

SOCIAL BEHAVIOR AND ULTRASONIC VOCALIZATIONS IN ADULT MICE β 2-KO: PERTINENCE OF AN ANIMAL MODEL FOR SCHIZOPHRENIA

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Introduction: In patients suffering from neuropsychiatric disorders such as schizophrenia and depression, the neurobiological processes of decision-making are severely compromised. Some recent studies showed that social behavior and the ultrasonic vocalizations parameters in mice, expressed their emotional mood and could be used to analyze the process of decision-making. But, remains to highlight the modulation of these parameters under the effect of drugs, used in the treatment of these pathologies.

Objectives: The aim was to find out the neuropharmacological modulators of decision-making in β 2-ko adult male mice, suggested as animal model for schizophrenia, in order to test the pertinence of that model.

Methods: We first, administered clozapine used in the treatment of schizophrenia in human. Then, we analysed the social behavior as well as ultrasonic vocalizations parameters by Avisoft[®] in social interaction condition.

Results: Our results show that adult male mice β 2-ko emit ultrasonic vocalizations. Under the effect of clozapine, the emission of ultrasonic vocalizations are regulated by the balance between cholinergic and dopaminergic pathways. The activation of the cholinergic together with the inhibition of the dopaminergic pathways induces a negative emotional state, showed by vocalizations with low frequency of about 50 kHz. The activation of the dopaminergic with the inhibition of the cholinergic system induces a positive emotional state, showed by vocalizations with high frequency of about 60 to 80 kHz.

Conclusions: The administration of clozapine allowed re-establishing the social behavior parameters in β 2-ko mice as well as the level of wild type mice but not about vocalization.