PW01-19 - **RUMINATION IS INFLUENCED BY A GENETIC INTERACTION BETWEEN GIRK2 RECEPTOR AND CREB IN TWO INDEPENDENT EUROPEAN SAMPLES**

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Objectives: Rumination is a significant cognitive symptom of depression. As rumination is strongly related to altered memory function we selected two genes previously described as important candidates for both depression and memory processing to assess their contribution to rumination. Based on a possible functional role for cAMP-dependent protein kinase in the mechanism of action antidepressants, we studied the association between G protein-activated K^+ channel 2 (GIRK2) and cAMP-response element binding (CREB) protein genes and rumination in two independent European samples.

Methods: We genotyped an exonic SNP (rs2070995) in GIRK2 gene and a promoter SNP (rs2253206) in CREB gene of 611 individuals from Budapest and 1174 individuals from Manchester. Rumination was measured by Ruminative Response Scale (RRS) of Response Style Questionnaire. Generalized linear models (GLMs) were performed for single marker associations. Likelihood ratio tests were used for interactions between genetic markers on RRS.

Results: Single marker associations did not provide any significant individual effect of the two SNPs on rumination. However, interaction analyses revealed a strongly significant interaction between the rs2070995 and rs2253206 on RRS in both European samples ($p_{Budapest}$=0.00099; $p_{Manchester}$=0.0027). Homozygous TT individuals for rs2070995 in interaction with homozygous GG for rs2253206 scored significantly higher on RRS compared with other genotypes.

Conclusion: Our results suggest that two key post-receptor signalling proteins, GIRK2 and CREB, interact with each other in regulating the process of rumination which may have relevance for depression and its treatment.

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