Research Number: 3-00000-6785
Title: **DISCover- multidisciplinary project investigating the neurobiology of chronic mental disease from single molecules to behavioral analysis in animal models**
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Year (Start): 2010 Year (End): 2013

**Background:**
Our proposed research invokes a multidisciplinary approach to investigate mechanisms by which specific proteins are involved in the pathophysiology of chronic mental diseases (CMD), like schizophrenia and affective disorders. The premise underlying our multidisciplinary approach relies on complementary skills among the participants, allowing for a truly synergistic added-on value.

**Research Hypothesis:** A novel bottom-up approach where translational value for clinical psychiatry is created through fundamental research on candidate proteins and corresponding animal models.

**Aims:**
1. Biochemistry and cell biology of insoluble and oligomeric proteins of the DISC1/NDEL1 complex proteins in cell and animal models of CMD.
2. Molecular and functional interactions of the DISC1/NDEL1 complex with neurotransmitters and neurotransmitter-related proteins, particularly dopamine, to characterize the link to the known neurotransmitter metabolism disturbances in CMD.
3. Generation of animal models reflecting subtle, aberrant corticogenesis and their behavioral analysis.

**Methods:**
Our research combined novel and cutting-edge methodologies from biochemistry (conformer assays), proteomics (quantitative iTRAQ), cell biology (live cell imaging), animal model generation (in utero electroporesis) and behavioral analysis (episodic memory, in vivo microdialysis).

**Results:**
The collaborative research has been very successful as evident by the multiple publications.

**Discussion:**
The multidisciplinary approach undertaken to study specific genes associated with chronic mental diseases has been overall very successful.

**Conclusions:**
Specifically, the results enable better understanding of the underlying molecular mechanisms of psychiatric diseases, will provide biological diagnostics and identify novel pharmacological targets.

**Key words:** chronic mental diseases, DISC1, mouse models, brain development
Publications where NEURON-ERANET DISCover funding has been acknowledged:


