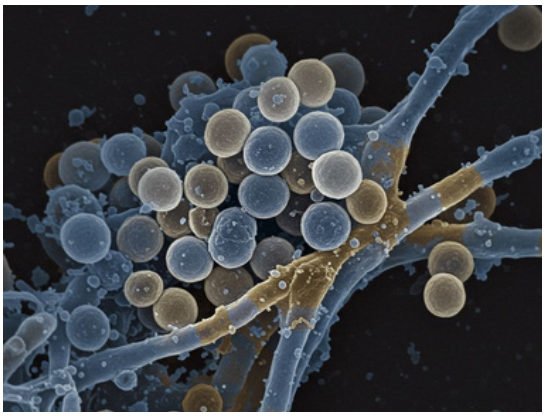
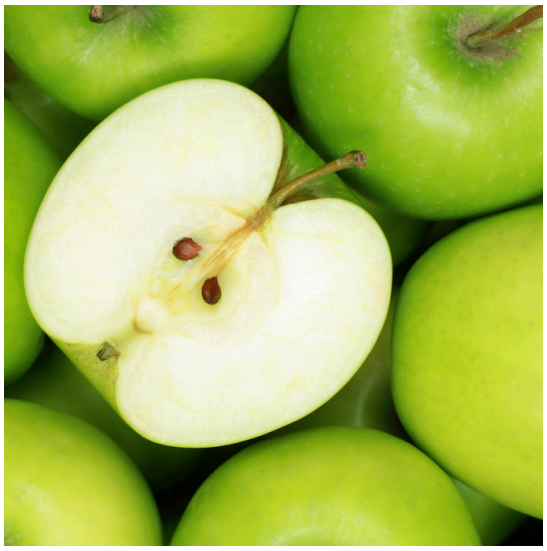
GREEN APPLE EXOSOMES

Code: EXO-1



Definition: Exosomes are small, nanometer-sized extracellular vesicles secreted by cells. They act as messengers, transporting proteins, nucleic acids, and other molecules to other cells. They play a crucial role in intercellular communication and various biological processes. They are generated from late endosomes, which are intracellular compartments, through a process called multivesicular body (MVB) formation. Intraluminal vesicles form in the lumen of the endosome and subsequently fuse with the cell membrane to be released as exosomes.
Exosomes are not simple empty sacs; they contain various molecules, such as proteins, lipids, nucleic acids (mRNA, miRNA, etc.), and metabolites.

Cosmetic properties: Green apple exosomes possess anti-free radical activity, contain active ingredients that combat dermal inflammation, and promote extracellular matrix (ECM) synthesis, improving skin elasticity.
Studies determined that apple nanovesicles isolated from the plant exhibited anti-inflammatory properties in primary dermal fibroblasts. Fibroblasts already in a state of inflammation responded more significantly than those that were not inflamed. Furthermore, a positive change in the synthesis pattern of collagen and laminin was determined, verifying that apple-derived nanovesicle production induced increased production. Furthermore, the effect of these vesicles on fibroblasts cultured under normal conditions was to increase cholesterol biosynthesis. In conclusion, apple exosomes possess anti-inflammatory and anti-aging properties, promoting skin longevity and vitality and reducing the appearance of fine lines and wrinkles.



References:

1 Zhang, S.; Duan, E. Fighting against Skin Aging: The Way from Bench to Bedside. Cell Transplant. 2018, 27, 729–738. [CrossRef] [PubMed]

2 Haydont, V.; Bernard, B.A.; Fortunel, N.O. Age-related evolutions of the dermis: Clinical signs, fibroblast and extracellular matrix dynamics. Mech. Ageing Dev. 2019, 177, 150–156. [CrossRef] [PubMed]

3 Monavarian, M.; Kader, S.; Moeinzadeh, S.; Jabbari, E. Regenerative Scar-Free Skin Wound Healing. Tissue Eng.-Part B Rev. 2019, 25, 294–311. [CrossRef] [PubMed]

4 Padhi, A.; Nain, A.S. ECM in Differentiation: A Review of Matrix Structure, Composition and Mechanical Properties. Ann. Biomed. Eng. 2020, 48, 1071–1089. [CrossRef] [PubMed] Ha, D.H.; Kim, H.K.; Lee, J.; Kwon, H.H.; Park, G.H.; Yang, S.H.; Jung, J.Y.; Choi, H.; Lee, J.H.; Sung, S.; et al. Mesenchymal Stem/Stromal Cell-Derived Exosomes for ImmunomodulatoryTherapeuticsandSkinRegeneration. Cells 2020, 9, 1157. [CrossRef] [PubMed]

GREEN APPLE EXOSOMES

CODE: EXO-1 Date of last amendment: 22.03.2025

INCI name: MALUS DOMESTICA FRUIT EXTRACT (AND) MALUS DOMESTICA FRUIT VESICLES (AND) PROPANEDIOL (AND) SODIUM LEVULINATE (AND) XANTHAN GUM (AND) POTASSIUM SORBATE.

DESCRIPTION: Green Apple extract enriched with exosomes and stabilized in a natural xanthan gum fluid gel.

Properties: Cell regenerator, anti-inflammatory, moisturizer and antioxidant.

COMPOSITION (INCI NAME)	% (Weight)	# CAS
Malus Domestica Fruit extract (and) Malus Domestica Fruit Vesicles	94,150	-------
Xanthan Gum	0,300	11138-66-2
Preservatives:		
Propanediol	5,000	504-63-2
Sodium Levulinate	0,400	19856-23-6
Potassium Sorbate	0,150	24634-61-5

Concentration of Exosome Particles	Greater than 10 billion particles/ml. Measurement method: NTA (Nanoparticle Tracking Analysis). Equipment: Nanosight NS300 (MALVERN PANALYTICAL, U.K.)
Particle size	30 nm -500 nm (NTA Method: Nanoparticle Tracking Analysis)
Extraction method:	Ultra-Filtration.
Net surface charge of the particle:	Negative.
Aspect:	Semi-translucent to opalescent fluid gel.
Color:	Colorless to slightly yellowish or greenish.
Odor:	Pleasant.
pH:	4,00 – 6,00 (25ºC) (USP XLIV and sub. updates).
Density:	0,980 – 1,050 (pycnometer) (20ºC) (USP XLIV and sub. updates).
Dry residue:	3 gr % minimum (0,5 gr. 1 hour 110° C).
Microbiological control:	Mesophilic bacteria: less than 100 CFU/gr. Moulds & yeast: less than 20 CFU/gr. No pathogens.
Observation:	The product may form flocs or precipitates after long periods of storage. These are easily dispersed with gentle agitation.

Keep refrigerated (5-15°C). Do not freeze. Protect from light. Shake before use.

EXTERNAL COSMETIC USE