VOLTAGE-SENSITIVE FLUORESCENT (VF) DYES FOR NEURONAL IMAGING

Tech ID: 24459 / UC Case 2015-044-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,837,968	11/17/2020	2015-044

BRIEF DESCRIPTION

The electrophysiological recordings of the activity of single neurons embedded within a network provides a powerful method for understanding brain function. While this approach has proven incredibly powerful, real limitations exist, namely the invasive requirement of sticking an electrode into biological samples, severely disrupting underlying tissue, restricting recordings primarily to cellular soma, and making recording from multiple sites challenging or impossible.

UC Berkeley researchers have developed compositions and methods for sparsely labeling neurons of cells with VF dyes. The VF dyes are sensitive to small variations in neuronal transmembrane potentials and can respond both to rapid and sustained membrane potential changes. The invention is also less susceptible to capacitative loading issues.

SUGGESTED USES

- Imaging of transmembrane events in neurons while providing a clear, readable signal
- Sparse labeling of neurons with VF dyes while increasing the tractability of the approach for use in tissues, brain slices and *in vivo* contexts

ADVANTAGES

- VF dyes add no capacitive load, making them ideal candidates for non-disruptive sensors of neuronal activity
- Capable of responding to rapid (millisecond) transmembrane potentials

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INVENTORS

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OTHER INFORMATION

KEYWORDS

Imaging, research tools, dye, VF dye, Medical imaging, neurons, fluorescense

CATEGORIZED AS

- **Imaging**
  - Medical
- **Materials & Chemicals**
  - Chemicals
- **Medical**
  - Imaging
- **Research Tools**
  - Reagents

RELATED CASES

2015-044-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Long Wavelength Voltage Sensitive Dyes
- Fluorescent Bis-Trifluoromethyl Carborhodamine Compounds
- FLUORESCENT PROBES AND USES THEREOF
- PHOTO-INDUCED ELECTRON TRANSFER VOLTAGE SENSITIVE DYES

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