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Neuro-PGx Card: A new approach to the personalized treatment of CNS disorders

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Central Nervous System (CNS) disorders are the third problem of health in developed countries, with approximately 10% of the direct costs associated with drug treatment of doubtful profitability. There is an alarming abuse of psychotropic drugs worldwide and only 20-30% of patients with CNS disorders appropriates respond to conventional drugs. Differences in individual responsiveness to drugs may be due to defects in absorption, distribution, metabolism and excretion of the drug (ADME or pharmacokinetic processes), which causes problems of dose and/or toxicity or there may also be a defect that hinders the mechanism of action of the active ingredient (pharmacodynamic processes) by molecular alterations in receptor binding and transporters responsible for delivering the drug in to the target cell. Our study identifies the most informative genetic polymorphisms in the treatment of CNS disorders and thus designs pharmacogenetic panels that help the physician to define the most appropriate therapeutic strategy for each patient. By characterizing a population sample of 90 individuals in whom the main polymorphisms for drug metabolism have been studied, there is evidence for their relationship in response to psychotropic drugs (*CYP2D6, CYP2C19, CYP2C9, CYP3A4, CYP3A5, CYP1A2, CYP2B6, CES1, COMT, ABCB1, DRD2, DRD3, MAOB, GABRA1, SLC6A2, SLC6A3, SLC6A4, SLC22A1, ADRA2A, APOE, ACHE, BCHE, CHAT, CHRNA7, NBEA, PRKCE, OPRM1 and PTGS2*). We have defined the markers that provide more information for incorporation into specific pharmacogenetic panels for major CNS pathologies: Depression, Schizophrenia, Anxiety, Parkinson, Dementia, Pain disorder, Attention Deficit Hyperactivity Disorder (ADHD) and Epilepsy.

Biography

Juan C Carril is the Director of the Genomics and Pharmacogenomics Department at EuroEspes Biomedical Research Center, Institute of Medical Science and Genomic Medicine, Corunna, Spain. He has received his PhD from Santiago de Compostela University in 2000 defending the thesis "Genetic structure and profile of the populations of the Iberian Peninsula by means of markers (STRs and SNPs) of the human Y-chromosome". He has published more than 40 scientific publications in the fields of population genetics, forensic genetics, genetic epidemiology and pharmacogenetics and over 40 papers at national and international conferences.

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