Impact of Early life MetaBolic and psychosocial stress on susceptibility to mental Disorders; from converging epigenetic signatures to novel targets for therapeutic intervention (EMBED)

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Nearly 40% of the EU population each year suffers from a mental disorder. Adverse experiences early in life can produce important physiological changes, becoming embedded biological traces, leading to increased vulnerability for later depression. There is robust evidence indicating that early metabolic challenges impinge upon energy balance regulatory systems, which can overlap with stress-response systems. EMBED will identify informative DNA methylation marks associated with prenatal psychological and metabolic stressors in genes that are relevant for mood disorders and relate these to shared biomarkers to define common biological substrates for prevention and treatment.
We will also determine whether intervention strategies can reverse such epigenetic marks and related biomarkers. The relationship between DNA methylation patterns in peripheral vs brain tissue will be studied in animal models and brain post-mortem samples from depressive patients.

EMBED brings together leading researchers with complementary expertise to exploit existing clinical data sets from previous collaborative proposals, analysed in an original and innovative way, to study the role of adverse prenatal conditions on individual risk/resilience to mental disorders.
This research could lead to preventive measures in risk populations, new diagnostics and, potentially, therapeutic approaches since, in contrast to genetic variations, epigenetic effects on the transcriptome may be reversed, also in adulthood.