



ONSA/CBIR セミナー

Tagging activated neurons during specific timing in behavior

演者

長濱 健一郎 先生

Hyungbae Kwon lab, The Solomon H. Snyder Department of
Neuroscience, Johns Hopkins University School of Medicine

日時

2022年12月19日(月) 18:00 開始

会場

ハイブリッド開催 (対面&オンライン)

会場 : M&D タワー共用講義室 1 (M&D タワー 2 階)
オンライン参加の登録はこちらから
<https://forms.gle/Gxa6NBbk4a1GSDHN8>

参加登録
QRコード



講演要旨

発表言語は日本語です (Seminar will be in Japanese)

Identification of responsible neuronal populations is crucial to understand causal relationship between neural activity and behavior. However, current techniques have a limitation in the temporal resolution because it requires several hours to express reporter genes in neurons. To identify more precise causality between activated neurons and specific behavior, we newly developed a genetic tagging tool named as soma-targeted Cal-Light (ST-Cal-Light) based on our previous calcium (Ca²⁺)-and light-gated switch system. The ST-Cal-Light increases sensitivity to action potential-induced Ca²⁺ influx in the soma compared to the original one. We validated capability of the ST-Cal-Light in various behavioral tasks and successfully label and manipulate their responsible neuronal populations. To target specific cell types relevant to behavior, we also developed a conditional ST-Cal-Light knock-in (ST-Cal-Light-KI) mouse line, which presents significant efficiency and specificity of the tagging on specific type of neurons. As suggested in tons of our evaluation, the ST-Cal-Light has a potential to facilitate understanding of causality between activity and behavior at higher spatiotemporal resolution.

連絡先 : 認知神経生物学分野 上阪 直史 (uesaka.cnb@tmd.ac.jp)