

# Laminin: sc-29012

## BACKGROUND

Laminins are essential and abundant structural non-collagenous glycoproteins localizing to basement membranes. Basement membranes (cell-associated extracellular matrices, or ECMs) are polymers of Laminins with stabilizing type IV collagen networks, nidogen, and several proteoglycans. Basement membranes are found under epithelial layers, around the endothelium of blood vessels and surrounding muscle, peripheral nerve and fat cells. Formation of basement membranes influences cell proliferation, phenotype, migration, gene expression and tissue architecture. Each Laminin is a heterotrimer of  $\alpha$ ,  $\beta$  and  $\gamma$  chain subunits that undergoes cell-secretion and incorporation into the ECM. Laminins can self-assemble and bind to other matrix macromolecules, and have unique and shared cell interactions mediated by integrins, dystroglycan and cognate Laminin receptors.

## REFERENCES

1. Schnaper, H.W., Kleinman, H.K. and Grant, D.S. 1993. Role of Laminin in endothelial cell recognition and differentiation. *Kidney Int.* 43: 20-25.
2. Tryggvason, K. 1993. The Laminin family. *Curr. Opin. Cell Biol.* 5: 877-882.
3. Livanainen, A., Sainio, K., Sariola, H. and Tryggvason, K. 1995. Primary structure and expression of a novel human Laminin  $\alpha$ -4 chain. *FEBS Lett.* 365: 183-188.
4. Engvall, E. and Wewer, U.M. 1996. Domains of Laminin. *J. Cell. Biochem.* 61: 493-501.
5. Luckenbill-Edds, L. 1997. Laminin and the mechanism of neuronal outgrowth. *Brain Res. Brain Res. Rev.* 23: 1-27.
6. Ekblom, M., Falk, M., Salmivirta, K., Durbeek, M. and Ekblom, P. 1998. Laminin isoforms and epithelial development. *Ann. N.Y. Acad. Sci.* 857: 194-211.
7. Hansen, K. and Abrass, C.K. 1999. Role of Laminin isoforms in glomerular structure. *Pathobiology* 67: 84-91.
8. Colognato, H. and Yurchenco, P.D. 2000. Form and function: the Laminin family of heterotrimers. *Dev. Dyn.* 218: 213-234.

## PRODUCT

Laminin is purified from Engelbreth-Holm-Swarm (EHS) lathyrus mouse tumor (> 90%) by SDS PAGE; supplied as 1 mg, frozen, in 0.05M Tris/0.15 M NaCl, pH 7.4.

Laminin is generally used as a thin coating in the concentration range of 1-10  $\mu\text{g}/\text{cm}^2$  of growth surface. Recommended coating protocols are provided as guidelines only; each laboratory should empirically determine the optimal conditions for their unique applications.

Laminin is a membrane filtered (0.2  $\mu\text{m}$ ) preparation, and has been tested for the presence of bacteria, fungi and mycoplasma. The biological activity of this product has been determined in a cell culture assay. NG-108 (mouse neuroblastoma/rat glioma) cells differentiated and formed neurites when plated on this lot of Laminin.

Molecular Weight of Laminin: 900 kDa glycoprotein composed of three poly-peptide chains.

## RECOMMENDED COATING PROTOCOL

- Dilute Laminin to desired concentration using sterile, serum-free culture medium. Recommended coating concentration is 1-10  $\mu\text{g}/\text{cm}^2$ . The final solution should be sufficiently dilute so that the volume added to the coating surface will coat it evenly (e.g. for a final coating concentration of 5  $\mu\text{g}/\text{cm}^2$ , dilute material to 50  $\mu\text{g}/\text{ml}$  and add 1 ml/35 mm dish, 3 ml/60 mm dish, etc.).
- Add appropriate amount of diluted Laminin to culture surface.
- Incubate at room temperature for one hour.
- Aspirate remaining material.
- Rinse plates carefully; avoid scraping bottom surface.
- Plates may be used immediately or may be stored at 4° C, damp or air dried, if sterility is maintained.

## STORAGE AND RECONSTITUTION

Stable for a minimum of three months from the date of shipment when stored at -70° C.

To use, thaw product slowly, at 4° C or on ice. Keep stock of Laminin at 4° C during use. Flocculent material may develop during thawing; this material (aggregated Laminin) usually goes into solution after 1-48 hours at 4° C.

If entire amount of material is not to be used immediately, transfer aliquots to sterile plastic tubes and store at -70° C.

Solubilized product should be used within one month. **\*\*DO NOT STORE IN FROST-FREE FREEZER. AVOID MULTIPLE FREEZE-THAW CYCLES\*\*.**

## RESEARCH USE

For research use only, not for use in diagnostic procedures. Not for resale.



The Power to Question

# SAFETY DATA SHEET

Santa Cruz Biotechnology, Inc.

Revision date 11-Jan-2018

Version 1.2

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

### Product identifier

Product Name Laminin  
Product Code SC-29012

### Recommended use of the chemical and restrictions on use

For research use only. Not intended for diagnostic or therapeutic use.

### Details of the supplier of the safety data sheet

Santa Cruz Biotechnology, Inc.  
10410 Finnell Street  
Dallas, TX 75220  
831.457.3800  
800.457.3801  
scbt@scbt.com

### Emergency telephone number

Chemtrec  
1.800.424.9300 (Within USA)  
+1.703.527.3887 (Outside USA)

## 2. HAZARDS IDENTIFICATION

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.122).

### Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

### Label elements

Signal word Not classified  
Hazard statements Not classified  
Symbols/Pictograms Not classified

Precautionary Statements - Prevention Wash hands thoroughly after handling  
Precautionary Statements - Response IF exposed or concerned: Get medical advice/attention

### Hazards not otherwise classified (HNOC)

Hazards not otherwise classified (HNOC) Not applicable

### Other Information

Unknown acute toxicity 100% of the mixture consists of ingredient(s) of unknown toxicity.

<b>NFPA</b>	Health hazards	-		<b>HMIS</b>	Health hazards	-
	Flammability	-			Flammability	-
	Stability	-			Physical hazards	-
	Physical and chemical properties	-			Personal protection	-

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Molecular Weight No information available  
Formula No information available

Chemical Name	CAS No	Weight %	Oral LD50	Dermal LD50	Inhalation LC50
Laminin	-	>98	-	-	-

---

## 4. FIRST AID MEASURES

---

### First Aid Measures

General advice	Consult a physician if necessary. Remove to fresh air.
Eye contact	Wash with plenty of water.
Skin Contact	Wash skin with soap and water.
Inhalation	Remove to fresh air If breathing is difficult, give oxygen If not breathing, give artificial respiration
Ingestion	Never give anything by mouth to an unconscious person. Clean mouth with water.

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

Symptoms	No information available.
----------	---------------------------

### Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
--------------------	------------------------

---

## 5. FIRE-FIGHTING MEASURES

---

### Suitable Extinguishing Media

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
------------------------------	---

Unsuitable Extinguishing Media	None.
--------------------------------	-------

### Specific hazards arising from the chemical

Specific hazards arising from the chemical	No information available.
Hazardous combustion products	No information available.

### Explosion data

Sensitivity to Mechanical Impact	No information available.
Sensitivity to Static Discharge	No information available.

### Protective equipment and precautions for firefighters

Protective equipment and precautions for firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
---	--

---

## 6. ACCIDENTAL RELEASE MEASURES

---

### Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation, especially in confined areas.
----------------------	--

### Environmental precautions

Environmental precautions	See Section 12 for additional Ecological Information.
---------------------------	---

### Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Pick up and transfer to properly labeled containers.

---

## 7. HANDLING AND STORAGE

---

**Precautions for safe handling**

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

**Conditions for safe storage, including any incompatibilities**

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store at -80 °C.  
 Incompatible materials None known based on information supplied.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control parameters**

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Appropriate engineering controls**

Engineering Controls Showers  
 Eyewash stations  
 Ventilation systems

**Individual protection measures, such as personal protective equipment**

Eye/face protection Wear safety glasses with side shields (or goggles).  
 Skin and Body Protection Wear protective gloves and protective clothing.  
 Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.  
 General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical State liquid  
 Appearance No information available  
 Odor No information available

**Property**

<b><u>Property</u></b>	<b><u>Values</u></b>
pH	No information available
Melting point/freezing point	No information available
Boiling point	No information available
Flash point	No information available
Density	No information available
Evaporation rate	No information available
Upper flammability limits	No information available
Lower flammability limit	No information available
Vapor pressure	No information available
Vapor density	No information available
Specific gravity	No information available
Water solubility	No information available
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Explosive properties	No information available
Oxidizing properties	No information available

---

## 10. STABILITY AND REACTIVITY

---

Reactivity	Not applicable
Chemical stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous polymerization	No information available.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	Strong oxidizing agents.
Hazardous Decomposition Products	None known based on information supplied.

---

## 11. TOXICOLOGICAL INFORMATION

---

### Information on likely routes of exposure

Inhalation	No data available.
Eye contact	No data available.
Skin Contact	No data available.
Ingestion	No data available.

### Information on toxicological effects

Symptoms	No information available.
----------	---------------------------

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity	No information available.
------------------	---------------------------

### Numerical measures of toxicity - Product Information

Unknown acute toxicity	100% of the mixture consists of ingredient(s) of unknown toxicity
------------------------	---

---

## 12. ECOLOGICAL INFORMATION

---

Ecotoxicity	May cause long lasting harmful effects to aquatic life
-------------	--

100% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Persistence and degradability	No information available.
Bioaccumulation	No information available.
Mobility	No information available.

---

## 13. DISPOSAL CONSIDERATIONS

---

Disposal of wastes	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	Do not reuse container.

---

## 14. TRANSPORT INFORMATION

---

**DOT** Not regulated

**IMDG** Not regulated

---

IATA Not regulated

## 15. REGULATORY INFORMATION

---

### International Inventories

All of the components in the product are on the following Inventory lists

No information available

*X - Listed*

*TSCA - United States Toxic Substances Control Act Section 8(b) Inventory*

*DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List*

*EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*

*ENCS - Japan Existing and New Chemical Substances*

*IECSC - China Inventory of Existing Chemical Substances*

*KECL - Korean Existing and Evaluated Chemical Substances*

*PICCS - Philippines Inventory of Chemicals and Chemical Substances*

### US Federal Regulations

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

#### **SARA 311/312 Hazard Categories**

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive hazard	No

#### **CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

### US State Regulations

#### **California Proposition 65**

This product does not contain any Proposition 65 chemicals.

#### **U.S. State Right-to-Know Regulations**

This product does not contain any substances regulated by state right-to-know regulations

## 16. OTHER INFORMATION

---

Revision note No information available

### **Disclaimer**

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**