



SURGENEX[®]

Pioneering the Future Today

DECODING

AMNIOTIC MEMBRANE

BENEFITS OF AMNIOTIC MEMBRANE

- ✓ *Reduces Pain & Inflammation*
- ✓ *Promotes Soft Tissue Growth*
- ✓ *Minimizes Scar Tissue*
- ✓ *Immune-Evasive*

AMNIOTIC MEMBRANE PROPERTIES

The amniotic membrane actively participates inside the *in utero* environment to protect, cushion, and dynamically interact with the amniotic fluid to support fetal development. With a thickness ranging from 0.02-0.05 mm it is almost transparent. The amniotic membrane is the innermost layer of the placental membranes, and consists of two different cell populations: amnion epithelial cells, and amnion mesenchymal cells. These cells produce biological factors and mediators that contribute to its therapeutic benefits. When implanted, the amniotic membrane can provide anti-bacterial, antiviral, anti-inflammatory, anti-fibrotic, anti-angiogenic, pro-apoptotic, pro-epithelialization and analgesic properties. Aside from these properties, the membrane can also serve as a scaffold and substrate for the migration, adhesion, and growth of resident cells and thus find widespread applications in regenerative medicine, cellular therapy and tissue engineering.¹

REDUCES PAIN & INFLAMMATION

Amniotic membrane contains heavy chain-hyaluronic acid which research has found to possess anti-inflammatory properties which promote wound healing.² Tissue Inhibitors of Metalloproteases are also found in amniotic membrane (internal data) and further assist in preventing and reducing inflammation and pain.

MINIMIZES SCAR TISSUE

Amniotic membrane naturally blocks the TGF- β receptor responsible for scar tissue development.³ This action dramatically reduces scar tissue formation while promoting healthy tissue growth.

HISTORY OF AMNIOTIC MEMBRANE

Amniotic membrane's first documented use was in skin transplantation over a century ago at the John Hopkins Hospital¹³, since then it has been used in a wide variety of treatments including burns, ophthalmic surgery, wound care, and soft tissue damage.

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PROMOTES SOFT TISSUE GROWTH

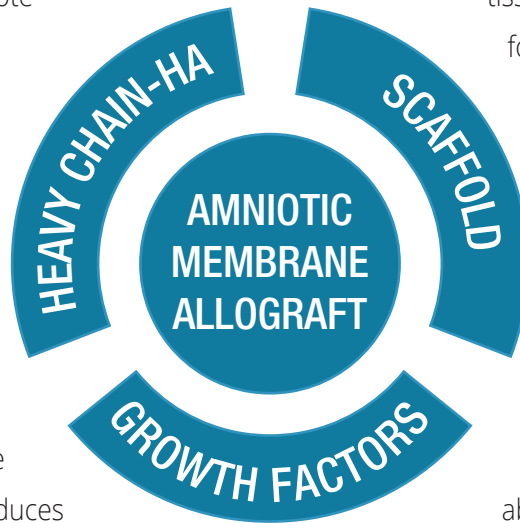
Amniotic membrane contains bFGF, PDGF, VEGF, and HGF among other vital agents to enhance granulation tissue thickness, epithelialization, and capillary formation. These natural cytokines stimulate growth to repair and restore soft tissue.^{4,14}

IMMUNE-EVASIVE

Amniotic Membrane constitutively expresses HLA-G, which gives it the unique ability to avoid triggering immune responses. This HLA-G expression gives amniotic membrane the opportunity to graft damaged tissue areas without an immune response.⁵

POTENTIAL TREATMENTS

- Diabetic Wound Care⁶
- Burns and Grafts⁷
- Osteoarthritis⁸
- Sports Medicine¹⁰
- Soft Tissue Damage⁹
- Tendon Repair⁹
- Plantar Fasciitis¹¹
- Ophthalmic Surgery¹²



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