

World Congress on

Human Genetics

November 07- 08, 2016 Barcelona, Spain



Ramon Cacabelos

EuroEspes Biomedical Research Center, Spain

Pentagenic haplotype-related cholesterolemic phenotype in Alzheimer's disease

Hypercholesterolemia is a major risk factor for cardiovascular disorders, stroke and dementia (Alzheimer's disease, Vascular dementia). Many different genes are involved in lipid metabolism responsible for the cholesterolemic phenotype. Genes potentially associated with pathogenic lipid metabolism dysfunction in dementia include the following: *APOB* (OMIM 107730; rs693 [7545C>T]), *APOEC3* (OMIM 107720; rs5128 [3175G>C, S1/S2]), *APOE* (OMIM 107741; rs429358/rs7412 [112T>C/158T>C, E2, E3, E4]), *CETP* (OMIM 118470; rs708272 [+279G>A, B1/B2]) and *LPL* (OMIM 609708; rs328 [1421C>G, S474X]). In a selected group of 933 Alzheimer's disease (AD) patients, we constructed a pentagenic haplotype integrating all possible variants of the *APOE+APOB+EPOC3+CETP+LPL* genes and identified 111 haplotypes (H) with differential basal cholesterol (CHO) levels. About 75% of these haplotypes in the AD population have a frequency below 1%, 10% have a frequency between 1% and 2%, 8% have a frequency between 2% and 5% and only 4% of the haplotypes are present in more than 5% of AD patients. The haplotypes most frequently found are *H55* (33-CT-CC-AG-CC (8.79%)), *H58* (33-CT-CC-GG-CC) and *H37* (33-CC-CC-AG-CC) (7.07%). Haplotypes *H104* (44-CC-CC-AA-CC) (0.11%), *H110* (44-TT-CC-AG-CG) (0.11%) and *H98* (34-TT-CC-AA-CG) (0.11%) showed the highest CHO levels and the lowest levels corresponded to haplotypes *H26* (23-TT-CG-AG-CC) (0.11%), *H8* (23-CC-CG-AG-CC) (0.21%), *H50* (33-CC-GG-AG-CC) (0.21%) and *H63* (33-CT-CG-AA-GG) (0.11%). These haplotypes have been used for pharmacogenetic studies in hypercholesterolemic patients with AD.

Biography

Ramon Cacabelos is a Professor of Genomic Medicine at Camilo Jose Cela University and President of the EuroEspes Biomedical Research Center, Spain. He has received his MD degree from Oviedo University, PhD from Santiago University and DMSci in Psychiatry from Osaka University Medical School, Japan. After a decade at the Department of Psychiatry in Osaka, he returned to Spain and focused his research activity on the genomics and pharmacogenomics of neurodegenerative disorders. He has published over 600 papers and 24 books and is an Editor-in-Chief of the first World Guide for Drug Use and Pharmacogenomics and President of the World Association of Genomic Medicine.

rcacabelos@euroespes.com