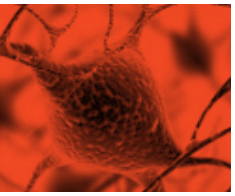

SUCCESSFUL**PROJECTS**

POSEIDON \\ PRE-, PERI- AND POSTNATAL STRESS IN HUMAN & NON-HUMAN OFFSPRING: A TRANSLATIONAL APPROACH TO STUDY EPIGENETIC IMPACT ON DEPRESSION

Austria\ Canada \ Finland \ France \ Germany \ Italy \ Israel \ Luxemburg \ Poland \ Romania \ Spain

Exposure to early life stress (ELS) has been associated with a prospectively increased risk for depression. Epigenetic regulation of gene expression may mediate this effect, but windows of vulnerability, candidate stressors, methylation profiles, time course, persistence and functional significance of the effects of ELS on the methylome remain unclear.
The POSEIDON study will focus on these questions in a cross-species (rodent, primate, humans) approach covering different tissues (brain, T-cells, buccal cells, saliva), stressors (prenatal stress, perinatal asphyxia, maternal care) and time points of adversities (pre-, peri-, postnatal) and follow-up (infancy, adulthood). We will study methylation of candidate genes and do methylome analysis. The functional relevance will be examined in expression studies and using discovery-based systems biology approaches. The rodent studies will provide information on type and time point of stressors leading to effects on adult phenotype, gene expression and methylome. The non-human primate study will investigate maternal vs. nursery reared rhesus monkeys. Using a whole genome methylation strategy, expression studies and systems biology approaches, candidate genes and functional gene pathways will be identified in T-cells and neurons. The human study will prospectively examine ELS and its effect on methylation patterns at birth and at 6 month postpartum. Candidate genes and stressors identified in the animal studies will be analyzed in humans. In the end, POSEIDON will contribute to identifying DNA methylation signatures in a convergent approach that could serve as predictive and diagnostic markers also as guidance for prevention and intervention of psychiatric disorders in adulthood.

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