

Study of association between *ZNF804A* gene polymorphism with genetic risk for bipolar disorder and adult ADHD disorder

Xiaohui Xu¹, Gerome Breen¹, Bo Sun², Lucy Luo², Philip Asherson¹

¹MRC SGDP Centre, Institute of Psychiatry, King's College London, London, UK

²John Radcliffe Hospital, Oxford, UK

Large genome-wide association studies (GWAS) on psychiatric disorders have shown that rs1344706 single nucleotide polymorphism (SNP) in the zinc-finger protein 804A gene (*ZNF804A*) is associated with many psychiatric disorders including bipolar disorder. Attention deficit hyperactivity disorder (ADHD) and bipolar disorder have some overlapping diagnostic criteria and clinical characteristics. Also ADHD has been found association with some psychiatric co morbidities such as bipolar disorder. A recent study showed significant association between rs1344706 SNP and the executive control network of attention.

In this study we investigated rs1344706 polymorphism in adult ADHD samples from the UK, which was previously found association with bipolar disorder. We used case-control study to evaluate the possible influence of rs1344706 SNP in the *ZNF804A* gene on adult ADHD. DNA samples were collected from 112 adult ADHD patients and 135 healthy controls from the UK. The rs1344706 polymorphism was genotyped using Taq Man SNP genotyping assays and a statistical analysis was performed by Chi-square test using SPSS software. The results showed no significant association of rs1344706 polymorphism with adult ADHD in the UK population ($\chi^2=0.106$, $P = 0.784$).

Although no significant association was found between rs1344706 SNP and adult ADHD in UK samples in this study, due to the relatively small sample size we might be underpowered to exclude very small genetic effects. Also, to our best knowledge, only one published study investigated association between rs1344706 and ADHD in adult samples. Therefore further association studies are needed to examine the role of the high-risk *ZNF804A* SNPs in adult ADHD samples.

xiaohui.xu@kcl.ac.uk