

THE ROLE OF MICRORNAS IN MAJOR AFFECTIVE DISORDERS AND SUICIDAL BEHAVIOR

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Major affective disorders are common conditions associated with severe psychosocial impairments and suicidal risk in the general population. At least 3-4% of all depressive individuals die by suicide. Many hypothesis about the pathophysiology of these disorders have been formulated and at a molecular level, affective disorders and suicidal behavior have been recently associated with disturbances in structural and synaptic plasticity. A recent hypothesis suggested that small non-coding RNAs (ncRNAs), in particular microRNAs (miRNAs), play a critical role in the translational regulation at the synapse. miRNAs putative subcellular localization and sites of action are supposed to be in mature neurons when they may exert a specific role in neurogenesis, synaptic plasticity, pathological stress changes, major affective disorders and suicidal behavior. miRNAs have also played a fundamental role in the evolution of brain functions. The perturbation of some intracellular mechanisms as well as impaired assembly, localization, and translational regulation of specific RNA binding proteins may affect learning and memory, presumably contributing to the pathogenesis of major affective disorders and perhaps suicidal behavior. Furthermore, miRNA dys-regulation has also been linked to several neuropsychiatric diseases. However, further evidence are needed in order to directly clarify the role of miRNAs in major affective disorders and suicidal behavior.