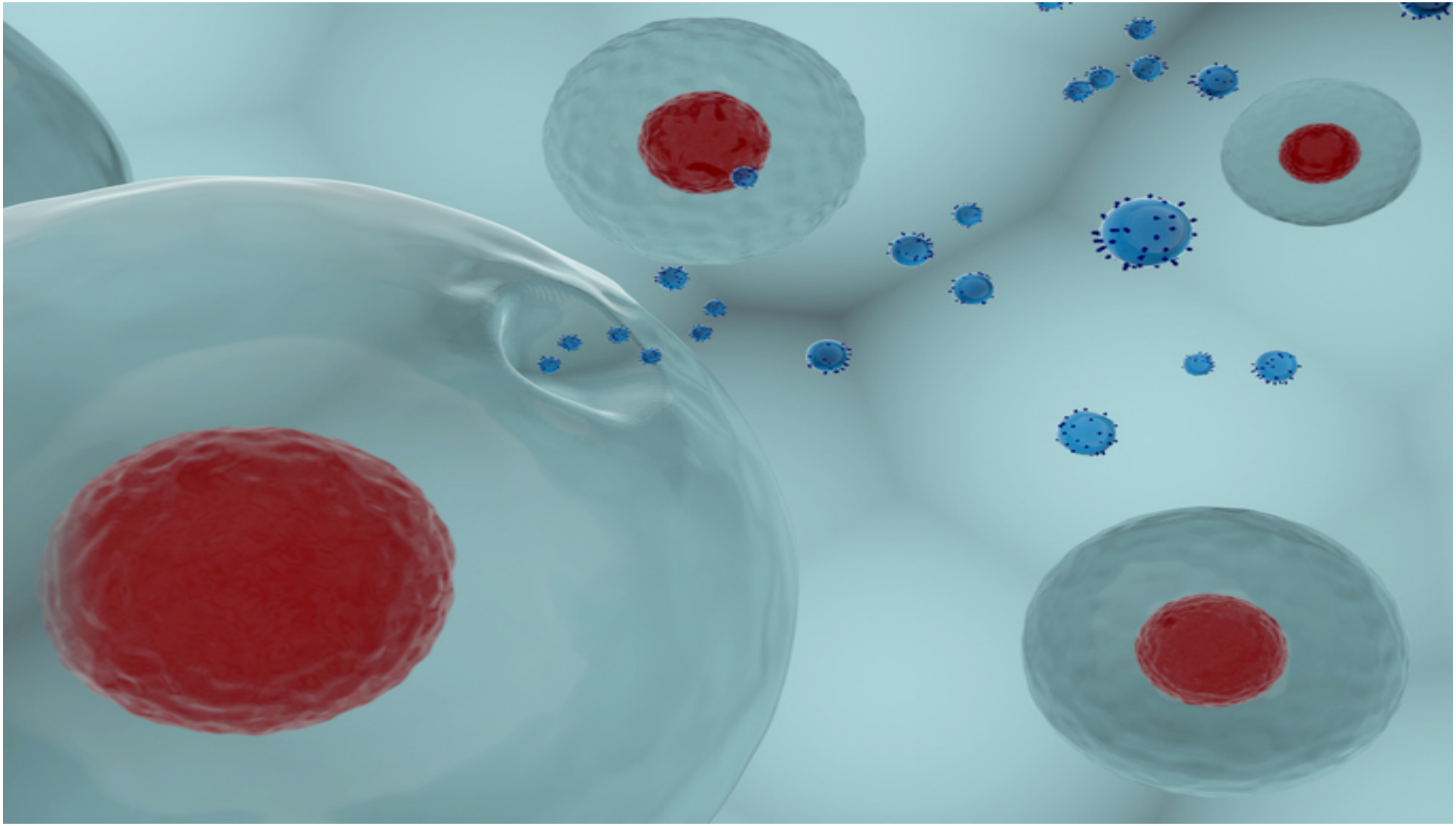
Exosome Therapy



EXOSOMES

Powerful regenerative messages in extremely small package released from stem cells

What are Exosomes?

Exosomes are nano-scale extracellular vesicles (about one thousandth the size of a cell) - which are very small packages of signaling information. These exosome vesicles are like tiny bubbles filled with genetic information, proteins, cytokines, growth factors and messenger RNA that are released from cells in response to injury, inflammation and other disease processes like autoimmune disorders. As we age, the number and function of the Mesenchymal stem cells (MSC's) in our tissues declines sharply. Our own aged progenitor cells in our body only produce about 30% of the cytokines and necessary growth factors compared with the young peri-natal Mesenchymal Stem cells (MSC's). This substantial difference in the secretion of Exosomes from young peri-natal Mesenchymal Stem cells (MSC's) offers a significant advantage over stem cells exosomes procured from the blood or tissue from your body.

At ReNUMD, our therapies use Exosome stem cells derived from the peri-natal Mesenchymal Stem cells (MSC's) that contain billions of growth factors that can enhance the coordinated cascade of cellular and biochemical events involved in natural healing of injured tissues, healing, and skin rejuvenation/regeneration. Exosomes are protected from degradation by a liposomal membrane until they are delivered to the target cell.

Benefits of Exosome treatments:

- Accelerate healing, tissue repair and reduce recovery time
- Regenerate collagen in aging and damaged skin
- Reduce inflammation.
- Stimulate hair growth
- Promotes cell repair and growth
- Immune Modulation
- Cell Regeneration including neurons
- Improve Cell-to-Cell Signaling

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Does the cell type of the Exosome matter?

Yes, there are 3 types of exosome stem cells based on where they come from.... Amniotic fluid, Bone marrow (Hematopoietic), and connective tissue (Mesenchymal).
Mesenchymal stem cell (**MSC**) exosomes are unique type of exosomes that are produced by stem cells of the connective tissue lineage - the origin of skin, hair, bone, muscle, cartilage etc. **MSC exosomes** are very different than exosomes found an adult bone marrow, which has a preponderance of hematopoietic stem cell exosomes, or amniotic fluid, which has primarily maternal epithelial cell exosomes. The distinct ability of MSC exosomes to induce connective tissue synthesis may be the basis of many of the remarkable clinical benefits that have become observed with stem cell therapy.

How does XoGlo MSC exosomes compare to amniotic fluid?

Both are per-natal (young) cell lines, but Amniotic fluid has a significantly different protein profile than XoGlo and it lacks key proteins like TGF-B3, which is an important modulator of inflammation and immune function. Also, the exosomes in amniotic fluid are derived from maternal epithelial cells not the mesenchymal stem cell origin so they do not have as many growth factors as the MSC's.

How does XoGlo MSC exosomes compare to bone-marrow derived exosome products?

Bone-marrow derived exosomes originate primarily from hematopoietic stem cells (HSC's) rather than mesenchymal stem cells, which are the source of the exosomes in XoGlo. These HSCs are progenitor cells of the blood cell lineages, not the connective tissue lineages, and so their exosomal cargo is much different than that of MSC exosomes. The very low numbers of MSC's that are present in adult bone marrow also differ significantly from peri natal MSC's in their exosome production.

How does XoGlo MSC exosomes compare to umbilical cord blood and Wharton's jelly?

After being frozen for storage, the number of viable cells in these stem cell products is very low. Also, any viable allogeneic cells only survive for a few very short period time, during which they act by releasing exosomes, meaning that the effects of these products are dependent on the growth factors and a low concentration of exosomes present. XoGlo has billions of peri-natal MSC exosomes, and these exosomes remain viable after frozen storage. Also, unlike XoGlo, the growth factors in these products are not protected from degradation by a liposomal membrane.

How is the therapy performed?

- Exosomes are administered as an IV infusion for systemic illness, neuro-regeneration, degenerative diseases, and autoimmune disorders. Exosomes can also be administered directly into areas around soft tissue injury.
- IV Exosome treatment we administer a **NAD+** boost to optimize the cell function.

What can I expect after procedure?

- Although rare, you may have local pain, rash, nausea, or mild fever. Some patients may have Beandryl prior to Exosomes for sensitive patients. Usually, patients do not feel anything after IV infusion. Above symptoms will be resolved in 1-2 days.

When can I resume physical activities?

To obtain optimal response from Exosome therapy, the recommendations are as following:

- No NSAIDS before and after Exosome therapy
- No over strenuous activity for the first 24-48 hours

IS Exosomes therapy safer than stem cells?

- Both are safe procedures, but stem cells cannot be used for IV infusion without proper process.
- Exosomes derived from stem cells are not proliferative, no chance to become tumor like stem cells do.

- Viral reaction and body rejection are extremely unlikely, Exosomes are too small molecular, they are not cells or tissue, could not cause immune response but immune modulation.
- Do exosomes have the potential to cause cancer or tumors like stem cells? No, as they are NOT embryonic stem cells. Exosomes do not multiply. Exosomes transfer valuable biological signals to the recipient's tissues and facilitate the normalization of various pathological processes.

Does Exosomes therapy need to be repeated?

- In some case a follow-up treatment may be advised. There is no sustainable data about standard dosing and the treatment is as individual as the response. Some patients may need a single application, while others need multiple doses or a small booster therapy. In some cases, therapy may start with a small initial dose which is increased over time.

How long do Exosomes work in the body? What is the timeline?

- Exosomes triggers a bi-phasic response, immediate reaction in 24 hours, then messenger RNAs that inserted into target cells to help reprogram the cells which usually takes 6-8 weeks. The continued effect may continue for months after infusion or injection. Thus, a patient who received Exosome therapy should wait at least 8 weeks before deciding if another treatment is needed.

SCHEDULE A CONSULTATION

XoGlo®

At ReNUMD we only use **XoGlo®** Exosomes from Kimera labs.

XoGlo® is a purified mesenchymal stem cell (MSC)- derived exosome product that contains a multitude of growth factors that can enhance the coordinated cascade of cellular and biochemical events involved in natural healing and skin rejuvenation/regeneration.

The physiologic effects of the exosomal growth factors in **XoGlo®** can be used to stimulate the healing, regenerate collagen in aging and damaged skin, and reduce inflammation. **XoGlo®** has the potential to accelerate healing, improve skin texture, reduce scarring stimulate hair growth, and shorten recovery time after cosmetic procedures. **XoGlo®** is a cell-free isolate of MSC exosomes from a single donor. This concentrated biologic product is sterile – filtered and each millilitre of **XoGlo®** contains 1 billion MSC exosomes.