

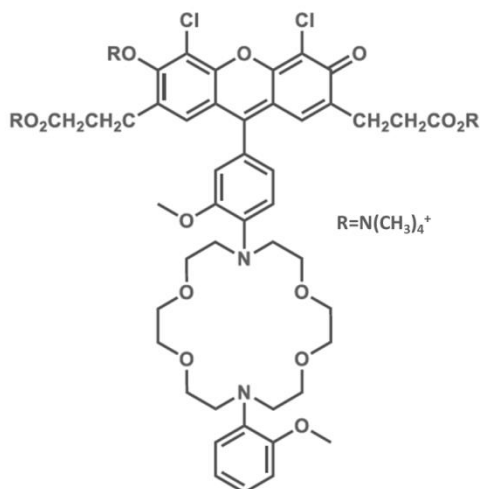
IPG-2 TMA⁺ Salt

05/21

ALTERNATE NAMES: Potassium (K⁺) indicator; IPG-2 membrane impermeable; IPG-2 tetramethylammonium TMA⁺ Salt; Fluorescent Potassium K⁺ indicator

CATALOG #: B3143-5PK 5 x 50 µg
B3143-500 500 µg

STRUCTURE:



MOLECULAR WEIGHT: 1131

APPEARANCE: Red orange powder

PURITY: ≥ 90%

SOLUBILITY: Soluble in water

DESCRIPTION: IPG-2 is a yellow-green fluorescent, intracellular potassium (K⁺) indicator with Ex/Em: 525 nm/545 nm and a high-sensitivity to detect small changes in K⁺ concentration. It is a small, synthetic fluorochrome which incorporates a K⁺-binding moiety. When K⁺ binds, the quenching is relieved and the fluorescence dramatically increases. IPG-2 has a higher affinity (K_d = 18 mM) than IPG-1 (Cat. Nos. B3140, B3141; K_d = 50 mM) and lower affinity than IPG-4 (Cat. Nos. B3144, B3145; K_d = 7 mM).

IPG-2 TMA⁺ salt is a membrane impermeable form of IPG-2 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-2 salt by dissolving the dye in TRIS or HEPES buffer with various concentrations of KCl. Use a concentration of ~2.5 µM IPG-2 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. May, L.M., Anggono, V., Gooch, H.M., et al. G-Protein-Coupled Inwardly Rectifying Potassium (GIRK) Channel Activation by the p75 Neurotrophin Receptor Is Required for Amyloid β Toxicity. *Front Neurosci.* 8;11:455 (2017).
2. Liu, J., Li, F., Wang, Y., et al. A sensitive and specific nanosensor for monitoring extracellular potassium levels in the brain. *Nat. Nanotechnol.* 15, 321–330 (2020).

3. Rana, P.S., Gibbons, B.A., Vereninov, A.A., et al. Calibration and characterization of intracellular Asante Potassium Green probes, APG-2 and APG-4. *Anal Biochem.* 2019 Feb 15;567:8-13 (2019).

RELATED PRODUCTS:

ING-2 AM (Cat. No. B3137)
IPG-1 TMA+ Salt (Cat. No. B3141)
ING-2 TMA+ Salt (Cat. No. B3138)
IPG-2 AM (Cat. No. B3142)
IPG-1 AM (Cat. No. B3140)

DISCLAIMER:

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