

Title: Identification of Key Signaling Pathways and Novel Computational Drug Target for Depression and Coronary Artery Disease

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Abstract: Psychological disorders, such as anxiety, bipolar disorder, panic disorder, stress, depression, and schizophrenia, are increasingly prevalent worldwide. Among these conditions, depression is particularly notable as one of the most common and debilitating neuropsychiatric disorders. Individuals with depression may be at a higher risk of developing coronary Artery Disease (CAD). Depression can contribute to poor lifestyle choices, such as unhealthy eating, lack of exercise, and smoking, which are risk factors for CAD. The emotional stress and anxiety associated with depression can strain the heart and exacerbate CAD symptoms. The relationship is not one-sided. CAD itself can be a significant source of emotional distress, leading to symptoms of depression and anxiety in affected individuals. Managing both conditions in tandem can be complicated. Treating CAD may involve medications, lifestyle modifications, and potentially surgical interventions. Meanwhile, depression often requires therapy, counseling, and medication. Coordinating care and addressing both conditions simultaneously is crucial. In our study, we investigated the molecular connections between CAD and Depression using GSE98793 and GSE20681 microarray datasets. After preprocessing, we identified key hub genes, including CCT2, SVIL, REPS2, ASPH, and UBC, in the shared ProteinProtein Interaction network. KEGG pathways linked these DEGs to colorectal and cancer pathways. Our next steps involve exploring microRNAs, TFs, and GO analysis. These findings offer promising leads for potential therapies, uniting CAD and Depression under a common molecular framework, advancing our understanding of these conditions.

Keywords: Coronary Artery Disease , Depression And Anxiety , Sedentary Behavior , Bipolar Disorder , KEGG Pathway

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