

EpiAD

Effect of early and adult-life stress on the brain epigenome: relevance for the occurrence of Alzheimer's disease and diabetes-related dementia

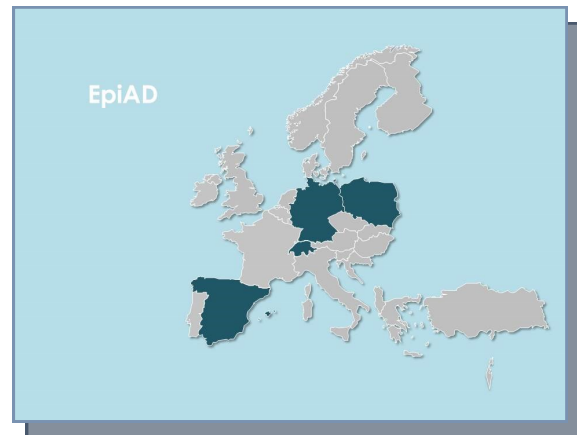
Recent human epidemiological and animal experimentation studies have revealed that negative conditions occurring prenatally influence the appearance of metabolic and cardiovascular diseases, some of which are in turn risk factors for Alzheimer's disease (AD). The aim of this proposal is to determine if and how early-life stress may precipitate dementias linked to AD and to type 2 diabetes mellitus (T2DM), two major causes of senile dementia worldwide. First, we will assess how early-life stress affects the development of the brain at a young age. Second, we will assess how early-life stress affects the development of AD and T2DM-related dementias at late stages in life. Particular attention will be paid to so-called epigenetic changes, which are modifications at the level of the DNA that can be caused by environmental challenges and stably propagated for decades.

By comparing such epigenetic changes in these two diseases at the two life extremes side by side, we hope to gain insight into pathological changes that are conserved across the pathologies and lifespan. The discovery and the understanding of such conserved changes might ultimately pave the way for identifying people at risk for AD earlier than is currently possible, which could in turn improve patients' quality of life and help to reduce the social and economic impact of these diseases.

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