BioAuthentic Exosome FAQs

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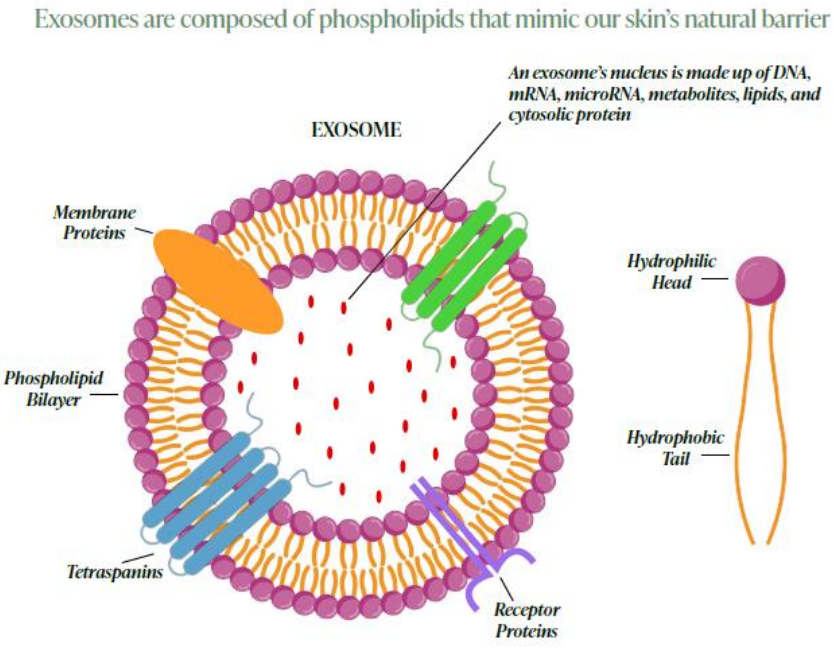
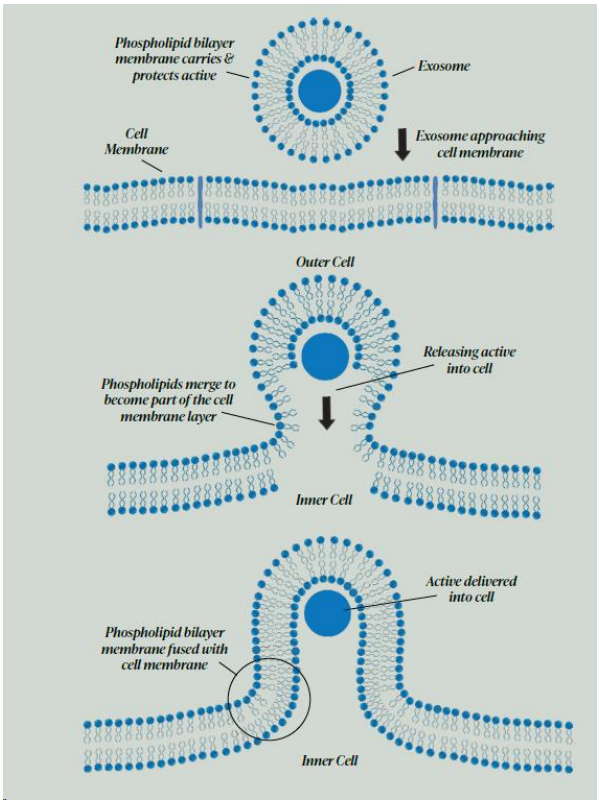
1. What is an exosome?

Exosomes are the smallest forms of extracellular vesicles and are natural, membrane-derived particles. Essentially, a vesicle acts as a delivery system to ensure enhanced delivery of cargo, or in the personal care space, enhanced delivery of an active to intended cells. Exosomes are composed of a phospholipid bilayer with membrane-embedded proteins for enhanced stabilization and can increase cell-to-cell contact through intracellular communication.



2. How do exosomes work?

The exosome fuses to the skin barrier. This enables the encapsulated active to be released into the skin.



3. Why are consumers interested in exosomes?
Currently, exosomes are mainly in the pharmaceutical space and are being used in modern medical treatments for the repair and regeneration of skin tissue. With such positive research in the medical field, there is interest in bringing over exosomes into the cosmetic and personal care space. Not only are exosomes technologically advanced, we have the endless ability to innovate with these vesicles and make them completely customizable by loading them with specific actives for desired benefits. Additionally, because exosomes are an effective delivery system, the intended benefits of products are experienced at a much higher level than they would be alone. Exosomes in the personal care space allow brands to obtain high-level technology, increased benefits, and market differentiation.

4. What is the difference between our BioAuthentic Exosomes and exosomes in the pharmaceutical industry?
Exosomes in the pharmaceutical industry are derived from human or animal stem cells and are only targeted towards skin regeneration. The manufacturer looked at how nature does delivery and created BioAuthentic Exosomes. Ours are all natural vesicles that are functionally identical to traditional exosomes but are extracted from botanical sources and target a multitude of specific benefits. Because our exosomes are completely derived from botanical sources, we are able to provide complete transparency of sustainability practices, ethical trade, and community welfare, rather than using animal or human derived sourcing. To stay competitive in this ever-changing industry, we also created different exosomes based on desired benefits, allowing for brand differentiation while also still having innovative technology.

5. Why did we choose these specific botanicals (watermelon, grapefruit, apples, bitter melon) for our first BioAuthentic Exosomes?
Each botanical had specific phytochemicals we wanted to incorporate because of their known benefits. Watermelon and grapefruit extracts are used in FSS ExoVitalize because these fruits contain essential amino acids that are the precursors for glycolysis and oxidative phosphorylation (two processes that produce energy, or ATP, in the skin). By pushing forward these cellular reactions, our skin can capitalize on that increased energy production to wake up our skin on a cellular level and provide a more uplifted appearance. Apple extract is used in FSS ExoTone because apples are a known source of alpha-hydroxy acids, a chemical exfoliant that will buffer away dead skin cells leaving behind a more even skin tone. We wanted this ingredient to improve hyperpigmentation. Lastly, bitter melon extract is used in FSS ExoRestore because bitter melon is known to contain prebiotics. Based off of third-party research, topically applying prebiotics to the skin triggers an immune response and increases the process of wound healing and skin barrier restoration.

6. What is a brief history of delivery systems?
Liposomes were discovered in the 1960s by Alec D Bangham at the Babraham Institute, University of Cambridge. Liposomes consist of lipid bilayers encapsulating an aqueous compartment and are between 50 and 450nm in particle size. Since their discovery, liposomes are an almost ideal drug-carrier system since their morphology is similar to cellular membranes and they can incorporate a wide range of substances. Several biomedical applications of liposomes have been used.

Niosomes, first reported in the 1070s by researchers in the cosmetic industry, are self-assembled non-ionic surfactant vesicles. They are formed upon combining non-ionic surfactants of the alkyl or dialkyl polyglycerol ether class with cholesterol. While niosomes are also used in therapeutic drug delivery, liposomes have a higher concentration of cholesterol than niosomes. Because of this, liposomes drug entrapment efficiency is lesser than niosomes.

Lastly, in the early 1980s, two seminal and complementary papers published by the Johnstone and Stahl laboratories made a case for the release of intraluminal vesicles from the cell and defined them as exosomes. This paper revealed the existence of a novel intracellular sorting and trafficking pathway, now referred to as the exosome secretion pathway. These early studies created the foundation of interest that followed over the years and the massive expansion of extracellular vesicles began. Now, traditionally in the medical field, delivery systems are paving their way in the personal care industry.

References:
1. Bozzuto G, Molinari A. Liposomes as nanomedical devices. Int J Nanomedicine. 2015 Feb 2;10:975-99. doi: 10.2147/IJN.S68861. PMID: 25678787; PMCID: PMC4324542.
2. Kazi KM, Mandal AS, Biswas N, Guha A, Chatterjee S, Behera M, Kuotsu K. Niosome: A future of targeted drug delivery systems. J Adv Pharm Technol Res. 2010 Oct;1(4):374-80. doi: 10.4103/0110-5558.76435. PMID: 22247876; PMCID: PMC3255404.
3. Couch Y, Buzàs EI, Di Vizio D, Gho YS, Harrison P, Hill AF, Lötvall J, Raposo G, Stahl PD, Théry C, Witwer KW, Carter DRF. A brief history of nearly EV-erything - The rise and rise of extracellular vesicles. J Extracell Vesicles. 2021 Dec;10(14):e12144. doi: 10.1002/jev2.12144. PMID: 34919343; PMCID: PMC8681215.

7. What distinguishes an exosome from a liposome?
   Exosomes are much smaller than liposomes and have membrane-bound proteins. Liposomes are bigger in particle size and do not have membrane-bound proteins. Exosome particle sizes are between 40 – 100nm, while liposome particle sizes are between 50 – 450nm.