Major changes in ovarian hormone concentrations occur throughout the female lifespan, such as during puberty, pregnancy, postpartum, and menopause. Moreover, the female reproductive years are characterized by cyclical fluctuations in ovarian hormones across the menstrual cycle. Notably, for many females, these periods are associated with affective and cognitive symptoms. Such hormonal variations have indeed the potential to modulate neurophysiological and behavioral dynamics, which is of relevance to the field of psychiatry characterized by pathologies that affect females twice as often as males. Knowledge on the cross-talk between ovarian hormones and the woman’s brain and mental health will be presented in this seminar.

Specifically, progesterone, being highly lipophilic, is a steroid hormone that easily passes through the blood-brain barrier. Animal models revealed various molecular processes to be modulated by progesterone, i.e., neurogenesis, synaptogenesis, myelination, and neurotransmitter signaling [1]. While evidence of its effects on the human brain stems from neuroimaging studies of females during hormone transitional periods, such as the menstrual cycle [2], premenstrual dysphoric disorder (PMDD) presents itself as a model to study the impact of progesterone on the brain in relation to mental health [3]. Indeed, the temporal relationship with the cyclic occurrence of mood symptoms suggests progesterone as the trigger behind PMDD pathophysiology [4].

Progesterone receptor modulators (SPRM) on low dose regimen associate with antagonistic effects on progesterone, while maintaining estradiol levels on low levels. In this seminar, to investigate the impact of SPRM on the brain and mood, findings from a pharmaco-neuroimaging randomized controlled trial including patients with PMDD are presented [5-7]. Besides proposing SPRM as a potential new treatment for PMDD [9], these results provide new insights contributing to advance our understanding of the influence of progesterone on the woman’s brain and mental health.
This lecture takes place at Liebigasse 5, 1010 Vienna, Lecture Hall G 2nd floor and will be streamed.
Thursday, June 6 2024; 3pm