

# nature REVIEWS

## NATURE REVIEWS NEUROSCIENCE

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Focus on pain

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We are delighted to present a special Focus issue on pain, beginning on page 503 and supported by Boehringer Ingelheim. But this issue also includes other exciting content.

Many women — and their partners — can attest to the fact that hormones have significant effects on mood. In some cases, hormonal changes during the ovarian cycle can lead to clustered seizures or to severe anxiety and dysphoria. On page 565 of this issue, Belelli and Lambert describe the various ways in which steroid hormones and their derivatives can regulate the function of GABA ( $\gamma$ -aminobutyric acid) receptors — the main inhibitory receptors in the mammalian brain.

Neuroactive steroids can be generated in the brain and can therefore have local effects as well as more widespread endocrine functions. Additional levels of selectivity come from the ability of steroids to interact specifically with different GABA<sub>A</sub> receptors.

As the concentrations of endogenous steroids can fluctuate — owing to stress, pregnancy, ageing or pathology — it is important to understand just how steroids influence neuronal activity, and what this means for the organism. New work, described in a highlight on page 500, has shown that steroids can influence the subunit composition of GABA<sub>A</sub> receptors, leading to changes in anxiety and seizure susceptibility during the oestrus cycle in mice.

The idea that endogenous steroids can modulate neurotransmitter receptors at several levels, and with high specificity, will no doubt continue to be investigated by many groups. A fuller understanding of these phenomena might lead to better and more specific therapies for neurological and psychiatric conditions that are associated with hormonal changes.



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