

O-38 - DOWNREGULATION AND UPREGULATION OF GLIAL CONNEXINS MAY CAUSE SYNAPTIC IMBALANCES RESPONSIBLE FOR THE PATHOPHYSIOLOGY OF BIPOLAR DISORDER

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The model of the pathophysiology of bipolar disorder proposed is based on imbalances in tripartite synapses caused by dysregulations of connexin expression in the astrocytic syncytium. If the expression of connexins is downregulated, a compensatory upregulation of astrocytic receptors may occur responsible for the pathophysiology of depression. Conversely, if the expression of connexins is upregulated, the expression of the astrocytic receptors may be downregulated responsible for the pathophysiology of mania. In depression, a relative lack of neurotransmitters exerts a protracted synaptic information processing, whereas in mania a relative increase of neurotransmitters may accelerate synaptic information processing. In addition, the modulatory role of gliotransmitters may be affected in bipolar disorder. Since the dysregulations of connexins impair the astrocytic syncytium, these disorders could be explanatory for cognitive impairment both in depression and in mania. Finally, the testability of this model is discussed.