

Lyophilized Versus Non-Lyophilized Exosomes: Why The Difference Matters For Regenerative Aesthetics

Roger Schechter, M.D. Discusses How Lyophilization (Freeze Drying) Impacts Exosomes

DOYLESTOWN, PA, USA, May 25, 2023 /EINPresswire.com/ -- With the growing popularity of exosomes used for regenerative aesthetics, it is important to identify the key differences between

the various products available, many of which are lyophilized or what is essentially freeze dried. Dr. Roger Schechter, Chief Medical Officer at [ExoCel Bio™](#), explains how non-lyophilized (in frozen suspension) exosomes are superior to lyophilized products, and how freeze drying can disrupt exosomes.

“Lyophilization is used for long-term preservation of water-containing substances such as the cells or tissues of plants or animals as well as foods,” explains Dr. Schechter. “The lipid bilayer membranes that surround cells or exosomes are extremely fragile, and lyophilization disrupts their integrity. The resultant lysis of lyophilized exosomes’ membranes leads to spilling of their payload of cell-signaling molecules upon reconstitution with water. This leaves the peptide cytokines and RNA molecules, previously enveloped by the bilayer membranes, susceptible to nearly instantaneous degradation by naturally occurring enzymes present on the skin.”

The drawbacks to lyophilized exosomes include:

- Sterile diluent required for reconstitution & provide a functional lifespan of about one hour, also requiring multiple time-consuming preparatory steps, to be performed by the Aesthetic Medicine providers, increasing the potential for error or contamination
- Chemical cryoprotectant stabilizers may have adverse effects on skin or other tissues
- Numerous freezing and drying cycles damage exosomes and disrupt their essential membrane envelopes
- Usually derived from adipose Mesenchymal Stem Cells with inferior regenerative effects
- Lyophilized exosomes have not reported any scientific test results to demonstrate that reconstituted exosomes remain intact, sufficiently to contain their payload of cytokines, mRNA and miRNA



“Intact non-lyophilized exosomes exert their regenerative effect via absorption by target cells; their membranes enveloping the cell-signaling molecules until absorbed, to protect them from enzymatic inactivation,” continues Dr. Schechter. “While lyophilization permits shipping and storage at room temperature, making them somewhat less expensive, they are stabilized with chemicals that can be deleterious to tissue. The major concern, is that the functionality of lyophilized exosomes is largely inactivated by the rupture of their membranes, rendering them substantially degraded or even completely useless for topical use in Regenerative Aesthetic Medicine. Only non-lyophilized exosomes, passively thawed from frozen suspension, ensure the effective delivery of their payload of regenerative cell-signaling molecules into the target cells.”

ExoCel Bio™ is the premier manufacturer of fully-lab tested, guaranteed concentrations of non-lyophilized, 100% pure exosomes derived from robustly regenerative Placental Mesenchymal Stem Cells. [Exovex™](#) exosomes contain a potent blend of precision growth factors, peptides, cytokines, and mRNA that target damaged skin and hair follicle cells, which via topical application facilitate the cellular repair and revitalization. Exovex™ can help increase the production of elastin by 300%, and collagen by 600%.

Exovex™ is currently deployed to over 500 providers. To learn more, or find a provider, visit www.exocelbio.com

About ExoCel Bio™ :

Leveraging nanoparticle technology, Exocel Bio™ has dedicated years of research to develop innovative, natural products that contain exosomes to deliver the highest performing topical serums on the market. Exovex™ products are designed to be applied to the skin in conjunction with facial, microneedling, energy based aesthetic devices, and other medical grade skin treatments, to accelerate recovery time and enhance treatment results. Exovex™ acts synergistically with medical aesthetic interventions to help alleviate skin discoloration, enhance tone and texture, as well as reducing fine lines. To learn more visit www.exocelbio.com

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