

**P006** Association of BACE with late onset Alzheimer's disease  
Anne Keown, Stephen Todd, Stephen McIlroy, Peter Passmore  
*Department of Geriatric Medicine, The Queen's University  
of Belfast*

Background:  $\beta$ -site Amyloid Precursor Protein (APP) Cleaving Enzyme (BACE) is the rate-limiting step in amyloid-beta ( $A\beta$ ) formation generating the N-terminal of the  $A\beta$  peptide by cleavage of APP. Utilising a case-control study design we investigated if a polymorphism in the gene coding for BACE was associated with risk for late-onset Alzheimer's disease (AD). Methods: DNA was extracted from a total of 263 cases and 217 age and sex matched controls from Northern Ireland (NI). Primers were designed to amplify a single nucleotide polymorphism (SNP) corresponding to NCBI cluster ID rs638405. This is a synonymous change coding for valine with either polymorphic allele. PCR products were subjected to restriction enzyme digestion by MboI and separated by polyacrylamide gel electrophoresis and visualised by silver staining. Results: The CC genotype was present at a higher frequency in AD patients compared to controls (OR 1.84, 95%CI 0.99-2.72,  $\chi^2=4.17$ ,  $p=0.041$ ). The presence of the C allele was associated with an increased AD risk (OR 1.32, 95%CI 1.01-1.73,  $\chi^2=4.46$ ,  $p=0.035$ ). Conclusions: This SNP is associated with increased risk for AD in the NI population.