

Chara Biologics Stem Cells

Chara regenerative medicine products are:

- Comprehensive: derived from umbilical cord tissue, cord blood and amniotic membrane
- Highly rich in mesenchymal stem cells (MSCs), which are known for their **anti-inflammatory, immunomodulatory, anti-microbial, anti-apoptotic, revascularization** properties.
- With maximal preservation of the extracellular matrix and cytokines/growth factors that are crucial for tissue repair & regeneration



Umbilical cord-derived stem cells have a well-established safety record, require **no HLA matching**, and have a history of robust clinical research demonstrating benefits.

Umbilical cord-derived stem cells have significant **advantages** over autologous stem cells:

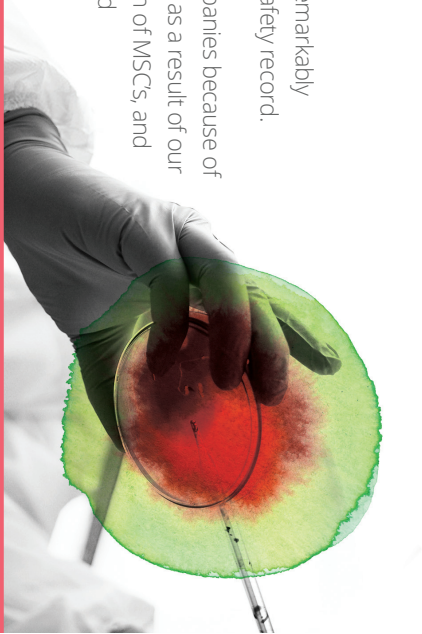
- Younger, robust, more potent
- Higher self-renewal capacity
- More efficient differentiation
- Higher growth factor production
- Stronger anti-inflammatory effects
- More neuroprotective effects

This makes Chara regenerative medicine products (CharaCore & CharaFlex) a preferred choice to be at the forefront of **regenerative medicine**.

We're the cutting edge of stem cell therapy.

Umbilical cord-derived stem cells offer the best of both worlds: remarkably powerful cells due to their young age, and a history of excellent safety record.

Chara Biologics is unique from other regenerative medicine companies because of the quality and capabilities of its regenerative medicine products, as a result of our comprehensive isolation method of stem cells, high concentration of MSCs, and the rich cytokines/growth factors from cord blood, cord tissue and amniotic membrane.



Stem Cell Sources and Pros & Cons

	Umbilical Cord	Amniotic	Autologous (Adipose Vs. Bone Marrow)
Stem Cell Type	MSC & HSC	MSC & Epithelial derived (no CD34 cells)	MSC Vs. MSC & HSC
Concentration	Customizable for precise individual applications (10 million/cc CharaFlex, 30 million/cc CharaCore)	Few live stem cells	1 to 30 million/cc (dependent on patient age, health, equipment and operator skills)
Quality of Cells	Young / robust / contains unique healing factors	Young / larger proportion of cellular debris /approved wound healing product	Patient-dependent upon age and health (cell quality declines from advancing age & disease state)
Adverse Reaction	Minimal	Minimal	Pain, risk of infection, and other risks associated with surgical procedures
Consistency of Results	Consistent (based on quality of cells, concentration, growth factors & matrix)	Consistent (based on concentration, growth factors & matrix)	Variable (operator-dependent, patient age and health-dependent)
Ease of Use	Thaw and infuse / inject	Thaw and infuse / inject	Surgical procedure and processing
Time In Office	60 minutes	60 minutes	3-5 hours

Note: Chara's representations concerning FDA compliance relate strictly to the sourcing of stem cells and not to the FDA approval status, safety risks, or effectiveness of particular treatments. Patients are encouraged to discuss with their physicians any questions about the particular use of stem cells in treatments which may be investigational and/or unapproved. In addition, Chara makes no representation concerning the limitations imposed by state or foreign regulations of stem cell treatment, and all representations by Chara are void in jurisdictions that prohibit the use of stem cells.