

## Demystifying regenerative medicine products

It is important for providers considering regenerative medicine to understand the differences between tissue sources. What are the key components of each tissue? What products are derived from those tissues? What do those products contain and, as importantly, what don't they contain?

Tissue Source	PHARMA	PERIPHERAL BLOOD	PLACENTA	PLACENTA	PLACENTA	UMBILICAL CORD	UMBILICAL CORD	BONE MARROW	ADIPOSE
Product	Steroid, NSAID Synthetic HA	Platelet Rich Plasma (PRP)	Amniotic Fluid	Amniotic Matrix	Amniotic Membrane	Umbilical Cord Blood	Umbilical Cord Matrix	Bone Marrow Aspirate	Lipoaspirate
<b>Autologous (from you)</b>		✓						✓	✓
<b>Allogeneic (from others)</b>			✓	✓	✓	✓	✓		
<b>Biologically Young Source</b>			✓	✓	✓	✓	✓		
<b>Mesenchymal Stromal Cells (MSCs)</b>							✓	✓	✓
<b>Exosomes - naturally occurring</b>		✓	✓	✓	✓	✓	✓	✓	✓
<b>General Cytokines</b>	●	●	●●	●	●	●	●●●	●	●
<b>Growth Factor Cytokines</b>		●●●	●	●	●	●	●●●	●●●	●
<b>Homeostatic Cytokines</b>		●●●	●●	●●●	●	●	●●●	●●●	●●●
<b>Scaffolding Proteins</b>				●●●	●●●		●		
<b>Hyaluronic Acid (HA)</b>	●●●		●	●	●		●●		
<b>Viable MSCs</b>							●●●	●	●●

### Platelet Rich Plasma

- ▶ Blood is drawn from the patient
- ▶ Blood is centrifuged to separate the platelets and growth factors
- ▶ Concentrated platelets and growth factors are injected into the patient

### Umbilical Cord Blood

- ▶ Blood is extracted from birth tissue
- ▶ Blood is centrifuged to isolate hematopoietic stem cells (HSCs)
- ▶ Concentration is injected into the patient

### Umbilical Cord Matrix

- ▶ The **Wharton's jelly** of the umbilical cord is extracted and processed to yield a high concentration of cytokines, growth factors, hyaluronic acid and MSCs
- ▶ Allograft is injected into the patient

### Bone Marrow Aspirate

- ▶ Bone marrow is extracted from the iliac crest
- ▶ Bone marrow is centrifuged to isolate MSCs
- ▶ Concentrated fluid is injected into the patient

### Lipoaspirate

- ▶ Fat tissue is removed using liposuction
- ▶ Adipose is centrifuged to isolate MSCs
- ▶ Concentrated fluid is injected into the patient

• Number of dots reflect relative factor amounts as compared to other tissue types. All data represented on this grid is informed by either or all available literature, external validation and internal testing. Empty data fields indicate quantities either found in trace amounts, or quantities not specified in literature.  
 • Citations and references on file with Predictive Biotech.

✓ - yes  
 ● - indicates lowest concentration  
 ●● - indicates medium concentration  
 ●●● - indicates highest concentration