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Astrocyte-mediated regulation of fear memory fate

アストロサイトによる恐怖記憶の運命決定制御

Animals exploit regularities in the environment by storing memories and later using them to guide behavior. Astrocytes may modulate neuronal meta-plastic states, thereby influencing memory formation during highly salient experiences, such as intense fear. Here, we combined classical fear conditioning with *in vivo* astrocyte optogenetic manipulations, fiber photometry recordings, and *ex vivo* measurements to investigate the role of amygdala astrocytes in fear memory. Optogenetic perturbations during conditioning selectively altered long-term and remote memory formation, without simply disrupting immediate memory acquisition. These findings suggest that amygdala astrocytes act during a brief window around fear experience to regulate the long-term fate of memory. To assess whether astrocytes show physiologically relevant activity, astrocyte activity patterns were assessed *in vivo* and *ex vivo* to identify dynamics that underlie their possible roles in memory modulation.

* 山尾さんは北大理学部生物科学科を卒業後、東北大学大学院で学位を取得し、昨年から上記所属でポスドクとして新しい研究をはじめられました。今回の講演は博士課程での研究内容が中心ですが、この論文は *Glia* 誌の2025年度 Top-viewed article に選ばれました。

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17:00~18:30

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