

EPICURE - FP6 Integrated Research Project on Epilepsy



Participants at the opening session of the FP6 Epicure meeting in Malta: left to right: Prof Richard Muscat, Pro Rector, Hon Dr Louis Deguara, Minister for Health, Dr Janet Mifsud, EPICURE Malta co-ordinator, Prof G Avanzini, EPICURE co-ordinator

Over 100 key EU scientists, from over 12 countries, who are the project partners of a large €10 million EU funded project - EPICURE, FUNCTIONAL GENOMICS AND NEUROBIOLOGY OF EPILEPSY: A BASIS FOR NEW THERAPEUTIC STRATEGIES met in Malta last January, at the Foundation of International Studies, Old University Building, Valletta.

As many as 6 million people in Europe, about 3000 of them in Malta, currently have active epilepsy. This has major implications not only for health but also for independent living, education and employment, mobility, and social integration. The resulting economic burden has been estimated at €18 billion per year. It is known that several factors can predispose a person to epilepsy, including genetic factors. Precisely which genetic factors are involved, has not yet been determined. Moreover, their implication for understanding the principle of drugs and other treatments of epilepsy are poorly understood.

The EPICURE integrated project aims at mobilizing the potential synergies of European research groups to shed light on these questions by identifying disease-causing genes and by understanding the contribution of candidate genes to lack of drug efficacy. EPICURE aims in particular at taking advantage of the potentially powerful insights into pathophysiological pathways provided by genetics, both by identifying disease-causing genes and by understanding the contribution of candidate genes to pharmacoresistance. EPICURE will take this forward by studying at molecular, cellular and network levels the consequences of mutations in ion channel genes, because these are intimately involved in neuronal signalling and the main targets of antiepileptic medication

In parallel, EPICURE will examine the plasticity that occurs in the brain and in individual neurons during epileptogenesis. EPICURE will maintain cohesion in this integrated project by following a number of themes that cut across the multidisciplinary approaches. More specifically, the principle that the membrane channels that determine and make use of Cl⁻ and Na⁺ ion gradients for their function are central to neuronal excitability, circuit function and treatment with many of the available drugs. This justifies an effort in identifying the full impact of mutations of the underlying genes, establishing the degree to which drugs targeting these processes penetrate the brain, and understanding how the ion gradients in individual cells interact with developmental processes to determine neuronal excitability. In many cases EPICURE will build on existing European collaborative efforts, and in other cases EPICURE will establish links between groups working on common or cognate disciplines.

The conference was brought to Malta by Dr Janet Mifsud, Department of Clinical Pharmacology and Therapeutics and Secretary, European Epilepsy Academy, who is on the Advisory and Dissemination board of the EPICURE project.

The meeting was opened by the then Hon Minister of Health and Community Care, Dr Louis Deguara and welcomed by Pro Rector University of Malta, Prof Richard Muscat and Prof Giuliano Avanzini, project co-coordinator. The local logistics were coordinated by the Foundation for International Studies of the University of Malta.