Richard Brown

Department of Psychology and Neuroscience
Dalhousie University
Halifax, Nova Scotia
CANADA, B3H 4R2
Email: rebrown@dal.ca

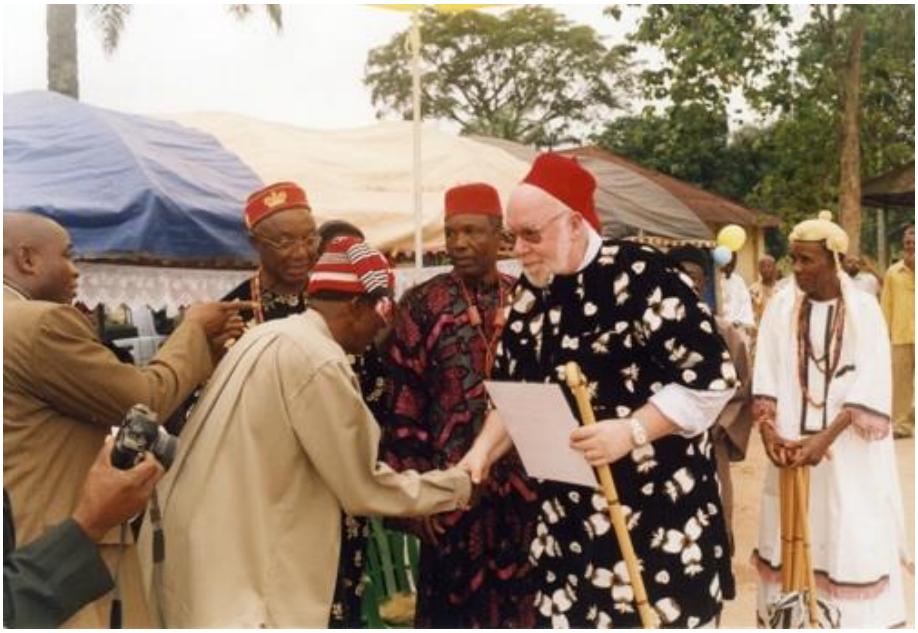
The main research focus of our lab is the behavioural characterization of transgenic mice. This research uses an ethological and a multiple memory systems approach to understand the effects of genetic manipulation and environmental effects on cognitive function in mouse models of human neurological disease. Our research aims to define the neuro-behavioural changes in genetically modified mice, and relate these changes to strain differences in genes, their patterns of expression, and their effect on neural and behavioural changes throughout the lifespan. We are currently testing two models of Autism and two mouse models of Alzheimer Disease using developmental and Mouse IQ test batteries that we have developed in the lab. These test batteries are a set of standardized tests that include the measurement of sensory abilities such as vision, hearing and olfaction and higher order behaviours such as learning, memory, anxiety and social behaviours. By defining the optimal research protocols for determining the lifespan psychobiological changes in the behavioural phenotypes of these mouse models of human disease we are able to test the efficacy of novel compounds on both behavioural and neurohistological measures.

Key publications:

(1). Brown, R.E. and Bolivar, S. The importance of behavioural bioassays in neuroscience. **Journal of Neuroscience Methods**, 2018. 300, 68-76.

(2). Rae, E.A. and Brown, R.E. The problem of genotype and sex differences in life expectancy in transgenic AD mice. **Neuroscience and Biobehavioural Reviews,** 2015, 57, 238-251.

(3). O'Leary, T.P., Shin, S., Fertan, E., Dingle, R.N., Almuklass, A., Gunn, R.K., Yu, Z., Wang, J., and Brown, R.E. Reduced acoustic startle response and peripheral hearing loss in the 5XFAD mouse model of AD. **Genes Brain and Behaviour**, 2017, 16, 554-563.



(4). O'Leary, T.P., Robertson, A., Chipman, P.H., Rafuse, V.F. and Brown, R.E. Motor function deficits in the 12 month-old 5xFAD mouse model of AD. **Behavioural Brain Research**, 2018. 337, 256-263.

(5). Stover, K.R., Campbell, M.A., Van Winssen, C.M., and Brown R.E. Early detection of cognitive deficits in the 3xTg mouse model of AD. **Behavioural Brain Research**, 2015, 289, 29-38.

(6). Schellinck, H.M., Cyr, D.P., and Brown, R.E. How many ways can mouse behavioral experiments go wrong? **Advances in the Study of Behavior**, 2010, 41, 255-366.