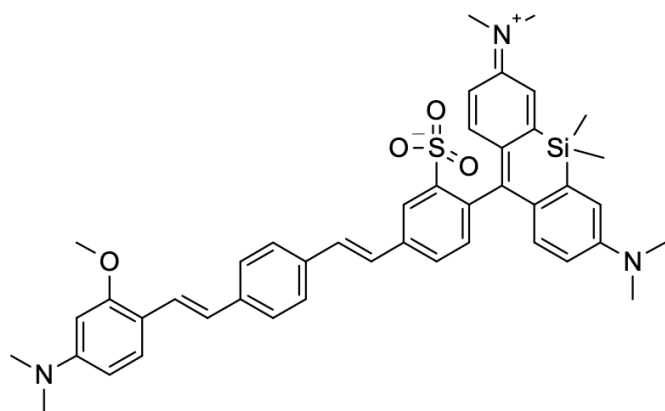
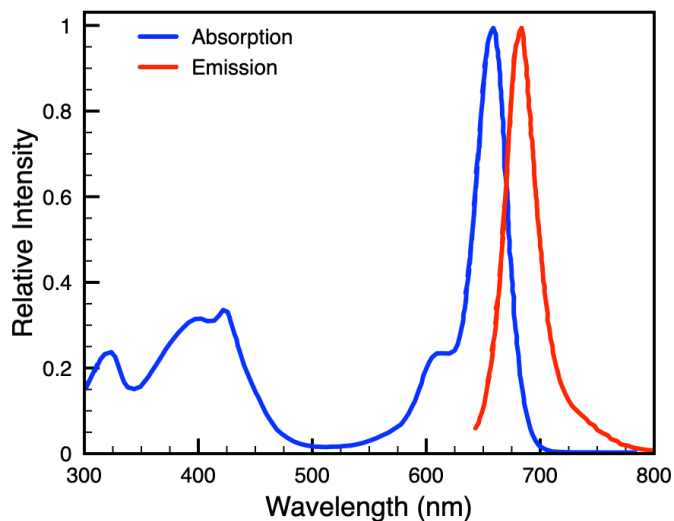


BeRST Voltage Sensitive Dye Structure



Absorption and Emission Spectra



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

BeRST Voltage Sensitive Dye

High-Performance Voltage Imaging for Live Cell Assays

Product Overview

BeRST (Berkeley Red Sensor of Transmembrane potential) is a red-shifted, voltage-sensitive fluorescent dye designed for live-cell assays and optical measurement of membrane potential. With excitation and emission maxima at 658 nm and 683 nm respectively, BeRST enables high-contrast voltage imaging and optical readouts for what has historically only been possible for electrophysiology. BeRST has minimal spectral overlap with commonly used fluorescence stains and ion flux indicators, including calcium dyes. The red-shifted spectral profile supports multiplexed fluorescence experiments and is compatible with optogenetic stimulation using ChannelRhodopsin-2 (ChR2). [1]

Key Properties and Characteristics

BeRST provides reliable fluorescence response to changes in transmembrane potential and is optimized for use in demanding optophysiology workflows, including cardiac and neuronal biology workflows. The dye is supplied as 200 microliters of a 1 mM solution in DMSO, sufficient for forty 96-well plates of labeling.

Spectral Characteristics

BeRST exhibits peak absorption at 658 nm and peak emission at 683 nm. Absorption and emission spectra are measured in the visible red spectrum, suitable for imaging applications where low background and deep tissue penetration are desired. These spectral properties allow BeRST to be used alongside other fluorescent probes with minimal crosstalk.

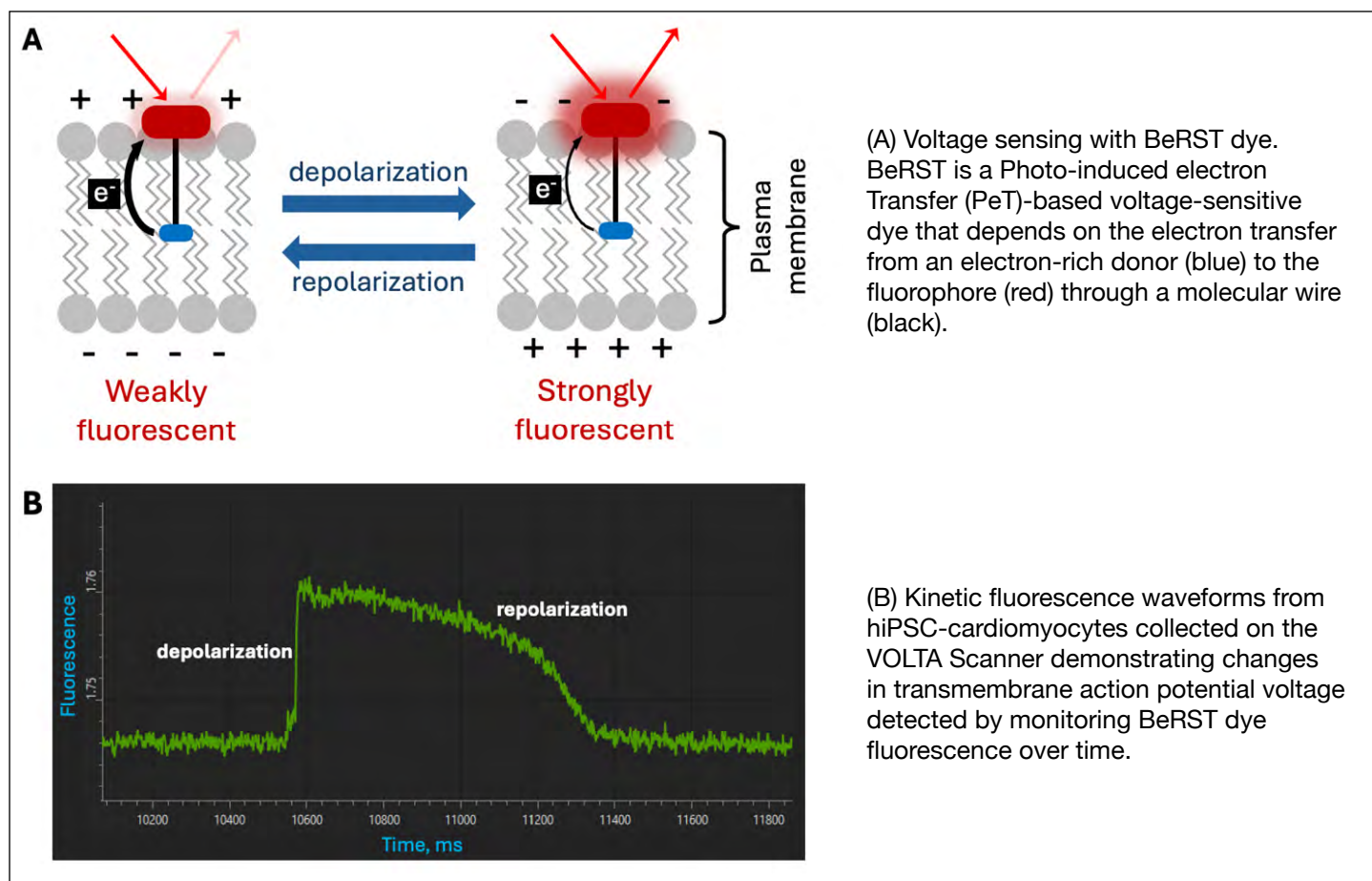
Chemical and Handling Information

For optimal performance, aliquot the dye upon receipt to minimize repeated freeze-thaw cycles. Recommended storage is 4 °C short-term and -20 °C long term.

Typical Labeling Protocol

Incubate cells with BeRST diluted to a final concentration of 0.5–1 μM in an appropriate labeling medium such as FluoroBrite™ DMEM or phosphate-buffered saline. After a 15–30-minute incubation, wash out the dye solution and replace with recording medium prior to data acquisition. This protocol supports efficient membrane labeling while maintaining cell viability and signal stability.

For more information or to purchase BeRST, please contact us at info@lumencor.com.



General Properties:

| | |
|-------------------|---|
| Molecular Weight | 742.0 |
| Molecular Formula | C ₄₄ H ₄₇ N ₃ O ₄ SSi |
| λ _{Abs} | 658 nm |
| λ _{Em} | 683 nm |
| Quality Control | ¹ H NMR, HPLC-MS (>95%) |
| Storage | Stable at room temperature for up to 6 months. Recommend aliquoting into smaller portions (e.g. 20 μL 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. |

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.