

Ionomycin, Calcium Salt

✓ 2.5 mg

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New 01/08

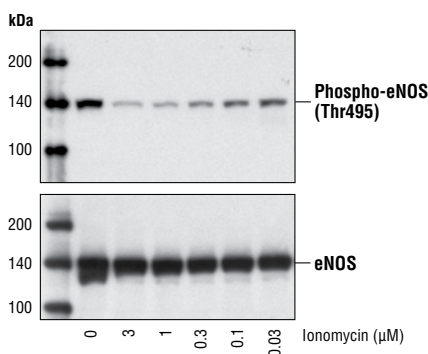
This product is for *in vitro* research use only and is not intended for use in humans or animals.

Background: Ionomycin is a potent and selective calcium ionophore agent (1,2). The molecules act as a motile Ca^{2+} carrier and enhances Ca^{2+} influx by direct stimulation of store-regulated cation entry across biological membranes (3). At the micromolar level, ionomycin can activate Ca^{2+} /Calmodulin dependent kinase and phosphatase to stimulate gene expression (4). In human T cells, ionomycin induces hydrolysis of phosphoinositides and activates PKC to mediate T cell activation (5). Ionomycin treatment of human B cells induces the activation of calcium-dependent endonuclease and results in apoptosis (6). Ionomycin treatment of bovine aortic endothelial cells (BAECs) induces rapid dephosphorylation of eNOS at Thr495 and mediates eNOS activation (7).

Directions for Use: Ionomycin, calcium salt is supplied as 2.5 mg powder. Store at or below -20°C . Before use, dissolve powder in 1.1 ml DMSO to make a 3 mM ionomycin stock solution. For working concentrations of 1 μM –3 μM , dilute DMSO stock 1:3000 to 1:1000. Treat cells with the desired concentration for intended time. Ionomycin is more stable as a powder than in solution; it is therefore recommended to dissolve as close as possible prior to use. Store solution at or below -20°C .

Molecular Weight: 747.1 daltons

Molecular Formula: $\text{C}_{41}\text{H}_{70}\text{O}_9 \bullet \text{Ca}^{2+}$



Western blot analysis of extracts from BAEC cells, untreated or treated with the indicated concentrations of ionomycin for 1 to 2 minutes. The effect of ionomycin treatment on eNOS phosphorylation at Thr495 was detected using Phospho-eNOS (Thr495) Antibody #9574 (upper). eNOS Antibody #9572 was used as a loading control (lower). Ionomycin induced Ca^{2+} influx in BAEC cells results in rapid dephosphorylation of eNOS (Thr495).

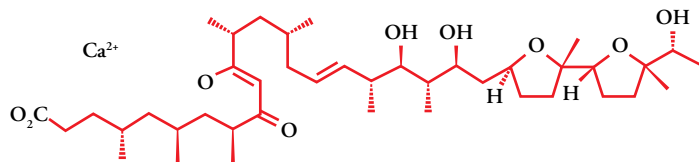
Storage: Store tightly sealed at or below -20°C .

Companion Products:

eNOS Antibody #9572
Phospho-eNOS (Thr495) Antibody #9574
Phototope®-HRP Western Blot Detection System, Anti-rabbit IgG, HRP-linked Antibody #7071
Anti-biotin, HRP-linked Antibody #7075
Biotinylated Protein Ladder #7727
Prestained Protein Marker, Broad Range (Premixed Format) #7720

Background References:

- (1) Liu, C. and Hermann, T.E. (1978) *J Biol Chem* 253, 5892–4.
- (2) Kauffman, R.F. et al. (1980) *J Biol Chem* 255, 2735–9.
- (3) Morgan, A.J. and Jacob, R. (1994) *Biochem J* 300 (Pt 3), 665–72.
- (4) Lobo, F.M. et al. (1999) *J Immunol* 162, 2057–63.
- (5) Chatila, T. et al. (1989) *J Immunol* 143, 1283–9.
- (6) Aagaard-Tillery, K.M. and Jelinek, D.F. (1995) *J Immunol* 155, 3297–307.
- (7) Lin, M.I. et al. (2003) *J Biol Chem* 278, 44719–26.



Material Safety Data Sheet (MSDS) for Ionomycin, Calcium Salt

I. Identification:

Product name: Ionomycin, Calcium Salt
Product Catalog: 9995
CAS number: Not applicable to mixtures
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

Substance Name: Ionomycin, Calcium Salt
Synonyms: —
CAS#: 56092-82-1
Molecular Weight: 747.08
Molecular Formula: C₄₁H₇₀O₉-Ca

II. Composition/Information:

III. Hazard Identification:

To the best of our knowledge, the chemical, physical, and toxicological properties of this solution have not been thoroughly investigated.

RTECS #N00650000

EMERGENCY OVERVIEW: May be an irritant. May cause irritation to eyes, skin, mucous membranes.

HMIS rating: Health 1
 Flammability 0
 Reactivity 0

IV. First Aid Measures:

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, get medical attention.

Ingestion: If swallowed, wash out mouth with water provided person is conscious. Get medical attention.

Skin exposure: In case of contact, immediately wash skin with soap and water for at least 15 minutes. Remove contaminated clothing. Wash clothing before reuse.

Eye exposure: In case of contact with eyes, immediately flush eyes water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Data not available.

Autoignition Temperature: Data not available.

Fire extinguishing media: Water spray, dry chemical, foam, or carbon dioxide.

Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

VI. Accidental Release Measures: Take appropriate precautions to minimize direct contact with skin, eyes, mucous membranes, and prevent inhalation of dust. Isolate the spill area. Wear approved self-contained breathing apparatus, protective clothing and chemical resistant gloves. Sweep up carefully to avoid raising dust and transfer to a chemical waste container for disposal according to local, state, and federal regulations. Ventilate area and wash spill site after material pickup is complete. Do not let substance enter drains.

VII. Handling And Storage:

Storage: Store in tightly closed container at -20°C.

Avoid contact with skin, eyes, mucous membranes and respiratory system. Wash hands thoroughly after handling.

VIII. Exposure Controls/Personal: Occupational exposure limits not found.

Ventilation System: A system of local and/or general exhaust is recommended.

Skin Protection: Wear compatible chemical resistant gloves and protective clothing.

Eye protection: Wear protective safety glasses. Maintain eye wash fountain and quick-drench

Appearance: waxy solid
Color: white to off-white
Odor: none
Boiling Point: data not available
Melting Point: 205-206°C
Ignition temperature: data not available
Volatile Organic Compounds: data not available
pH: data not available
solubility: not soluble in water. Soluble in DMSO.

facilities in work area.

IX. Physical And Chemical Properties

X. Stability and Reactivity:

Stability: Stable under recommended storage conditions.

Conditions to avoid: Moisture. Protect from light and heat.

Materials to avoid: Avoid acids and bases.

Hazardous Decomposition: Carbon oxides, sulfur oxides.

Hazardous exothermic reactions: During fire conditions it may produce toxic gases such as carbon monoxide, carbon dioxide.

XI. Toxicological Information: To the best of our knowledge, the chemical, physical, and toxicological properties of this solution have not been thoroughly investigated.

RTECS #N00650000

Primary Effects: LD₅₀: 650 mg/kg, oral, mouse; 12 mg/kg, intraperitoneal, mouse.

Chronic Effects: Data not available

XII. Ecological Information: Data not available for this product.

XIII. Disposal Considerations: Dispose of in accordance with federal, state, local environmental regulations.

XIV. Transport Information:

DOT : Proper Shipping Name: None.

This substance is considered non-hazardous for transport.

IATA : Proper Shipping Name: None.

This substance is considered non-hazardous for air transport.

XV. Regulatory Information:

EU Regulations/Classifications/Labeling Information: Not available for this product.

US Regulatory Information:
 Not SARA listed.

XVI. Other Information:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily not all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.