

Redefining Neurodegenerative Diseases through Epigenetics

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Neurodegenerative disorders, such as Alzheimer's (AD) and Parkinson's disease (PD), are highly complex conditions that affect a growing number of patients worldwide, due to the aging of the human population. These disorders have a multifactorial origin, depending not only on genetic but also on environmental factors. Several genetic risk factors have already been associated with both AD and PD, but the precise mechanisms through which the environment contributes to neurodegeneration are still unclear. Recently, epigenetic mechanisms, such as DNA methylation, chromatin remodelling or miRNAs, which induce alterations in gene expression, have been implicated in various neurodegenerative conditions. Given that epigenetic modulation is present from pre-natal stages and throughout life, and that it depends on lifestyle conditions and environmental factors, it might provide new insights into the molecular basis of neurodegeneration, opening novel avenues for therapeutic intervention.