“Molecular Genetics of Migraine”

Professor Lyn Griffiths is a molecular geneticist who has been studying the genes involved in common human disorders for nearly two decades. Her expertise is in the field of human gene mapping and focuses on identifying the genes involved in common complex disorders, including migraine, cardiovascular disease and several types of cancer.

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Carl Auer von Welsbach Lecture Hall

“Migraine is a severe neurological disorder that affects a significant proportion of the population. Prevalence estimates for the disorder vary between 12 and 25% depending on the population studied. The disorder has a significant genetic component showing high levels of familial aggregation. Although a number of genes involved in a rare and severe sub-type of migraine, termed familial hemiplegic migraine have been identified, the number and identity of all the genes involved in the more common types of migraine have yet to be defined. Genetic linkage and GWAS studies have implicated a number of genomic regions including on chromosomes 1, 4, 11, 19 and the X chromosome and several susceptibility variants have been implicated in the disorder.

Neurotransmitter pathways have been the main focus of studies investigating the molecular mechanisms of the disorder. However vascular and hormonal disturbances also occur in migraineurs, as highlighted by alterations in cerebral blood flow and hormonal triggers of migraine, particularly in women and hence factors affecting these functions may also be involved. This presentation will focus on migraine gene studies in our laboratory, including recent family and GWAS results, as well as studies implicating hormone receptor genes and MTHFR gene variants. In addition an overview of results from two recently completed clinical trials that involved genetic profiling in conjunction with a nutriceutical therapeutic will be presented. These clinical trial results are very promising and highlight the potential importance of pharmacogenetic interventions in this disorder.”