

# SAFETY DATA SHEET

Cat# K142-100, Cathepsin L Activity Assay Kit

SDS DATE: 13APR2015

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Cathepsin L Activity Assay Kit  
**PRODUCT CODES:** Cat# K142-100  
**MANUFACTURER:** BioVision, Inc.  
**DIVISION:**  
**ADDRESS:** 155 S. Milpitas Blvd. 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
Assay Buffer	Proprietary Buffer	30 ml	No hazards
DTT	DTT	100 µl	See below
CL Positive Control (human)	Contains glycerol	1 vial	See below
CL Substrate (Ac-FR-AFC)	In DMSO	0.2 ml	See below
CL Inhibitor	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.

## Glycerol:

### Emergency Overview

Target Organs: Kidney

GHS Classification: Not a hazardous substance or mixture.

### GHS Label elements, including precautionary statements

Pictogram: none

Signal word: none

Hazard statement(s): none

Precautionary statement(s): none

## HMIS Classification

Health hazard: 0

Chronic Health Hazard: \*

Flammability: 1

Physical hazards: 0

## NFPA Rating

Health hazard: 0

Fire: 1

Reactivity Hazard: 0

## 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
Glycerol	56-81-5	200-289-5	92.09	HOCH <sub>2</sub> CH(OH)CH <sub>2</sub> OH

## 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.

## SECTION 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 combustion products formed under fire conditions – no data available.

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

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions:** Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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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. Use explosion-proof equipment. Keep away from sources of ignition (no smoking). Take measures to prevent the buildup of electrostatic charge.

### Conditions for safe storage

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

Containers which are opened must be carefully resealed and kept upright to prevent leakage.

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)

### Glycerol:

Components	CAS-No.	Value	Control parameters	Basis
Glycerol	56-81-5	TWA	10 mg/m <sup>3</sup>	USA. American Conference of Governmental and Industrial Hygienists; Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004; Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs).

### DTT:

Contains no substances with occupational exposure limit values.

### 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	Glycerol
Appearance:	Clear liquid	Clear liquid	Clear liquid
pH:	3.0-5.0	No data available	5.5-8
Water Solubility:	Highly soluble	Completely miscible	Soluble
Other Solubility:	No data available	No data available	No data available
Boiling Point (°C)	No data available	189 °C (372 °F)	182 °C (360 °F)
Melting Point (°C)	No data available	16-19 °C (61-66 °F)	20 °C (68 °F)
Flash Point (°C)	No data available	87 °C (189 °F)	160 °C (320 °F)
Ignition Temp. (°C)	No data available	301 °C (574 °F)	370 °C (698 °F)
Density:	1.035 g/cm <sup>3</sup>	1.1 g/ml	1.25 g/ml

## SECTION 10: STABILITY AND REACTIVITY

Property	DTT	DMSO	Glycerol
Chemical Stability:	Stable under recommended storage conditions		
Conditions to Avoid:	No data available	Heat, flames, sparks	No data available
Materials to Avoid:	Bases, oxidizing agents, reducing agents, alkali metals	Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents	Strong bases, strong oxidizing agents

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<b>Hazardous decomposition: products:</b>	Carbon oxides, sulfur oxides, hydrogen sulfide gas	Carbon oxides, sulfur oxides	Carbon oxides
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## SECTION 11: TOXICOLOGICAL INFORMATION

### DTI:

**Acute toxicity:** no data available

**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

### **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.

**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

**Irritation and corrosion:** Skin - rabbit - Mild skin irritation - 24 h; Eyes - rabbit - Mild eye irritation

**Sensitisation:** no data available

### **Chronic exposure**

**Carcinogenicity:** rat - Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

**Carcinogenicity:** mouse - Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin and 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.

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

Developmental Toxicity - mouse – Intraperitoneal; Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific

Developmental Abnormalities: Musculoskeletal system.; 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.

**Additional information:** RTECS: PV6210000

### Glycerol:

**Acute toxicity:** LD50 Dermal – rabbit – >10,000 mg/kg

**Irritation and corrosion:** no data available

**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.

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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

## 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.

**Synergistic effects:** no data available

**Signs and Symptoms of Exposure:** To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional information:** RTECS: MA8050000

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## SECTION 12: ECOLOGICAL INFORMATION

### DMSO:

**Elimination information (persistence and degradability):** no data available

**Ecotoxicity effects:** 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

**Further information on ecology:** no data available

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## SECTION 13: DISPOSAL CONSIDERATIONS

**Product:** Offer surplus and non-recyclable solutions to a licensed disposal company. Contact licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

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

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## SECTION 14: TRANSPORT INFORMATION

### DTT & Glycerol:

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

**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

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

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

**DSL Status:** All components of this product are on the Canadian DSL list.

**SARA 302 Components:** SARA 302: No chemicals 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 III, Section 313.

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

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

**Glycerol:** Chronic Health Hazard

**Massachusetts Right To Know Components:** Glycerol, CAS-No. 56-81-5;

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

Dimethyl sulfoxide, CAS-No. 67-68-5

Glycerol, CAS-No. 56-81-5;

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

Dimethyl sulfoxide, CAS-No. 67-68-5

Glycerol, CAS-No. 56-81-5;

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

### EU regulations

Component	Risk Phrases	Safety Phrases
DTT	R22, R36/37/38	S26, S36

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DMSO	R10, R36/37/38	S24/25, S36/37/39, S45
Glycerol	--	S24/25

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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.