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THE NEW TRUE RED-EMITTING CALCIUM INDICATOR FOR NEUROSCIENCE APPLICATIONS

ICR-I
ION Calcium Red*

Excitation: 580 nm
Emission: 660 nm
Kd Ca^{2+}: 480 nM

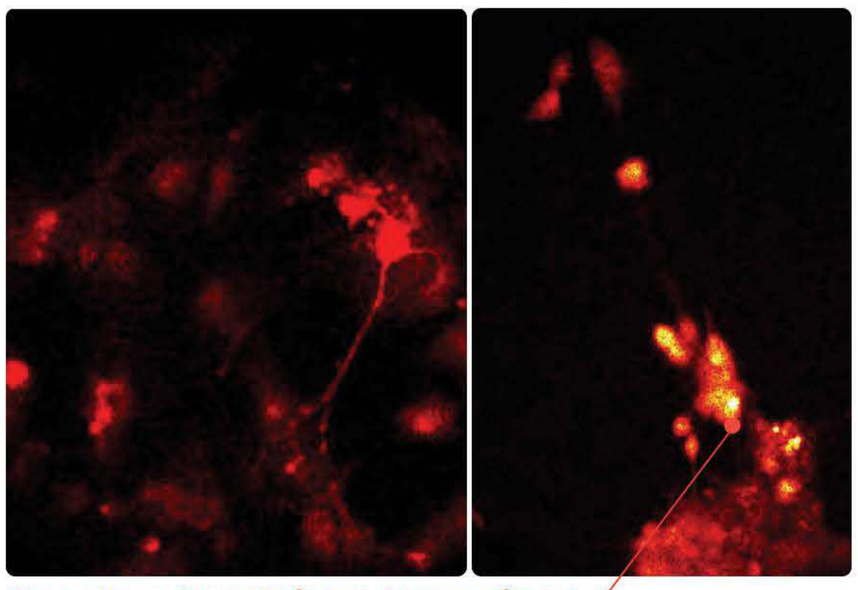
- pH insensitive in the physiological range
- No localization to mitochondria
- Ideal for optogenetics & photopharmacology

Live-cell fluorescence microscopy

- Deeper tissue penetration
- Minimal autofluorescence

High-throughput screening:

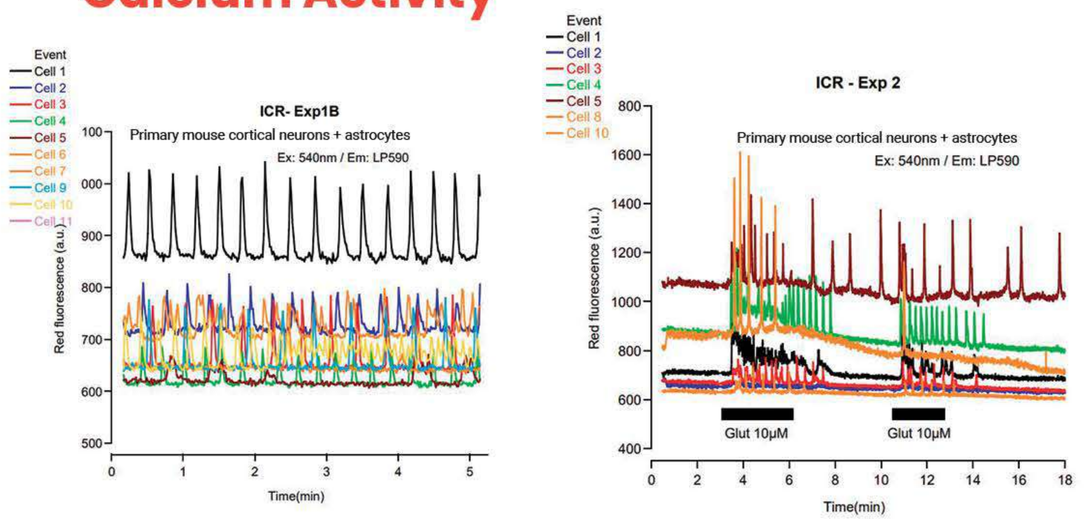
- Eliminate fluorescent compound artifacts
- Enable multiplexed readouts



Sparks of **Calcium Transient**

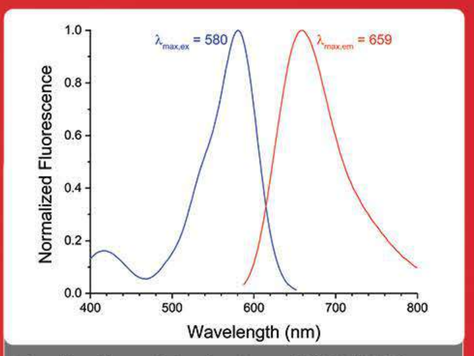
Mouse neurons and astrocytes were tested in culture for spontaneous activity and for activity stimulated by 10 µM Glutamate.

Different color rendering of the **Calcium Activity**

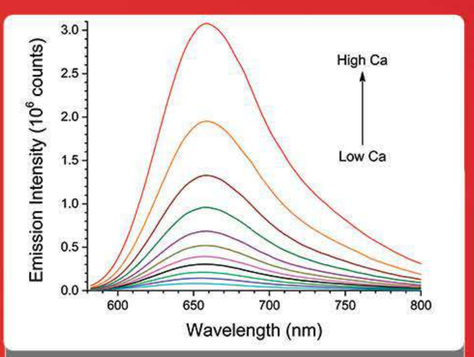


Each differente colored trace represents data from an individual cell.

*Pictures and recordings are courtesy of Jean-Yves Chatton, Professor of Neuroscience, Lausanne, Switzerland and Marc Briquet, also of University of Lausanne, Switzerland.



Excitation/Emission 580/659 nm
Stoke's Shift 80 nm

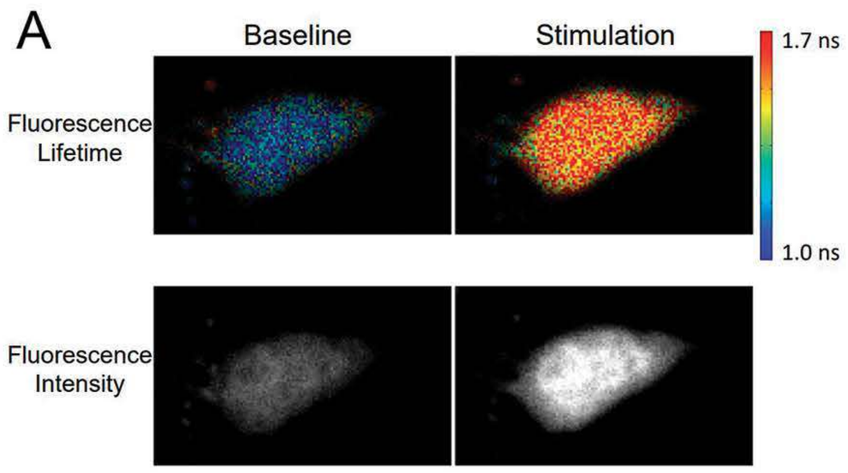


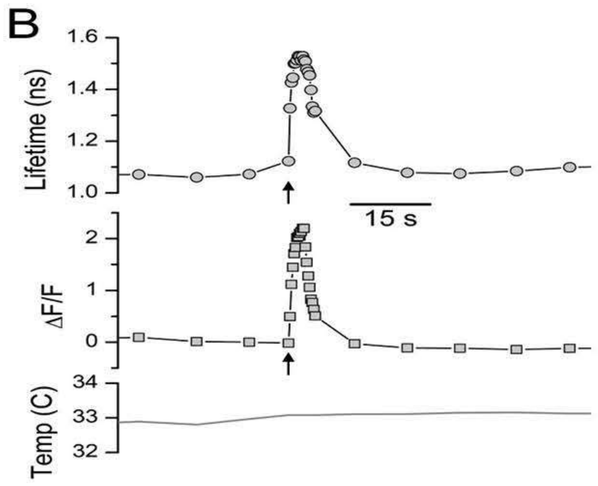
Calcium Titration

Dental **Granule Neuron**

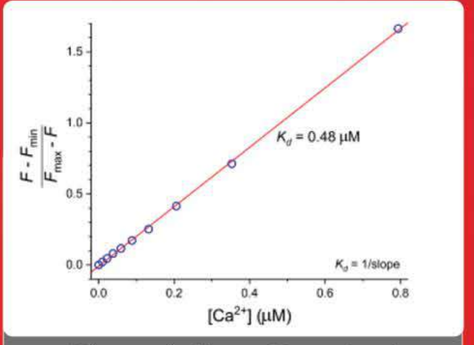
Fluorescence response of a dentate granule neuron loaded with ICR-1 to synaptic stimulation.

Figures, images, and legend are courtesy of Dr. Dylan J. Meyer, Neurobiology Department, Harvard Medical School.

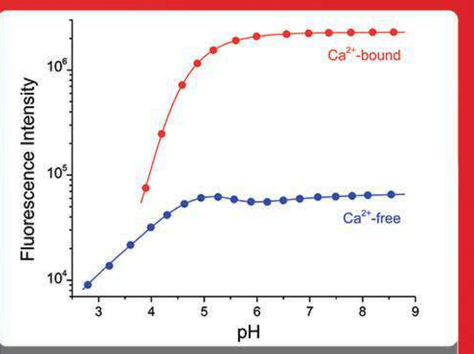




Fluorescence response of a dentate granule neuron loaded with ICR-1 to synaptic stimulation. A) Two sequential image acquisitions (0.1 Hz) of a hippocampal slice dentate granule neuron bathed in ACSF that was electroporatedwith ICR-1. The images show the fluorescence lifetime (pseudocolored according to the scale on the right) and fluorescence intensity at rest (baseline, left images) and when stimulated synaptically (stimulation, right images) with a bipolar electrode placed in the molecular layer. B) Time traces of the neuron in A showing fluorescence lifetime (top trace) and intensity (middle trace) changes in response to synaptic stimulation (indicated by the arrow; 60 pulses, 20 Hz, 0.5 mA). The acquisition rate during the stimulation was ~4 Hz. Temperature is indicated in the bottom trace. ICR-1 was excited at 790 nm and fluorescence emission was filtered with a FF562-Di03 dichroic mirror and red bandpass filter (670/50 nm).



Dissociation Constant
Kd=0.48 µM



pKa = 5

*Patent pending

Figures and descriptions are courtesy of Professor Joe Kao of University of Maryland Medical School.