

1. Record Nr.	UNINA9910166645103321
Autore	Benedict C. Albeni
Titolo	The Transcriptional Regulation of Memory
Pubbl/distr/stampa	Frontiers Media SA, 2016
Descrizione fisica	1 online resource (116 p.)
Collana	Frontiers Research Topics
Soggetti	Neurosciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	<p>The formation of various forms of memory involves a series of distinct cellular and molecular mechanisms, many of which are not fully understood. There are highly conserved pathways that are involved in learning, memory, and synaptic plasticity, which is the primary substrate for memory storage. The formation of short-term (across minutes) memory is mediated by local changes in synapses, while long-term (across hours to days) memory storage is associated with activation of transcription and synthesis of proteins that modify synaptic function. Transcription factors, which can either repress or activate transcription, play a vital role in driving protein synthesis underlying synaptic plasticity and memory, whereby protein synthesis provides the necessary building blocks to accommodate structural changes at the synapse that foster memory formation. Recent data implicate several families of transcription factors that appear critically important in the regulation of memory. In this Topic we will focus on the families of transcription factors thus far found to be critically involved in synaptic plasticity and memory formation. These include cAMP response element binding protein (CREB), Rel/nuclear factor B (Rel/NFB), CCAAT enhancer binding protein (C/EBP), and early growth response factor (Egr). In recent years, numerous studies have implicated epigenetic mechanisms, changes in gene activity and expression that occur without alteration in gene sequence, in the memory consolidation process. DNA methylation and chromatin</p>

remodeling are critically involved in learning and memory, supporting a role of epigenetic mechanisms. Here we provide more evidence of the importance of DNA methylation, histone posttranslational modifications and the role of histone acetylation and HDAC inhibitors in above mentioned processes.
