Curriculum Vitae (Revised 16th June 2009)

Pak C Sham

Present Position:

Chair Professor of Psychiatric Genomics, Head of Department of Psychiatry, LKS Faculty of Medicine, The University of Hong Kong

Academic & Medical Qualifications:

1981	B.A. Medical Sciences, University of Cambridge
1984	B.M, B.Ch. Clinical Medicine, University of Oxford
1989	M.R.C.Psych. Royal College of Psychiatrists, UK
1991	M.Sc. Applied Statistics & Operational Research, Birkbeck College, London
2001	Ph.D. Genetics, University of Cambridge

Employment:

1986-1987	Senior House Officer in Psychiatry, Northwick Park and Shenley Hospitals, UK
1987-1989	Registrar in Psychiatry, Bethlem Royal and Maudsley Hospitals, UK
1990-1994	Wellcome Trust Fellow and Honorary Senior Registrar, Institute of Psychiatry, London, UK
1994-1998	Senior Lecturer, Department of Psychological Medicine, and Department of Biostatistics and Computing, Institute of Psychiatry, London, UK
1998-2000	Reader in Psychiatric and Statistical Genetics, Department of Psychological Medicine, Institute of Psychiatry, London
1994-2006	Honorary Consultant Psychiatrist, Bethlem Royal and Maudsley Hospitals, London
2000-2006	Professor of Psychiatric and Statistical Genetics, Department of Psychiatry, Institute of Psychiatry, London
2004-2006	Visiting Professor, Department of Psychiatry and Genome Research Centre, The University of Hong Kong
2006-Present	Chair Professor of Psychiatric Genomics, LKS Faculty of Medicine, The University of Hong Kong.
2008-Present	Head, Department of Psychiatry, LKS Faculty of Medicine, The University of Hong Kong

Publications:

- Publications in journals (ISI Web of Science search on 16.06.08 for Sham PC OR Sham P)
  - 375 peer-reviewed articles
  - 197 conference abstracts / proceeding papers
  - Average citation per item 25.54
  - H-index 59
- 2 books
  - Sham PC **Statistics in Human Genetics**. Edward Arnold, London, 1998
  - Bishop T, Sham PC **Analysis of Multifactorial Disease**. Bios, London, 2000
- 8 book chapters

Fifty-nine Most Cited Publications (Citations according to ISI Web of Science search on 16.06.09):

Sham, P.C., and Curtis, D. (1995). Monte-carlo tests for associations between disease and alleles at highly polymorphic loci. Annals of Human Genetics 59, 97-105. (Citations **659**)

Sham, P.C., and Curtis, D. (1995). An extended transmission/disequilibrium test (TDT) for multi-allele marker loci. Annals of Human Genetics 59, 323-336. (Citations **510**)

Purcell, S., Cherny, S.S., and **Sham, P.C.** (2003). Genetic Power Calculator: design of linkage and association genetic mapping studies of complex traits. Bioinformatics 19, 149-150. (Citations **480**)

Frazer, K.A., Ballinger, D.G., Cox, D.R et al…. **Sham, P.C.** …. (2007). A second generation human haplotype map of over 3.1 million SNPs. Nature 449, 851-U853. (Citations **401**)

Bullmore, E., Brammer, M., Williams, S.C.R., Rabehesketh, S., Janot, N., David, A., Mellers, J., Howard, R., and **Sham, P.** (1996). Statistical methods of estimation and inference for functional MR image analysis. Magnetic Resonance in Medicine 35, 261-277. (Citations **365**)

Collier, D.A., Stober, G., Li, T., Heils, A., Catalano, M., DiBella, D., Arranz, M.J., Murray, R.M., Vallada, H.P., Bengel, D., et al…. **Sham, P.**… (1996). A novel functional polymorphism within the promoter of the serotonin transporter gene: Possible role in susceptibility to affective disorders. Molecular Psychiatry 1, 453-460. (Citations **351**)

Chumakov, I., Blumenfeld, M., Guerassimenko, O., Cavarec, L., Palicio, M., Abderrahim, H., Bougueleret, L., Barry, C., Tanaka, H., La Rosa, P., et al…. **Sham, P.C.** …. (2002). Genetic and physiological data implicating the new human gene G72 and the gene for D-amino acid oxidase in schizophrenia. Proceedings of the National Academy of Sciences of the United States of America 99, 13675-13680. (Citations **344**)

Purcell, S., Neale, B., Todd-Brown, K., Thomas, L., Ferreira, M.A.R., Bender, D., Maller, J., Sklar, P., de Bakker, P.I.W., Daly, M.J., et al…. **Sham, P.C.** …. (2007). PLINK: A tool set for whole-genome association and population-based linkage analyses. American Journal of Human Genetics 81, 559-575. (Citations **319**)

Zhao, J.H., Curtis, D., and **Sham, P.C.** (2000). Model-free analysis and permutation tests for allelic associations. Human Heredity 50, 133-139. (Citations **284**)

Ocallaghan, E., **Sham, P.**, Takei, N., Glover, G., and Murray, R.M. (1991). Schizophrenia after prenatal exposure to 1957 A2-influenza epidemic. Lancet 337, 1248-1250. (Citations **260**)

Fulker, D.W., Cherny, S.S., **Sham, P.C.**, and Hewitt, J.K. (1999). Combined linkage and association sib-pair analysis for quantitative traits. American Journal of Human Genetics 64, 259-267. (Citations **239**)

Cardno, A.G., Marshall, E.J., Coid, B., Macdonald, A.M., Ribchester, T.R., Davies, N.J., Venturi, P., Jones, L.A., Lewis, S.W., **Sham, P.C.**, et al. (1999). Heritability estimates for psychotic disorders - The Maudsley Twin psychosis series. Archives of General Psychiatry 56, 162-168. (Citations **225**)

Arranz, M., Collier, D., Sodhi, M., Ball, D., Roberts, G., Price, J., **Sham, P.**, and Kerwin, R. (1995). Association between clozapine response and allelic variation in 5HT(2A) receptor gene. Lancet 346, 281-282. (Citations **224**)

Neale, B.M., and **Sham, P.C.** (2004). The future of association studies: Gene-based analysis and replication. American Journal of Human Genetics 75, 353-362. (Citations **210**)

Sham, P., Bader, J.S., Craig, I., O'Donovan, M., and Owen, M. (2002). DNA pooling: A tool for large-scale association studies. Nature Reviews Genetics 3, 862-871. (Citations **195**)

Eley, T.C., Sugden, K., Corsico, A., Gregory, A.M., **Sham, P.**, McGuffin, P., Plomin, R., and Craig, I.W. (2004). Gene-environment interaction analysis of serotonin system markers with adolescent depression. Molecular Psychiatry 9, 908-915. (Citations **178**)

Sham, P.C., Ocallaghan, E., Takei, N., Murray, G.K., Hare, E.H., and Murray, R.M. (1992). Schizophrenia following prenatal exposure to influenza epidemics between 1939 and 1960. British Journal of Psychiatry 160, 461-466. (Citations **173**)

Lam, D.H., Watkins, E.R., Hayward, P., Bright, J., Wright, K., Kerr, N., Parr-Davis, G., and **Sham, P.** (2003). A randomized controlled study of cognitive therapy for relapse prevention for bipolar affective disorder - Outcome of the first year. Archives of General Psychiatry 60, 145-152. (Citations **153**)

Gill, M., Vallada, H., Collier, D., **Sham, P.**, Holmans, P., Murray, R., McGuffin, P., Nanko, S., Owen, M., Antonarakis, S., et al. (1996). A combined analysis of D22S278 marker alleles in affected sib-pairs: Support for a susceptibility locus for schizophrenia at chromosome 22q12. American Journal of Medical Genetics 67, 40-45. (Citations **147**)

Arranz, M.J., Munro, J., Birkett, J., Bolonna, A., Mancama, D., Sodhi, M., Lesch, K.P., Meyer, J.F.W., **Sham, P.**, Collier, D.A., et al. (2000). Pharmacogenetic prediction of clozapine response. Lancet 355, 1615-1616. (Citations **145**)

Sham, P.C., Purcell, S., Cherny, S.S., and Abecasis, G.R. (2002). Powerful regression-based quantitative-trait linkage analysis of general pedigrees. American Journal of Human Genetics 71, 238-253. (Citations **143**)

Curtis, D., and **Sham, P.C.** (1995). A note on the application of the transmission disequilibrium test when a parent is missing. American Journal of Human Genetics 56, 811-812. (Citations **139**)

Collier, D.A., Arranz, M.J., **Sham, P.**, Battersby, S., Vallada, H., Gill, P., Aitchison, K.J., Sodhi, M., Li, T., Roberts, G.W., et al. (1996). The serotonin transporter is a potential susceptibility factor for bipolar affective disorder. Neuroreport 7, 1675-1679. (Citations **137**)

McGuffin, P., Rijsdijk, F., Andrew, M., **Sham, P.**, Katz, R., and Cardno, A. (2003). The heritability of bipolar affective disorder and the genetic relationship to unipolar depression. Archives of General Psychiatry 60, 497-502. (Citations **137**)

Cardno, A.G., Rijsdijk, F.V., **Sham, P.C.**, Murray, R.M., and McGuffin, P. (2002). A twin study of genetic relationships between psychotic symptoms. In. (San Francisco, Ca), pp 539-545. (Citations **133**)

Sham, P.C., Cherny, S.S., Purcell, S., and Hewitt, J.K. (2000). Power of linkage versus association analysis of quantitative traits, by use of variance-components models, for sibship data. American Journal of Human Genetics 66, 1616-1630. (Citations **133**)

Jones, P.B., Bebbington, P., Foerster, A., Lewis, S.W., Murray, R.M., Russell, A., **Sham, P.C.**, Toone, B.K., and Wilkins, S. (1993). Premorbid social underachievement in schizophrenia - results from the Camberwell collaborative psychosis study. British Journal of Psychiatry 162, 65-71. (Citations **124**)

Arranz, M.J., Munro, J., **Sham, P.**, Kirov, G., Murray, R.M., Collier, D.A., and Kerwin, R.S. (1998). Meta-analysis of studies on genetic variation in 5-HT2A receptors and clozapine response. Schizophrenia Research 32, 93-99. (Citations **120**)

McDonald, C., Bullmore, E.T., **Sham, P.C.**, Chitnis, X., Wickham, H., Bramon, E., and Murray, R.M. (2004). Association of genetic risks for schizophrenia and bipolar disorder with specific and generic brain structural endophenotypes. Archives of General Psychiatry 61, 974-984. (Citations **113**)

VanOs, J., Fahy, T.A., Jones, P., Harvey, I., **Sham, P.**, Lewis, S., Bebbington, P., Toone, B., Williams, M., and Murray, R. (1996). Psychopathological syndromes in the functional psychoses: Associations with course and outcome. Psychological Medicine 26, 161-176. (Citations **108**)

Sodhi, M.S., Arranz, M.J., Curtis, D., Ball, D.M., **Sham, P.**, Roberts, G.W., Price, J., Collier, D.A., and Kerwin, R.W. (1995). Association between clozapine response and allelic variation in the 5-HT2c receptor gene. Neuroreport 7, 169-172. (Citations **106**)

Arranz, M.J., Munro, J., Owen, M.J., Spurlock, G., **Sham, P.C.**, Zhao, J., Kirov, G., Collier, D.A., and Kerwin, R.W. (1998). Evidence for association between polymorphisms in the promoter and coding regions of the 5-HT2A receptor gene and response to clozapine. Molecular Psychiatry 3, 61-66. (Citations **102**)

Brookes, K., Xu, X., Chen, W., Zhou, K., Neale, B., Lowe, N., Aneey, R., Franke, B., Gill, M., Ebstein, R., et al…. **Sham, P.** …. (2006). The analysis of 51 genes in DSM-IV combined type attention deficit hyperactivity disorder: association signals in DRD4, DAT1 and 16 other genes. Molecular Psychiatry 11, 934-953. (Citations **93**)

Pulver, A.E., Karayiorgou, M., Lasseter, V.K., Wolyniec, P., Kasch, L., Antonarakis, S., Housman, D., Kazazian, H.H., Meyers, D., Nestadt, G., et al…. **Sham, P.** … (1994). Follow-up of a report of a potential linkage for schizophrenia on chromosome 22Q12-Q13.1 .2. American Journal of Medical Genetics 54, 44-50. (Citations **93**)

Curtis, D., and **Sham, P.C.** (1995). Model-free linkage analysis using likelihoods. American Journal of Human Genetics 57, 703-716. (Citations **91**)

Shaikh, S., Collier, D.A., **Sham, P.C.**, Ball, D., Aitchison, K., Vallada, H., Smith, I., Gill, M., and Kerwin, R.W. (1996). Allelic association between a Ser-9-Gly polymorphism in the dopamine D3 receptor gene and schizophrenia. Human Genetics 97, 714-719. (Citations **85**)

Murray, R.M., **Sham, P.**, Van Os, J., Zanelli, J., Cannon, M., and McDonald, C. (2004). A developmental model for similarities and dissimilarities between schizophrenia and bipolar disorder. Schizophrenia Research 71, 405-416. (Citations **85**)

Bramon, E., Rabe-Hesketh, S., **Sham, P.**, Murray, R.M., and Frangou, S. (2004). Meta-analysis of the P300 and P50 waveforms in schizophrenia. Schizophrenia Research 70, 315-329. (Citations **84**)

Lowe, N., Kirley, A., Hawi, Z., **Sham, P.**, Wickham, H., Kratochvil, C.J., Smith, S.D., Lee, S.Y., Levy, F., Kent, L., et al. (2004). Joint analysis of the DRD5 marker concludes association with attention-deficit/hyperactivity disorder confined to the predominantly inattentive and combined subtypes. American Journal of Human Genetics 74, 348-356. (Citations **84**)

Li, T., **Sham, P.C.**, Vallada, H., Xie, T., Tang, X., Murray, R.M., Liu, X., and Collier, D.A. (1996). Preferential transmission of the high activity allele of COMT in schizophrenia. Psychiatric Genetics 6, 131-133. (Citations **81**)

St Clair, D., Xu, M.Q., Wang, P., Yu, Y.Q., Fang, Y.R., Zhang, F., Zheng, X.Y., Gu, N.F., Feng, G.Y., **Sham, P.**, et al. (2005). Rates of adult schizophrenia following prenatal exposure to the Chinese famine of 1959-1961. Jama-Journal of the American Medical Association 294, 557-562. (Citations **81**)

Li, T., Ball, D., Zhao, J., Murray, R.M., Liu, X., **Sham, P.C.**, and Collier, D.A. (2000). Family-based linkage disequilibrium mapping using SNP marker haplotypes: application to a potential locus for schizophrenia at chromosome 22q11. Molecular Psychiatry 5, 77-84. (Citations **80**)

Zhao, J.H., and **Sham, P.C.** (2002). Faster haplotype frequency estimation using unrelated subjects. Human Heredity 53, 36-41. (Citations **80**)

Vallada, H.P., Gill, M., **Sham, P.**, Lim, L.C.C., Nanko, S., Asherson, P., Murray, R.M., McGuffin, P., Owen, M., and Collier, D. (1995). Linkage studies on chromosome-22 in familial schizophrenia. American Journal of Medical Genetics 60, 139-146. (Citations **79**)

Dawson, E., Parfitt, E., Roberts, Q., Daniels, J., Lim, L., **Sham, P.**, Nothen, M., Propping, P., Lanczik, M., Maier, W., et al. (1995). Linkage studies of bipolar disorder in the region of the dariers-disease gene on chromosome 12Q23-24.1. American Journal of Medical Genetics 60, 94-102. (Citations **78**)

Al-Chalabi, A., Andersen, P.M., Chioza, B., Shaw, C., **Sham, P.C.**, Robberecht, W., Matthijs, G., Camu, V., Marklund, S.L., Forsgren, L., et al. (1998). Recessive amyotrophic lateral sclerosis families with the D90A SOD1 mutation share a common founder: evidence for a linked protective factor. Human Molecular Genetics 7, 2045-2050. (Citations **78**)

Ohadi, M., Lalloz, M.R.A., **Sham, P.**, Zhao, J.H., Dearlove, A.M., Shiach, C., Kinsey, S., Rhodes, M., and Layton, D.M. (1999). Localization of a gene for familial hemophagocytic lymphohistiocytosis at chromosome 9q21.3-22 by homozygosity mapping. American Journal of Human Genetics 64, 165-171. (Citations **77**)

Li, T., Holmes, C., **Sham, P.C.**, Vallada, H., Birkett, J., Kirov, G., Lesch, K.P., Powell, J., Lovestone, S., and Collier, D. (1997). Allelic functional variation of serotonin transporter expression is a susceptibility factor for late onset Alzheimer's disease. Neuroreport 8, 683-686. (Citations **71**)

Takei, N., **Sham, P.**, Ocallaghan, E., Murray, G.K., Glover, G., and Murray, R.M. (1994). Prenatal exposure to influenza and the development of schizophrenia - is the effect confined to females. American Journal of Psychiatry 151, 117-119. (Citations **69**)

Sham, P.C., Jones, P., Russell, A., Gilvarry, K., Bebbington, P., Lewis, S., Toone, B., and Murray, R. (1994). Age at onset, sex, and familial psychiatric morbidity in schizophrenia – Camberwell collaborative psychosis study. British Journal of Psychiatry 165, 466-473. (Citations **68**)

Duggan, C., **Sham, P.**, Lee, A., Minne, C., and Murray, R. (1995). Neuroticism: A vulnerability marker for depression evidence from a family study. Journal of Affective Disorders 35, 139-143. (Citations **68**)

Zhao, J.H., Lissarrague, S., Essioux, L., and **Sham, P.C.** (2002). GENECOUNTING: haplotype analysis with missing genotypes. Bioinformatics 18, 1694-1695. (Citations **68**)

AlChalabi, A., Enayat, Z.E., Bakker, M.C., **Sham, P.C.**, Ball, D.M., Shaw, C.E., Lloyd, C.M., Powell, J.F., and Leigh, P.N. (1996). Association of apolipoprotein E epsilon 4 allele with bulbar-onset motor neuron disease. Lancet 347, 159-160. (Citations **67**)

Kunugi, H., Vallada, H.P., **Sham, P.C.**, Hoda, F., Arranz, M.J., Li, T., Nanko, S., Murray, R.M., McGuffin, P., Owen, M., et al. (1997). Catechol-O-methyltransferase polymorphisms and schizophrenia: a transmission disequilibrium study in multiply affected families. Psychiatric Genetics 7, 97-101. (Citations **66**)

Sham, P.C., and Purcell, S. (2001). Equivalence between Haseman-Elston and variance-components linkage analyses for sib pairs. American Journal of Human Genetics 68, 1527-1532. (Citations **66**)

Lam, D.H., Hayward, P., Watkins, E.R., Wright, K., and **Sham, P.** (2005). Relapse prevention in patients with bipolar disorder: Cognitive therapy outcome after 2 years. American Journal of Psychiatry 162, 324-329. (Citations **66**)

Purcell, S., Daly, M.J., and **Sham, P.C.** (2007). WHAP: haplotype-based association analysis. Bioinformatics 23, 255-256. (Citations **65**)

Li, D.W., **Sham, P.C.**, Owen, M.J., and He, L. (2006). Meta-analysis shows significant association between dopamine system genes and attention deficit hyperactivity disorder (ADHD). Human Molecular Genetics 15, 2276-2284. (Citations **63**)

Lam, D.H., Bright, J., Jones, S., Hayward, P., Schuck, N., Chisholm, D., and **Sham, P.** (2000). Cognitive therapy for bipolar illness - A pilot study of relapse prevention. Cognitive Therapy and Research 24, 503-520. (Citations **61**)

Academic Awards:

2006 Scientific Programme Chairman. Hong Kong Society of Biological Psychiatry Meeting
2006 Director, Croucher Foundation Advanced Study Institute. Statistical Genetics: From Haplotype Map to Disease Susceptibility Genes (2006)
2007 Director, Croucher Foundation Advanced Study Institute. Genome Bioinformatics: From Gene Finding to Systems Biology (2007)
2008 Director, Croucher Foundation Advanced Study Institute. Genome-wide Association Analysis using the PLINK Toolset (2008)
2009 Academic Director, International Workshop on Twin Methodology, Boulder USA

Research Grants (as Principal Investigator):

External grants from United Kingdom
1998 Statistical and computational methods for genetic studies in multifactorial disorders. Wellcome Trust £216,000
2000 Genetic mapping of quantitative trait loci for anxiety and depression. Medical Research Council £1,200,000

External grants from United States
1998 Variance components models for mapping QTLs. National Eye Institute US$160,000
2002 Variance components models for mapping QTLs. National Eye Institute US$350,000

Hong Kong Research Grants Council (RGC) – General Research Fund (GRF)
2006 Systematic screen for schizophrenia susceptibility loci $701,293
2007 Optimal design of genome-wide association studies for multifactorial diseases $532,500
2008 Genome-wide association study of schizophrenia $1,798,990

Former PhD students supervised include

Jinghua Zhao, Investigator Scientist, MRC Epidemiology Unit, Cambridge
Colm McDonald, Professor of Psychiatry, University of Cork, Ireland
Ming-Wei Lin, Associate Professor, National Yang Ming University, Taipei
Tao Li, Senior Lecturer, Institute of Psychiatry, King's College London
Shaun Purcell, Assistant Professor, Massachusetts General Hospital, Harvard Medical School
Ansar Jawaid, Global Group Leader, R&D Genetics and Personalized Healthcare, AstraZeneca

Grant Reviewer:

Medical Research Council UK, Wellcome Trust UK, National Institutes of Health USA, Genome Canada

Invited speaker at international conferences and institutions:
More than 20 lectures as invited speaker at international conferences and world-famous institutions since 2004. Examples include American Society of Human Genetics, International Genetic Epidemiological Society, Behavioral Genetics Association, Genetics Society (UK), Cold Spring Harbor Laboratory, Beijing Institute of Genomics, University of Colorado.

International journal editor and ad-hoc reviewer:

Journal Editorial Boards:
Annals of Human Genetics, Behavior Genetics, Briefings in Bioinformatics, British Journal of Psychiatry

Ad Hoc Reviewer for International Journals, to name some:
Nature Genetics, Nature Reviews Genetics, American Journal of Human Genetics, Genetic Epidemiology, Human Heredity, European Journal of Human Genetics, Archives of General Psychiatry, American Journal of Psychiatry, Schizophrenia Research.