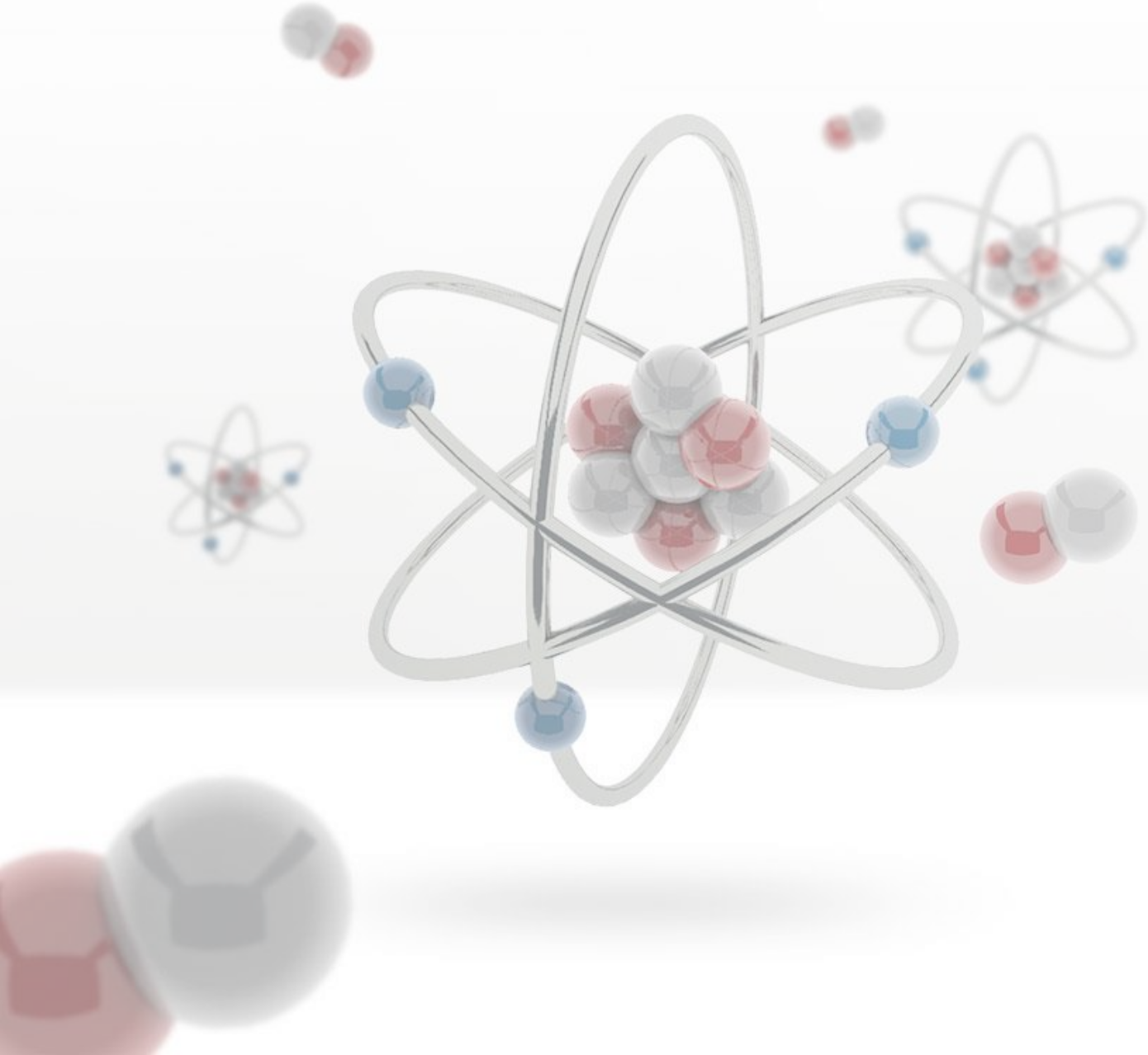
Lipo Exosome Excellent Pack

Contents

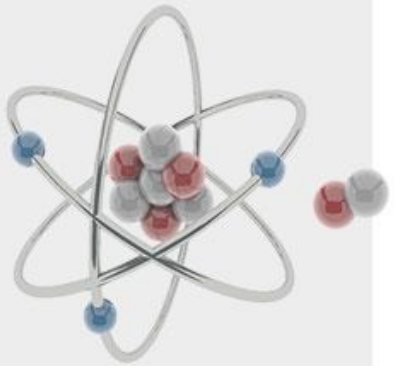


What is Exosome?

Exo + some

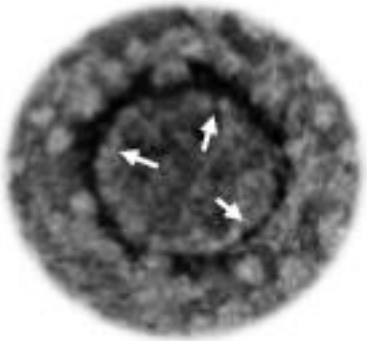
Extra + Cellular + Vesicles

- Biological nanoparticles with a diameter of 20-200 nm (intracellular, active secretion, purpose of information exchange)
- Animal cells (including animal tissues), microorganisms, plant cells, and body fluids etc. exist in various ways
- Membrane structure of exosomes: Composed of double lipid membranes (which has the very similar structure and components as the cell membranes)
  (High cell absorption rate and stable delivery of active ingredients to cells in the skin)



- Inside the exosome, it contains substances such as various active substances (biosynthetic compounds), proteins, DNA, mRNA, miRNA, and Lipid, which serves as an avatar of the cell
- Representative functions of exosomes: Various functions such as tissue growth, regeneration, and immune control
- Factors that play an important role in cells as a function of Cell to Cell Communication (transmission of information between cells) and Paracrine signaling (transduction of paracrine signals)

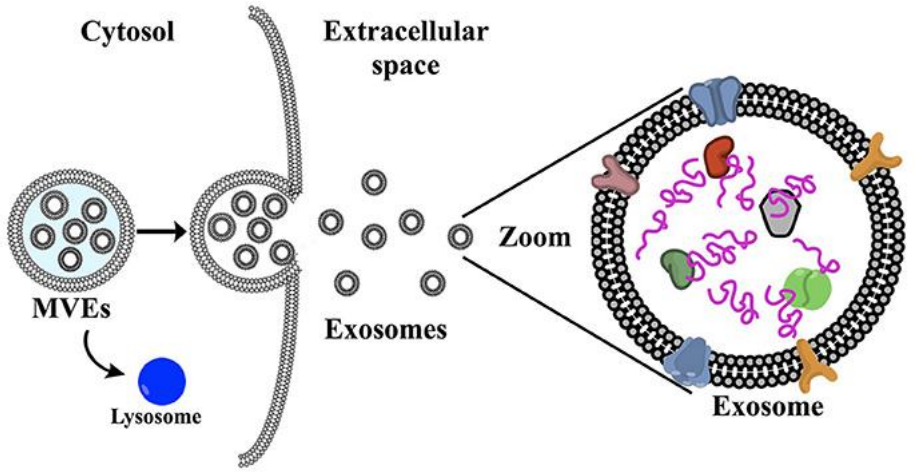
Exosome Functions



[Membrane Structure of Exosomes]

Membrane structure of human adipose-derived stem cell exosomes through transmission electron microscopy

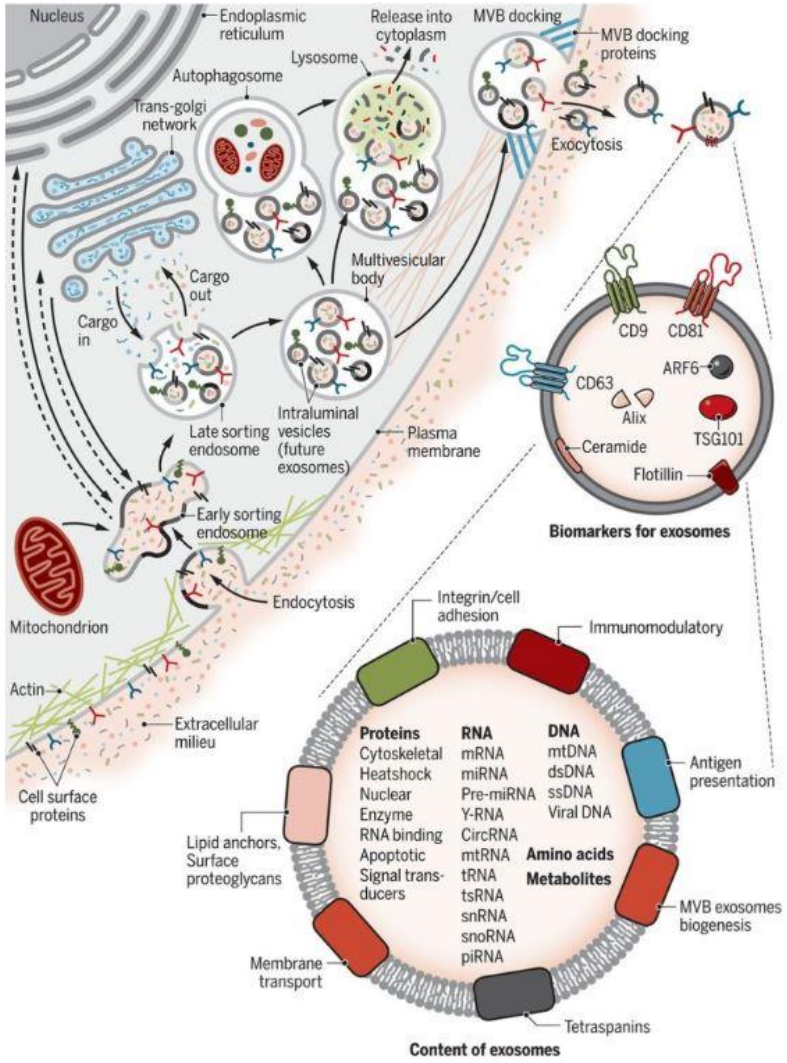
White Arrow : Lipid bilayer

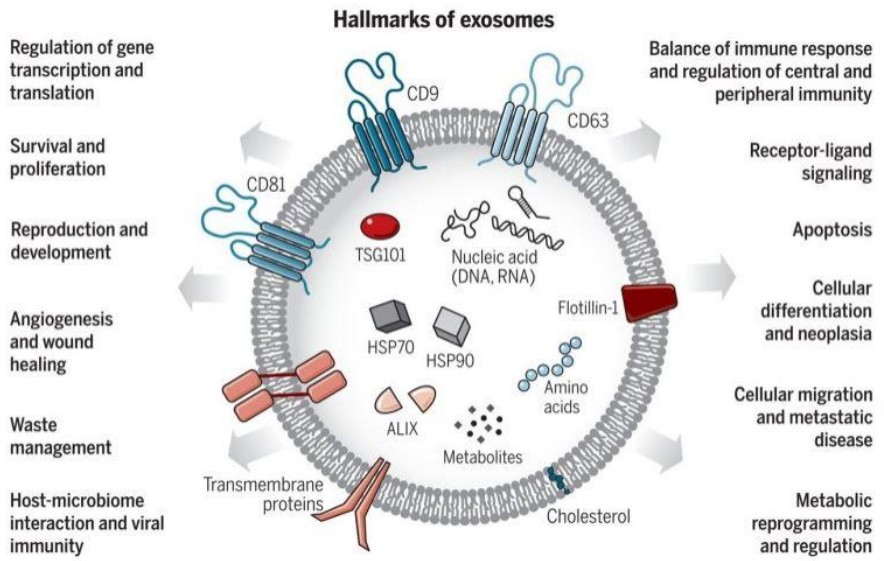


Multivesicular endosomes are formed (MVEs), which encompass the exosomes.

The MVEs can either fuse with the plasma membrane, releasing the exosomes into the extracellular matrix (see zoomed schematic),
or fuse with the lysosome for degradation.
Micro vesicles are formed via direct blebbing from the plasma membrane.

Exosomes contain protein, DNA, RNA and surface membrane proteins,
which are specific to the cell of origin and are not limited to cell surface proteins.



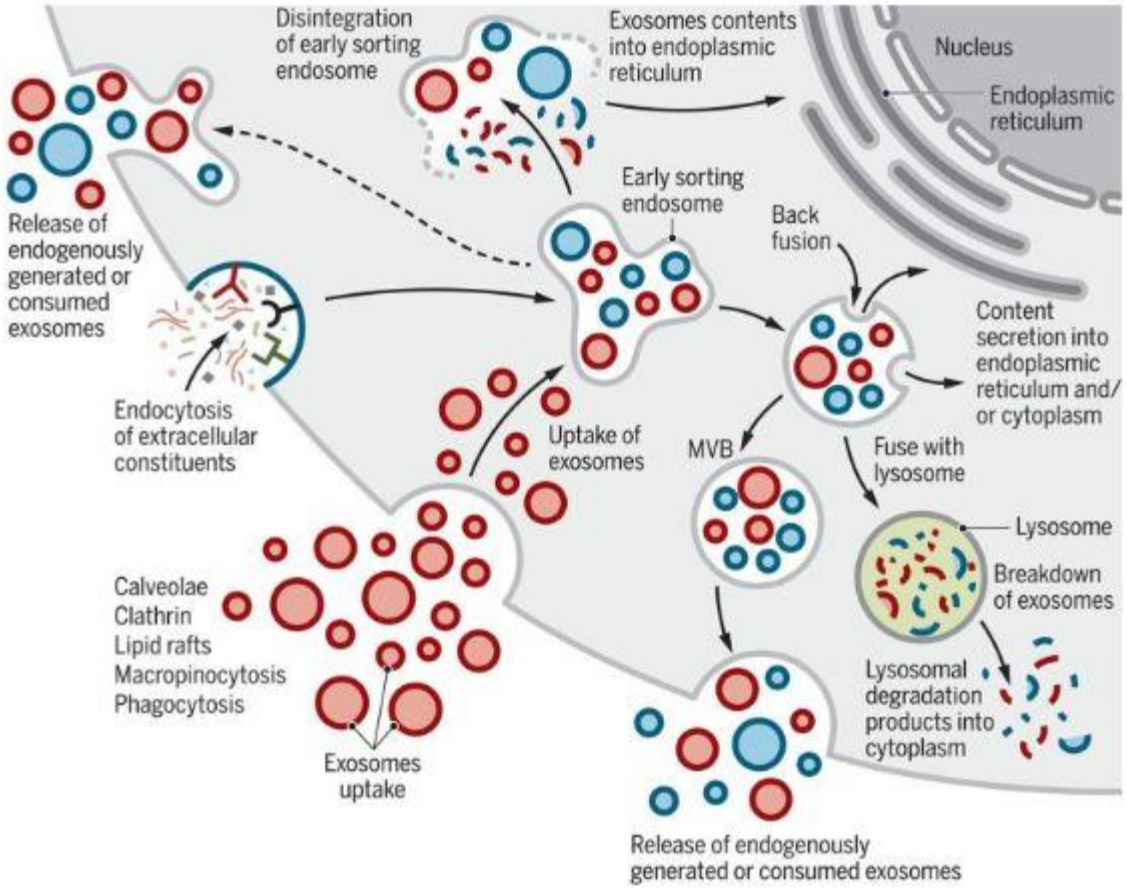


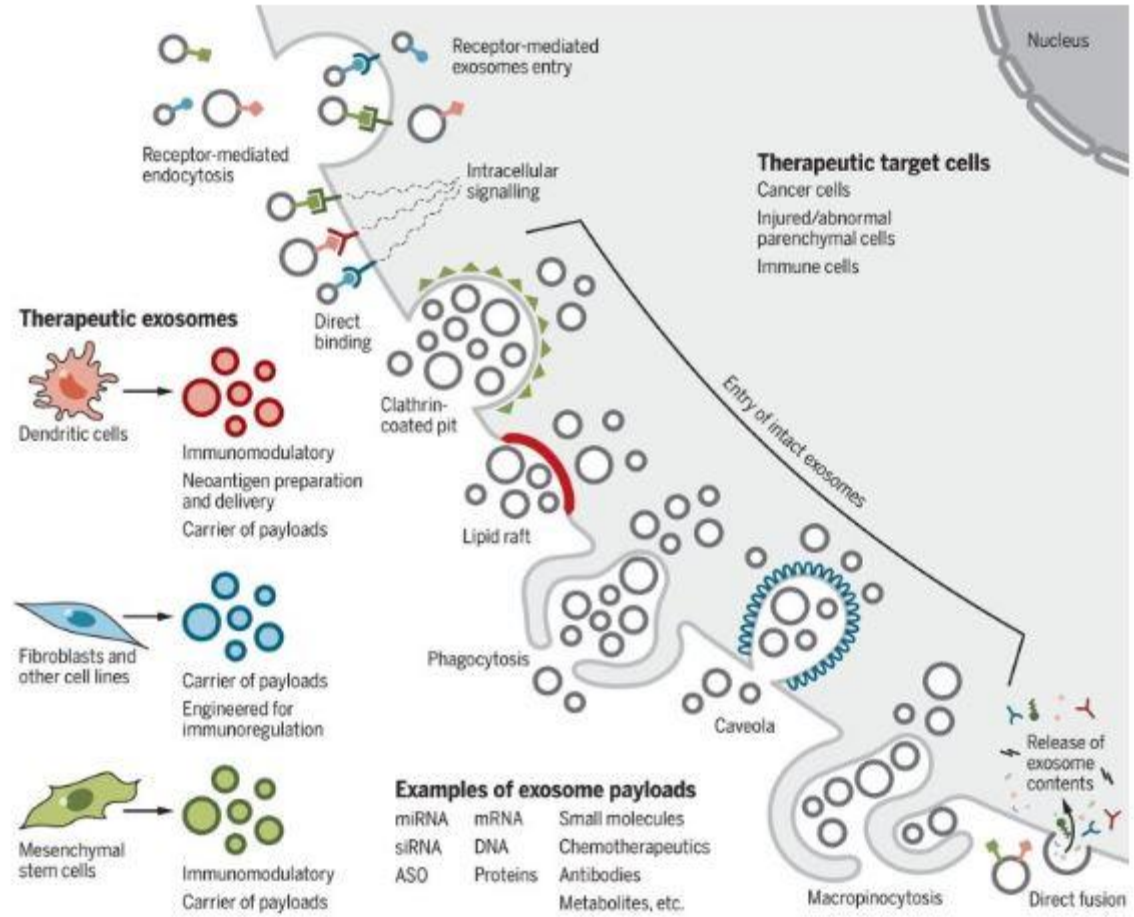
- Components of the exosome membrane

  Proteins (Tetraspanins (CD9, CD63, CD81, CD82)), Lipids, MHCI, II, Integrin, etc.

- Ingredients inside the exosome

  Proteins, DNAs, mRNAs, miRNAs, rRNAs, Lipids, Enzymes, etc.


Disintegration of early sorting endosome
Exosomes contents into endoplasmic reticulum
Nucleus
Endoplasmic reticulum
Early sorting endosome
Back fusion
Release of endogenously generated or consumed exosomes
Content secretion into endoplasmic reticulum and/or cytoplasm
Endocytosis of extracellular constituents
Uptake of exosomes
MVB
Fuse with lysosome
Lysosome
Breakdown of exosomes
Calveolae
Clathrin
Lipid rafts
Macropinocytosis
Phagocytosis
Lysosomal degradation products into cytoplasm
Exosomes uptake
Release of endogenously generated or consumed exosomes


Receptor-mediated exosomes entry
Nucleus
Receptor-mediated endocytosis
Intracellular signalling
Therapeutic target cells
Cancer cells
Injured/abnormal parenchymal cells
Immune cells
Therapeutic exosomes
Direct binding
Clathrin-coated pit
Entry of intact exosomes
Dendritic cells
Immunomodulatory
Neoantigen preparation and delivery
Carrier of payloads
Lipid raft
Fibroblasts and other cell lines
Carrier of payloads
Engineered for immunoregulation
Phagocytosis
Caveola
Release of exosome contents
Examples of exosome payloads
miRNA
siRNA
ASO
mRNA
DNA
Proteins
Small molecules
Chemotherapeutics
Antibodies
Metabolites, etc.
Mesenchymal stem cells
Immunomodulatory
Carrier of payloads
Macropinocytosis
Direct fusion

▶ Mechanism of Action of Exosomes

1. Receptor-mediated endocytosis (general endocytosis mechanism: Endocytosis)

2. Ligand and Receptor Binding

3. Clathrin coated pit

   * Clathrin: : Protein complex that that is present in a specific area of the cell membrane and absorb proteins

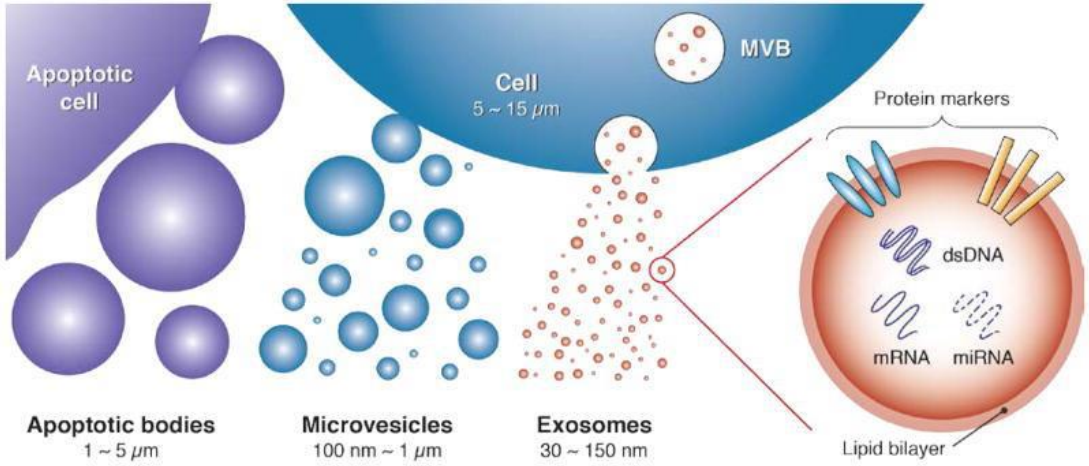
4. Lipid raft: Protein receptors aligned within the sphingoglycolipids and microscopic regions of the cell membrane

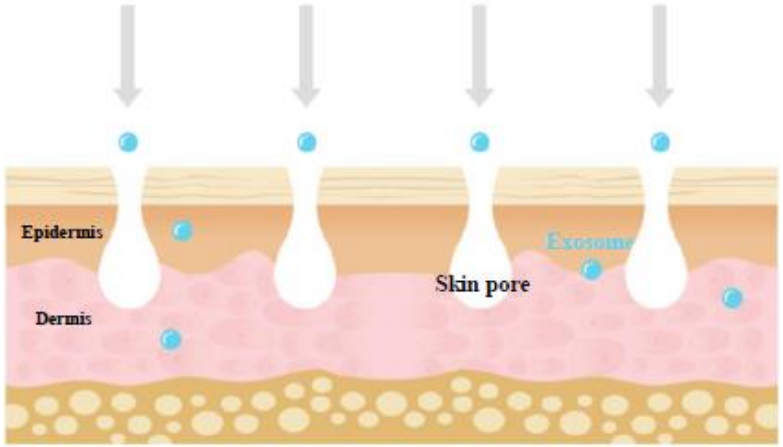
5. Phagocytosis : An action that traps outside substances from the outside of the cell into the cell and digests them inside the cell

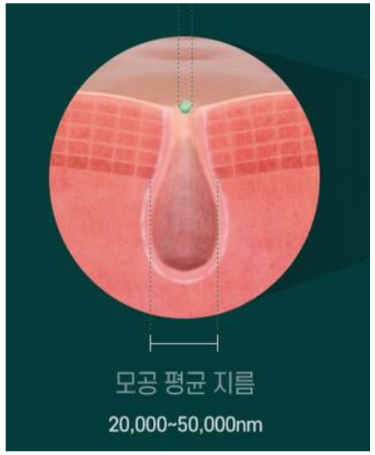
6. Caveola : A structure formed by small indentations in the cell membrane by an intramembrane protein called 'caveolin'

7. Macropinocytosis (giant cell absorption): A path in which cells mainly absorb proteins or cell debris

8. Direct Membrane Fusion: Path in which exosome membrane and cell membrane are fused and incorporated







Exosome's Size

Average size of about **111.1** times smaller than cell size

If the pore average is now 50,000 nm,

Pores are 184 to 462 times larger than exosomes (In case of size 108.3nm)

Lipo Exosome Excellent Pack

Peel Off Mask for Glow and Full Nutrition

A peel-off pack that contains Silk Water, PDRN (Sodium DNA), and Exosomes (Leontopodium Alpinum Callus Culture Extract) to form a glow film, moisturize and soften dry skin.

• Silk Water

Silk is a fibrous protein, produced by insects belonging to the Lepidoptera order.

• Leontopodium Alpinum Callus Culture Extract(100ppm)

Good moisturizing power helps to keep the skin moist and helps to form the new skin layer.

• **Composition**

80g

Main Ingredients

Silk Water

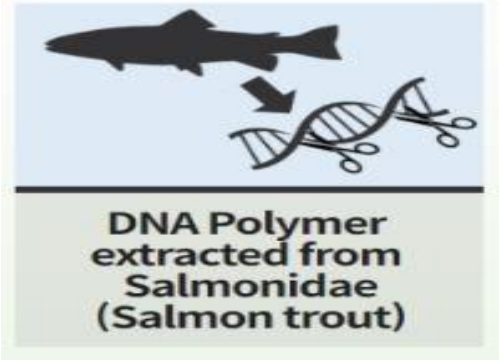
- Natural collagen boosting
- Ecological way to exfoliate
- Cleanse and Treat skin
- Plumps skin, leaving face luminous

Edelweiss Callus Culture Extract

- Skin whitening effect
- Skin soothing and protective effect
- Skin aging prevention
- Skin trouble relief

Centella Asiatica Callus Extracellular Vesicles

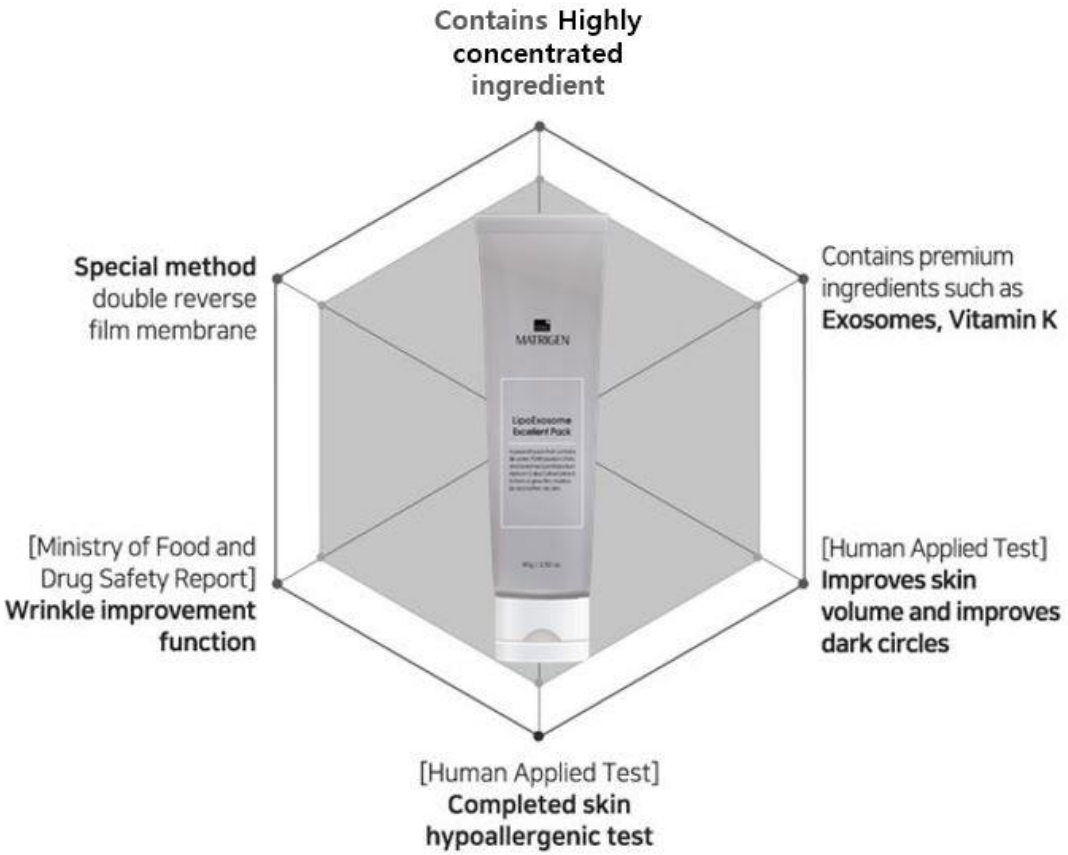
- Anti-inflammatory effect that reduces the amount of inflammatory cytokines
- Inhibiting pigmentation
- A quick cure for a small wound
- Skin soothing



PDRN

- Wound recovery and regeneration effect
- Helps to make the skin firm
- Promotion of collagen synthesis
- Proliferation of skin cell activity

Key Point



When first applied, it is a white, opaque content,

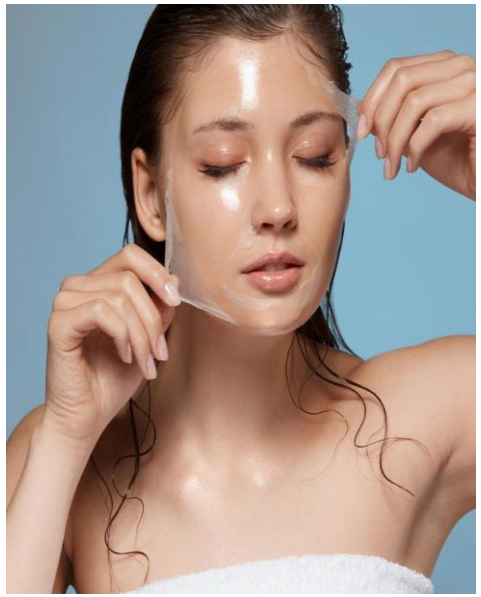
but as it dries over time,

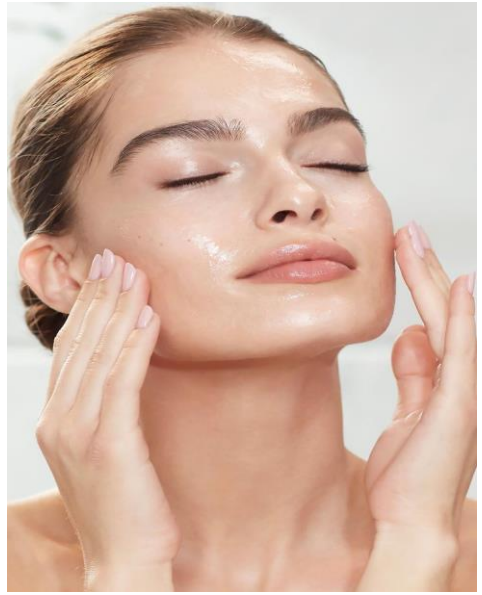
it becomes transparent and adheres to the skin,

and when removed after the active ingredients are completely absorbed,

a non-sticky, moisturizing radiant film is formed.

How to Use





1. After washing your face, cleanse your skin with toner and squeeze or press the tube before apply the product to face.

2. Wait until the content turns into a membrane. (In general, it takes about 30-40 minutes to form a film.)

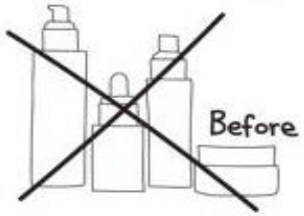
* Formation time may vary depending on skin condition and humidity, and also how many volume you applies.

3. After removing the membrane, tap the remaining contents on the skin for absorption.

Notice for Use

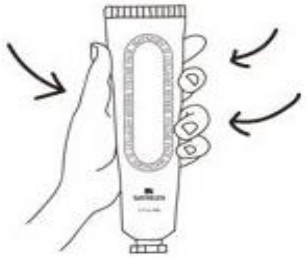
Tips 1

It is better to use it right after washing your face and not to apply other cosmetics before using it.



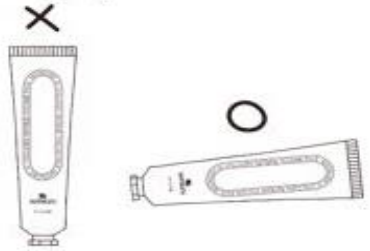
Tips 2

It is good to rub the tube gently before use.



Tips 3

For long-term storage, please lie down instead of standing up.



Thank you

MESOPHARM