SAFETY DATA SHEET

Cat# BN01057 Protein Disulfide Isomerases (PDI) Inhibitor Screening Kit (Fluorometric)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Protein Disulfide Isomerases (PDI) Inhibitor Screening Kit (Fluorometric)**

PRODUCT CODES: **Cat# BN01057**

MANUFACTURER: **Assay Genie (brand of Reagent Genie Ltd.)**

ADDRESS: **G1 The Steelworks, Foley Street, Dublin 1**

EMERGENCY PHONE: **+353 1 8879802**

SECTION 2: HAZARDS IDENTIFICATION

Component	Description	Volume	Safety Information
PDI Assay Buffer	Proprietary Buffer	25 ml	No hazards
PDI Substrate	--	2 vials	No hazards
PDI Probe (in DMSO)	In DMSO	20 µl	See below
DTT	DTT	100 µl	See below
PDI Enzyme	--	1 vial	No hazards
PDI Inhibitor Control (Iodoacetamide)	Iodoacetamide	1 vial	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

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
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.

Iodoacetamide:
Emergency Overview
OSHA Hazards: Toxic by ingestion, Respiratory sensitizer, Skin sensitizer
GHS Classification: Acute toxicity, Oral (Category 3)
Respiratory sensitization (Category 1)
Skin sensitization (Category 1)
GHS Label elements, including precautionary statements
Pictogram:

Signal word: Danger
Hazard statement(s): H301 Toxic if swallowed.
H317 May cause an allergic skin reaction.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Precautionary statement(s): P261 Avoid breathing dust/fumes/gas/mist/vapors/spray.
P280 Wear protective gloves/protective clothing.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
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. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May cause eye irritation.
Ingestion: Toxic if swallowed.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula
DTT	3483-12-3	222-468-7	154.25	$C_4H_{10}O_2S_2$
DMSO	67-68-5	200-664-3	78.13	C_2H_6OS
Iodoacetamide	--	--	--	--

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.
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)

DTT & Iodoacetamide:
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	Iodoacetamide
Appearance:	Clear liquid	Clear liquid	Light yellow crystalline
pH:	3.0-5.0	No data available	No data available
Water Solubility:	Highly soluble	Completely miscible	100 g/l
Other Solubility:	No data available	No data available	No data available
Boiling Point (°C)	No data available	189 ºC (372 ºF)	No data available
Melting Point (°C)	No data available	16-19 ºC (61-66 ºF)	92-95 ºC (198-203 ºF)
Flash Point (°C)	No data available	87 ºC (189 ºF)	No data available
Ignition Temp. (°C)	No data available	301 ºC (574 ºF)	No data available
Density:	1.035 g/cm^3	1.1 g/ml	No data available

SECTION 10: STABILITY AND REACTIVITY

Property	DTT	DMSO	Iodoacetamide
Chemical Stability:	Stable under recommended storage conditions		
Conditions to Avoid:	No data available	Heat, flames, sparks	Exposure to light
Materials to Avoid:	Bases, oxidizing agents, reducing agents, alkali metals	Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents	Strong acids, strong bases, strong oxidizing agents, strong reducing agents
Hazardous decomposition: products:	Carbon oxides, sulfur oxides, hydrogen sulfide gas	Carbon oxides, sulfur oxides	Carbon oxides, nitrogen oxides, hydrogen iodide

SECTION 11: TOXICOLOGICAL INFORMATION

DTT:

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
Carcinogenicty: 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

Iodoacetamide:

Acute toxicity: LD50 Oral – mouse – 74 mg/kg

LD50 Intraperitoneal – mouse – 50 mg/kg

LD50 Intravenous – mouse – 56 mg/kg

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: May cause sensitization by inhalation.

May cause sensitization by skin contact.

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): no data available

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

Potential Health Effects

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

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

Eyes: May cause eye irritation.

Ingestion: Toxic if swallowed.

Signs and Symptoms of Exposure: Exposure may cause burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, and/or vomiting.

Additional information: RTECS: not available

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

Iodoacetamide:

Persistence and degradability: Biodegradability Result: Not biodegradable

Method: OECD Test Guideline 301

Toxicity: no data available

Bioaccumulative potential: Indication of bioaccumulation.

Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

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.

SECTION 14: TRANSPORT INFORMATION

DTT:
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.

Iodoacetamide:
DOT (US): UN-number: 2811, Class: 6.1, Packing group: III; Proper shipping name: Toxic solids, organic, n.o.s. (Iodoacetamide); Marine pollutant: No; Poison inhalation hazard: No
IMDG: UN-number: 2811, Class: 6.1, Packing group: III; EMS-No: F-A, S-A; Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Iodoacetamide); Marine pollutant: No
IATA: UN-number: 2811, Class: 6.1, Packing group: III; Proper shipping name: Toxic solid, organic, n.o.s. (Iodoacetamide)

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
Iodoacetamide: Acute 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
Iodoacetamide, CAS-No. --
New Jersey Right To Know Components: DTT, CAS-No. 3483-12-3
Dimethyl sulfoxide, CAS-No. 67-68-5
Iodoacetamide, CAS-No. --
California Prop. 65 Components: This product does not contain any chemicals known to the 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
DMSO	R10, R36/37/38	S24/25, S36/37/39, S45
Iodoacetamide	R25, R42/43, R53	S22, S36/37, S45

SECTION 16: OTHER 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. Assay Genie 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.