

## CS03-01 - ENVIRONMENTAL EPIGENOMICS IN PSYCHIATRY

M.Szyf

Pharmacology and Therapeutics, McGill University, Montreal, QC, Canada

Although epidemiological data provides evidence that there is an interaction between genetics (nature) and the social and physical environments (nurture) in human development; the main open question remains the mechanism. The pattern of distribution of methyl groups in DNA is different from cell-type to cell type and is conferring cell specific identity on DNA during cellular differentiation and organogenesis. This is an innate and highly programmed process. However, recent data suggests that DNA methylation is not only involved in cellular differentiation but that it is also involved in modulation of genome function in response to signals from the physical, biological and social environments. We propose that modulation of DNA methylation in response to environmental cues early in life serves as a mechanism of life-long genome “adaptation” that molecularly embeds the early experiences of a child (“nurture”) in the genome (“nature”). Data that supports this hypothesis from rodent, non human primates, humans and population studies will be discussed.