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DiO/DPA Membrane Potential Detection Kit

DiO/DPA is a highly sensitive FRET-based dye system that reports membrane potential change on submillisecond time scale.

Product Description

DiO/DPA is a non-invasive optical membrane potential reporter system with low cytotoxicity, high speed, and high sensitivity.

The DiO/DPA system detects cytoplasmic membrane potential changes using the principle of fluorescence resonance energy transfer (FRET). The green fluorescent lipophilic dye DiO acts as a stationary FRET donor in the plasma membrane. The anionic quencher DPA acts as a mobile FRET acceptor, rapidly partitioning in and out of the membrane in response to membrane potential, thus modulating DiO fluorescence. The DiO/DPA system has been reported to produce large fluorescence signal changes of >56% in HEK-293 cells and >25% in neuronal cultures and brain slices per 100 mV membrane potential change, and to report membrane potential *in situ* on submillisecond time scale (see [Ref. 1](#)).

The DiOC₁₆(3) in this kit is an improved version over the DiOC₁₆(3) from other suppliers; it is formulated with gluconate as the counter ion to increase dye solubility, for brighter and more uniform cell staining.

DPA is a hazardous material due to its explosive nature. To improve its safety during shipping and handling, it is provided as a dilute solution in the kit. We also offer DPA solid (catalog no. [60037](#)).

References

1. J Neurosci (2009) 29(29), 9197. [DOI:10.1523/JNEUROSCI.1240-09.2009](#)
2. Brit J Pharmacol (2011) 164, 667–680. [DOI:10.1111/j.1476-5381.2011.01396.x](#)

This datasheet was generated on January 7, 2026 at 05:03:24 PM. Visit product page to check for updated information before use.
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Product attributes

For live or fixed cells	For live/intact cells
Assay type/options	Real-time imaging
Potential dependence	Fast-response membrane potential dye
Colors	Green
Excitation/Emission	484/501 nm
CAS number	DiO: 34215-57-1, Dipicrylamine: 131-73-7
Storage Conditions	Store at room temperature, Protect from light