PHOTO-INDUCED ELECTRON TRANSFER VOLTAGE SENSITIVE DYES

Tech ID: 25792 / UC Case 2016-139-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,370,351	08/06/2019	2016-139

BRIEF DESCRIPTION

The development of fluorescent indicators for sensing membrane potential can be a challenge. Traditional methods to measure membrane potential rely on invasive electrodes, however, voltage imaging with fluorescent probes (VF) is an attractive solution because voltage imaging circumvents problems of low- throughput, low spatial resolution, and high invasiveness. Previously reported VF probes/dyes have proven useful in a number of imaging contexts. However, the design scheme for VF dyes remains elusive, due in part to our incomplete understanding of the biophysical properties influencing voltage sensitivity in our VoltageFluor scaffolds.

UC Berkeley researchers have discovered new VF dyes, which are a small molecule platform for voltage imaging that operates via a photoinduced electron transfer (PeT) quenching mechanism to directly image transmembrane voltage changes. The dyes further our understanding of the roles that membrane voltage plays, not only in excitable cells, such as neurons and cardiomyocytes, but also in non-excitable cells in the rest of the body.

SUGGESTED USES

» Reagents for studying membrane potentials in excitable cells (e.g., neurons and cardiomyocytes) and non-excitable cells (e.g., epithelium, immune or other somatic cells

» Drug screening, neurobiology and basic science research

ADVANTAGES

» Improved voltage sensitivity allows for reduced signal-to-noise, such as low-power illumination, thicker tissue samples, and long-term imaging.

» High spatial resolution, high throughput, minimally invasive

» Excellent photostability

PUBLICATION

A Small-Molecule Photoactivatable Optical Sensor of Transmembrane Potential

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

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OTHER INFORMATION

KEYWORDS

dye, fluorophore, membrane potential, optical, voltage, sensor

CATEGORIZED AS

» **Materials & Chemicals**

» Chemicals

» **Medical**

» Imaging

» **Research Tools**

» Reagents

RELATED CASES

2016-139-0

- Long Wavelength Voltage Sensitive Dyes
- Voltage-Sensitive Fluorescent (VF) Dyes For Neuronal Imaging
- Fluorescent Bis-Trifluoromethyl Carborhodamine Compounds
- FLUORESCENT PROBES AND USES THEREOF

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