

## **GENDER DIFFERENCES ON LONG TERM EFFECTS OF RAT PRENATAL STRESS ON DORSAL AND VENTRAL HIPPOCAMPAL METABOTROPIC GLUTAMATE RECEPTORS AND ANXIETY BEHAVIOUR**

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Prenatal Stress (PS) in the rat is a well documented model of early stress which induces long-lasting neurobiological and behavioural alterations. In PS animals, the hypothalamic-pituitary-adrenal axis activity is altered both in the feed-back and in the levels of hippocampal glucocorticoid receptors. Also, expression of BDNF and Fos protein are changed in the hippocampus. Moreover, PS adult rats show an increased anxiety-like behaviour as well as an impairment of the neurogenesis in the dorsal and ventral hippocampus. It has been shown that group-I metabotropic glutamate (mGlu) receptors are expressed in zone of active neurogenesis and play an important role in the anxiety behaviour. We thus assessed the effects of PS on group-I mGlu receptors in the hippocampus. To evidence a possible functional implication of mGlu receptors on anxiety in PS rats we assessed animals' behavior in the elevated-plus maze and we explored mGlu receptors by differentiating ventral and dorsal hippocampus. Experiments were conducted on both males and females to evidence possible sex differences related to PS exposition. Our results showed that group-I mGlu receptors activity in the whole hippocampus was reduced in male PS rats, whereas an opposite outcome was observed in female PS animals. Moreover, PS reduced the expression of mGluR5 subtypes only in males. When activity of mGlu receptors was differentiated into the ventral and dorsal hippocampus, sex-specific effects induced by PS persisted and were more pronounced in the ventral hippocampus, a region involved in modulation of anxiety. Interestingly, PS effects on anxiety behaviour in the elevated-plus maze test were also sex-specific with an increased anxiety in males and a decrease in females. These findings indicate an opposite long-term effects of PS on group-I mGlu receptors in males and females and a possible involvement of these receptors on anxiety-like behaviour in an animal model of early stress.