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The aversive brain system of teleosts: Implications for neuroscience and biological psychiatry

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Highlights

- Evidence for brain systems specialized in defensive behavior in fish are reviewed
- Telencephalic and habenular circuits represent a "high road" for defensive behavior
- Hypothalamic circuits organize neuroendocrine and neurovegetative outputs
- Interneurons in the optic tectum mediate fast escape responses via projections to the central gray and/or the brainstem escape network

Abstract

Defensive behavior is a function of specific survival circuits, the "aversive brain system", that are thought to be conserved across vertebrates, and involve threat detection and the organization of defensive responses to reduce or eliminate threat. In mammals, these circuits involve amygdalar and hypothalamic subnuclei and