

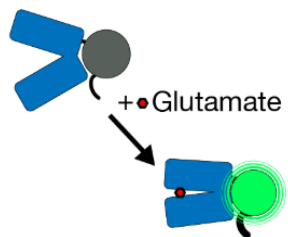
SFN Highlights: new neurotransmitter sensors

Ellen Koch

Lynn Raymond Lab

SnFRs (Loren Looger Janelia Farms)

- Periplasmic proteins isolated from bacteria to bind to your neurotransmitter bound to a circularly permuted GFP



Not published yet

AChSnFR

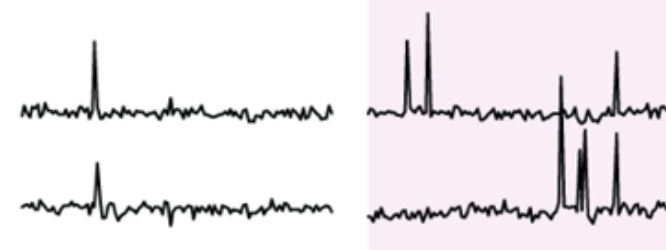
- Imaging in vivo and in striatal slices
- Can see localized ACh release sites
- Lovinger lab: in slices stimulate M1 or striatum
- Surprisingly long responses (seconds long)
- In response to HFS, 3 min long responses!
- Used in vivo
- Ethanol decreased ACh release
- Cocaine increased ACh release
- Rotarod in vivo: no clear increase in activity associated with this task

Resting

Running

PC V6

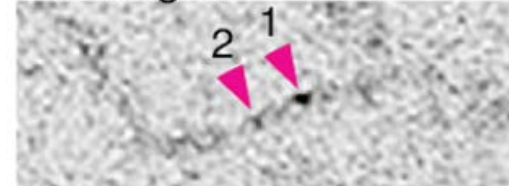
FWR



Baseline



Peak signal

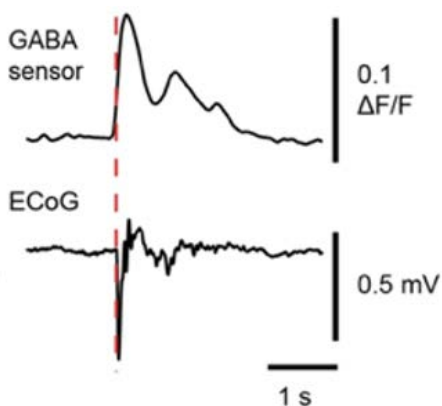


Published and available:

iGluSnFR

SF-iGluSnFR

GABASnFR



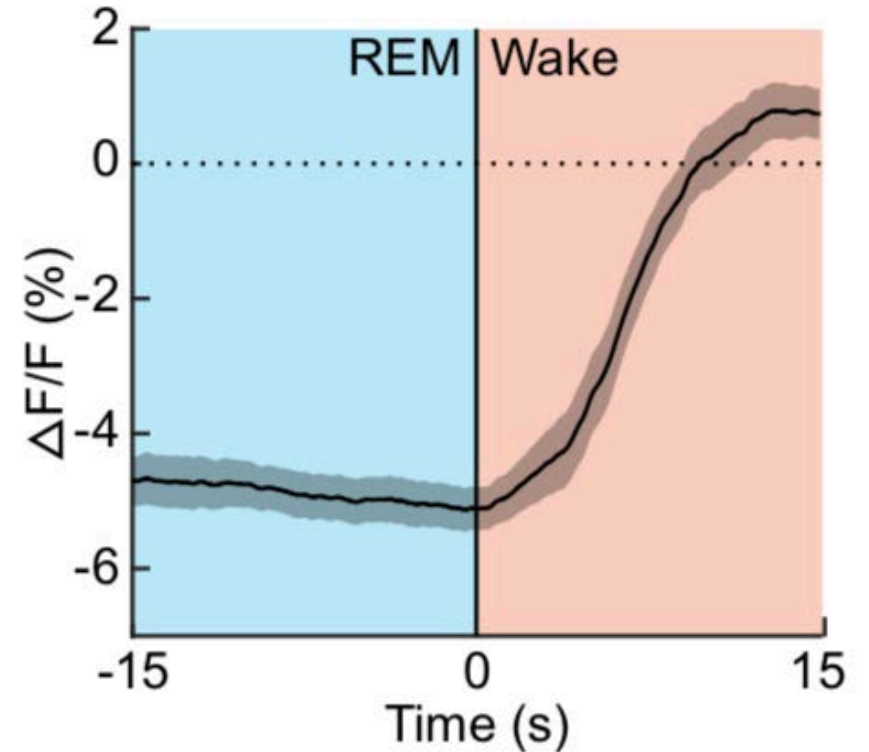
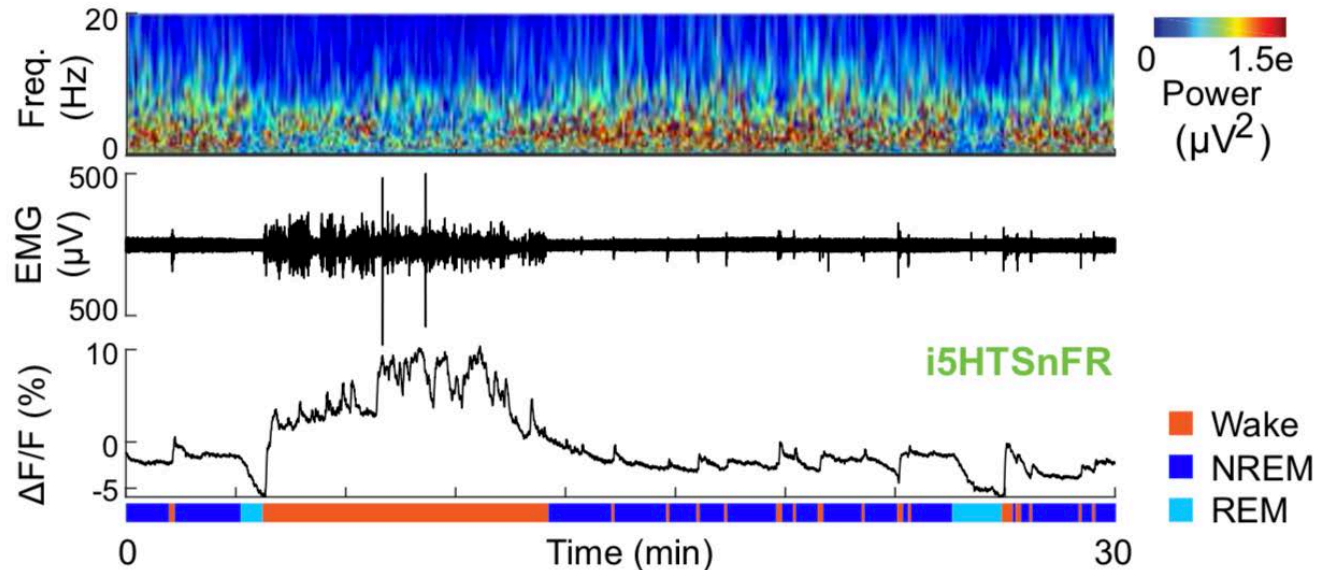
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Fiber photometry in amygdala

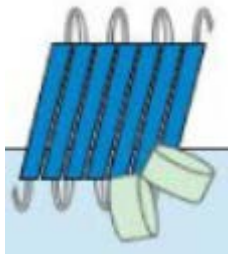
5-HTSnFR



GPCR based sensors (Lin Tian and Yulong Li labs)

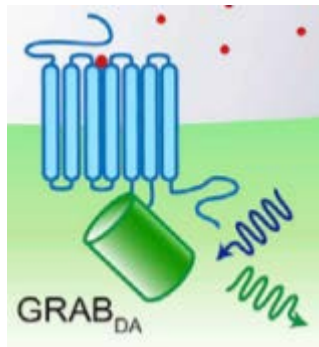
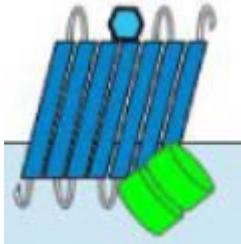
Published

dLight



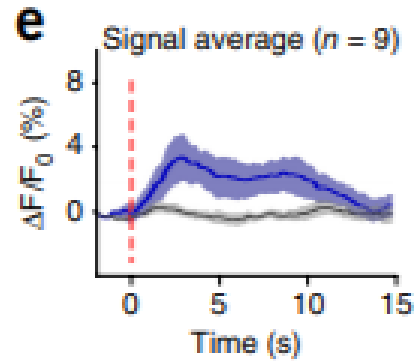
GRAB-DA

+ Dopamine



GACH

Visual stimuli in mice

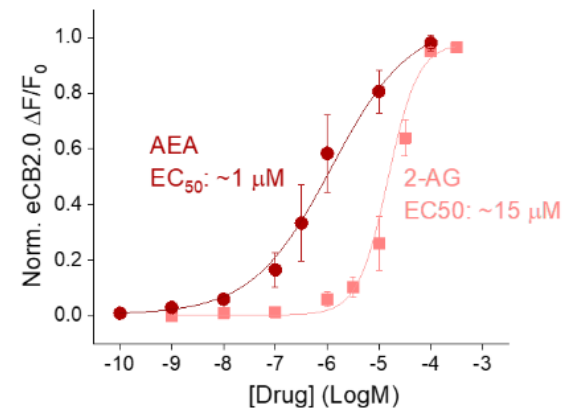


Unpublished

GRAB-eCB

- Available by request From Yulong Li lab
- Lovinger lab tested this in slice
- ~1.25% dF/F responses in striatum with 100 Hz 10 pulses stim

GRAB-5HT
GRAB-NE
GRAB-ATP
And more
 Available by request



- Dlight used in vivo (Berke lab and Lovinger lab)
- Dopamine release during rewards in NAcc and during CS+ in dorsal striatum and NAcc
- Red Dlight paper is in prep