**Curriculum Vitae**

Jack Rivers Auty

Postdoctoral Researcher

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Education

PhD Pharmacology

Department of Pharmacology and Toxicology, University of Otago. April 2008 – April 2013.

Title: An investigation into the cannabinoid receptor type 2 as a therapeutic target for childhood cerebral hypoxia.

Diploma for Graduates in Applied Statistics

Department of Mathematics and Statistics, Massey University. January 2014 – Present.

First Class Post Graduate Diploma (Honours Equivalent)

Department of Botany, University of Otago. February 2007 – December 2007.

Title: The interaction between oxidative stress signals during heat stress and viral infection in Phaseolus Vulgaris. Evaluating the roles of antioxidant activity, DNA damage and lipid peroxidation during stress.

BSc (Anatomy) - Grade A average.

Department of Structural Anatomy, University of Otago. 2004-2006.

Awards

Winner of the best overall presentation at the ANZLAA New Zealand conference. 2014.

Winner, as voted by the audience, of the Australasian “Three Minute Thesis Competition”. 2011. <http://www.postgraduate.uwa.edu.au/news/3mt/video/rivers>

Winner of the University of Otago “Three Minute Thesis Competition”. 2011.

Winner of the Fred Fastier Oral Presentation Prize at the ASCEPT conference. 2009.

Finalist at the University of Otago “Three Minute Thesis Competition”. 2009.

Runner up in the Fred Fastier Oral Presentation Prize at the ASCEPT conference. 2008.

Recipient of the University of Otago Doctoral Scholarship. 2008.

Recipient of Marsden Funding for Doctoral Studies. 2008.

Relevant Employment History and Duties

Postdoctoral Researcher

University of Manchester, Faculty of Biology, Medicine and Health. October 2014 – Present.

Supervised by: Dr. Catherine Lawrence and Dr. David Brough.

Project: Zinc deficiency induced inflammasome activation as an exacerbating factor in Alzheimer’s disease.

Postdoctoral Researcher

University of Otago, Pathology Department. November 2013 - October 2014.

Supervised by: Prof. Robin Frazer, Prof. Madhav Bhatia and Prof. Mark Hampton.

Project: The role of hydrogen sulfide and neutrophil NETosis in sepsis.

Assistant Research Fellow/Postdoctoral Researcher

University of Otago, Pathology Department. January 2012- April 2013.

Supervised by: Prof. Madhav Bhatia.

Project: Hydrogen sulfide as a novel regulator of inflammation.

Pharmacology laboratory demonstrator

University of Otago, Department of Pharmacology. February 2009 – December 2011.

Head Senior Residential Assistant

Cumberland College, University of Otago. February 2009 - November 2011.

Grants Awarded

BBSRC Future Leaders Fellowship Award. Awarded Decemeber 2016, £ 298,137.76 (GBP). (Sole applicant)

Awarded for my salary, research consumables, small equipment and conference attendance. Grant award covers 3 years of research, the University of Manchester will also fund an additional year of research. Research topic: Understanding how dietary zinc and inflammation impact healthy ageing in the brain.

Alzheimer’s Research UK (ARUK) equipment grant. Awarded July 2016, £18310 (GBP). (Co-lead applicant with Dr. Sarah Ryan)

Awarded for mouse behaviour equipment including cameras, tracking software, rotor rod equipment and computers.

ARUK Network grant for small equipment. Awarded December 2015. £1231 (GBP). (Lead applicant)

Awarded for mouse behaviour equipment including custom Y-mazes and a Morris water maze.

ARUK Network grant for small equipment. Awarded April 2015. £4995 (GBP). (Co-lead applicant with Dr. David Brough)

Awarded for Class II microbiological safety cabinet with UV lamp, Stand and installation costs accounted.

Welcome Trust Collaborative Visit Grant. Awarded March 2015. £1950 (GBP). (Lead applicant)

Awarded for travel and consumables to visit Dr. Pablo Pelegrin’s laboratory at the Biomedical Research Institute, Murcia Health Foundation (IMIB-FFIS), Murcia, Spain.

Pump-priming award from the University of Manchester - Neurobiology Research Theme. Awarded March 2015. £750 (GBP). (Sole applicant)

Awarded for consumables for *in vitro* research on lysosomal mechanisms of inflammasome activation.

Canterbury Medical Research Foundation General Project Grant. Awarded November 2013. $50,000 (NZD). (Lead applicant)

Awarded for consumables for research into the role of the liver sieve in septic shock.

University of Otago Health Sciences Career Development Programme - Postdoctoral Fellowship. Awarded May 2013. $154,000 (NZD). (Sole applicant)

Awarded for my salary, conference attendances and consumables for two years researching the role of hydrogen sulfide and neutrophil NETosis in sepsis.

Publications

White CS, Lawrence CB, Brough D, **Rivers-Auty J** (2016) Inflammasomes as therapeutic targets for Alzheimer's disease. Brain Pathology: doi:10.1111/bpa.12478

Daniels\* MJ, **Rivers-Auty\* J**, Schilling T, Spencer NG, Watremez W, Fasolino V, Booth SJ, White CS, Baldwin AG, Freeman S, Wong R, Latta C, Yu S, Jackson J, Fischer N, Koziel V, Pillot T, Bagnall J, Allan SM, Paszek P, Galea J, Harte MK, Eder C, Lawrence CB, Brough D (2016) Fenamate NSAIDs inhibit the NLRP3 inflammasome and protect against Alzheimer's disease in rodent models. Nature Communications 7:12504. \* were equal contributors. doi:10.1038/ncomms12504

Xu J, Begley P, Church SJ, Patassini S, McHarg S, Kureishy N, Hollywood KA, Waldvogel H, Liu H, Zhang S, Lin W, Herholz K, Turner C, Synek BJ, Curtis MA, **Rivers-Auty J**, Lawrence CB, Kellett KAB, Hooper NM, Vardy ERLC, Wu D, Unwin RD, Faull RLM, Dowsey AW, Cooper GJS. Elevation of brain glucose and polyol-pathway intermediates with accompanying brain-copper deficiency in patients with Alzheimer’s disease: metabolic basis for dementia. Scientific Reports. 6:27524. doi:10.1038/srep27524

Martins I, **Rivers-Auty J**, Allan SM, Lawrence CB. Alzheimer’s like mitochondria and synaptic pathology in high-fat fed mice coincides with cognitive and memory deficits. Journal of Alzheimer’s Disease. Accepted.

**Rivers-Auty J**, Brough D, 2015. Potassium efflux fires the canon: Potassium efflux as a common trigger for canonical and noncanonical NLRP3 pathways. European Journal of Immunology. 45: 2758-61.

**Rivers-Auty J**, 2015. An evolutionary perspective on the immunomodulatory role of hydrogen sulphide. Medical Hypotheses. 85: 612-7.

**Rivers-Auty** J. 2014. The blind leading the blind: animal facility staff and researchers working together to reduce bias in animal research. Royal Society of New Zealand ANZCCART.

**Rivers-Auty J**, Smith PF, Ashton JC, 2014. The cannabinoid CB2 receptor agonist GW405833 does not ameliorate brain damage induced by hypoxia-ischemia in rats. Neuroscience Letters. 569, 104-9.

**Rivers-Auty J**, Ashton JC. 2013. Neuroinflammation in Ischemic Brain Injury as an Adaptive Process. Medical Hypotheses. 82(2): 151-8.

**Rivers-Auty J**, Ashton JC. 2013. Vehicles for Lipophilic Drugs: Implications for Experimental Design, Neuroprotection, and Drug Discovery. Current Neurovascular Research. 10(4);356-60

Badiei A, **Rivers-Auty J**, Ang A, Bhatia M. 2013. Inhibition of hydrogen sulfide production by gene silencing attenuates inflammatory activity of LPS-activated RAW264.7 cells. Applied Microbiology and Biotechnology. 97(17): 7845-52.

Ang AD, **Rivers-Auty J**, Akhil Hegde A, Ishii I, Bhatia M. 2013. The effect of CSE gene deletion in caerulein-induced acute pancreatitis in the mouse. American Journal of Physiology - Gastrointestinal and Liver Physiology. 305: 712-21.

**Rivers-Auty J** and Bhatia M. 2013. Hydrogen sulfide, systemic inflammatory response syndrome (SIRS) and compensatory anti-inflammatory response syndrome (CARS) following sepsis. OA Inflammation. 1(1):2-10.

**Rivers JR** and Ashton JC. 2013. Age matching animal models to humans - theoretical considerations. Current Drug Discovery Technologies. 10(3):177-81

Jupp L, **Rivers JR**, Bhatia M. 2013. Hydrogen sulfide and substance P in acute pancreatitis. In: Popescu AR, Singal PK, editors. Adaptation Biology and Medicine. New Delhi: Narosa Publishing House. 139-50.

**Rivers JR**, Badiei A, and Bhatia M. 2012. Hydrogen sulfide as a therapeutic target for inflammation. Expert Opinion on Therapeutic Targets. 16:439-449.

**Rivers JR**, Maggo SD, and Ashton JC. 2012. Neuroprotective effect of hydroxypropyl-beta-cyclodextrin in hypoxia-ischemia. NeuroReport. 23:134-138.

**Rivers JR**, and Ashton JC. 2012. Neonatal asphyxia and stroke: morbidity, models, consequences, and treatments in hypoxia: Causes, types and management. D. Vordermark, editor. Nova Publishers. 108-130.

**Rivers JR**, Sutherland BA, and Ashton JC. 2011. Characterization of a rat hypoxia-ischemia model where duration of hypoxia is determined by seizure activity. Journal of Neuroscience Methods. 197:92-96.

**Rivers JR**, and Ashton JC. 2010. The development of cannabinoid CBII receptor agonists for the treatment of central neuropathies. Central Nervous System Agents for Medicinal Chemistry. 10:47-64.

Position Held

Review editor for Frontiers of Immunology since June 2016. Involves engaging in the Frontiers reviewer and editor community.

Alzheimer’s research UK (ARUK) network early career representatives since October 2016. Involves reviewing grant application, organising networking and training events for early career researchers, and disseminating information to researchers and the public about ARUK events.

Guest Speaker, Media Appearances and Outreach

Presenter for the Manchester branch of Pint of Science, an international science outreach event. Topic: The coast of England, radioactive brains, bleach and other Alzheimer’s disease related things. May 2015.

Speaker and experiment demonstrator for the Pivots of Change outreach programme. Class and assembly presentations at St. Luke RC Primary School and St. Ambrose Barlow RC High School. Topic: The history and future of science. February 2015.

Invited speaker and workshop organiser. Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART). Topic: Experimental rigour and animal ethics. 2014.

University of Otago Christchurch Seminar Series. Topic: Cannabinoids and brain damage. June 2012.

Interviewed by Rebecca Rutherford for Critic Magazine on cannabinoid research. May 2012. <http://www.critic.co.nz/features/article/1924/jack-rivers>

Guest speaker at the departmental symposia for the University of Otago’s Department of Women’s and Children’s Health. Topic: Going beyond a PhD. November 2011.

Interviewed on Radio One on my research. Topic: Cannabinoids as a therapeutic target. September 2011. <http://r1.co.nz/podcasts.php>.

Creator of science blog websites [www.jackauty.com](http://www.jackauty.com) established January 2012 and [www.mereconjecture.com](http://www.mereconjecture.com) established January 2016.

Reviews for Peer Reviewed Journal Articles

Reviewed 1 article for the Journal of Neuroinflammation.

Reviewed 1 article for PLOS One.

Reviewed 2 articles for Journal of Neurochemistry.

Reviewed 1 article for European Journal of Inflammation.

Reviewed 1 article for Immunopharmacology and Immunotoxicology.

Reviewed 1 article for Frontiers Neurology

Reviewed 3 articles for Frontiers Immunology

I am also a review editor for Frontiers of Immunology

Conferences

**Rivers-Auty J**, Daniels MJ, White C, Beattie J, Lawrence C, Brough D. 2016. [Oral Presentation] Secretion of the pro-inflammatory cytokines interleukin-1β and its contribution to inflammation and Alzheimer’s disease. Unconventional protein and membrane traffic conference. Lecce, Italy.

**Rivers-Auty J**, White C, Beattie J, Brough D, and Lawrence C. 2016. [Oral Presentation] The role of zinc deficiency in NLRP3 regulated neuroinflammation in a mouse model of Alzheimer’s disease. Alzheimer’s Research UK Conference. Manchester, UK.

**Rivers-Auty J**, White C, Beattie J, Brough D, and Lawrence C. 2015. [Oral Presentation] Why Alzheimer’s disease research is important to me. Alzheimer’s Society Conference. Manchester, UK.

**Rivers-Auty J**. 2014. [Oral Presentation] The blind leading the blind. Animal facility staff and researchers working together to reduce bias in animal research. ANZLAA and ANZCAART. New Zealand.

**Rivers JR** and Ashton JC. 2011. [Poster] Cannabinoid receptor type II as a target for neuroprotection following hypoxia ischemia. Or is it an active vehicle in the driving seat? AWCBR. New Zealand.

**Rivers JR** and Ashton JC. 2010. [Poster] Effect of the cannabinoid CBII receptor partial agonist GW 405833 on neurological damage caused by hypoxia ischemia in rats. WCBR. Denver, USA.

**Rivers JR** and Ashton JC. 2009. [Oral Presentation] A new look at an old model: Analysing predicting factors of infarct size in a rat perinatal asphyxia model. AWCBR. New Zealand.

**Rivers JR** and Ashton JC. 2009. [Oral Presentation] Hypoxia ischemia and the selective protection of the penumbral striatum of the CBII partial agonist GW405833. ASCEPT. New Zealand.

**Rivers JR**, Sutherland BA, Brownjohn PW, Glass M, Aston JC. 2008. [Oral Presentation] Preliminary investigations into the specificity of antibody probes raised against the cannabinoid CBII receptor. ASCEPT. New Zealand.

References

Dr. Catherine Lawrence

Primary supervisor during my postdoctoral fellowship, Division of Neuroscience & Experimental Psychology, Faculty of Biology, Medicine and Health, University of Manchester, UK.

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Dr. David Brough

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Dr. John Ashton

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