Introduction. Prenatal development influences on functional abilities of an adult organism [2]. Emotional prenatal maternal stress (PRMS) during late pregnancy reflects in progeny through increasing anxiety level, depressive-like behavior and lower memorizing skills [3]. Restricted mobility is the most often used method to stimulate emotional stress in rodents. Hypothalamic neuropeptide orexin plays an important role in the pathophysiology of mental disorders, including depression [4]. Consequences of chronic emotional maternal stress have received wide coverage in many publications [3, 4] while acute impact is still not studied enough.

The purpose of this study was to determine hypothalamic preproorexin gene expression in a response to intravenous LPS injection from old rats stressed prenantly on 19th day of intrauterine development.

Materials and methods. On the 19th day of pregnancy, female rats were exposed to emotional stress through a restriction in a plastic tube for 20 minutes. Four months old male offspring were divided into two groups — 13 reared in standard condition (subgroups 1 and 2), and 12 exposed to PRMS (subgroups 3 and 4). LPS (E. Coli 055:B5, “Sigma”, L2880) was injected into the tail vein in 500 mcl/kg dose (table).

Hypothalamus samples were taken in two hours after injection. “Aurum Total RNA Fatty and Fibrous Tissue Pack” (Bio-Rad) kit was used for mRNA isolation. Reverse transcription (RT) reaction was performed according to the standard protocol. Primer pairs for qPCR were made by “Beagle”: preproorexin (PPOx): sense 5'-TGTCGCCCAAGAACGTGTTCCTG-3', antisense 5'-AAGACGGGTTCACACACTCTGGATC-3', annealing temperature 62 °C; G3PDH: sense 5'-CCACTCA-GAAGACTGTGGAT-3', antisense 5'-GTCATCATACTTGGCAGGTT-3', annealing temperature 55 °C. 10mcliTaq ™  Universal SYBR ®  Green Supermix (BioRad) was used as reaction master. QPCR was performed by CFX384 Touch amplificatory. Gene expression level was majored to G3PDH gene by using 2 -ΔΔCq method. Data were analyzed by U-criterion. QPCR products were identified by melt curves analyze.

Results. According to qPCR results, control animals have a significantly higher level of PPO gene expression in two hours after LPS intravenous injection which have a confirmation
in publications [5]. It has been observed that in PRMS group, in two hours after intravenous LPS injection, the level of PPO gene expression was reliable lower compare to subgroups 2 and 3 (Figure).

Discussion. In adults animals stressed prenatally during late term of intrauterine development was defined lower searching activity and stress tolerance compare to animals reared in standard condition. Previously collected data [1] and the results of this study demonstrate that it is possible to assume connection between decreasing level of PPO gene expression in neurons in a response to antigen introduction and stress tolerance.

Conclusion. From the literature and own outcomes must be assumed that prenatal stress during late pregnancy manifests itself in an adult offspring in a disruption of neuroimmune interactions.

References