

Sex hormones in brain function and pathology

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Neuroendocrinology is one of the most important and prominent areas in biomedicine, and research in this integrative science has a profound impact on health and the pharmaceutical industry. It has been reported that sex steroid hormones play a key role in brain morphology and function, both in physiological and pathological conditions. Besides the regulation of processes directly involved in reproduction by sex hormones, it is evident that they participate in other brain functions not strictly related with reproduction such as neuroprotection, brain plasticity, and growth of cerebral tumors.

In this issue, the reader will find selected and very interesting manuscripts of Mexican neuroendocrinologists from different academic institutions about the diverse actions of sex hormones in the brain. For instance, Olvera-Hernández and Fernández-Guasti explore the biological basis of sex preference and the central and peripheral differences between subjects with homosexual or heterosexual preferences. Coyoy-Salgado, et al. review the role of progesterone

in female sexual behavior and the molecular mechanisms at brain level involved in this fundamental and complex behavior. In relation to non-reproductive actions of sex hormones in the brain, Herrera-Pérez, et al. discuss the impact of sex hormone changes in aging males associated with one of the most important psychiatric diseases such as depression. Furthermore, Picazo, et al. give some examples of the actions of estradiol and progesterone on learning and memory. Cabrera-Reyes, et al. show that the expression of prolactin and its receptor in the pituitary and brain depends on sex and hormone status, and this has functional implications. Finally, Germán-Castelán and Camacho-Arroyo show the role of progesterone in the growth of astrocytomas, the most frequent and aggressive brain tumors, and the possibility of the use of progesterone receptor antagonists as an alternative for the treatment of these tumors.

We hope that our readers enjoy this special issue about the fascinating role of sex hormones in the brain.

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