



Academy of the Social Sciences in Australia

Genetics and Pharmacology of Executive Control: Implications for attention deficit hyperactivity disorder (ADHD)

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Humans are characterised by a remarkable ability for flexible thought which enables us to interact in a complex social world. By selecting appropriate thoughts and actions and inhibiting those that are inappropriate, we are able to guide behaviour on a moment to moment basis. The consequences of disruption to these "executive" abilities can be dramatic, as exemplified by a wide range of both neurologic and neuropsychiatric disorders, where goal-directed behaviour is affected.

In evolutionary terms the development of such executive capacities has in large part paralleled the development of the frontal lobe of the human brain. It is perhaps unsurprising that individual differences in executive capacity are strongly genetic in origin. Recent advances arising from the human genome project have given scientists unprecedented ability to identify genes for human traits, including cognitive ability. In this lecture A/Professor Bellgrove will outline recent work from his laboratory showing that gene variants involved in dopamine and noradrenaline signalling are associated with individual differences in executive ability. He will discuss the implications of these findings for the biology and drug treatment of attention deficit hyperactivity disorder (ADHD).

Associate Professor Bellgrove is the recipient of the 2009 Academy of Social Sciences in Australia's Paul Bourke Award for Early Career Research, an award established in the memory of Professor Paul Francis Bourke (1938 - 1999).

A/Prof Mark Bellgrove works at the interface of psychology, genetics and pharmacology, examining the molecular, genetic and neurochemical correlates of attention and disorders of attention. A/Prof Bellgrove currently leads a multi-disciplinary group of 17 researchers at the Queensland Brain Institute. With over 50 published papers, A/Prof. Bellgrove has quickly established an international profile, particularly in the area of the molecular genetic correlates of cognition in children with ADHD. He recently edited *The Handbook of ADHD*, a state-of-the-art text on clinical and experimental research in this widespread clinical condition. A/Prof. Bellgrove currently holds NHMRC and NARSAD research fellowships, and has attracted in excess of five million dollars in competitive funding, including three NHMRC grants and one ARC grant as lead investigator.



PAUL BOURKE LECTURE



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

5:50 for 6pm, Wednesday 30 June 2010
Auditorium, Level 7, Queensland Brain Institute
The University of Queensland
Upland Road, St Lucia Campus
FREE ADMISSION, BOOKINGS ESSENTIAL
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Professor Paul Greenfield AO, Vice-Chancellor, UQ, and Professor Barry McGaw, President, ASSA, cordially invite guests to stay for refreshments at the conclusion of the lecture.