Disorders affecting the central nervous system frequently involve altered protein synthesis, protein misfolding, protein trafficking in cellular compartments and their activity. Transcription factors (TFs) are regulatory proteins that modify gene expression, thereby controlling the movement of genetic information from the DNA to mRNA to protein. In past decades as science progress, TFs receives much attention and become a potential area of in understand the role of different protein synthesis and regulations in physiological as well as pathological settings. These factors represent the point of convergence of multiple signaling pathways within neuronal cells. TFs deregulation contributes to the pathogenesis and progression of a plethora of neurological disorders, ranging from Alzheimer’s disease, Parkinson’s disease and cognitive dysfunction to depression. Compelling evidences suggests that that a fraction of the dominated TFs can control of much of the active gene expression and protein activity within the neuronal cells and thus these proteins hold great therapeutic potential. In past decades, it has revealed that TFs can be regulated exogenously by small molecules and more relevant to the disease biology. By targeting TFs, we can precisely control direct molecular drives of the disease while current therapeutic approaches are more focused on control of the progression of disease and symptoms. However, there are considerable risk of adverse reactions due to diverse constitutively role of TFs, but provides excellent opportunity to develop as an opportunistic target in CNS diseases.

Therefore, in the proposed special issue for Current Neuropharmacology, entitled “Transcriptional Factor Regulation as a Putative Target in CNS Disorders”, we will try to assimilate the available knowledge and understanding on the topic. Here we will summarize, recent advances regarding the significance of transcription factors in CNS diseases and as emerging pharmacological strategies to modulate TFs to fulfill high unmet neurotherapeutic need.

Subtopics/Proposed titles:

1. Nuclear factor κB in pleiotropic transcription in regulating CREB
2. BDNF: marker and regulator for neuropsychiatric diseases
3. Histone activation and deactivation as a putative target for neurological diseases
4. Nuclear factor κB and glycogen synthase kinase interaction: implications in cognitive impairment and depressive behaviour
5. Collapsin response mediator protein family: implication in brain repair and neurodegeneration
6. Oxidative defence system and transcriptional factor in health and diseases
Timeline

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Peer-review completion and notify to authors: October 2019
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