

# CV: PETER HOLMANS

## Current Position

**Position:** Professor of Biostatistics & Genetic Epidemiology

**Email:** holmanspa@cardiff.ac.uk

**Telephone:** 029 2074 8154

**Location:** Bioinformatics and Biostatistics Unit, MRC Centre for Neuropsychiatric Genetics and Genomics, School of Medicine, Cardiff University, Heath Park, Cardiff, CF14 4XN

## Qualifications:

**1989** BA in Mathematics, Cambridge University, UK

**1990** MSc in Statistics, Sheffield University, UK

**1994** PhD in Genetic Epidemiology, Cambridge University, UK.

## Employment History:

**1993-1998:** Research Assistant, Dept of Psychological Medicine, University of Wales College of Medicine, Cardiff, UK

**1998-2000:** Visiting Assistant Professor, Dept of Psychiatry, Washington University School of Medicine, St Louis, USA

**2000-2003:** Senior Statistician, MRC Biostatistics Unit, Cambridge, UK

**2003-pres:** Professor of Biostatistics & Genetic Epidemiology, Bioinformatics and Biostatistics Unit, Department Psychological Medicine, School of Medicine, Cardiff University, UK

## Research Interests

I have a long-standing interest in the analysis of genome-wide linkage and association studies of complex genetic traits. I have also recently become involved in the analysis of gene expression data, in genome-wide linkage and association studies to find eQTLs relevant to disease. I have taken an active role in developing novel statistical methodology for linkage and association analysis of complex genetic traits, notably in the use of covariates in linkage and association studies, and the effects of genotyping error on genetic studies. Currently, I am particularly interested in the analysis of functional pathways in genome-wide association, CNV, gene expression and next-gen sequencing data. Over the past few years, I have collaborated with Professors Steve Dunnett and Lesley Jones on the analysis of gene expression data in relation to Huntington's disease, and am currently involved in the design and analysis of a large scale genome-wide association study of genetic modifiers in HD.

I served on the Board of Directors of the International Genetic Epidemiology Society from 2001-2003.

## **Current Grants**

**Molecular genetics of schizophrenia** MJ Owen, NJ Craddock, PA Holmans, G Kirov, MC O'Donovan, AJ Pocklington (01/12/11-30/11/16, £2,341,839 Medical Research Council)

**Biomedical Research Centre** MJ Owen, JI Bisson, NJ Craddock, PA Holmans, IR Jones, DEJ Linden, MC O'Donovan, A Thapar, J Williams (31/03/11 – 30/03/14, £2,995,123 Welsh Government (NISCHR))

**Genetic dissection of the mood-psychosis spectrum** NJ Craddock, PA Holmans, IR Jones, G Kirov, MC O'Donovan, MJ Owen (01/04/06-31/03/12, £1,070,262, Wellcome Trust)

**A comparative study of behavioural, anatomical and molecular changes in modes of Huntington's disease** S Dunnett, S Brooks P Holmans L Jones (01/10/10-31/12/11, £610,337, CHDI Foundation)

**Identifying genetic risk for late-onset Alzheimer's disease: The GERAD consortium.**  
J Williams, P Holmans, G Kirov, V Moskvina, M O'Donovan, M Owen (01/03/11-31/08/12, £1,138,356 , MRC)

**Genetic dissection of abnormal oligodendrocyte and myelin function in schizophrenia.** M O'Donovan, M Owen, N Craddock, G Kirov, P Holmans, V Moskvina (01/08/07 - 31/7/12, \$816,835, NIH)

**Molecular genetics in schizophrenia** M Owen, M O'Donovan, N Craddock, P Holmans, V Moskvina (1/12/08-30/11/11, £1,686,836. Medical Research Council)

**Identifying susceptibility genes for attention deficit hyperactivity disorder with antisocial behaviour as a covariate.** A Thapar, M Owen, MC O'Donovan, P Holmans M Van den Bree (01/06/06-30/06/12 £856,936 Wellcome Trust)

## Some relevant recent publications (selected from 186 in total)

**Strand AD, Baquet ZC, Aragaki AK, Holmans P et al.** (2007) Expression profiling of Huntington's disease models suggests that brain-derived neurotrophic factor depletion plays a major role in striatal degeneration. *J Neurosci* **27**(43):11758-11768

**Hodges A, Hughes G, Brooks S, Elliston L, Holmans P et al.** (2008) Brain gene expression correlates with changes in behavior in the R6/1 mouse model of Huntington's disease. *Genes Brain Behav* **7**(3):288-299

**Moskvina V, Craddock N, Holmans P et al.** (2009) Gene-wide analyses of genome-wide association data sets: evidence for multiple common risk alleles for schizophrenia and bipolar disorder and for overlap in genetic risk. *Mol Psychiatry* **14**(3):252-260

**Webster JA, Gibbs JR, Clarke J, Ray M, Zhang W, Holmans P et al.** (2009) Genetic control of human brain transcript expression in Alzheimer disease. *Am J Hum Genet* **84**(4):445-458

**Holmans P, Green EK et al.** (2009) Gene ontology analysis of GWA study data sets provides insights into the biology of bipolar disorder. *Am J Hum Genet* **85**(1):13-24

**Shi J, Levinson DF, Duan J, Sanders AR, Zheng Y, Pe'er I, Dudbridge F, Holmans PA et al.** (2009) Common variants on chromosome 6p22.1 are associated with schizophrenia. *Nature* **460**(7256):753-757

**Harold D et al.** (2009) Genome-wide association study identifies variants at CLU and PICALM associated with Alzheimer's disease. *Nat Genet* **41**(10):1088-1093

**Jones L, Holmans PA et al.** (2010) Genetic evidence implicates the immune system and cholesterol metabolism in the aetiology of Alzheimer's disease. *PLoS One*. **5**(11):e13950

**Williams NM, Zaharieva I, Martin A, ..., Holmans P, Owen MJ, O'Donovan M, Thapar A** (2010) Rare chromosomal deletions and duplications in attention-deficit hyperactivity disorder: a genome-wide analysis. *Lancet* **376**:1401-1408

**Shi J, Potash JB, Knowles JA, ..., Holmans P, Levinson DF.** (2011) Genome-wide association study of recurrent early-onset major depressive disorder. *Mol Psychiatry*. **16**(2):193-201

**Levinson DF, Duan J, Oh S, ..., Holmans PA, Gejman PV** (2011) Copy Number Variants in Schizophrenia: Confirmation of Five Previous Findings and New Evidence for 3q29 Microdeletions and VIPR2 Duplications. *Am J Psychiatry*. **168**(3):302-16

**Kirov G, Pocklington AJ, Holmans P et al.** (2012) De novo CNV analysis implicates specific abnormalities of postsynaptic signaling complexes in the pathogenesis of schizophrenia. *Mol Psychiatry* **17**(2):142-153

**Richards AL, Jones L, ..., Holmans P, O'Donovan MC** (2012) Schizophrenia susceptibility alleles are enriched for alleles that affect gene expression in adult human brain. *Mol Psychiatry* **17**(2):193-201