

Product Information

DiO/DPA membrane potential detection kit

Catalog Number: 30037

Unit Size: 1 mL each of DiOC16(3) and DPA solutions

Components

Component A: DiOC16(3), 2 mM in DMSO

Component B: Dipicrylamine (DPA), 20 mM in DMSO

Spectral Properties

DiO: $\lambda_{abs}/\lambda_{em}$ (MeOH) = 484/501 nm

DPA: λ_{abs} (MeOH) = 406 nm

Color and Form

Component A: yellow orange liquid

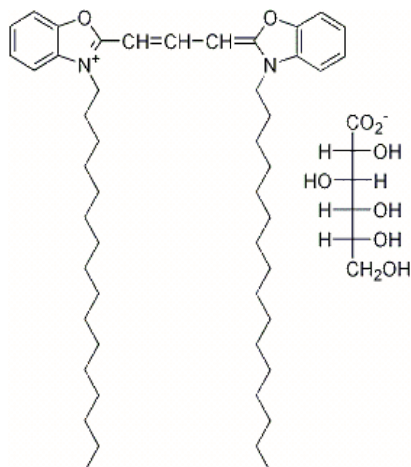
Component B: orange brown liquid

Storage and Handling

Store at room temperature. Protect kit components from light. Product is stable for at least one year from date of receipt when stored as recommended.

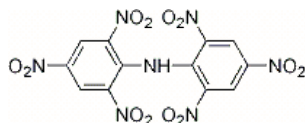
Molecular Information

Chemical structure of DiOC16(3):

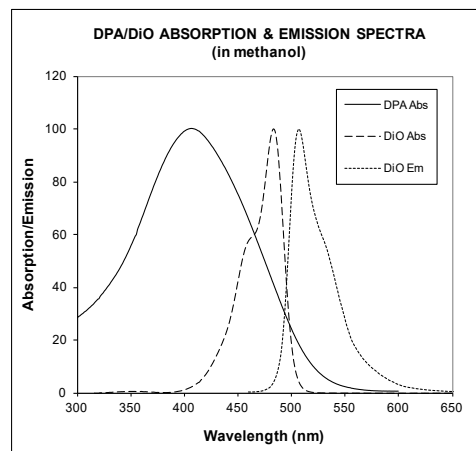


Molecular formula: $C_{55}H_{88}N_2O_9$; MW: 921.30

Chemical structure of dipicrylamine:



MW: 439.21; CAS#: [131-73-7]



Product Description

DiO/DPA membrane potential detection kit comprises a vial of the green fluorescent membrane dye DiOC16(3), 2 mM in DMSO and a vial of the anionic membrane quencher dye DPA (dipicrylamine), 20 mM in DMSO. The DiO/DPA system detects cytoplasmic membrane potential change using the principle of fluorescence resonance energy transfer (FRET), where DiO is a "stationary" FRET donor while DPA acts as a mobile FRET acceptor. The membrane location of DPA is a function of the polarity and magnitude of membrane potential, thus resulting in a membrane potential-dependent FRET efficiency. The DiO/DPA system has been reported to produce a fluorescence signal change of >56% in HEK-293 cells and >25% in neuronal cultures and brain slices per 100 mV membrane potential change (1). See reference 1 for experimental details.

The DiOC16(3) in this kit is an improved version over the DiOC16(3) from other suppliers. Our DiOC16(3) has gluconate as the counter ion, which makes the dye more water soluble, thus facilitating cell staining. DPA is traditionally is hazardous material due to its explosive nature. To improve its safety during shipping and handling, we have made it available as a diluted solution or in a smaller packaging unit (see cat# 60037).

References

- Bradley, et al. J. Neurosci. 29 (29), 9197 (2009).

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