

***Cite this as:*** Yinan DU, Zhiwei LI, Yukui ZHAO, Jing HAN, Weiping HU, Zhiqiang LIU.  
Role of 5-hydroxytryptamine type 3 receptors in the regulation of anxiety reactions[J]. Journal of Zhejiang University Science B, 2024, 25(1): 23-37.  
<https://doi.org/10.1631/jzus.B2200642>

# **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

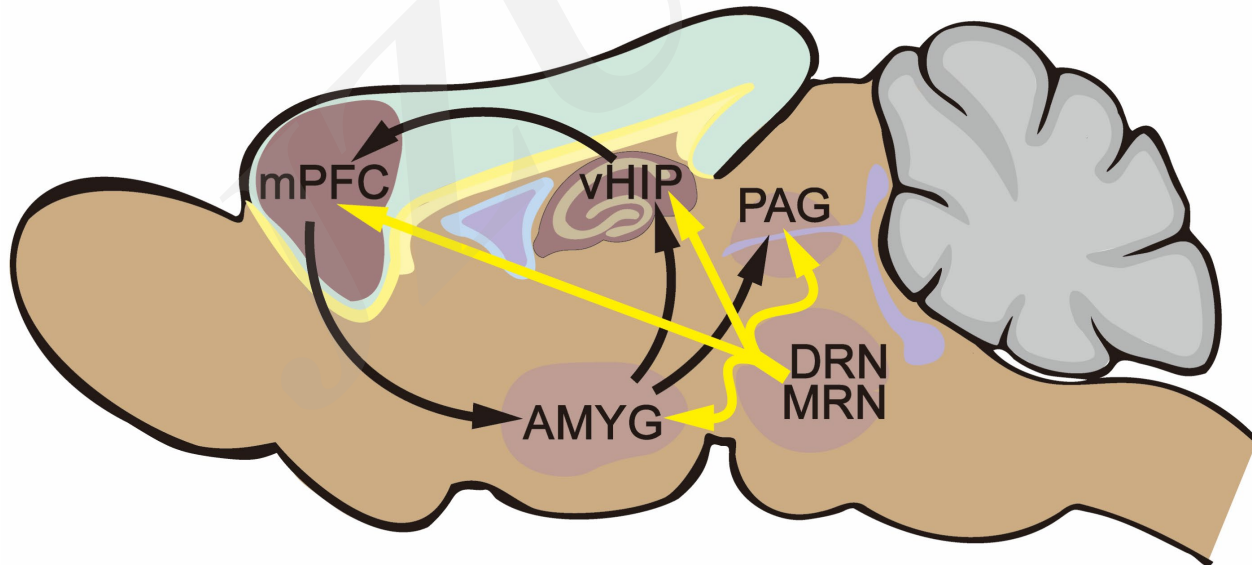
# ***Research Summary***

**This review mainly focused on the 5-hydroxytryptamine 3 receptors (5-HT<sub>3</sub>R) in the regulation of anxiety reactions. It consists of the following sections:**

- 5-HT<sub>3</sub>R structure and function.**
- The bidirectional effects of 5-HT<sub>3</sub>Rs on anxiety behaviors.**
- The mechanism of 5-HT<sub>3</sub>R regulation of anxiety in brain circuits.**

# *Innovation points*

- **Introduction** of the 5-HT<sub>3</sub>R in the regulation of anxiety reactions.
- **Summary** of the involvement of 5-HT<sub>3</sub>R 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<sub>3</sub>R in anxiety and their circuit-specific regulatory effects.



# ***Innovation points***

**A series of comprehensive images were generated to summarize the role of 5-HT<sub>3</sub>R in regulating anxiety reactions across different brain regions.**

**Fig. 1 | Schematic diagram of main brain regions participating in the regulation of anxiety by 5-HT<sub>3</sub>R.**

**Fig. 2 | A schematic paradigm of the regulation of anxiety by 5-HT<sub>3</sub>R in the AMYG.**

**Fig. 3 | A schematic paradigm of the regulation of anxiety by 5-HT<sub>3</sub>R in the mFPC.**

**Fig. 4 | A schematic paradigm of the regulation of anxiety by 5-HT<sub>3</sub>R in the vHIP.**

**Fig. 5 | A schematic paradigm of the regulation of anxiety by 5-HT<sub>3</sub>R in the PAG.**