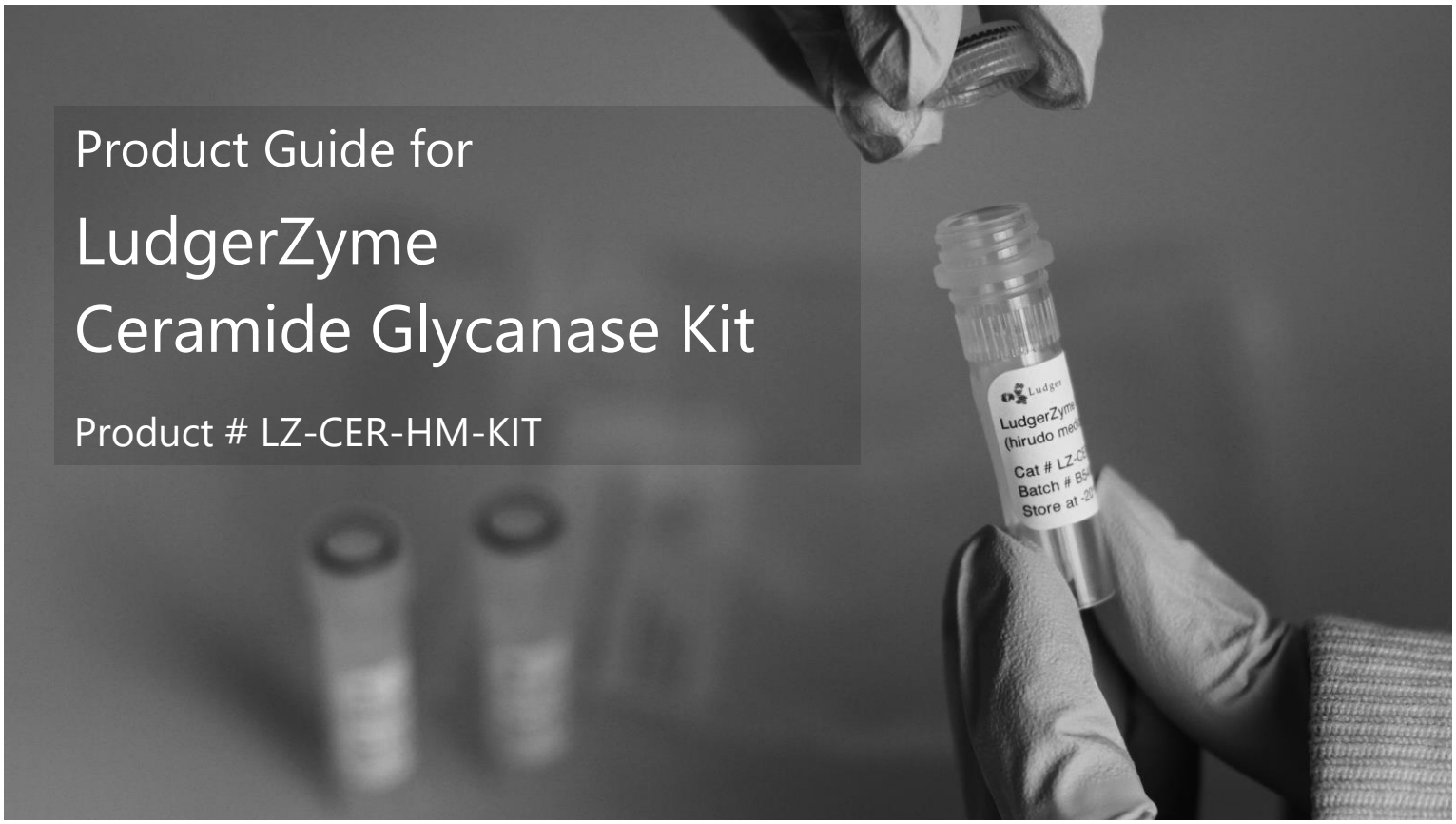
Ludger




**Ludger Document # LZ-CER-HM-KIT-v2.3**

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# Contents

# Specifications for LZ-CER-HM-KIT

| | |
|---|---|
| **Application** | Ceramide glycanase can be used to deglycosylate a variety of glycosphingolipids by cleaving the β-glycosyl linkage. |
| **Description** | Ceramide glycanase allows the identification of glycosylation patterns of glycosphingolipids through cleaving the glycan moiety and making it accessible to LudgerTag labelling technology. |
| **Number of Samples** | Sufficient for up to 25 samples. |
| **Amount of Sample** | Up to 1nmol glycolipid sample. |
| **Suitable Samples** | Isolated glycolipids containing a ceramide backbone. Cleaves glycans of various substrates including:<br>> 95% GM2, GM3, GD3, GD1a, GD1b<br>> 90% GM1, GT1b, CTH, LacCer<br>> 20% GlcCer<br>Not determined: GA1, GM2(Gc), GA2 |
| **Storage** | Long term storage – over 14 days - store at -20°C. Protect from sources of heat and light.<br>Short term storage – up to 14 days - store at 4°C. Protect from sources of heat and light.<br>Avoid multiple freeze thaw cycles. |
| **Shipping** | The product should be shipped at 4°C. |
| **Handling** | Ensure that any glass, plastic ware or solvents used with this item are free of environmental carbohydrates. Use powder-free gloves for all sample handling procedures and avoid contamination with environmental carbohydrate. |
| **Safety** | **For research use only. Not for human or drug use**<br>Please read the Safety Data Sheets (SDS's) for all chemicals used. All processes involving labeling reagents should be performed using appropriate personal safety protection – safety glasses, chemically resistant gloves (e.g. nitrile), lab coat, and when appropriate, in a laboratory fume cupboard. |

## Kit Contents

Each kit contains the following materials and reagents

| Cat. # | Item | Quantity |
|---|---|---|
| LZ-CER-HM-10 | LudgerZyme Ceramide Glycanase | 1 vial of 55 µL |
| LZ-CER-BUFFX4 | LudgerZyme Ceramide Glycanase RXN buffer (4 x concentrate) | 1 vial of 150 µL |
| GLIP-GM1-01 | GM1 glycolipid | 1 vial of 10 µL (approx. 2 nMol) |

## Additional Reagents and Equipment Required

- Pure water: resistivity above 18 MΩ-cm, particle free (>0.22 µm), TOC <10 ppb.
- Eppendorf tubes for reaction.
- Waterbath or oven with constant temperature maintenance at 37°C.
- Pipettes and tips.

## Time Line for Procedure

| Procedure | Approx Time |
|---|---|
| Preparing assay mixture | 5min |
| Incubation | 24h |

# Method

## 1 Preparing assay mixture

Pipette 5 μl of LZ-CER-BUFFX4 into an Eppendorf tube, followed by 5 μl of approximately 1nmol of the glycolipid sample to be tested.

For the positive control reaction, add 5 μl of GLIP-GM1-01 substrate to 5 μl of LZ-CER-BUFFX4 into an Eppendorf tube

Add 2 μl of LZ-CER-HM-10 (the enzyme) to the reaction mixture and mix gently by tapping the Eppendorf tube with your finger. Make total reaction mix up to 20 μl with water.

## 2 Incubation

Incubate your samples in a water bath, oven or any other constant heating source at 37°C for 24 hrs. *Samples can be stored frozen at this point.*

The samples are now ready for procainamide, 2-AB or 2-AA labeling (kits available from Ludger) and subsequent analysis by HPLC.

# Warranties and liabilities

Ludger warrants that the above product conforms to the attached analytical documents. Should the product fail for reasons other than through misuse Ludger will, at its option, replace free of charge or refund the purchase price. This warranty is exclusive and Ludger makes no other warrants, expressed or implied, including any implied conditions or warranties of merchantability or fitness for any particular purpose.
Ludger shall not be liable for any incidental, consequential or contingent damages.

This product is intended for *in vitro* research only.

# Document Revision Number

Document # LZ-CER-HM-KIT, version v2.3

# Appendix 1: Troubleshooting Guide

The following is a guide to the most likely problems associated with the use of the ceramide glycanase kit for the separation of glycans from glycosphingolipids.

## The positive control gives negative results.

### The fluorophore labeling was inefficient

It is possible that labelling of the released glycans occurred insufficiently. For optimal results use LudgerTag Procainamide, 2-AB or 2-AA glycan labelling kits.

### The enzyme became inactive

Multiple freeze-thaw cycles can render the enzyme inactive. To avoid multiple freeze-thaw cycles aliquot the enzyme into smaller volumes before re-freezing.

## The isolated glycolipids are released inefficiently.

### The glycolipids are not dissolved

For optimal activity of ceramide glycanase, detergents are required to solubilize the lipophilic substrates. All components of this kit contain 1% Taurodeoxycholate (TDC) as a detergent. If solubilization is insufficient, use other detergents to assay for optimal activity

### The sample contained contaminants that interfered with ceramide glycanase activity

Please ensure that the glycosphingolipids are free from contaminants (e.g. SDS) before deglycosylation.

### The incubation condition was incorrect.

Please ensure that the oven or heating block is equilibrated to the incubation temperature and that the reaction tube is subjected to this temperature for the entire period.

### There was less starting glycosphingolipids than was originally estimated.

Please ensure sufficient amount of sample is used.

# SAFETY DATA SHEET

Version: 1.0
Date written: 15th July 2014
Date reviewed: 7th March 2017

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY / UNDERTAKING

| | |
|---|---|
| Product Name | **Ceramide Glycanase (in Sodium Acetate, Sodium Taurodeoxycholate Hydrate and Bovine Serum Albumin) and Reaction Buffer (Sodium Acetate, Sodium Taurodeoxycholate Hydrate)** |
| Product Catalogue Name | **LZ-CER-HM-10 and LZ-CER-BUFFX4** |


| | |
|---|---|
| Company: | Ludger Ltd<br>Culham Science Centre<br>Abingdon<br>Oxfordshire<br>OX14 3EB |
| Telephone: | 01865 408554 |
| Emergency Telephone: | 01865 408554 |
| Email: | info@ludger.com |


## SECTION 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture
**Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]**

Sodium Acetate: Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
This substance is not classified as dangerous according to Directive 67/548/EEC.

Sodium Taurodeoxycholate Hydrate: Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008
This substance is not classified as dangerous according to Directive 67/548/EEC.

Bovine Serum Albumin: Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
Classification according to EU Directives 67/548/EEC or 1999/45/EC
Xn Harmful R22

### 2.2 Label elements
Sodium Acetate: The product does not need to be labelled in accordance with EC directives or respective national laws

Sodium Taurodeoxycholate Hydrate The product does not need to be labelled in accordance with EC directives or respective national laws

Bovine Serum Albumin: According to European Directive 67/548/EEC as amended.
Hazard symbol(s) Xn Harmful

R-phrase(s)
R22 Harmful if swallowed.
S-phrase(s) none

Signal Word: Harmful

**Hazard Statement(s)**
None

**Precautionary Statement(s)**
None
**2.3 Other hazard information:**
None

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3. 1 Substances

Bovine Serum Albumin
Synonyms: BSA solution
Hazardous ingredients according to Regulation (EC) No 1272/2008

| Component | Classification | Concentration |
|---|---|---|
| Name Sodium azide | Acute Tox. 2; Acute Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H300 + H310, H410, EUH032 | 0.1 - 0.25 % |
| CAS-No. 26628-22-8 | | |
| EC-No. 247-852-1 | | |
| **Hazardous ingredients according to Directive 1999/45/EC** | | |
| Name Sodium azide | T+, N, R27 - R28 - R32 - R50/53 | 0.1 - 0.25 % |
| CAS-No. 26628-22-8 | | |
| EC-No. 247-852-1 | | |
| Index-No. | | |

Sodium Acetate:
Substances
Synonyms: Acetic acid sodium salt
Formula: $C_2H_3NaO_2$
Molecular Weight: 82.03 g/mol
CAS-No. : 127-09-3
EC-No. : 204-823-8
No components need to be disclosed according to the applicable regulations.

Sodium Taurodeoxycholate Hydrate
Substances
Synonyms: 2-([3α,12α-Dihydroxy-24-oxo-5β-cholan-24-yl]amino)ethanesulfonic acid
Taurodeoxycholic acidsodium salthydrate
Formula: $C_{26}H_{44}NNaO_6S \cdot xH_2O$
Molecular Weight: 521.69 g/mol

## SECTION 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

**General Advice**
Consult a physician if exposure causes ill effects and if in any doubt. Show this safety data sheet to the physician/ first responder in attendance.

**If Ingested**
Never give anything by mouth to an unconscious person. Rinse mouth with water

**If skin is exposed**
Wash off with soap and plenty of water.

**If eyes are exposed**
Flush eyes with water as a precaution.

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

### 4.2 Most important symptoms and effects, both acute and delayed

### 4.3 Indication of immediate medical attention and special treatment needed
no data available

## SECTION 5. FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Bovine Serum Albumin Nature of decomposition products not known.
Sodium Taurodeoxycholate Hydrate Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, Sodium oxides
Sodium Acetate Carbon oxides, Sodium oxides

### 5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures
Bovine Serum Albumin Avoid breathing vapours, mist or gas. Ensure adequate ventilation
Sodium Taurodeoxycholate Hydrate Avoid breathing vapours, mist or gas. Ensure adequate ventilation
Sodium Acetate Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust

### 6.2 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.

### 6.3 Methods and material for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal

### 6.4 Reference to other sections
For disposal see section 13.

## SECTION 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**
Bovine Serum Albumin Store in cool place. 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: 2 - 8 °C
Sodium Taurodeoxycholate Hydrate Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
Sodium Acetate Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end uses**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**8.1 Control parameters**

Sodium Taurodeoxycholate Hydrate
Contains no substances with occupational exposure limit values.
Sodium Acetate
Contains no substances with occupational exposure limit values.
Bovine Serum Albumin
See next page

**8.2 Exposure controls**

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

**Personal Protective Equipment**
**Eye / face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin 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.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

**Body Protection**
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK(EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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

**Components with workplace control parameters**

| Component | CAS-No. | Value | Control parameters | Basis |
|---|---|---|---|---|
| Sodium azide | 26628-22-8 | STEL | 0.3 mg/m3 | UK. EH40 WEL - Workplace Exposure Limits |
| | Remarks | Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity. | | |
| | | TWA | 0.1 mg/m3 | UK. EH40 WEL - Workplace Exposure Limits |
| | | Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity. | | |
| | | TWA | 0.1 mg/m3 | Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values |
| | | Identifies the possibility of significant uptake through the skin Indicative | | |
| | | STEL | 0.3 mg/m3 | Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values |
| | | Identifies the possibility of significant uptake through the skin Indicative | | |

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Bovine Serum Albumin
Appearance Liquid
Sodium Taurodeoxycholate Hydrate
Appearance Solid
Sodium Acetate
Appearance Solid
Odour no data available
Odour threshold no data available
Bovine Serum Albumin
pH no data available
Sodium Taurodeoxycholate Hydrate
pH no data available
Sodium Acetate
pH 8.5 - 9.9 at 246 g/l at 25 °C
Bovine Serum Albumin
Freezing/Melting Point no data available
Sodium Taurodeoxycholate Hydrate
Freezing/Melting Point Melting point/range: 168 °C
Sodium Acetate
Freezing/Melting Point Melting point/range: > 300 °C
Initial boiling point and boiling range no data available
Sodium Acetate Flash Point > 250 °C - closed cup
Bovine Serum Albumin Flash Point no data available
Sodium Taurodeoxycholate Hydrate Flash Point no data available
Evaporation rate no data available

| | |
|---|---|
| Flammability | no data available |
| Upper/lower flammability or explosive limits | no data available |
| Vapour Pressure, Pa at temperature degree C | no data available |

Sodium Acetate

| | |
|---|---|
| Relative Density | 1.528 g/cm3 |
| Solubility in water and solvents (mg/l) | no data available |
| Partition coefficient | no data available |
| Autoignition temperature | no data available |
| Decomposition temperature | no data available |
| Viscosity | no data available |
| Explosive properties | no data available |
| Oxidising properties | no data available |

**9.2 Other information**
No data available

## SECTION 10. STABILITY AND REACTIVITY

Sodium Acetate
**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**
Exposure to moisture.

**10.5 Incompatible materials**
Strong oxidizing agents

**10.6 Hazardous decomposition products**
Other decomposition products - no data available
In the event of fire: see section 5

Bovine Serum Albumin
**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**
no data available

**10.5 Incompatible materials**
Acid chlorides, Halogenated hydrocarbon, Metals, Do not store near acids.

**10.6 Hazardous decomposition product**Other decomposition products - no data available
In the event of fire: see section 5

Sodium Taurodeoxycholate Hydrate

**10.1 Reactivity**

no data available

**10.2 Chemical stability**

no data available

**10.3 Possibility of hazardous reactions**

no data available

**10.4 Conditions to avoid**

no data available

**10.5 Incompatible materials**

Strong oxidizing agents

**10.6 Hazardous decomposition products**

Other decomposition products - no data available

## SECTION 11. TOXICOLOGICAL INFORMATION

**11.1 Information on toxicological effects**

Sodium Acetate

**Acute toxicity**

LD50 Oral - rat - 3,530 mg/kg
LC50 Inhalation - rat - 1 h - > 30,000 mg/m3
LD50 Dermal - rabbit - > 10,000 mg/kg

**Skin corrosion/irritation**

Skin - rabbit
Result: Mild skin irritation - 24 h

**Serious eye damage/eye irritation**

Eyes - rabbit
Result: Mild eye irritation

**Respiratory or skin sensitisation**

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.

**Reproductive toxicity**

no data available

**Specific target organ toxicity - single exposure**

no data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

no data available

**Additional Information**

RTECS: AJ4300010
Abdominal pain, Nausea, Vomiting
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Bovine Serum Albumin

**Acute toxicity**
**Skin corrosion/irritation**
no data available
**Serious eye damage/eye irritation**
no data available
**Respiratory or skin sensitisation**
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.
**Reproductive toxicity**
no data available
**Specific target organ toxicity - single exposure**
no data available
**Specific target organ toxicity - repeated exposure**
no data available
**Aspiration hazard**
no data available
Sigma-Aldrich **-** A7284 Page 6 of 7
**Additional Information**
RTECS: Not available
Sodium azide/ hydrazoic acid causes a profound lowering of blood pressure and inhibits cellular respiration., Laboratory experiments in animals have shown sodium azide to produce a profound hypotensive effect, demyelination of myelinated nerve fibers in the central nervous system, testicular
damage, blindness, attacks of rigidity, and hepatic and cerebral effects.

Sodium Taurodeoxycholate Hydrate
**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.
**Reproductive toxicity**
no data available
**Specific target organ toxicity - single exposure**
no data available
**Specific target organ toxicity - repeated exposure**
no data available
**Aspiration hazard**
no data available
**Potential health effects**
**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.
**Ingestion** May be harmful if swallowed.
**Skin** May be harmful if absorbed through skin. May cause skin irritation.
**Eyes** May cause eye irritation.

**Additional Information**
RTECS: Not available

## SECTION 12. ECOLOGICAL INFORMATION

Sodium Acetate
**12.1 Toxicity**
Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 13,330 mg/l - 120 h
LC50 - Lepomis macrochirus (Bluegill) - 5,000 mg/l - 24 h
Toxicity to daphnia and
other aquatic
invertebrates
EC50 - Daphnia magna (Water flea) - > 1,000 mg/l - 48 h
**12.2 Persistence and degradability**
Biodegradability Result: 99 % - Readily biodegradable.
**12.3 Bioaccumulative potential**
no data available
Sigma-Aldrich **-** S2889 Page 6 of 7
**12.4 Mobility in soil**
no data available
**12.5 Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
**12.6 Other adverse effects**
no data available

Bovine Serum Albumin
**12.1 Toxicity**
no data available
**12.2 Persistence and degradability**
no data available
**12.3 Bioaccumulative potential**
no data available
**12.4 Mobility in soil**
no data available
**12.5 Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
**12.6 Other adverse effects**
Harmful to aquatic life.

Sodium Taurodeoxycholate Hydrate

**12.1 Toxicity**
no data available
**12.2 Persistence and degradability**
no data available
**12.3 Bioaccumulative potential**
no data available
**12.4 Mobility in soil**
no data available
**12.5 Results of PBT and vPvB assessment**
no data available
**12.6 Other adverse effects**
no data available

## SECTION 13. DISPOSAL CONSIDERATIONS

Sodium Acetate
**13.1 Waste treatment methods**
**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. 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.

Bovine Serum Albumin
**13.1 Waste treatment methods**
**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company.
**Contaminated packaging**
Dispose of as unused product.

Sodium Taurodeoxycholate Hydrate
**13.1 Waste treatment methods**
**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company.
**Contaminated packaging**
Dispose of as unused product.

## SECTION 14. TRANSPORT INFORMATION

Sodium Acetate
**14.1 UN number**
ADR/RID: - IMDG: - IATA: -
**14.2 UN proper shipping name**
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods
**14.3 Transport hazard class(es)**
ADR/RID: - IMDG: - IATA: -
**14.4 Packaging group**
ADR/RID: - IMDG: - IATA: -
**14.5 Environmental hazards**
ADR/RID: no IMDG Marine pollutant: no IATA: no
**14.6 Special precautions for user**
no data available

Bovine Serum Albumin
**14.1 UN number**
ADR/RID: - IMDG: - IATA: -
**14.2 UN proper shipping name**
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods
**14.3 Transport hazard class(es)**
ADR/RID: - IMDG: - IATA: -
**14.4 Packaging group**
ADR/RID: - IMDG: - IATA: -
**14.5 Environmental hazards**
ADR/RID: no IMDG Marine pollutant: no IATA: no

**14.6 Special precautions for user**
no data available
Sodium Taurodeoxycholate Hydrate
**14.1 UN number**
ADR/RID: - IMDG: - IATA: -
**14.2 UN proper shipping name**
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods
**14.3 Transport hazard class(es)**
ADR/RID: - IMDG: - IATA: -
**14.4 Packaging group**
ADR/RID: - IMDG: - IATA: -
**14.5 Environmental hazards**
ADR/RID: no IMDG Marine pollutant: no IATA: no
**14.6 Special precautions for user**
no data available

## SECTION 15. REGULATORY INFORMATION

Sodium Acetate
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
no data available
**15.2 Chemical Safety Assessment**
For this product a chemical safety assessment was not carried out

Bovine Serum Albumin
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
no data available
Sigma-Aldrich **-** A7284 Page 7 of 7
**15.2 Chemical Safety Assessment**
For this product a chemical safety assessment was not carried out

Sodium Taurodeoxycholate Hydrate
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
no data available
**15.2 Chemical Safety Assessment**
no data available

## SECTION 16. OTHER INFORMATION

The advice offered is derived from the current available information on the hazardous materials in this product and it component(s). Consideration has been made regarding the quantities offered in the pre dispensed container. The advice offered is, therefore not all inclusive nor should it be taken as the descriptive of the compound generally.

# SAFETY DATA SHEET

Version: 1.1
Date written: 12 Feb 2015
Date Reviewed: 30th October 2017

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY / UNDERTAKING

| | |
|---|---|
| Product Name | **Monosialoganglioside GM1, from bovine brain** |
| Product Catalogue Name | **GLIP-GM1-01** |
| CAS-No. | **37758-47-7** |
| Company: | Ludger Ltd<br>Culham Science Centre<br>Abingdon<br>Oxfordshire<br>OX14 3EB |
| Telephone: | 01865 408554 |
| Emergency Telephone: | 01865 408554 |
| Email: | info@ludger.com |

## SECTION 2. HAZARDS IDENTIFICATION

**2.1 Classification of the substance or mixture**
**Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]**
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
This substance is not classified as dangerous according to Directive 67/548/EEC.

**2.2 Label elements**
This substance is not classified as dangerous according to Directive 67/548/EEC.

Signal Word: None

**Hazard Statement(s)**
None

**Precautionary Statement(s)**
None

**2.3 Other hazard information:**
None

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

**3. 1 Substances**

| | |
|---|---|
| Synonyms: | Ganglioside GM1, Monosialo |
| Formula: | None |

No components need to be disclosed according to the applicable regulations.

## SECTION 4. FIRST AID MEASURES

**4.1 Description of first aid measures**

**General Advice**
Consult a physician if exposure causes ill effects and if in any doubt. Show this safety data sheet to the physician/ first responder in attendance.

**If Ingested**
Never give anything by mouth to an unconscious person. Rinse mouth with water.

**If skin is exposed**
Wash off with soap and plenty of water.

**If eyes are exposed**
Flush eyes with water as a precaution.

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

**4.2 Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in the labelling (see section 2.2)

**4.3 Indication of immediate medical attention and special treatment needed**
No data available.

## SECTION 5. FIRE-FIGHTING MEASURES

**5.1 Extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**
Nature of decomposition products not known.

**5.3 Advice for firefighters**
Wear self contained breathing apparatus for fire fighting if necessary.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment and emergency procedures**
Avoid dust formation. Avoid breathing vapors, mist or gas.
For personal protection see section 8.

**6.4 Environmental Precautions**
Do not let product enter drains.

**6.5 Methods and material for containment and cleaning up**
Sweep up and shovel. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**
For disposal see section 13.

## SECTION 7. HANDLING AND STORAGE

**7.1 Precautions for safe handling**
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature: -20 °C

**7.3 Specific end uses**
A part from the uses mentioned in section 1.2 no other specific uses are stipulated.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**8.1 Control parameters**
Components with workplace control parameters
Contains no substances with occupational exposure limit values.

**8.3 Exposure controls**

**Appropriate engineering controls**
General industrial hygiene practice.

**Personal Protective Equipment**
**Eye / face protection**
Use equipment for eye protection tested and approved under appropriate government standards
such as NIOSH (US) or EN 166(EU).

**Skin 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.The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

**Body Protection**
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Thermal hazards**
Do not let product enter drains.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**9.1 Information on basic physical and chemical properties**

| | |
|---|---|
| Appearance | Form: powder, lyophilized Colour: white |
| Odour | No data available |
| Odour threshold | No data available |
| pH | No data available |
| Freezing/Melting Point | No data available |
| Initial boiling point and boiling range | No data available |
| Flash Point | No data available |
| Evaporation rate | No data available |

| | |
|---|---|
| Flammability | No data available |
| Upper/lower flammability or explosive limits | No data available |
| Vapour Pressure, Pa at temperature degree C | No data available |
| Relative Density | No data available |
| Solubility in water and solvents (mg/l) | No data available |
| Partition coefficient | No data available |
| Autoignition temperature | No data available |
| Decomposition temperature | No data available |
| Viscosity | No data available |
| Explosive properties | No data available |
| Oxidising properties | No data available |

**9.2 Other information**
No data available

## SECTION 10. 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**
No data available

**10.5 Incompatible materials**
Strong oxidizing agents

**10.6 Hazardous decomposition products**
Other decomposition products-no data available.
In the event of fire: see section 5

## SECTION 11. TOXICOLOGICAL INFORMATION

**11.1 Information on toxicological effects**

**Acute toxicity**
No data available.

**Skin corrosion/irritation**
No data available.

**Serious eye damage/irritation**
No data available.

**Respiratory or skin sensitisation**
No data available.

**Germ cell mutagenicity**
No data available.

**Carcinogenicity**
ARC: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.

**Reproductive toxicity**
No data available.

**STOT-single exposure**
No data available.

**STOT-repeated exposure**
No data available.

**Aspiration hazard.**
No data available.

**Potential Health Hazards**
No data available.

**Signs and symptoms of exposure**
No data available.

## SECTION 12. ECOLOGICAL INFORMATION

**12.1 Toxicity**
No data available.

**12.2 Persistence and degradability**
No data available.

**12.3 Bioaccumulative potential**
No data available.
**12.4. Mobility in soil**
No data available.

**12.5. Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

**12.6. Other adverse effects**
No data available.

## SECTION 13. DISPOSAL CONSIDERATIONS

**13.1 Waste treatment methods**

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company.

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

## SECTION 14. TRANSPORT INFORMATION

**14.1 UN Number**

| | | |
|---|---|---|
| ADR/RID: - | IMDG: - | IATA: - |

**14.2 UN Proper Shipping Name**

| | | |
|---|---|---|
| ADR/RID: Not dangerous goods goods | IMDG: Not dangerous goods | IATA: Not dangerous |

**14.3 Transport hazard class(es)**

| | | |
|---|---|---|
| ADR/RID: - | IMDG: - | IATA: - |

**14.4 Packing group**

| | | |
|---|---|---|
| ADR/RID: - | IMDG: - | IATA: - |

**14.5 Environmental hazards**

| | | |
|---|---|---|
| ADR/RID: No | IMDG: No | IATA: No |

**14.6 Special precautions for user**

No data available.

## SECTION 15. REGULATORY INFORMATION

**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

No data available.

**15.2 Chemical Safety Assessment**

For this product a chemical safety assessment was not carried out.

## SECTION 16. OTHER INFORMATION

The advice offered is derived from the current available information on the hazardous materials in this product and it component(s). Consideration has been made regarding the quantities offered in the pre dispensed container. The advice offered is, therefore not all inclusive nor should it be taken as the descriptive of the compound generally.