Synopsis of Original Research Paper

Physiological function via novel progesterone membrane receptor

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Sex steroid hormones are involved in not only reproductive functions but also aggression, maternal behavior, learning, memory, moods, feeding, and so on. Some of these actions are related to unknown rapid non-genomic action, as which cannot be currently explained by the genomic action of nuclear receptors. Recently, several sex steroid receptors were found on the plasma membrane. Hence, it implies that these membrane receptors may be related to the non-genomic actions. In these receptors, a progesterone membrane receptor (mPR), a putative G-protein coupled receptor, is activated by progesterone and abundantly expressed in the brain. Here, we examined neurotrophic effects of mPR and the intracellular signaling in central nervous system. In the future, further functional analysis of mPR will provide new insights into not only understanding of neurotrophic activity but also physiological function by progesterone in brain and may represent an important avenue of research for drug development for the treatment of infertility, metabolic disorders, and dysrhythmia targeting this receptor.