

Gelatin



IDENTIFICATION

Name	Gelatin
Accession Number	DB11242
Type	Small Molecule
Groups	Approved, Vet approved



Integrate DrugBank in your Precision Medicine software.

Our indications data includes genetic markers, and drug-drug interactions helping you create better health outcomes for patients.

Description Gelatin is a multifunctional ingredient that is used in foods, pharmaceuticals, cosmetics, and photographic films as a gelling agent, stabilizer, thickener, emulsifier, as well as film former ⁶.

As a thermoreversible hydrocolloid with a small gap between its melting and gelling temperatures, gelatin provides unique advantages over carbohydrate-based gelling agents. Gelatin is mainly produced from porcine skin, and cattle hides and bones ⁶.

Some alternative raw substances have recently garnered attention from both researchers and the industry not only because they overcome religious concerns shared by both Jews and Muslims but also because they may provide scientific advantages over gelatins from mammal origins ²¹.

Fish skins from a number of fish species a type of substance that has been comprehensively studied as a source for gelatin production. Fish skins have a significant potential for the production of high-quality gelatin with different melting and gelling temperatures over a much larger range than mammalian gelatins but have a sufficiently high level of gel strength and viscosity ⁶.

Gelatin is generally recognized as safe (GRAS) by the FDA to be a non-hazardous food or food ingredient ¹².

Interestingly, horse gelatin has been studied and it was found that in the horse, gelatin influences the homeostasis of the amino acids required for cartilage synthesis ⁸. An increasing number of novel applications have been found for collagen and gelatin ².

Synonyms	Gelatin, unspecified
	Gelatina
	Gelatine

Prescription Products

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NAME	DOSAGE	STRENGTH	ROUTE	LABELLER	MARKETING START	MARKETING END				
Sulfur Colloid	Injection, powder, lyophilized, for solution	4.5 mg/1	Intravenous	Anazao Health Corporation	2012-07-01	Not applicable				

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≤ 1 ≥

Mixture Products

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NAME	INGREDIENTS	DOSAGE	ROUTE	LABELLER	MARKETING START	MARKETING END			
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Drugs



Orabase Paste	Gelatin (13.3 %) + Carboxymethylcellulose sodium (13.3 %) + Pectin (13.3 %)	Paste	Oral; Topical	Convatec Inc.	1995-12-31	Not applicable	
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Unapproved/Other Products

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NAME	INGREDIENTS	DOSAGE	ROUTE	LABELLER	MARKETING START	MARKETING END	
Sulfur Colloid	Gelatin (4.5 mg/1)	Injection, powder, lyophilized, for solution	Intravenous	Anazao Health Corporation	2012-07-01	Not applicable	

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≤ 1 ≥

Categories

[Amino Acids, Peptides, and Proteins](#)[Gelatin](#)[Proteins](#)[Scleroproteins](#)

UNII

[2G86QN327L](#)

CAS number

9000-70-8

PHARMACOLOGY

Indication

Gelatin is used for weight loss and for treating osteoarthritis, rheumatoid arthritis, and brittle bones (osteoporosis). Some people also use it for strengthening bones, joints, and fingernails. Gelatin is also used for improving hair condition and to shorten the recovery after exercise and sports-related injury ¹⁵. Gelatin is used in preparations of foods, cosmetics, and medicine ¹⁵.

Plasma volume expander in hypovolaemic shock ¹⁶. Haemostatic ¹⁶.

Gelatin-based hydrogels are being used in drug delivery and tissue engineering because they are able to promote cell adhesion and proliferation. In addition, these hydrogels can be used as wound dressings because of their attractive fluid absorbance properties. Manufacturing technologies such as ultraviolet stereolithography and two-photon polymerization can be used to prepare structures containing photosensitive gelatin-based hydrogels ¹³.

Pharmacodynamics

Gelatin contains collagen, which is one of the materials that make up cartilage and bone ¹⁵.

In addition to their well-established value as a nutritional protein source, collagen and collagen-derived products may exhibit various potential biological activities on cells and the extracellular matrix through the corresponding food-derived peptides post-ingestion. This could justify their applications in dietary supplements and pharmaceutical agents ².

Gelatin is a protein that is used as a hemostatic in surgical procedures. It is also used as a plasma volume expander in hypovolemic shock. Gelatin rods structures may also be used to temporarily block tear outflow in cases of dry eye ¹⁶.

Mechanism of action

It works as a hemostatic by providing a physical framework within which clotting may occur ¹⁶.

As a volume expander, gelatin remains in the vascular space. When used in the treatment of hypovolaemia gelatin can produce a significant increase in blood volume, cardiac output, stroke volume, blood pressure, urinary output and oxygen delivery, increasing volume and pressure ¹⁸.

For intravascular volume expansion, the majority of gelatins produce an effect which is almost equivalent to of which are mild, although severe reactions albumin, with a duration of action of 3 to 4 hours to have been reported ¹⁹.

Gelatin or collagen chains suspended in solution can be covalently cross-linked to form matrices

capability of swelling into an equilibrium volume while maintaining their shape. The chemical cross-linkers used may be either small bifunctional molecules or polyfunctional macromolecules, for example, glutaraldehyde ²².



ADDITIONAL DATA AVAILABLE

Adverse Effects

Comprehensive structured data on known drug adverse effects with statistical prevalence. MedDRA and ICD10 ids are provided for adverse effect conditions and symptoms.

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ADDITIONAL DATA AVAILABLE

Contraindications

Structured data covering drug contraindications. Each contraindication describes a scenario in which the drug is not to be used. Includes restrictions on co-administration, contraindicated populations, and more.

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ADDITIONAL DATA AVAILABLE

Blackbox Warnings

Structured data representing warnings from the black box section of drug labels. These warnings cover important and dangerous risks, contraindications, or adverse effects.

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Absorption

The bioavailability of gelatin was indirectly studied by the determining the bioavailability of total hydroxyproline in gelatin using a pharmacokinetic method after oral ingestion in rats.

The relative and absolute bioavailability of gelatin were 74.12% and 85.97%, respectively. The amino acid profile of plasma showed that 41.91% of the digested gelatin was absorbed from the intestine in the peptide form, and there was a linear correlation between the absorbed amount of an amino acid and its content in gelatin ($R(2) = 0.9566$). Furthermore, 17 types of collagen peptide were purified by multi-step chromatography and identified with ultra-performance liquid chromatography-electrospray ionisation-mass spectrometry ².

Volume of distribution

Not Available

Protein binding

Not Available

Metabolism

Not Available

Route of elimination

Not Available

Half life

Half-life is about 4 hr ¹⁶.

Clearance

A large percentage of the administered dose is removed by the kidneys within 24h of ingestion ¹⁶.

Toxicity

LD50 Rat >3750 mg/kg ²³.

Gelatin solutions have shown to increase the risk of anaphylaxis and may be harmful by increasing mortality, renal failure, and bleeding likely due to extravascular uptake and impairment of coagulation. ⁴.

Gelatin can cause an unpleasant taste, a sensation of abdominal heaviness, bloating, heartburn, as well as belching ¹⁵.

Using gelatin as a plasma expander appears to have no significant advantages over crystalloids or isotonic albumin on mortality and may have a slightly higher risk of requiring allogeneic blood transfusion in perioperative and critically ill patients.

Affected organisms Humans and other mammals



Pathways Not Available

Pharmacogenomic Not Available

Effects/ADRs ⓘ

INTERACTIONS

Drug Interactions



This information should not be interpreted without the help of a healthcare provider. If you believe you are experiencing an interaction, contact a healthcare provider immediately. The absence of an interaction does not necessarily mean no interactions exist.

Not Available

Food Interactions Not Available

REFERENCES

General References

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- FDA GRAS Substances: Gelatin [[Link](#)]
- GELATIN—ITS USEFULNESS AND TOXICITY [[Link](#)]
- Federal code of regulations, Gelatin [[Link](#)]
- Gelatin-based hydrogels for biomedical applications [[Link](#)]
- Daily consumption of the collagen supplement Pure Gold Collagen® reduces visible signs of aging [[Link](#)]
- Gelatin Supplements, Medline plus [[Link](#)]
- MIMS, gelatin [[Link](#)]
- Volume expander [[Link](#)]
- Plasma Expanders in Practice [[Link](#)]
- Intravenous volume replacement: which fluid and why? [[Link](#)]
- Benefits and risks of using gelatin solution as a plasma expander for perioperative and critically ill patients: A meta-analysis [[Link](#)]
- Religious constraints on prescribing medication [[Link](#)]
- FUNCTIONAL AND BIOACTIVE PROPERTIES OF COLLAGEN AND GELATIN FROM ALTERNATIVE SOURCES: A REVIEW [[Link](#)]
- Gelatin, Lab Grade [[Link](#)]

External Links

PubChem Substance [347911163](#)

Wikipedia [Gelatin](#)

CLINICAL TRIALS

Clinical Trials ⓘ

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PHASE	STATUS	PURPOSE	CONDITIONS	COUNT
1	Completed	Not Available	Bacterial Infections	1
1	Completed	Not Available	Bioequivalence	1
1	Completed	Not Available	Healthy Volunteers	1
1	Completed	Basic Science	Healthy Volunteers	2
1	Completed	Diagnostic	NASH - Nonalcoholic Steatohepatitis / Nonalcoholic Steatohepatitis	1
1	Completed	Other	Healthy Volunteers	1
1	Completed	Supportive Care	Stable COPD Patients	1
1	Completed	Treatment	Acute Gastroenteritis	1
1	Completed	Treatment	Healthy Volunteers	6
1	Completed	Treatment	Hepatitis C Viral Infection	1

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PHARMACOECONOMICS

Manufacturers Not Available

Packagers Not Available

Dosage forms

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FORM	ROUTE	STRENGTH
Paste	Oral; Topical	
Injection, powder, lyophilized, for solution	Intravenous	4.5 mg/1

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Prices Not Available

Patents Not Available

PROPERTIES

State Not Available

Experimental Properties Not Available

Predicted Properties Not Available

Predicted ADMET features Not Available

SPECTRA

Mass Spec (NIST) Not Available

Drugs



TAXONOMY

Classification

Not classified



Drug created on December 03, 2015 09:51 / Updated on September 02, 2019 19:21

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