Supplemental Material:

Reynolds, C.A., Prince, J.A., Feuk, L., Gatz, M., & Pedersen, N.L. (in press, July 27, 2005). Longitudinal memory performance during normal aging: twin association models of APOE and other Alzheimer candidate genes. *Behavior Genetics*.

Appendix A

Descriptions of the three gene variants analyzed can be found in Table A below. Surrounding 50bp sequences in each direction were examined for repeats and duplicated sequences using Repeat-Masker (http://repeatmasker.genome.washington.edu/cgi-bin/RepeatMasker/) and Blast (http://www.ncbi.nlm.nih.gov/blast). To verify that SNPs (single nucleotide polymorphisms) were polymorphic in our study populations, each SNP was tested in a set of 16 Swedish control samples. Assays in which all 16 samples were monomorphic were excluded from further analysis. Genotyping of sequence variants was performed using an induced fluorescence resonance energy transfer modification of dynamic allele specific hybridization [iFRET-DASH] (Jobs, Howell, Stromqvist, Mayr, & Brookes, 2003; Prince et al., 2001). All PCR reactions were run in 10-20μl volumes with 1.5mM MgCl2 and using 5-20ng genomic DNA.

Hardy-Weinberg equilibrium (HWE) was observed for *APOE* genotypes when examining gene frequencies for one member of every available MZ pair and both members of available DZ pairs (2/2, 0.6%; 2/3, 12.6%; 3/3, 55.5%; 2/4, 4.1%; 3/4, 24.5%; 4/4, 2.8%), χ^2 (2) = 2.64, p = .10. For purposes of association analyses, *APOE* genotypes were recoded as e4 heterozygotes (2/4, 3/4), e4 homozygotes (4/4), and as noncarriers (2/2, 2/3, 3/3). Similarly, HWE was found for A2M genotypes (ins/ins, 76.8%; ins/del 21.8%; del/del 1.4%), χ^2 (1) = 0.06, p = .80. HWE was not found for LRP genotypes (C/C 73.6%; C/T, 22.7%; T/T, 3.78), (χ^2 (1) = 6.83, p = .01). Upon inspection, LRP TT homozygotes were overrepresented by as little as 0.6%. We retested HWE in two matched independent samples with all twin pairs divided. HWE was not achieved in one sample (p= .01) but was found in the other (p = .09).