

Title: The Role of Non-coding RNAs in Alzheimer's Disease: Pathogenesis, Novel Biomarkers, and Potential Therapeutic Targets

Author Names: Othman Saleh , Khaled Albakri , Abdalrahmn Altiti , Iser Abutair , Suhaib Shalan , Omar Bassam Mohd , Ahmed Negida , Gohar Mushtaq , Mohammad A Kamal

Abstract: Long non-coding RNAs (lncRNAs) are regulatory RNA transcripts that have recently been associated with the onset of many neurodegenerative illnesses, including Alzheimer's disease (AD). Several lncRNAs have been found to be associated with AD pathophysiology, each with a distinct mechanism. In this review, we focused on the role of lncRNAs in the pathogenesis of AD and their potential as novel biomarkers and therapeutic targets. Searching for relevant articles was done using the PubMed and Cochrane library databases. Studies had to be published in full text in English in order to be considered. Some lncRNAs were found to be upregulated, while others were downregulated. Dysregulation of lncRNAs expression may contribute to AD pathogenesis. Their effects manifest as the synthesis of beta-amyloid (A β) plaques increases, thereby altering neuronal plasticity, inducing inflammation, and promoting apoptosis. Despite the need for more investigations, lncRNAs could potentially increase the sensitivity of early detection of AD. Until now, there has been no effective treatment for AD. Hence, lncRNAs are promising molecules and may serve as potential therapeutic targets. Although several dysregulated AD-associated lncRNAs have been discovered, the functional characterization of most lncRNAs is still lacking.

Keywords: AD pathophysiology.; Alzheimer's disease; Beta-amyloid; biomarkers; lncRNA; pathogenesis.

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