 2014; **24**(1): 31-38.

2013

- Spitz G, Maller JJ, **Ng ACL**, O'Sullivan R, Ferris NJ, Ponsford J. Detecting lesions following traumatic brain injury using susceptibility weighted imaging: A comparison with FLAIR, and correlation with clinical outcome. *Journal of Neurotrauma*, 2013; **30**(24):2038-50.

- Norris FC, Henderson J, Wells JA, **Cleary JO**, Siow B, Walker-Samuel S, McCue K, Salomoni P, Scambler PJ, Lythgoe MF. Enhanced tissue differentiation in the developing mouse brain using magnetic resonance micro-histology. *Magnetic Resonance in Medicine* 2013; **70**(5): 1380-8.

- Davey C, Grayden DB, Egan GF, **Johnston LA**. The equivalence of linear Gaussian connectivity methods, *Human Brain Mapping* 2013; **34**(9): 1999-2014.

- Adamson C, **Johnston LA**, Mareels I, Toga A, Huang Y, Egan GF. 3D Model-based Approach to Identification of Laminar Structures of the Cerebral Cortex: application to Brodmann areas 17 and 18. *Biomedical Signal Processing and Control* 2013; **8**: 845-857.

- Layton K, Morelande M, Farrell PM, Moran W, **Johnston LA**. Modelling and Estimation of Multicomponent T2 Distributions. *IEEE Transactions on Medical Imaging* 2013; **32**(8): 1423-34.

- Georgiou-Karistianis N, Gray MA, Domínguez JF, Dymowski AR, Bohanna I, **Johnston LA**, Churchyard A, Chua P, Stout JC, Egan GF. Automated differentiation of pre-diagnosis Huntington's disease from healthy control individuals based on quadratic discriminant analysis of the basal ganglia: The IMAGE-HD study. *Neurobiology of Disease* 2013; **51**: 82-92.

- Davey C, Grayden DB, Egan GF, **Johnston LA**. Filtering induces correlation in fMRI resting state data. *NeuroImage* 2013; **64**:728-40.

- Campbell-Washburn AE, Zhang H, Siow BM, Price AN, Lythgoe MF, **Ordidge RJ**, Thomas DL. Multislice cardiac arterial spin labeling using improved myocardial perfusion quantification with simultaneously measured blood pool input function. *Magnetic Resonance in Medicine* 2013; **70**(4): 1125-36.

- Rae C, Loo C, **Ordidge RJ**, Alonzo A, Lee V. Anodal transcranial direct current stimulation increases brain pH and modulates bioenergetics. *International Journal of Neuropsychopharmacology* 2013; 1**6**(8) 1695-1706.

- Campbell-Washburn, AE, Price AN, Ellmerich S, Simons JP, Al-Shawi R, Kalber TL, Ghatrora R, Hawkins PN, Moon JC, **Ordidge RJ**, Pepys MB, Lythgoe MF. Monitoring systemic amyloidosis using MRI measurements of the extracellular volume fraction. *Amyloid: The Journal of Protein Folding Disorders* 2013; **20**(2): 93-98.

- Chung AW, Thomas DL, **Ordidge RJ**, Clark CA. Diffusion tensor parameters and principal eigenvector coherence: Relation to b-value intervals and field strength. *Magnetic Resonance Imaging* 2013; **31**(5):742-7.

- Campbell-Washburn, A, Price A, Wells J, Thomas DL, **Ordidge RJ**, Lythgoe MF.. Cardiac arterial spin labeling using segmented ECG-gated Look-Locker FAIR: Variability and repeatability in preclinical studies. *Magnetic Resonance in Medicine* 2013; **69**: 238-247.

2012

- Norris FC, Modat M, **Cleary JO**, Price AN, McCue K, Scambler PJ, Ourselin S, Lythgoe MF. Segmentation propagation using a 3D embryo atlas for high-throughput MRI phenotyping: Comparison and validation with manual segmentation. *Magnetic Resonance in Medicine*, 2012; **69**(3):877-83

- Laufer J, Norris FC, **Cleary JO**, Zhang E, Treeby B, Cox B, Johnson P, Scambler PJ, Lythgoe MF, Beard P. *In vivo* photoacoustic imaging of mouse embryo. *J Biomed Opt*. 2012; **17**(6): 061220.2012

- Kolbe SK, Bajraszewski C, Chapman C, Nguyen T, **Johnston LA**, Kean M, Mitchell P, Butzkueven H,
- Paine M, Kilpatrick T, Egan GF. Diffusion Tensor Imaging of the Optic Radiations after Optic Neuritis. *Human Brain Mapping* 2012; **33**: 2047-61.

- Layton K, Morelande M, Farrell PM, Moran W, **Johnston LA**. Performance analysis for magnetic resonance imaging with nonlinear encoding fields. *IEEE Transactions on Medical Imaging* 2012; **31**(2): 391-404.

2011

- **Cleary JO**, Wiseman FK, Norris FC, Price AN, Choy M, Tybulewicz VL, **Ordidge RJ**, Brandner S, Fisher EM, Lythgoe MF. Structural correlates of active-staining following magnetic resonance microscopy in the mouse brain. *NeuroImage*. 2011; 56(3): 974-83.

- **Cleary JO***, Modat M*, Norris FC, Price AN, Jayakody SA, Martinez-Barbera JP, Greene ND, Hawkes DJ, **Ordidge RJ**, Scambler PJ, Ourselin S, Lythgoe MF. Magnetic resonance virtual histology for embryos: 3D atlases for automated high-throughput phenotyping. *NeuroImage* 2011; **54**(2): p769- 78. *Joint first authorship

- **Ng ACL**, **Johnston LA**, Chen A, Cho A, Zhang J, Egan GF. Spatially dependent filtering for removing phase distortions at the cortical surface. *Magnetic Resonance in Medicine* 2011; 66(3): 784-93.

- Cole LJ, Gavrilescu M, **Johnston LA**, Gibson SJ, Farrell MJ, Egan GF. The impact of Alzheimer's disease on the functional connectivity between brain regions underlying pain perception. *European Journal of Pain* 2011; **15**(6):568.e1-11.

- Bohanna IK, Asadi H, **Johnston LA**, Egan GF, Georgiou-Karistianis N, Churchyard A. Diffusion tensor imaging in Huntington's disease reveals distinct patterns of white matter degeneration associated with motor and cognitive deficits. *Brain Imaging and Behaviour* 2011; **5**(3): 171-80.

- Britto JM, Tait KJ, **Johnston LA**, Hammond VE, Kalloniatis M, Tan SS. Altered speeds and trajectories of neurons migrating in the ventricular and subventricular zones of the reeler neocortex. *Cerebral Cortex* 2011; **21**(5):1018-27.

- Thompson DK, Inder TE, Faggian N, **Johnston LA**, Warfield SK, Anderson PJ, Doyle LW, Egan GF. Characterization of the corpus callosum in very preterm and full-term infants utilizing MRI. *NeuroImage* 2011; **55**(2): 479-90.

- Schneider JE, Lanz T, Barnes H, Stork LA, Bohl S, Lygate CA, **Ordidge RJ**, Neubauer S. Accelerated cardiac magnetic resonance imaging in mouse using an eight-channel array at 9.4 Tesla. *Magnetic Resonance in Medicine* 2011; **65**(1): 60-70.

- **Cleary JO**, Modat M, Norris FC, Price AN, Jayakody SA, Martinez-Barbera JP, Greene ND, Hawkes DJ, **Ordidge RJ**, Scambler PJ, Ourselin S, Lythgoe MF. Magnetic resonance virtual histology for embryos: 3D atlases for automated high-throughput phenotyping. *Neuroimage* 2011; **54**(2): 769-78.

- **Cleary JO**, Wiseman FK, Norris FC, Price AN, Choy M, Tybulewicz VL, **Ordidge RJ**, Brandner S, Fisher EM, Lythgoe MF. Structural correlates of active-staining following magnetic resonance microscopy in the mouse brain. *Neuroimage* 2011; **56**(3): 974-83.