

## BeRST Voltage Sensitive Dye

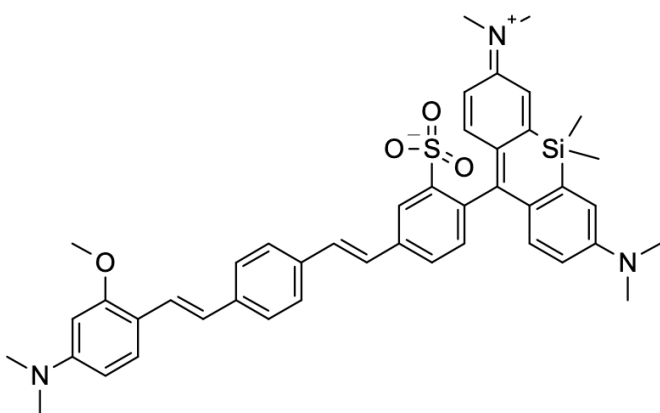
1 mM DMSO solution, 1 x 200  $\mu$ L (p/n 08-10003)

1 mM DMSO solution, 10 x 200  $\mu$ L (p/n 08-10002)

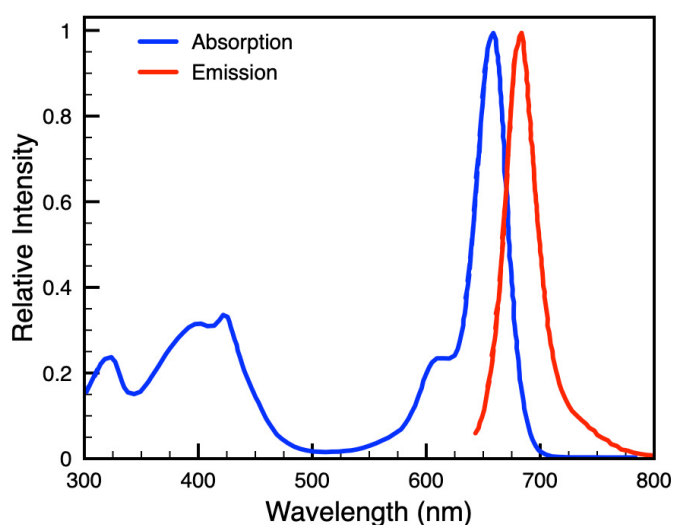
### Description

Berkeley Red Sensor of Transmembrane potential (BeRST) is a red-shifted, voltage-sensitive dye (VSD) designed for live cell assays. BeRST has fluorescence excitation and emission peaks at 658 nm and 683 nm, respectively, and may be used with other fluorescent stains and ion indicators. BeRST is compatible with optogenetic stimulation by ChannelRhodopsin2 (ChR2), i.e. Ref. [1].

### Structure



### Absorption and Emission Spectra



Absorption and emission spectra of BeRST in aqueous buffer (50 mM TBS, pH 7.5, 0.1% SDS)

### General Properties

Molecular Weight 742.0

Molecular Formula C<sub>44</sub>H<sub>47</sub>N<sub>3</sub>O<sub>4</sub>SSi

$\lambda_{\text{Abs}}$  658 nm

$\lambda_{\text{Em}}$  683 nm

Quality Control <sup>1</sup>H NMR, HPLC-MS (>95%)

**Storage** Stable at room temperature for up to 6 months. Recommend aliquoting into smaller portions (e.g. 20  $\mu$ L stock is sufficient for four 96-well microplates) and storing at 4°C. For long term storage (> 12 months), store at -20°C. Avoid repeated freeze-thawing.

## Sample Protocol

1. Culture cells in appropriate maintenance medium.
2. Prepare dye labeling medium by diluting 1 mM BeRST stock to 0.5-1  $\mu$ M in selected medium, such as FluoroBrite™ DMEM (Thermo Fisher Scientific) or PBS.
3. Remove maintenance medium from cells and replace with dye labeling medium.
4. Incubate cells for 10-15 minutes at 37°C.
5. Remove dye labeling medium and replace with a recording medium, such as FluoroBrite™ DMEM.
6. Incubate at 37°C for 30 minutes to allow for temperature equilibration before proceeding to data acquisition.

See Ref. [2] for a more detailed protocol.

## References

- [1]. YL Huang, AS Walker, EW Miller (2015). [J Am Chem Soc. 137\(33\):10767-76.](#)
- [2]. P Kilfoil, SL Feng, S Jenkinson et al. (2021). [Eur J Pharmacol. 912:174584.](#)
- [3]. J Streit, S Kleinlogel. (2018). [Sci Rep. 8\(1\):1153.](#)

*Disclaimer: This product is intended for research purposes only. It is not intended for therapeutic or diagnostic applications.*