

# SAFETY DATA SHEET

Cat# K147-100, Cathepsin B Inhibitor Screening Kit (Fluorometric)

SDS DATE: 14APR2015

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Cathepsin B Inhibitor Screening Kit (Fluorometric)

PRODUCT CODES: Cat. # K147-100

MANUFACTURER: BioVision, Inc.  
ADDRESS: 155 S. Milpitas Boulevard, Milpitas, CA 95035

EMERGENCY PHONE: 858-373-8066

CHEMTREC PHONE:

OTHER CALLS: 408-493-1800

FAX PHONE: 408-493-1801

## SECTION 2: HAZARDS IDENTIFICATION

Component	Description	Volume	Safety Information
CTSB Reaction Buffer	Proprietary Buffer	15 ml	No hazards
CTSB Reagent	Proprietary Reagent(contains DTT)	100 µl	See below
Cathepsin B (human)	Lyophilized	1 vial	No hazards
CTSB Substrate, Ac-RR-AFC	In DMSO	0.2 ml	See below
CTSB Inhibitor, F-F-FMK	In DMSO	20 µl	See below

### DTT:

#### Emergency Overview

OSHA Hazards: Target organ effect, Harmful by ingestion, Irritant

Target Organs: Central nervous system

GHS Classification: Acute toxicity, Oral (Category 4)

Skin irritation (Category 2)

Eye irritation (Category 2A)

GHS Label elements, including precautionary statements

Pictogram:



Signal word: Warning

Hazard statement(s):  
H302: Harmful if swallowed  
H315: Causes skin irritation  
H319: Causes serious eye irritation  
H335: May cause respiratory irritation

Precautionary statement(s): P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

#### HMIS Classification

Health hazard: 2

Chronic Health Hazard: \*

Flammability: 0

Physical hazards: 0

NFPA Rating

Health hazard: 2

Fire: 0

Reactivity Hazard: 0

Potential Health Effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.

Skin: May be harmful if absorbed through skin. Causes skin irritation.

Eyes: Causes eye irritation.

Ingestion: Harmful if swallowed.

### DMSO:

#### Emergency Overview

OSHA Hazards: Combustible liquid, Target organ effect

Target Organs: Eyes, Skin

GHS Classification: Flammable liquids (Category 4)

GHS Label elements, including precautionary statements

Pictogram: none

Signal word: Warning

Hazard statement(s): H227 Combustible liquid

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Precautionary statement(s): none

HMIS Classification

Health hazard: 0

Chronic Health Hazard: \*

Flammability: 2

Physical hazards: 0

NFPA Rating

Health hazard: 0

Fire: 2

Reactivity Hazard: 0

Potential Health Effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

Ingestion: May be harmful if swallowed.

Aggravated Medical Condition: Avoid contact w/DMSO solutions containing toxic materials or materials with unknown toxicological properties. DMSO is readily absorbed through skin and may carry such materials into the body.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula
DTT	3483-12-3	222-468-7	154.25	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub> S <sub>2</sub>
DMSO	67-68-5	200-664-3	78.13	C <sub>2</sub> H <sub>6</sub> OS

## SECTION 4: FIRST AID MEASURES

**General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact:** Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed:** DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

## 5: FIRE-FIGHTING MEASURES

### DMSO:

**Suitable extinguishing media:** For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.

**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions –see section 10.

**Further information:** Use water spray to cool unopened containers.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions:** Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods for cleaning up:** Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## SECTION 7: HANDLING AND STORAGE

### **Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Flash back possible over considerable distance. Container explosion may occur under fire conditions. Use explosion-proof equipment. Keep away from sources of ignition – no smoking. Take measures to prevent the build up of electrostatic charge.

### **Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: -20 °C.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### DMSO:

Components	CAS-No.	Value	Control parameters	Basis
Dimethyl sulfoxide	67-68-5	TWA	250 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

### DTT:

Contains no substances with occupational exposure limit values.

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## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

### Eye protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	DTT	DMSO
<b>Appearance:</b>	White powder	Clear liquid
<b>pH:</b>	4-6 at 15.4 g/l	No data available
<b>Water Solubility:</b>	15.4 g/l	Completely miscible
<b>Other Solubility:</b>	No data available	No data available
<b>Boiling Point (°C):</b>	No data available	189 °C (372 °F)
<b>Melting Point (°C):</b>	41-44 °C (106-111 °F)	16-19 °C (61-66 °F)
<b>Flash Point (°C):</b>	113 °C (235 °F)	87 °C (189 °F)
<b>Ignition Temperature (°C):</b>	No data available	301 °C (574 °F)
<b>Density:</b>	No data available	1.1 g/ml

## SECTION 10: STABILITY AND REACTIVITY

Property	DTT	DMSO
<b>Chemical stability:</b>	Stable under recommended storage conditions	
<b>Conditions to avoid:</b>	No data available	Heat, Flames, Sparks
<b>Materials to avoid:</b>	Bases, oxidizing agents, reducing agents, alkali metals	Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents
<b>Hazardous decomposition products:</b>	Carbon oxides, sulfur oxides, hydrogen sulfide gas	Carbon oxides, sulfur oxides

## SECTION 11: TOXICOLOGICAL INFORMATION

### DTT:

**Acute toxicity:** LD50 Oral – rat – 400 mg/kg

**Skin corrosion/irritation:** no data available

**Serious eye damage/eye irritation:** no data available

**Respiratory or skin sensitization:** no data available

**Germ cell mutagenicity:** no data available

### Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** no data available

**Teratogenicity:** no data available

**Specific target organ toxicity – single exposure (GHS):** Inhalation – may cause respiratory irritation.

**Specific target organ toxicity – repeated exposure (GHS):** no data available

### Potential Health Effects

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** May be harmful if absorbed through skin. Causes skin irritation.

**Eyes:** Causes eye irritation.

**Ingestion:** Harmful if swallowed.

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**Signs and Symptoms of Exposure:** Exposure may cause central nervous system depression. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects:** no data available

**Additional information:** RTECS: not available

## DMSO:

**Acute toxicity:** LD50 Oral - rat - 14,500 mg/kg

LC50 Inhalation - rat - 4 h - 40250 ppm

LD50 Dermal - rabbit - > 5,000 mg/kg

**Skin corrosion/irritation:** no data available

**Serious eye damage/eye irritation:** no data available

**Respiratory/skin sensitization:** no data available

**Germ cell mutagenicity:** Genotoxicity in vitro - mouse - lymphocyte → Cytogenetic analysis

Genotoxicity in vitro - mouse - lymphocyte → Mutation in mammalian somatic cells.

Genotoxicity in vivo - rat - Intraperitoneal → Cytogenetic analysis

Genotoxicity in vivo - mouse - Intraperitoneal → DNA damage

**Carcinogenicity:** Carcinogenicity - rat - Oral → Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin & Appendages: Other: Tumors.

Carcinogenicity - mouse - Oral → Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin & Appendages: Other: Tumors.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** Reproductive toxicity - rat - Intraperitoneal → Effects on Fertility: Abortion.

Reproductive toxicity - rat - Intraperitoneal → Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Reproductive toxicity - rat - Subcutaneous → Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).

Reproductive toxicity - mouse - Oral → Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

**Teratogenicity:** Developmental Toxicity - mouse - Intraperitoneal → Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

**Signs and Symptoms of Exposure:** Exposure via ingestion may cause nausea, fatigue, headache.

**Additional Information:** RTECS: PV6210000

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## SECTION 12: ECOLOGICAL INFORMATION

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### DTI:

**Persistence and degradability:** no data available

**Toxicity:** Toxicity to daphnia and other aquatic invertebrates: LC50 - Daphnia magna (Water flea) - 27 mg/l - 48 h

**Bioaccumulative potential:** no data available

**Mobility in soil:** no data available

**PBT and vPvB assessment:** no data available

**Other adverse effects:** no data available

### DMSO:

**Persistence and degradability:** no data available

**Toxicity:** Toxicity to fish: LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/l - 96 h

LC50 - Oncorhynchus mykiss (rainbow trout) - 35,000 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia pulex (Water flea) - 27,500 mg/l

Toxicity to algae: EC50 - Lepomis macrochirus (Bluegill) - >400,000 mg/l - 96 h

**Bioaccumulative potential:** no data available

**Mobility in soil:** no data available

**PBT and vPvB assessment:** no data available

**Other adverse effects:** no data available

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## SECTION 13: DISPOSAL CONSIDERATIONS

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**Product:** Observe all federal, state, and local environmental regulations.

**Contaminated packaging:** Dispose of as unused product.

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## SECTION 14: TRANSPORT INFORMATION

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### DTI:

**DOT (US):** Not dangerous goods.

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IMDG: Not dangerous goods.

IATA: Not dangerous goods.

## DMSO:

**DOT (US):** UN-Number: 1993, Class: CBL, Packing group: III; Proper shipping name: Combustible liquid, n.o.s. (Dimethyl sulfoxide); Marine pollutant: No; Poison Inhalation Hazard: No

IMDG: Not dangerous goods.

IATA: Not dangerous goods.

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## SECTION 15: REGULATORY INFORMATION

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**OSHA Hazards:** DTT: Target organ effect, Harmful by ingestion, Irritant

**DMSO:** Combustible liquid, Target organ effect

**SARA 302 Components:** SARA 302: No chemical in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components:** SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title II, Section 313.

**SARA 311/312 Hazards:** DTT: Acute Health Hazard, Chronic Health Hazard

**DMSO:** Fire Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components:** No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components:** DTT CAS-No. 3483-12-3

Dimethyl sulfoxide CAS-No. 67-68-5; Revision Date: 2007-03-01

**New Jersey Right To Know Components:** DTT, CAS-No. 3483-12-3

Dimethyl sulfoxide CAS-No. 67-68-5; Revision Date: 2007-03-01

**California Prop. 65 Components:** This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

## EU regulations

Component	Risk Phrases	Safety Phrases
EDTA	R36/38	S26, S36
DTT	R22, R36/37/38	S26, S36
DMSO	R10, R36/37/38	S24/25, S36/37/39, S45

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## SECTION 16: OTHER INFORMATION

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### OTHER INFORMATION:

### PREPARATION INFORMATION:

### DISCLAIMER:

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. BioVision, Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.