Independent Learning/Honours Projects with the Advanced Brain Imaging Group, Sydney Brain Centre

Group members & affiliates: Prof Mark Parsons, A/Prof Andrew Bivard, Dr Longting Lin, Dr Amy Chen, Dr Miranda Li, A/Prof Dennis Cordato , Dr Chris Blair, Dr Leon Edwards, Dr Angela Dos Santos, Dr James Thomas, Dr Andrew Cheung, Dr Nathan Manning

OUR HOSPITAL

- Liverpool Hospital is one of the leading Comprehensive Stroke Centres in the state, providing 24 hour thrombolysis and endovascular thrombectomy services to a local catchment area of approximately 1 million inhabitants and to air- and road-transferred stroke patients from across New South Wales.

OUR GROUP

- Based at the Ingham Institute for Applied Medical Research, the Advanced Brain Imaging Group is a multidisciplinary team of clinician scientists with well-established links to UNSW.

OUR RESEARCH

- The Advanced Brain Imaging Group has numerous research projects currently running, many of which are in collaboration with hospitals across the district and beyond (see publications). Liverpool is also one of the leading clinical trials centres in the state, with 12 trials currently underway.

HOW TO JOIN US

- We will supervise at least 4 ILP/Honours students between 2022-24. If you are keen, interested, and enjoy any of the disciplines listed below please email Prof Mark Parsons (**Mark.Parsons@unsw.edu.au**) or Dr Chris Blair (**Christopher.Blair@health.nsw.gov.au**).

YOUR INTERESTS & OURS

Consider joining us for your Independent Learning Project if you are interested in any of the following areas:

- Neurology
- Cardiovascular medicine
- Radiology/Neuroradiology
- Emergency medicine

YOUR ILP COMMITMENT

Under our supervision you will engage in the following activities over the course of your ILP:

- Experimental design, data collection/analysis including descriptive statistics and multivariate regression.
- Conference presentations (posters and oral abstracts).
- Authorship: manuscript preparation, submission, review and publication.

POTENTIAL PROJECTS FOR 2022-2023: SOME EXAMPLES

- Using CT perfusion imaging to characterize brain ischaemia: permeability maps/advanced perfusion imaging analysis using the INSPIRE database.
- Using CT perfusion imaging to characterize brain ischaemia: Small perfusion lesions.
- Novel perfusion patterns in stroke & mimics.
- AI: Development of evaluation/predictive performance - imaging segmentation benchmark model (Hons project) – DWI image segmentation.

SOME OF OUR RECENT PUBLICATIONS

•**Parsons MW**, Bivard A, et al, Donnan G, Davis S, Levi C. A randomized trial of tenecteplase and alteplase for acute ischemic stroke. ***N Engl J Med***. 2012;366(12):1099-107. (Citations: 505) FWCI 39.27 (top 1%)
A landmark article, because of the new treatment (Tenecteplase) being tested but also because of the novel imaging selection paradigm: the 'dual target' of vessel occlusion on CT angiography as well as a small infarct core and large penumbra on perfusion CT. This approach is now standard in international guidelines and widely used in clinical practice.
•Campbell BC, et al, **Parsons MW**, G.A. Donnan, and S.M. Davis. Endovascular therapy for ischemic stroke with perfusion-imaging selection. ***N Engl J Med.*** 2015;372(11):1009-18 (Citations: 4,102) FWCI 383.3 (top 1%)
This study adapted the same 'dual target' imaging selection approach to show that endovascular thrombectomy improved reperfusion and clinical outcomes, and led to thrombectomy becoming the new standard of care and massive worldwide practice change.
•B.C.V. Campbell, et al, **M.W. Parsons**, G.A. Donnan, and S.M. Davis. Tenecteplase versus Alteplase before Thrombectomy for Ischemic Stroke. ***N Engl J Med***. 2018;378(17):1573-1582. (Citations 204) FWCI 36.81 (top 1%)
This RCT showed that tenecteplase led to a higher rate of early reperfusion and led to improved outcomes. Has led to changes in guidelines for thrombolytic treatment before thrombectomy.
•Henry Ma, Bruce, Campbell, **Mark Parsons, et al**. Extending thrombolysis to 9 hours and wake-up stroke using perfusion imaging selection. ***New Engl J Med*** 2019; 380 (19): 1795-1803. (Citations 249) FWCI 69.1 (top 1%)
•Kernan WN, Viscoli CM, Furie KL, **Parsons MW**, et al, Wang D. Pioglitazone after ischemic stroke or Transient Ischemic Attack (IRIS trial). ***New Engl J Med*** 2016 April;(6):995-1003. (Citations 694). FWCI 78.9 (top 1%)