

PBFI, K⁺ indicator

Ratiometric Green Fluorescent Potassium Indicator.

Product Information

Name :	PBFI AM ester
Catalog Number :	FP-86164A , 1 mg FP-86164B , 20x50 µg
Structure :	C ₅₈ H ₆₂ N ₂ O ₂₄ ,
Molecular Weight :	MW= 1171.14
Solubility:	in DMSO
Absorption / Emission :	$\lambda_{exc} \backslash \lambda_{em}$ (low ion) = 369 nm / 557 after hydrolysis $\lambda_{exc} \backslash \lambda_{em}$ (high ion) = 369 nm / 507 after hydrolysis
EC (M⁻¹ cm⁻¹) :	42 000
K_d :	5.1 mM

Name :	PBFI , tetramethylammonium salt (TMA salt)
Catalog Number :	FP-HV5320, 1 mg FP-HV5321, 20 x 50 µg
Structure :	C ₄₆ H ₃₈ K ₄ N ₂ O ₁₆
Molecular Weight :	MW= 1035 g/mol
Solubility:	in water
Absorption / Emission :	$\lambda_{exc} \backslash \lambda_{em}$ (high ion) = 337 nm / 492
K_d :	5 mM (in absence of Na ⁺) 44 mM (in presence of Na ⁺)

Storage: -20°C >1 year Protect from light and moisture

Introduction

PBFI (Potassium-Binding Benzofuran Isophthalate) is a fluorescent indicator widely used for measuring intracellular potassium (K⁺) concentrations. Potassium plays a critical role in numerous cellular processes, including the regulation of membrane potential, cell volume, mitochondrial function, and signal transduction. Monitoring intracellular K⁺ levels has proven particularly valuable in studies of:

- Apoptosis, where K⁺ efflux is an early hallmark of programmed cell death.
- Mitochondrial physiology and bioenergetics, including investigations of mitochondrial K⁺ transport.
- Plant biology, especially for measuring K⁺ dynamics in plant cells and vacuoles.
- Neuroscience, where K⁺ homeostasis is essential for neuronal excitability and signaling.

PBFI has been widely used in these applications as a non-radioactive alternative to traditional K⁺ flux assays based on ⁸⁶Rb⁺. The probe is compatible with fluorescence microscopy, flow cytometry (FCM), and spectrofluorimetric measurements. Although its selectivity for potassium over sodium is modest, it exhibits approximately 1.5-fold higher affinity for K⁺ than for Na⁺, which is generally sufficient for monitoring intracellular potassium concentrations under physiological conditions, where K⁺ levels greatly exceed Na⁺ levels.

Directions for use

Protocol may found in the literature.

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Related products

- Pluronic® F127, FP-37361A
- Valinomycin, FP-09246B
- Tetrodotoxin, FP-31496A

References

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Ordering information

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Please inquire for higher quantities (availability, shipment conditions).

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