

Cell Biology - Study/Probes

Chloride Indicators

SPQ is usually considered as the standard fluorescent indicator of chloride ion. It can also be used as a chloride quencher (1). Many others have been proposed, amongst all is MQAE. Its greater sensitivity to Cl⁻ and a higher fluorescence quantum yield than SPQ makes of it a more and more preferred indicator.

(1) Illsley et al ; 1987, Membrane Chloride Transport Measured Using a Chloride Sensitive Fluorescent Probe. Biochemistry 26, 1215-1219

SPQ/MQAE

The fluorescence of SPQ and MQAE is specifically quenched by chloride via collision. Therefore, chloride concentration is measured by monitoring the degree of fluorescence decrease. For intracellular measurements, the dye can be loaded into cells by hypotonic shock.

Engblom, A.C., et al. Neurosci. Lett. 104, 326(1989) ;

Chao, A.C., et al. Biophys. J. 56, 1071(1989) ;

Mulberg, A.E., et al. J. Biol. Chem. 266, 20590(1991).

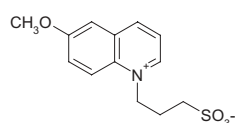
abs em. SPQ

C₁₃H₁₅NO₄S MW : 281.33

Soluble in Water

6-methoxy-N-(3-sulfopropyl) quinolinium

$\lambda_{exc.}/\lambda_{em.}$ (Cl⁻ free) : 344/443 nm ; EC : (344 nm, H₂O) : 3 700 M⁻¹cm⁻¹
K_{SV} : 118 M⁻¹



Description	Cat.#	Qty
SPQ	FP-46922A	2 x 50 mg

abs em. MQAE

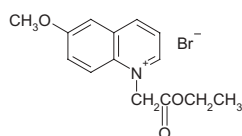
N-(ethoxycarbonylmethyl)-6-methoxyquinolinium bromide

C₁₄H₁₆BrNO₃ MW : 326.20

Soluble in Water

Store at -20°C and protect from light

$\lambda_{exc.}/\lambda_{em.}$ (Cl⁻ free) : 350/460 nm ; EC : (344 nm, H₂O) : 2 800 M⁻¹cm⁻¹
K_{SV} : 200 M⁻¹



Description	Cat.#	Qty
MQAE	FP-65865A	100 mg

Other Cl⁻ indicators and related reagents

abs em. Lucigenin

C₂₈H₂₂N₄O₆ MW : 510.51

9,9'-bis(N-methylacridinium nitrate)

Soluble in Water

Store at -20°C and protect from light

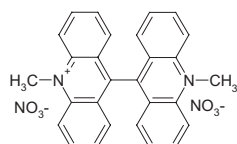
$\lambda_{exc.}/\lambda_{em.}$: 455/505 nm ; EC : 7 400M⁻¹cm⁻¹

Lucigenin is used for detection of Zn²⁺ in the 0.1-100 μM range with minimal interfering of Ca²⁺.

Lucigenin is more sensitive than luminol as Cl⁻ indicator.

Reference :

Bortolussi R et al. Blood, Vd.89, II : 4182-4189 (1997)



Description	Cat.#	Qty
Lucigenin	FP-46915A	10 mg