DISCover- interdisciplinary project investigating chronic mental disease from single molecules to behavioral analysis in animal models

Austria Canada Finland France Germany Italy Israel Luxemburg Poland Romania Spain

Project Description Little is known on the biological mechanisms leading to chronic mental diseases (CMD) like schizophrenia or recurrent affective disorders. Recent genetic linkage analyses have highlighted the significance of the disrupted-in-schizophrenia 1 (DISC1) protein in the genesis of CMD. However, investigations have focussed on the dysfunction of mutant DISC1 found in familial DISC1 disorders.

Here, we propose to investigate the role of DISC1 and its molecular interactors within the DISC1/ NDEL1/centrosomal protein complex in the majority of non-familial cases of CMD. With a team of multidisciplinary scientists, each with different expertises, we propose to investigate this protein complex with novel cutting-edge technologies on the levels of single proteins, its molecular interactors (protein biochemistry and proteomics), its function in neurons and in the development of the nervous system (live cell imaging and in utero electroporation techniques), and animal behavior (in vivo dialysis, episodic memory tests, and others). Results from investigating the biology of this protein complex at different levels from single molecules to behavior will provide insights that ultimately translate into much-needed progress in clinical psychiatry: for example, detection methods to establish biological testing or novel pharmacological targets.

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