University of Birmingham

Dr Zubair Ahmed

Senior Lecturer in Neuroscience

Neurobiology

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About

Zubair Ahmed is a Lecturer in Neuroscience in the School of Clinical and Experimental Medicine. He has developed an independent programme of research based on understanding the molecular mechanisms controlling repair and regeneration in the central nervous system.

He has received funding from the International Spinal Research Trust and the Wellcome Trust.

Zubair is also a registered Science, Technology, Engineering and Mathematics (STEM) ambassador through which he has visited Schools in the West Midlands to try and enthuse the next generation of research leaders and communicate the benefits of a career in Science.

Qualifications

- PGCert in Academic Practice, 2014
- PhD in Plastic Surgery 1999
- BSc (Hons) Biochemistry 1995

Biography

Zubair studied for a PhD in Plastic Surgery at University College London where he investigated the repair of peripheral nerves using artificial biological matrices. He then moved to the Institute of Neurology (London) to investigate the mechanisms of disease development in Multiple Sclerosis.

Zubair moved to the University of Birmingham in 2002 where he investigated the mechanisms behind why central nervous system axons fail to regenerate and developed strategies to combat these complications. He was awarded an RCUK Academic Fellowship in NeuroRegeneration in 2007 to develop his own independently funded research programmes on themes such as neuroprotection in the eye and the formation of cavities after spinal cord injury. In 2011 he was promoted to Lecturer and in 2013 to Senior Lecturer, where he continues to develop his programme of research.

Zubair is a non-executive Board member and a co-founder of Neuregenix, a University of Birmingham-based spin-off company that seeks to exploit his work. He and his colleagues at Neuregenix have already demonstrated the preclinical efficacy of an anti-apoptotic gene-based medicine in protecting retinal neurons from injury-induced death. The target is now being assessed in Phase II clinical trials.

Teaching

- Co-programme Director for MSc Trauma Science (October 2014 start)
- Co-module coordinator for BMedSc Neuroscience 3 (Year 3)
- Lectures on the BMedSc Biomaterials programme (Year 1)
- Contributes to small group teaching in BMedSc Biomedical Science
- BMedSc Biomaterials and MBChB programmes (Years 1 and 2)
- Facilitator for Integrated Problems on the MBChB programme (Years 1 and 2)
- Supervisor for BMedSc Year 3 projects
- Personal Mentor for MBChB student

Postgraduate supervision

- Supervisor for MSc/MRes projects
- Currently supervises 3 PhD Students

Research

Zubair's research focus is on understanding the fundamental biology of the failure of CNS axon regeneration. Current projects in the lab include: strategies to promote axon regeneration and dissolution of the scar tissue after a chronic spinal cord injury; analysis of the angiogenic response after spinal cord injury; investigating the role of novel genes in CNS axon regeneration; the role of epidermal growth factor receptor in CNS axon regeneration and neuroprotection in spinal cord and optic nerve injury models.

Through these approaches, he and his colleagues have recently identified several molecules that are neuroprotective such as pigment epithelium-derived factor (PEDF) and combinations of neurotrophic factors. He has also demonstrated that inhibition of caspase-2, once thought to be an initiator caspase, protects both retinal and spinal neurons from apoptosis.

Other activities

- School representative on the College Library Committee
- School representative on the Postdoctoral Training and Career Development Committee
- Registered Science, Technology, Engineering and Mathematics (STEM) Ambassador

Publications

Ahmed Z, Bansal D, Tizzard K, Surey S, Esmaeili M, Gonzalez AM, Berry M and Logan A (2014) **Decorin blocks scarring and cystic cavitation in acute and induces scar dissolution in chronic spinal cord wounds (http://www.ncbi.nlm.nih.gov/pubmed/?term=Decorin+blocks+scarring+and+cystic+cavitation+in+acute+and+induces+scar+dissolution+in+chronic+spinal+cord+wounds)**. *Neurobiology of Disease* 64:163-76

Vigneswara V, Akpan N, Berry M, Logan A, Troy CM and Ahmed Z (2014) **Combined suppression of CASP2 and CASP6 protects retinal ganglion cells from apoptosis and promotes axon regeneration through CNTF-mediated JAK/STAT signalling (http://www.ncbi.nlm.nih.gov/pubmed/?term=Combined+suppression+of+caspase-2+and+caspase-6+protects+retinal+ganglion+cells+from+apoptosis+and+promotes+regeneration+through+CNTF-mediated+JAK%2FSTAT+signalling+pathway)**. *Brain* 137(Pt 6):1656-75

Lidster K, Jackson SJ, Ahmed Z, Munro P, Coffey P, Giovannoni G, Baker MD and Baker D (2013) **Neuroprotection in a novel mouse model of multiple sclerosis (http://www.ncbi.nlm.nih.gov/pubmed/?term=PLoS+ONE+8%3Ae79188)**. *PLoS ONE* 8(11):e79188

Ahmed Z, Douglas MR, John G, Berry M and Logan A (2013) **AMIGO3 is an NgR1/p75 co-receptor signalling axon growth inhibition in the acute phase of adult central nervous system injury (http://www.ncbi.nlm.nih.gov/pubmed/?term=AMIGO3+is+an+NgR1%2Fp75+co-receptor+signalling+axon+growth+inhibition+in+the+acute+phase+of+adult+central+nervous+system+injury)**. *PLoS ONE* 8(4):e61878

Vigneswara V, Berry M, Logan A and Ahmed Z (2013) **Pigment epithelium-derived factor is retinal ganglion cell neuroprotective and axogenic after optic nerve crush injury (http://www.ncbi.nlm.nih.gov/pubmed/23513062)**. *Invest Ophthalmol Vis Sci* 54(4):2624-33

Vigneswara V, Berry M, Logan A and Ahmed Z (2013) **Caspase-2 is upregulated after sciatic nerve transection and its inhibition protects dorsal root ganglion neurons from apoptosis after serum withdrawal (http://www.ncbi.nlm.nih.gov/pubmed/?term=PLoS+ONE+8%3Ae57861)**. *PLoS ONE* 8(2):e57861

Vigneswara V, Berry M, Logan A and Ahmed Z (2012) **Protection of axotomised retinal ganglion cells from apoptosis by inhibition of caspase-2 (http://www.ncbi.nlm.nih.gov/pubmed/?term=Protection+of+axotomised+retinal+ganglion+cells+from+apoptosis+by+inhibition+of+caspase-2)**. *PLoS ONE* 7(12):e53473

Jacques SJ*, Ahmed Z*, Forbes A, Douglas MR, Vigenswara V, Berry M and Logan A (2012) **AAV8(gfp) preferentially targets large diameter dorsal root ganglion neurones after both intra-dorsal root ganglion and intrathecal injection (http://www.ncbi.nlm.nih.gov/pubmed/?term=Mol+Cell+Neurosci+49%3A+464-474)**. *Mol Cell Neurosci* 49(4):464-474 ***Joint first authors**

For a full list of publications please click **here (http://www.ncbi.nlm.nih.gov/pubmed/?term=ahmed+z)**.

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