

## Product Information

### Ionomycin calcium salt Ready Made Solution from *Streptomyces conglobatus*

Catalog Number **I3909**  
Storage Temperature  $-20\text{ }^{\circ}\text{C}$

CAS RN 56092-82-1

#### Product Description

Molecular Formula:  $\text{C}_{41}\text{H}_{70}\text{O}_9\text{Ca}$   
Molecular Weight: 747.07

Iononycin is an ionophoric antibiotic which binds  $\text{Pb}^{2+}$  and  $\text{Ca}^{2+}$ , and serves as an effective mobile carrier of both cations.<sup>1-3</sup> Iononycin has become a useful tool over other ionophores for studies of  $\text{Ca}^{2+}$  and  $\text{Pb}^{2+}$  transport across membranes.<sup>3,4</sup> It was shown to transport divalent cations with the following selectivity:<sup>1</sup>



Iononycin is used to equilibrate intracellular and extracellular calcium ion levels for *in situ* calibrations of fluorescent indicators.<sup>5</sup> The resultant calcium flux leads to several downstream effects, such as up-regulation of CD7 in T cells (signal of activation),<sup>6</sup> or the hydrolysis of phosphoinositides and activation of protein kinase C in T cells.<sup>7</sup> Iononycin has been found to have anti-proliferative effects on the human bladder cancer cell line HT1376 both *in vitro* and *in vivo*.<sup>8</sup> Calcium iononycin can serve as an inducer of apoptosis.<sup>9</sup> It may act by activation of a latent, calcium-responsive endonuclease.<sup>10</sup>

Iononycin Ready Made Solution is supplied as a 1 mM ( $\sim 0.75\text{ mg/ml}$ ) 0.2  $\mu\text{m}$  filtered solution in dimethyl sulfoxide.

Purity:  $\geq 98\%$  (HPLC)

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Storage/Stability

Store the product protected from light at  $-20\text{ }^{\circ}\text{C}$ . Under these conditions the product is stable for 2 years.

#### References

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2. Liu, W.C., *et al.*, Iononycin, a new polyether antibiotic. *J. Antibiot.*, **31**, 815-819 (1978).
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4. Beeler, T.J., *et al.*, The effect of iononycin on calcium fluxes in sarcoplasmic reticulum vesicles and liposomes. *J. Biol. Chem.*, **254**, 6229-6231 (1979).
5. Kao, J.P., Practical aspects of measuring  $[\text{Ca}^{2+}]$  with fluorescent indicators. *Methods Cell Biol.*, **40**, 155-181 (1994).
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8. Miyake, H., *et al.*, Calcium ionophore, iononycin inhibits growth of human bladder cancer cells both *in vitro* and *in vivo* with alteration of Bcl-2 and Bax expression levels. *J. Urol.*, **162**, 916-21 (1999).
9. Miyake, H., *et al.*, Stress protein GRP78 prevents apoptosis induced by calcium ionophore, iononycin, but not by glycosylation inhibitor, tunicamycin, in human prostate cancer cells. *J. Cell Biochem.*, **77**, 396-408 (2000).
10. Aagaard-Tillery, K.M., and Jelinek, D.F., Differential activation of a calcium-dependent endonuclease in human B lymphocytes. Role in iononycin-induced apoptosis. *J. Immunol.*, **155**, 3297-307 (1995).

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