

## Dr Daniel Fulton

Birmingham Fellow

Neurobiology

### Contact details

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### About

Daniel Fulton is a Birmingham Fellow in the Neurotrauma and Neurodegeneration section of the School of Clinical and Experimental Medicine. Dr Fulton also holds an honorary appointment at the School of Life Science at the University of Warwick through his role as a Senior Research Fellow in the Science Cities Research Alliance.

### Qualifications

- Ph.D. Neuroscience 2003
- BSc Zoology 1999

### Biography

Daniel obtained his PhD in Neuroscience at the University of Sussex in 2003 where his thesis focused on the cellular mechanisms of learning and memory. Following his PhD he pursued postdoctoral research at the University of California Los Angeles (UCLA) where he continued to work on synaptic plasticity and learning and memory. In 2007 he joined the lab of Anthony Campagnoni (also at UCLA) where he began his work on glial biology. Daniel's work as a Research Neuroscientist in the Campagnoni lab focused on the physiological properties of oligodendrocytes and the expression of novel myelin proteins within striatal neurons. In 2010 Daniel was awarded a Senior Fellowship with the Science City Research Alliance and in 2011 he obtained a Marie Curie Career Integration Grant. Using these fellowships Daniel returned to the UK to pursue independent work at the University of Warwick investigating the role of neuronal activity in oligodendrocyte development and myelin formation. In July 2013 Daniel moved to the University of Birmingham to take up an appointment as a Birmingham Fellow where he is establishing a Glial Biology group within the Neurotrauma and Neurodegeneration section of the School of Clinical and Experimental Medicine.

Work within the Glial Biology group will continue to explore activity-dependent mechanisms controlling myelin formation and repair while also establishing new lines of research to complement the neurotrauma and repair work underway within the Neurotrauma and Neurodegeneration Section.

### Teaching

- BMedSci
- Neurotrauma: Degeneration and Regeneration

### Research

Dr Fulton studies the role of neuronal activity in guiding the development and repair of myelin in the central nervous system (CNS). This insulating material enwraps axons speeding the conduction of nerve impulses between distantly located brain regions. Damage to myelin through traumatic injury and disease disturbs the coordinated flow of information throughout the CNS and leading to impairments in cognition and movement. Therefore understanding the mechanisms by which neuronal activity promotes myelin formation and repair could have useful applications in the context of myelin replacement for individuals bearing myelin loss through disease and traumatic injury.

### Other activities

- Reviews Editor
- Frontiers in Neuropharmacology

### Publications

- **Fulton D, Paez P, Spreur V, Handley V, Colwell CS, Campagnoni A and Fisher R (2011) [Developmental activation of the proteolipid protein promoter transgene in neuronal and oligodendroglial cells of the neostriatum in mice](http://www.ncbi.nlm.nih.gov/pubmed/?term=Developmental+Neuroscience+33%3A170-184) (<http://www.ncbi.nlm.nih.gov/pubmed/?term=Developmental+Neuroscience+33%3A170-184>). *Developmental Neuroscience* 33(2):170-184 \*Selected for Editors Choice\***
- **Paez PM, Fulton D, Spreuer V, Handley V and Campagnoni AT (2011) [Modulation of canonical transient receptor potential channel 1 in the proliferation of oligodendrocyte precursor cells by the golli products of the myelin basic protein gene](http://www.ncbi.nlm.nih.gov/pubmed/21611111) (*Journal of Neuroscience*. 31, 3625-3637). *Journal of Neuroscience* 31(10):3625-3637**
- **Fulton D, Paez PM, Fisher R, Handley V, Colwell CS and Campagnoni AT (2010) [Regulation of L-type Ca<sup>++</sup> Currents and process morphology in white matter oligodendrocyte precursor cells by golli-myelin proteins](http://www.ncbi.nlm.nih.gov/pubmed/20611111) (<http://www.ncbi.nlm.nih.gov/pubmed/?term=Glia+58%3A1292-1303>). *Glia* 58:1292-1303**

- Paez PM, **Fulton D**, Spreuer V, Handley V and Campagnoni AT (2009) **Multiple kinase pathways regulate voltage-dependent  $Ca^{2+}$  influx & migration in oligodendrocyte precursor cells** (<http://www.ncbi.nlm.nih.gov/pubmed/?term=Multiple+kinase+pathways+regulate+voltage-dependent+Ca%2B%2B+influx+%26+migration+in+oligodendrocyteprecursor+cells>). *Journal of Neuroscience* 30(18):6422-643
- **Fulton D**<sup>1</sup>, Paez PM<sup>1</sup> and Campagnoni AT (2010) **The multiple roles of myelin protein genes during the development of the oligodendrocyte** (<http://www.ncbi.nlm.nih.gov/pubmed/20017732>). *ASN Neuro* 2(1):e00027 <sup>1</sup>Equal author contribution
- Paez PM, **Fulton DJ**, Spreuer V, Handley V, Campagnoni CW and Campagnoni AT (2009) **Golli myelin basic proteins regulate oligodendroglial progenitor cell migration through voltage-gated  $Ca^{2+}$  influx** (<http://www.ncbi.nlm.nih.gov/pubmed/?term=Golli+Myelin+Basic+Proteins+Regulate+Oligodendroglial+Progenitor+Cell+Migration+through+Voltage-Gated+Ca2%2BInflux>). *Journal of Neuroscience* 29(20):6663-6676
- Paez PM, **Fulton DJ**, Spreuer V, Handley V, Campagnoni CW and Campagnoni AT (2009) **Regulation of store-operated and voltage-operated  $Ca^{2+}$  channels in the proliferation and death of oligodendrocyte precursor cells by Golli proteins** (<http://www.ncbi.nlm.nih.gov/pubmed/?term=Regulation+of+store+operated+and+voltage+operated+Ca%2B%2B+channels+in+the+proliferation+and+death+of+oligodendrocyte+precursor+cells+by+Golli+proteins>). *ASN Neuro* 1(1):pii:e00003
- Paez PM<sup>1</sup>, **Fulton D**<sup>1</sup>, Colwell C and Campagnoni AT (2008) **Voltage-operated  $Ca^{2+}$  and  $Na^{+}$  channels in the oligodendrocyte lineage** (<http://www.ncbi.nlm.nih.gov/pubmed/?term=Voltage-operated+Ca2%2B+and+Na%2B+channels+in+the+oligodendrocyte+lineage>). *Journal of Neuroscience Research* 87(15):3259-3266 <sup>1</sup>Equal author contribution

