

Special Issue

Melatonin Receptors and Reproduction

Message from the Guest Editors

Melatonin is a multifunctional molecule that influences many biological processes. Melatonin relays photoperiodic cues, coordinating many physiological functions and acting as a paracrine signal and potent antioxidant. Whereas the pineal gland produces circulating melatonin that regulates the reproductive seasonality by modulating the hypothalamic–pituitary–gonadal axis, many authors have identified local functions in the reproductive system. The effects of melatonin, both circulatory and locally produced, have many potential functions in the reproductive tract and gamete functionality, from protective to regulatory. Melatonin also has a potent antioxidant effect, and many probed and putative receptors are present in these tissues, which could influence sperm chemotaxis, modulate its capacitation, and affect oocyte and embryo development. With so many effects, melatonin has attracted attention for its practical applications, with a great potential for contributing to artificial reproductive technologies.

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