

# Collagen I, human: sc-136154

## BACKGROUND

The extensive family of COL gene products (collagens) is composed of several chain types, including fibril-forming interstitial collagens (types I, II, III and V) and basement membrane collagens (type IV), each type containing multiple isoforms. Collagens are fibrous, extracellular matrix proteins with high tensile strength and are the major components of connective tissue, such as tendons and cartilage. All collagens contain a triple helix domain and frequently show lateral self-association in order to form complex connective tissues. Several collagens also play a role in cell adhesion, important for maintaining normal tissue architecture and function.

## REFERENCES

1. Bateman, J.F., Lamande, S.R. and Ramshaw, J.A.M. 1996. Collagen superfamily. In Comper, W.D., ed., *Extracellular Matrix, Vol. 2: Molecular Components and Interactions*. Amsterdam: Harwood Academic Publishers, 22-67.
2. McCarthy, J.B., Vachhani, B. and Iida, J. 1996. Cell adhesion to collagenous matrices. *Biopolymers* 40: 371-381.
3. Engel, J. 1997. Versatile collagens in invertebrates. *Science* 277: 1785-1786.
4. Myers, L.K., Rosloniec, E.F., Cremer, M.A. and Kang, A.H. 1997. Collagen-induced arthritis, an animal model of autoimmunity. *Life Sci.* 61: 1861-1878.
5. Staines, N.A., Harper, N. and Ward, F.J. 1997. Nasal tolerance to dominant and subdominant epitopes of Collagen Type II and protection against collagen-induced arthritis. *Biochem. Soc. Trans.* 25: 661-664.
6. Cremer, M.A., Rosloniec, E.F. and Kang, A.H. 1998. The cartilage collagens: a review of their structure, organization and role in the pathogenesis of experimental arthritis in animals and in human rheumatic disease. *J. Mol. Med.* 76: 275-288.

## PRODUCT

Collagen Type I is purified from human placenta ( $\geq 90\%$ ) by SDS-PAGE; supplied as 10 mg in 2 mM hydrochloric acid.

The human source material was tested and found non-reactive for hepatitis B surface antigen (HBsAg) and negative for antibodies to hepatitis C virus (anti-HCV), human immunodeficiency virus-1 (anti-HIV-1), and human immunodeficiency virus-2 (anti-HIV-2). Nevertheless, **\*\*THIS PRODUCT SHOULD BE HANDLED USING THE SAME SAFETY PRECAUTIONS USED WHEN HANDLING POTENTIALLY INFECTIOUS MATERIAL\*\***.

Human Collagen Type I is generally used as a thin coating on tissue culture plastic, but may be used as a gel, if desired. Collagen Type I has been shown to promote the attachment of HT 1080 (human fibrosarcoma) cells at concentrations as low as 0.1  $\mu\text{g}/\text{cm}^2$ . Recommended protocols are provided as guidelines only; each laboratory should empirically determine the optimal conditions for their unique applications.

The contents of this vial have been tested and found negative for the presence of bacteria, fungi and mycoplasma.

## RESEARCH USE

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

## RECOMMENDED COATING PROTOCOL

- Add sufficient volume of collagen to provide desired coating concentration; recommended coating concentration is 0.2  $\mu\text{g}/\text{cm}^2$  to 2  $\mu\text{g}/\text{cm}^2$ , depending on cell type. Make sure that the volume added to the dish is sufficient to cover the growth surface. If necessary, dilute the collagen stock with 10 mM acetic acid.
- Once growth surface has been completely covered, incubate for 2 hours at room temperature; tilt dish at 45° angle and allow excess collagen to drain to the lowest point in dish.
- Remove excess material with sterile pasteur pipette.
- Air dry plates by leaving lids ajar in a laminar flow tissue culture hood, or dry with a gentle stream of sterile gas.
- Plates are now ready for use.

## RECOMMENDED GELLING PROTOCOL

- Note: Collagen Type I will, at best, form a loose gel. This recommended protocol is only a guideline; to achieve success, the proportions may need to be varied.
- Mix together one part Human Collagen Type I, and one part neutral buffer, such as phosphate buffered saline or sterile, serum-free tissue culture medium.
- Add mixture to desired tissue culture vessel.
- Incubate 15 to 60 minutes at room temperature.
- Gel is ready for use, but must be handled carefully.

## STORAGE

Stable for a minimum of 3 months from date of shipment when stored at -20° C. If entire amount is not to be used immediately, dispense into appropriate aliquots and store at -20° C. **\*\*AVOID MULTIPLE FREEZE-THAW CYCLES\*\***

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.



The Power to Question

# SAFETY DATA SHEET

Santa Cruz Biotechnology, Inc.

Revision date 14-Jul-2021

Version 2

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

### Product identifier

Product Name Collagen I, human  
Product Code SC-136154

### 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.

### NFPA

Health hazards -  
Flammability -  
Stability -  
Physical and chemical properties -



### HMIS

Health hazards -  
Flammability -  
Physical hazards -  
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
---------------	---------	----------	-----------	-------------	-----------------

Collagen I, human	-	>98	-	-	-
-------------------	---	-----	---	---	---

#### 4. FIRST AID MEASURES

##### First Aid Measures

General advice	If symptoms persist, call a physician. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing.
Eye contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.
Skin Contact	Consult a physician if necessary. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Immediate medical attention is not required.
Inhalation	Remove to fresh air Call a physician If breathing is irregular or stopped, administer artificial respiration Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation Artificial respiration and/or oxygen may be necessary Immediate medical attention is not required Move to fresh air in case of accidental inhalation of vapors If symptoms persist, call a physician
Ingestion	Rinse mouth. Drink plenty of water. If symptoms persist, call a physician. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Call a physician.
Self-protection of the first aider	Use personal protective equipment as required.

##### 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 No information available.

##### 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 Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Environmental precautions**

Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. 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

Cover liquid spill with sand, earth or other non-combustible absorbent material. Cover powder spill with plastic sheet or tarp to minimize spreading. Pick up and transfer to properly labeled containers. Soak up with inert absorbent material. Dam up.

**7. HANDLING AND STORAGE****Precautions for safe handling**

Advice on safe handling

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Use with local exhaust ventilation.

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

Storage Conditions

Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers. Store at -20 °C.

Incompatible materials

None known based on information supplied.

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

Exposure Guidelines

Other Information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

*NIOSH IDLH Immediately Dangerous to Life or Health*

**Appropriate engineering controls**

Engineering Controls

Showers  
Eyewash stations  
Ventilation systems

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

Eye/face protection

Tight sealing safety goggles. Face protection shield.

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

When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical State

liquid

Appearance

No information available

Odor

No information available

<u>Property</u>	<u>Values</u>
pH	No information available
Melting point/freezing point	No information available
Boiling point	No information available
Flash point	No information available
Liquid 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	Avoid repeated exposure.
Target Organ Effects	Eyes, Respiratory system, Skin.
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

*IARC (International Agency for Research on Cancer) Group 1 - Carcinogenic to Humans*

*Not classifiable as a human carcinogen*

*OSHA (Occupational Safety and Health Administration of the US Department of Labor) X - Present*

### Numerical measures of toxicity - Product Information

Unknown acute toxicity	100% of the mixture consists of ingredient(s) of unknown toxicity
The following values are calculated based on chapter 3.1 of the GHS document	
ATEmix (oral)	238
ATEmix (dermal)	5015
ATEmix (inhalation-gas)	563
ATEmix (inhalation-dust/mist)	0

ATEmix (inhalation-vapor) 1.7

## 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.  
 Other Information Waste codes should be assigned by the user based on the application for which the product was used.

## 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/NDSL - 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  
 IECS - 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 Yes

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

**CWA (Clean Water Act)**

This product contains the following substances which are regulated 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**

No information available

**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**