Product Information

**Ionomycin calcium salt from Streptomyces conglobatus**

Catalog Number I0634
Storage Temperature 2–8 °C

CAS RN: 56092-82-1
Synonym: Calcium Ionomycin

Calcium Ionomycin is a polyether antibiotic produced by *Streptomyces conglobatus* (ATCC 31005). Calcium Ionomycin is capable of extracting Ca$^{2+}$ and other divalent cations from an aqueous into an organic phase. Ion selectivity is as follows:

\[ \text{Ca}^{2+} > \text{Mg}^{2+} >> \text{Sr}^{2+} = \text{Ba}^{2+} \]

Binding of Sr$^{2+}$ and Ba$^{2+}$ is insignificant and binding to monovalent cations or rubidium is negligible. La$^{3+}$ is also bound to some extent. Complexation with a cation is always in a 1:1 stoichiometry and pH dependent. Essentially no binding of Ca$^{2+}$ occurs below pH 7.0 and maximum binding takes place at pH 9.5.

Since the calcium salt of ionomycin is an effective mobile Ca$^{2+}$ carrier, it has significant advantages for use in studies of Ca$^{2+}$ transport across biological membranes. It is also used to equilibrate intracellular and extracellular calcium ion levels for *in situ* calibrations of fluorescent indicators. The resultant calcium flux leads to several downstream effects, such as up-regulation of CD7 in T cells (signal of activation), or the hydrolysis of phosphoinositides and activation of Protein Kinase C in T cells. It was found to have antiproliferative effects on human bladder cancer cells both *in vitro* and *in vivo*.

Calcium Ionomycin can serve as an inducer of apoptosis, which was suggested to act by activation of a latent, calcium-responsive endonuclease.

**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.

**Preparation Instructions**

Calcium Ionomycin has been reported to be soluble in acetone, benzene, hexane, methanol, and ethanol; insoluble in water, dilute acids and bases.

The product is soluble in chloroform and DMSO (10 mg/ml), yielding a clear, colorless solution.

**Storage/Stability**

Store the powdered ionomycin product desiccated and protected from light at 2–8 °C. Under these conditions the product is stable for 3 years. Stock solutions in ethanol or DMSO, stored at –20 °C and protected from light, are stable for several months. For short-term use up to 6 weeks, the stock solutions in ethanol or DMSO may be stored at 2–8 °C protected from light.

**References**


