

## Epigenetics, Brain and Behavior

What lies at the heart of neuronal plasticity? Accumulating evidence points to epigenetics. This word originally indicated potentially heritable modifications in gene expression that do not involve changes in DNA sequence. Today this definition is much less strict, and epigenetic control is thought to include DNA methylation, histone modifications, histone variants, microRNA metabolic pathways and non-histone proteins modifications. Thus, while neuronal plasticity is rightly thought to be intimately associated to genomic control, it is critical to appreciate that there is much more to the genome than DNA sequence.

Recent years have seen spectacular advances in the field of epigenetics. These have attracted the interest of researchers in many fields and evidence connecting epigenetic regulation to brain functions has been accumulating. Neurons daily convert a variety of external stimuli into rapid or long-lasting changes in gene expression. A variety of studies have centered on the molecular mechanisms implicated in epigenetic control and how these may operate in concert. It will be critical to unravel how specificity is achieved. Importantly, specific modifications seem to mediate both developmental processes and adult brain functions, such as synaptic plasticity and memory. Many aspects of the research in neurosciences and endocrinology during the upcoming decade will be dominated by the deciphering of epigenetic control. This book constitutes a compendium of the most updated views in the field.

ISBN 978-3-642-27912-6



9 783642 279126

2FI0147

 [springer.com](http://springer.com)