

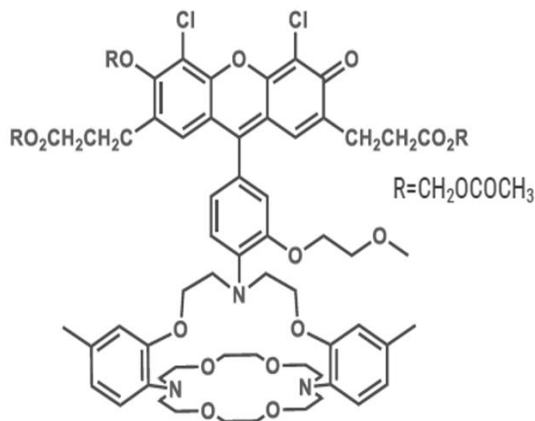
IPG-4 AM

05/21

ALTERNATE NAMES: Potassium (K⁺) indicator; IPG-4 membrane permeable; IPG-4 acetoxymethyl ester; Fluorescent Potassium indicator

CATALOG #: B3144-500 500 µg
 B3144-5PK 5 x 50 µg

STRUCTURE:



MOLECULAR WEIGHT: 1333

APPEARANCE: Red orange powder

PURITY: ≥ 95%

SOLUBILITY: Soluble in DMSO

DESCRIPTION: IPG-4 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-4 has a higher affinity (K_d = 7 mM) than IPG-1 (Cat. Nos. B3140, B3141; K_d = 50 mM) and IPG-2 (Cat. Nos. B3142, B3143; K_d = 18 mM). IPG-4 is appropriate for conditions where there may be large changes in intracellular K⁺ (e.g. highly active synapses) or as an extracellular K⁺ sensor.

IPG-4 AM is the membrane permeable form of the potassium indicator (Cat. No. B3145). Masking the negative charge using non-polar, ester-linked moieties (AM ester) allows the molecule to enter cells through passive diffusion. Once inside the cell, ubiquitous intracellular esterase enzymes promote rapid hydrolysis of the AM ester leaving the active, highly polar form of the indicator trapped inside the cell. IPG-4 is compatible with a wide variety of detectors including fluorescent microscopes, plate readers, flow cytometers and fluorescent indicator-doped solid-state sensors.

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.

REFERENCES:

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- Prindle, A., Liu, J., Asally, M. et al. Ion channels enable electrical communication in bacterial communities. *Nature* 527, 59–63 (2015).
- 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*. 15;567:8-13 (2019).
- Ong, S.T., Ng, A.S., Ng, X.R., et al. Extracellular K⁺ dampens T cell functions: implications for immune suppression in the tumor microenvironment. *Bioelectricity*, 1(3), 169-179 (2019).
- Humphries, J., Xiong, L., Liu, J., et al. Species-Independent Attraction to Biofilms through Electrical Signaling. *Cell*. 12;168(1-2):200-209.e12 (2017).

RELATED PRODUCTS:

IPG-1 AM (Cat. No. B3140)
IPG-4 TMA+ Salt (Cat. No. B3145)
ING-2 TMA+ Salt (Cat. No. B3138)
ING-2 AM (Cat. No. B3137)
IPG-1 TMA+ Salt (Cat. No. B3141)

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