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Metabotropic Glutamate Receptors as Emerging Research Targets in Bipolar Disorder

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ABSTRACT

Glutamatergic dysregulation is implicated in the neuropathology of bipolar disorder (BD). There is increasing interest in investigating the role of metabotropic glutamate receptors (mGluRs) in BD and as a target for treatment intervention. Bipolar mGluR studies (published January 1992 – April 2016) were identified via PubMed, Embase, Web of Science, and Scopus. Full-text screening, data extraction, and quality appraisal were conducted in duplicate, with strict inclusion and exclusion criteria. The initial literature search for mGluRs in BD, including non-bipolar mood disorders and primary psychotic disorders, identified 1544 articles. 61 abstracts were selected for relevance, 16 articles met full inclusion criteria, and three additional articles were found via citations. Despite limited literature, studies demonstrated: single nucleotide polymorphisms (SNPs) associated with BD, including a *GRM3* SNP associated with greater likelihood of psychosis (rs6465084), mRNA binding protein Fragile X Mental Retardation Protein associated with altered mGluR1/5 activity in BD populations, and lithium decreasing mGluR5 expression and mGluR-mediated intracellular calcium signaling. Limited research has been performed on the role of mGluRs in BD, but results highlight the importance of ongoing study. Future directions for research of mGluRs in BD include *GRM* polymorphisms, epigenetic regulation, intracellular proteins, and pharmacologic interactions.

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