MATERIAL SAFETY DATA SHEET

SECTION1 PRODUCT AND COMPANY IDENTIFICATION

Product name:	His(HHHHHH)-tagged Protein Purification Kit
Catalog Number:	EA-TP-K005
Application:	For research use only

SECTION2 HAZARDS IDENTIFICATION

Component Items	Physical form	Hazardous	Concentration	CAS No.
Lysis buffer	Odorless and colorless, liquid	Proclin 300	0.04%	96118-96-6
		Triton X-100	1%	9002-93-1
His tag Protein purification filler	Odorless and blue-green, liquid	Ethanol	25%	64-17-5
500mM Imidazole elution buffer	Odorless and colorless, liquid	Imidazole	3.402%	288-32-4
PBS Buffer, pH7.4 (10×)	Odorless and colorless, liquid	No hazards	-	-

2. HAZARD STATEMENT

2.1 Proclin 300

2.1.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [GHS/CLP].

Sensitization, skin - Category 1

2.1.2 Label Elements

Labeling according to Regulation (EC) No 1272/2008 [GHS/CLP].

Signal Word: WARNING

Danger symbol: 

Hazard Statement(s):

H317: May cause an allergic skin reaction.

Precaution Statement(s):

P261: Avoid breathing dust/fumes/gas/mist/vapours/spray.

P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+352: IF ON SKIN: Wash with plenty of soap and water.
P333+313: If skin irritation or rash occurs: Get medical advice/attention.

2.2 Triton X-100

2.2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [GHS/CLP].
Skin Irrit. 2
Eye Irrit. 2

2.2.2 Label Elements

Labeling according to Regulation (EC) No 1272/2008 [GHS/CLP].
Signal Word: WARNING
Danger symbol: 

Hazard Statement(s):
H315: Causes skin irritation.
H319: Causes serious eye irritation.

Precaution Statement(s):
P332+P313: If skin irritation occurs: Get medical advice/ attention.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/ attention.
P264: Wash face, hands and any exposed skin thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P362: Take off contaminated clothing and wash before reuse.

2.3 Ethanol

2.3.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [GHS/CLP].
Flam. Liq. 2

2.3.2 Label Elements

Labeling according to Regulation (EC) No 1272/2008 [GHS/CLP].
Signal Word: DANGER
Danger symbol: 

Hazard Statement(s):

H225: Highly Flammable liquid and vapor.
H319: Causes serious eye irritation.

Precaution Statement(s):
P210-P280-P305: Keep away from heat, hot surface, sparks, open flames and other ignition sources. - No smoking. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES:
P351: Rinse cautiously with water for several minutes.
P337-P338: If eye irritation persists: Remove contact lenses, if present and easy to do. Continue rinsing.
P313-P403: Get medical advice/attention. Store in a well-ventilated place.
P235: Keep cool.

SECTION3 INFORMATION ON INGREDIENTS

Lysis buffer:

Name	Formula	Concentration	CAS No.
Water	H_2O	96.9158%	7732-18-5
Sodium choride	NaCl	0.88%	7647-14-5
Sodium dihydrogen phosphate	NaH_2PO_4	0.028%	7778-77-0
Disodium dihydrogen phosphate	Na_2HPO_4	0.359%	10039-32-4
Trimethylol aminomethane hydrochloride	$C_4H_{12}ClNO_3$	0.788%	1185-53-1
Triton X-100	$C_{34}H_{62}O_{11}$	1%	9002-93-1
EDTA	$C_{10}H_{16}N_2O_8$	0.0292%	60-00-4

His tag Protein purification filler:

Name	Formula	Concentration	CAS No.
Ethanol	Ethanol	25%	64-17-5
Ni Bestarose FF	/	75%	9002-18-0

PBS Buffer, pH7.4 (10×):

Name	Formula	Concentration	CAS No.
Water	H_2O	98.723%	7732-18-5
Sodium choride	NaCl	0.89%	7647-14-5
Sodium dihydrogen phosphate	NaH_2PO_4	0.028%	7778-77-0
Disodium dihydrogen phosphate	Na_2HPO_4	0.359%	10039-32-4

500mM Imidazole elution buffer:

Name	Formula	Concentration	CAS No.
Water	H_2O	95.43%	7732-18-5
Imidazole	$C_3H_4N_2$	3.402%	288-32-4
Sodium choride	NaCl	0.8%	7647-14-5
Potassium chloride	KCl	0.201%	7447-40-7
Sodium dihydrogenphosphate	NaH_2PO_4	0.142%	7558-80-7
Monopotassium phosphate	KH_2PO_4	0.027%	7778-77-0

SECTION4 FIRST-AID MEASURES

4.1 General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

4.2 If inhaled

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

4.3 In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

4.4 In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

4.5 If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION5 FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media

Suitable: Water spray, alcohol-resistant foam, dry chemical, carbon dioxide or appropriate foam.

For small fires, use media such as “alcohol” foam, dry chemical or carbon dioxide.

For large fires, apply water from as far as possible. Use large quantities of water applied as a mist or spray. Solid streams of water may be ineffective. Cool affected containers with flooding quantities of water.

5.2 Special precautions for fire-fighters

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

5.3 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen chloride gas.

SECTION6 ACCIDENTAL RELEASE MEASURES

6.1 Person-related safety 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.

6.2 Measures for environmental protection

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

6.3 Measures for containment and cleaning

Contain spillage, and then collect with non-combustible absorbent material (eg. sand, diatomaceous earth, vermiculite). Place in a container for disposal according to local regulations. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION7 HANDLING AND STORAGE

7.1 Handling

- Wear appropriate protective clothing and safety gloves.
- Avoid inhalation.
- Avoid contact with eyes, skin and clothing.
- Mechanical exhaust required.
- Keep away from ignition sources, heat and flame.
- No smoking at working site.
- Incompatibilities: Strong oxidizing agents, Strong acids. Handling and unloading should be light, to prevent packaging broken, damp and cause losses.
- Working place should be equipped with appropriate varieties and quantities of fire fighting equipment and leakage emergency treatment equipment.

7.2 Storage

- Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
- Keep away from heat, sparks and flame.
- Keep away from sources of ignition.
- Incompatible: Strong oxidizing agents, Strong acids.
- Storage place should be equipped with appropriate varieties and quantities of fire fighting equipment and leakage emergency treatment equipment.

SECTION8 EXPOSURE CONTROL/PPE

8.1 Engineering Controls

Mechanical exhaust required. Safety shower and eye bath.

8.2 Personal Protective Equipment

- Respiratory: Government approved respirator if needed.
- Eye/face: Chemical safety goggles if needed.
- Clothing: Wear appropriate protective clothing.
- Hand/skin: Protective 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.
- Body protection: Wear suitable protective clothing according to the concentration and amount of the substance at the workplace.

8.3 Other Protect

No smoking, drinking and eating at working site. Wash thoroughly after handling.

SECTION9 PHYSICAL/CHEMIICAL PROPERTIES

9.1 Proclin 300

a) Appearance: Liquid

b) Odour: No data available

c) Odour threshold: No data available

d) pH 4.1 at 100 g/L

e) Melting point/freezing point: -40 °C

f) Initial boiling point and boiling range: 189 °C

g) Flash point: 118 °C - closed cup

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

k) Vapour pressure: No data available

l) Vapour density: No data available

m) Relative density: 1.03 g/cm^3

n) Water solubility: Soluble

o) Partition coefficient: noctanol/water: No data available

p) Auto-ignition temperature: No data available

q) Decomposition temperature: No data available

r) Viscosity: No data available

s) Explosive properties: No data available

t) Oxidizing properties: No data available

9.2 Triton X-100

a) Appearance: Liquid

b) Odour: No data available

c) Odour threshold: No data available

d) pH No data available

e) Melting point/freezing point: No data available

f) Initial boiling point and boiling range: No data available

g) Flash point: No data available

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

k) Vapour pressure: No data available

l) Vapour density: No data available

m) Relative density: No data available

n) Water solubility: Soluble

o) Partition coefficient: noctanol/water: No data available

p) Auto-ignition temperature: No data available

q) Decomposition temperature: No data available

r) Viscosity: No data available

s) Explosive properties: No data available

t) Oxidizing properties: No data available

9.3 Ethanol

a) Appearance: Liquid

b) Odour: No data available

c) Odour threshold: No data available

d) pH: No data available

e) Melting point/freezing point: -114.1 °C

f) Initial boiling point and boiling range: 78.3 °C

g) Flash point: 30 °C - closed cup

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

k) Vapour pressure: No data available

l) Vapour density: No data available

m) Relative density: 1.59g/cm^3

n) Water solubility: Soluble

o) Partition coefficient: noctanol/water: 0.32

p) Auto-ignition temperature: No data available

q) Decomposition temperature: No data available

r) Viscosity: No data available

s) Explosive properties: No data available

t) Oxidizing properties: No data available

SECTION10 STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heat, flames and sparks

10.5 Incompatible materials

Strong oxidizing agent, Light sensitive, Alcohols, Organic materials, Heavy metals, Powdered metals, Strong reducing agents, Amines, Mercaptans.

10.6 Hazardous decomposition products

Other decomposition products: No data available

Hazardous decomposition products formed under fire conditions: Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen chloride gas.

SECTION11 TOXICOLOGICAL INFORMATION

11.1 Proclin 300

Acute toxicity

LD_{50} Oral - Rat - 862 mg/kg

LD_{50} Dermal - Rabbit - 2,800 mg/kg

Skin corrosion/irritation

Skin - Rabbit Result: Corrosive Serious eye damage/eye irritation

Eyes - Rabbit Result: Corrosive to eyes

Respiratory or skin sensitisation - Guinea pig Result: May cause sensitisation by skin contact.

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.

11.2 Triton X-100

Acute toxicity

LD_{50} Oral - Rat - 1800 mg/kg

Skin corrosion/irritation: Irritating to skin.

Serious eye damage/eye irritation: Causes serious eye irritation.

Respiratory or skin sensitisation: No information available.

Carcinogenicity: No information available.

11.3 Ethanol

Acute toxicity

LD_{50} Oral - Rabbit - 7,060 mg/kg

LD_{50} Dermal - Rabbit - 7,430 mg/kg

Skin corrosion/irritation:

Skin - Rabbit Result: No information available.

Eyes - Rabbit Result: No information available.

Serious eye damage/eye irritation: Causes serious eye irritation.

Respiratory or skin sensitisation: No information 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.

SECTION12 ECOLOGICAL INFORMATION

12.1 Proclin 300

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

No data available

Other adverse effects

No data available

12.2 Triton X-100

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

No data available

Other adverse effects

No data available

12.3 Ethanol

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

No data available

Other adverse effects

No data available

SECTION 13 DISPOSAL CONSIDERATION

13.1 Disposal methods

Dispose of waste in accordance to applicable national, regional, or local regulations. Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

13.2 Contaminated packaging

Dispose in the same manner as unused product.

SECTION 14 TRANSPORT INFORMATION

RID/ADR: Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA: Non-Hazardous for Air Transport.

IMO: Non-Hazardous for Sea Transport.

SECTION15 REGULATORY INFORMATION

This material safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008 and its amendments.

SECTION 16 OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising from using the above information.