Leptomycin B

$\checkmark$ 50 µg

**Background:** Leptomycin B (LMB), originally discovered and utilized as a potent anti-fungal antibiotic from Streptomyces sp., has more recently been identified to inhibit nuclear export of proteins and RNA containing a Nuclear Export Sequence (NES) (1). The mechanism behind LMB’s potent inhibition is achieved by specifically binding to chromosomal region maintenance (CRM)/exportin 1 protein; CRM1 binds to ribonuclear proteins containing the NES (1,2). LMB has also been reported to inhibit the degradation and subsequently lead to accumulation of p53 within the nucleus (3) and has demonstrated specific anti-tumor properties, although toxic, at high doses (1-3).

**Molecular Formula:** $C_{33}H_{48}O_6$

**Molecular Weight:** 540.73

**Solubility:** Soluble and stable in ethanol. Leptomycin B is not stable in DMSO; do not dilute in DMSO.

**Purity:** 99%

**Directions for Use:** Leptomycin B is supplied as a 200 µM solution in ethanol within a sealed container. Please use a needle and syringe to remove the solution from the vial. All dilutions, except the final dilution, must be performed in ethanol. Final dilutions can be performed in culture media. Working concentrations and length of treatment can vary depending on the desired effect, but 1-20 nM for 3 hours generally inhibits most nuclear export. In order to minimize evaporation, it is recommended that the LMB vial be kept on ice when in use.

**Storage:** Store solution at -20°C. Protect from light. If stored and handled appropriately, it will be stable for 12 months.

**Background References:**

SECTION 1. Identification

Product identifier

Product number 9676
Product name Leptomycin B
UN number 3570
Other means of identification

Recommended use of the chemical and restrictions on its use

Identified uses

Uses addressed against This product is intended for research purposes only.
Uses addressed against This product is not intended for use in human or animal vaccines.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
7 Trask Lane
Danvers, MA 01923
United States
TEL: +1 978 867 2300
FAX: +1 978 867 2400
Website
Cell Signaling Technology, Inc.
Email address support@cellsignaling.com
Emergency telephone number In case of emergency call CHEMTREC 1-800-404-3000

SECTION 2. Hazard(s) Identification

Classification

This substance/mixture is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

GHS Label elements, including precautionary statements

Signal Word Danger
Hazard statement(s) Highly flammable liquid and vapor

SECTION 3. Composition/information on ingredients

Chemical Name CAS No Weight %
FMA - 1H-Imidazolo[4,5-d]pyrimidine-3-carboxylic acid 10-00-3 0.1 - 1
FMA - 1H-Imidazolo[4,5-d]pyrimidine-3-carboxylic acid 10-00-3 0.1 - 1

SECTION 4. First-aid measures

Eye contact

Wash thoroughly with plenty of water for at least 15 minutes, lifting upper and lower eyelids. Consult a physician.

Skin contact

Wash skin with soap and water.

Inhalation

Move to fresh air in case of accidental inhalation of vapors.

Ingestion

Clean mouth with water and afterwards drink plenty of water.

Most important symptoms and effects, both acute and delayed

Intoxication, euphoria, slurred speech, syncope, seizures, vomiting, flushing, and supraventricular tachycardia (primarily atrial fibrillation) can develop.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Advice for emergency responders

General advice For further assistance, contact your local Poison Control Center.
Preparation of first-aid measures Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable Extinguishing Media Cool containers / tanks with water spray.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Exposure Data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove all sources of ignition. Heat, flames and sparks. Ensure adequate ventilation.

Other information

No information available.

Environmental precautions

Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Prevention of fire and explosion must be ensured. A vapor suppression foam may be used to reduce the vapors. Avoid static electricity build up with connection to earth.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.
Methods for cleaning up Pick up and transfer to properly labeled containers.

SECTION 7. Handling and storage

Precautions for safe handling

Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge. Use only in an area containing flame proof equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. There is a hazard associated with rags, paper or any other material used to remove spills which become soaked with product. Avoid accumulation of these as they are to be disposed off safely after use. Avoid static electricity build up with connection to earth.

Conditions for safe storage, including any incompatibilities

Technical measure/Storage conditions

Keep containers tightly closed in a dry, cool and well-ventilated place.

Packaging material No information available.

Incompatible products

Strong oxidizing agents, Persulaxes, Ammonia, Alkalis.

Control parameters

SECTION 8. Exposure controls/personal protection

Occupational exposure limit values

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH REL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STEL, 15 ppm</td>
<td>TWA, 100 ppm</td>
<td>TWA, 160 ppm</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Personal protective equipment (PPE) needs to be selected depending on the implemented engineering controls, frequency/duration of work activities and the concentrations of the hazardous substance.

SECTION 9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state Liquid
Appearance Clear
Color
Other
Other Threshold
pH
Melting point/freezing point
Initial boiling point and boiling range 190 °C
Flash point
17 °C Closed cup
Ignition point
Flammability (solid, gas)
Upper flammability limit
Lower flammability limit
Vapor pressure
Vapor density
Relative density
Solubility
Solvability in other solvents
Partition coefficient - octanol/water
Absorption/bioavailability
Biodegradation
Bioaccumulation
Explosive properties
Oxidizing properties
Oxidizing concentration
VDC content
Viscosity
Density
No information available.

SECTION 10. Stability and reactivity

Reactivity

No information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Hazardous decomposition None under normal processing.
Hazardous polymerization None under normal processing.

Conditions to Avoid

Heat (temperatures above flash point), sparks, ignition points, flames, static electricity.

Incompatible Materials

None.
SECTION 11. Toxicological information

Information on Body Routes of Exposure

- Inhalation: Inhaling vapors in high concentration may cause irritation of respiratory system.
- Eye contact: Contact with eyes may cause mild irritation.
- Skin contact: No known hazard to contact with skin.
- Ingestion: Accidental ingestion may be harmful to the central nervous system.

Information on toxicological effects:

This material should only be handled by, or under the close supervision of those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound are not well defined.

SECTION 12. Ecological Information

- SECTION 13. Disposal Considerations

- SECTION 14. Transport Information

- SECTION 15. Regulatory Information

- SECTION 16. Other Information