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Role of 5-hydroxytryptamine type 3 receptors in the regulation of anxiety reactions

Key words: **5-hydroxytryptamine 3 receptor, Anxiety, Medial prefrontal cortex, Amygdala, Hippocampus, Periaqueductal gray**

Research Summary

This review mainly focused on the 5-hydroxytryptamine 3 receptors (5-HT_3R) in the regulation of anxiety reactions. It consists of the following sections:

- **5-HT_3R structure and function.**
- **The bidirectional effects of 5-HT_3Rs on anxiety behaviors.**
- **The mechanism of 5-HT_3R regulation of anxiety in brain circuits.**

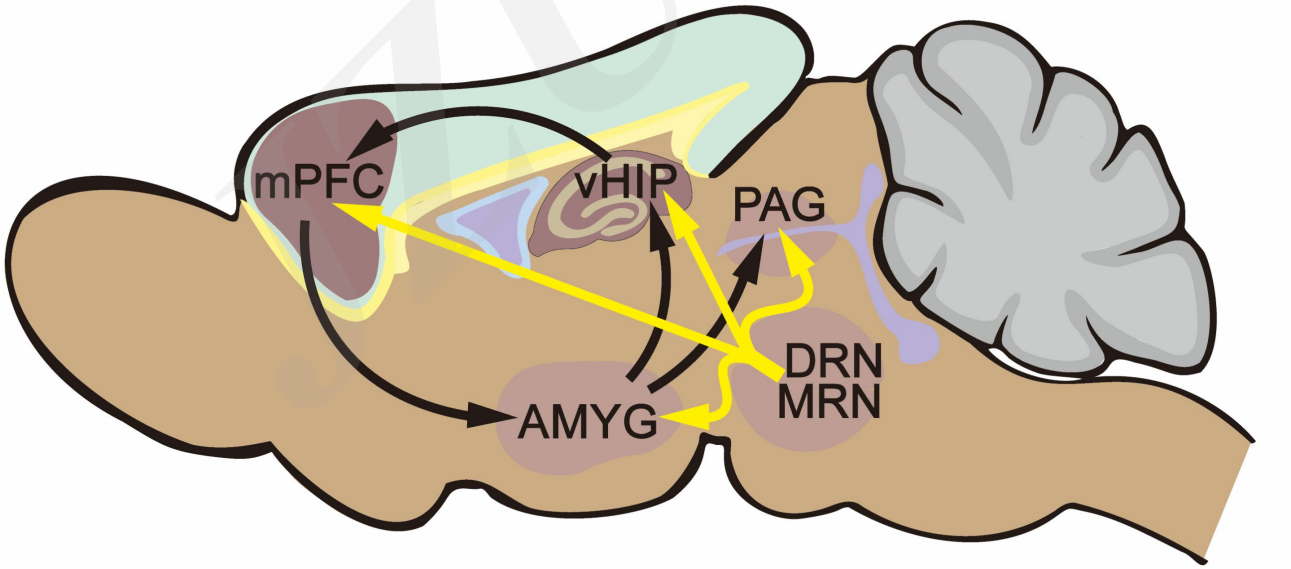
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Innovation points

- **Introduction** of the 5-HT_3R in the regulation of anxiety reactions.

- **Summary** of the involvement of 5-HT_3R in anxiety-related brain regions, including the medial prefrontal cortex, amygdala, hippocampus, and periaqueductal gray, along with the underlying mechanisms at play.

- **Emphasis** of the bidirectional modulation of 5-HT_3R in anxiety and their circuit-specific regulatory effects.



Innovation points

A series of comprehensive images were generated to summarize the role of 5-HT_3R in regulating anxiety reactions across different brain regions.

Fig. 1 | Schematic diagram of main brain regions participating in the regulation of anxiety by 5-HT3Rs.

Fig. 2 | A schematic paradigm of the regulation of anxiety by 5-HT3Rs in the AMYG.

Fig. 3 | A schematic paradigm of the regulation of anxiety by 5-HT3Rs in the mFPC.

Fig. 4 | A schematic paradigm of the regulation of anxiety by 5-HT3Rs in the vHIP.

Fig. 5 | A schematic paradigm of the regulation of anxiety by 5-HT3Rs in the PAG.

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