

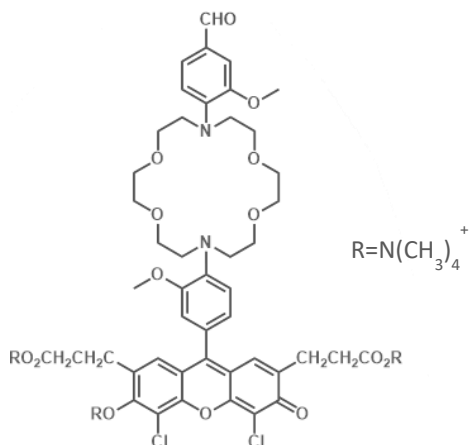
IPG-1 TMA⁺ Salt

05/21

ALTERNATE NAMES: Potassium (K⁺) indicator; IPG-1 membrane impermeable; IPG-1 tetramethylammonium TMA⁺ Salt; Fluorescent Potassium K⁺ indicator

CATALOG #: B3141-5PK 5 x 50 µg
B3141-500 500 µg

STRUCTURE:



MOLECULAR WEIGHT: 1145

APPEARANCE: Red-orange powder

PURITY: ≥ 90%

SOLUBILITY: Soluble in water

DESCRIPTION: IPG-1 is a small, synthetic fluorochrome which incorporates a K⁺-binding moiety. When K⁺ binds, the quenching is relieved and the fluorescence dramatically increases. IPG-1 has Ex/Em: 525 nm/545 nm and a high-sensitivity to detect small changes in K⁺ concentration. IPG-1 has a lower affinity (K_d = 50 mM) than IPG-2 (Cat. Nos. B3142, B3143; K_d = 18 mM) or IPG-4 (Cat. Nos. B3144, B3145; K_d = 7 mM).

IPG-1 TMA⁺ salt is a membrane impermeable form of IPG-1 that can be used in lipid membrane-free systems, liposomes, or can be introduced into cells by electroporation, microinjection or other methods.

STORAGE TEMPERATURE: -20 °C. Store in the dark. Product is light sensitive. Protect from air. Store under desiccating conditions.

HANDLING: Do not take internally. Wear gloves and mask when handling the product! Avoid contact by all modes of exposure.

PROTOCOL:

Titration protocol for measuring potassium concentrations in solution:

1. Calibrate IPG-1 salt by dissolving the dye in TRIS or HEPES buffer with various concentrations of KCl. Use a concentration of ~2.5 µM IPG-1 and a concentration range between 0-150 mM KCl. For calibration, use a buffer formulation that is similar to the experimental conditions, as the performance of the dye can be impacted by other salts and/or proteins.
2. There will be an increase in the fluorescence of the solution, when the amount of KCl in the solution increases.
3. Read the fluorescence using a plate reader or fluorimeter (Excitation/Emission: 525 nm/545 nm).

REFERENCES:

1. Rimmele, T.S., Chatton, J.Y. A Novel Optical Intracellular Imaging Approach for Potassium Dynamics in Astrocytes. *PLOS ONE* 9(10): e109243 (2014).
2. Woo, J., Jang, M.W., Lee, J., et al. The molecular mechanism of synaptic activity-induced astrocytic volume transient. *J Physiol.* 2020 Oct;598(20):4555-4572 (2020).

RELATED PRODUCTS:

FURA-5F/AM (Cat. No. 9551)
ING-2 AM (Cat. No. B3137)
FURA-2 Am (Cat. No. 2243)
FURA-4F/AM (Cat. No. 9550)
ING-2 TMA+ Salt (Cat. No. B3138)

DISCLAIMER:

FOR RESEARCH USE ONLY! Not to be used on humans.