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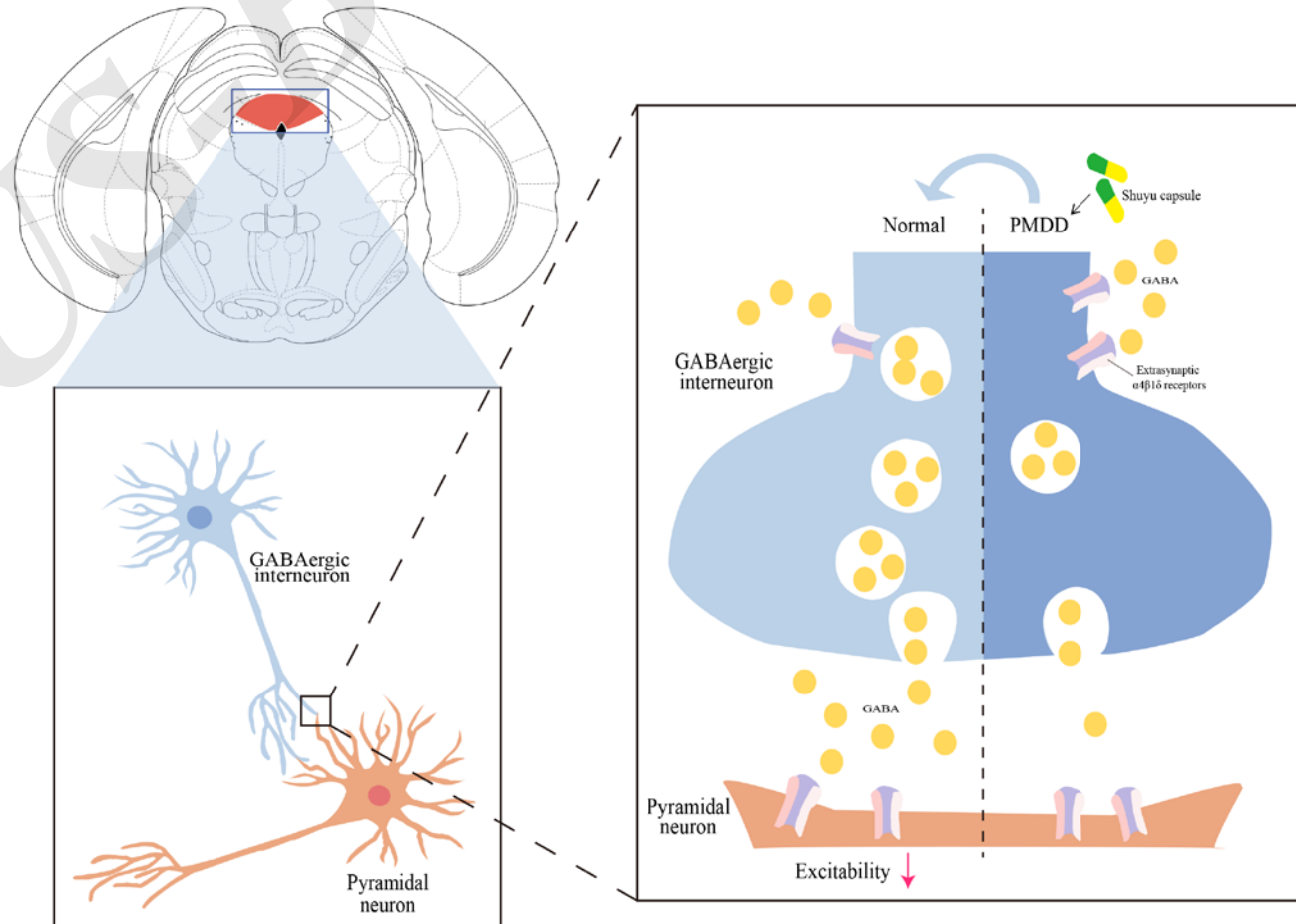
# **Shuyu capsule improves estrous cycle-dependent depression-like behavior in premenstrual dysphoric disorder (PMDD) mice by increasing GABAergic neuronal activation and downregulating GABA<sub>A</sub>R $\delta$ subunit expression in the dorsal periaqueductal gray (dPAG) region**

**Key words:** Premenstrual dysphoric disorder; Periaqueductal gray;  $\gamma$ -Aminobutyric acidergic (GABAergic) neuron;  $\gamma$ -Aminobutyric acid receptor  $\delta$  subunit (GABRD); Shuyu capsule; Depression-like behavior

# Research Summary

This study mainly focused on to reveal the potential mechanism of the Shuyu capsule in treating PMDD, and summarized the key roles Shuyu capsule treatment played in the following aspects:

- **Specific activation of GABAergic neurons in dPAG**
- **Reduced the expression of GABA<sub>A</sub>R  $\delta$  subunit of dPAG**



# *Innovation points*

- **Confirmation** of Shuyu capsule improves oestrous cycle-dependent depression-like behaviour in PMDD mice.
- **Demonstration** of the potential mechanism by which Shuyu capsules can improve PMDD mice by activating GABAergic interneurons and downregulating the expression of GABA<sub>A</sub>R containing the  $\delta$  subunit in the dPAG.
- **Indication** of GABRD gene may be related to anxiety-like behaviours in mice.