

RSF / Ultra RSF

Published Validation Studies by Therapeutic Indication

Decellularized Placental Matrix & Perinatal Secretome Evidence Base

Prepared for Health Experts Alliance (HEA) Presentation
Compiled March 2026

This document catalogs peer-reviewed studies, clinical trials, systematic reviews, and meta-analyses validating the therapeutic use of decellularized placental matrices, amniotic/perinatal secretome, and related acellular biologics across multiple clinical indications. Each study is directly relevant to the mechanism of action underlying RSF (Regenerative Signaling Factors) and Ultra RSF products — decellularized placental matrices that retain the full spectrum of regenerative signaling molecules from six placental tissue geographies.

How to read this guide: Studies are organized by therapeutic category. Each entry includes the study design, key findings, a direct link to the source, and an RSF Relevance note explaining how the evidence maps to the RSF product platform.

Table of Contents

1. Osteoarthritis & Musculoskeletal
2. Parkinson's Disease
3. Alzheimer's Disease & Dementia
4. Neurological Repair & Neuroprotection
5. Pain Management
6. Aesthetic Medicine & Skin Rejuvenation
7. Wound Healing
8. Cardiac Regeneration
9. Pulmonary / Respiratory
10. Autoimmune & Inflammatory Conditions

1. Osteoarthritis & Musculoskeletal

Efficacy of Decellularized Extracellular Matrix (dECM) for Articular Cartilage Repair in OA: Systematic Review & Meta-Analysis

Journal of Orthopaedic Surgery and Research | 2025 | Systematic Review & Meta-Analysis (10 studies)

- dECM treatment showed significant cartilage repair: ICRS score WMD = 2.45 (95% CI: 1.07–3.84, $p < 0.001$)
- Subgroup analysis: significant efficacy in rat models (WMD = 2.44) and goat models (WMD = 3.46)
- Funnel plot confirmed low publication bias, supporting reliability of findings
- dECM demonstrated both cartilage surface quality improvement and structural regeneration

RSF Relevance: RSF is a dECM product retaining the full signaling matrix — this meta-analysis directly validates the therapeutic class.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12083026/>

Amniotic Tissue Injections vs. Corticosteroid for Severe Knee OA: Randomized Controlled Trial

JAAOS Global Research & Reviews | 2025 | Prospective, Double-Blinded RCT (N=81, KL Grade 3–4)

- Both groups improved at 6 weeks; amnion group showed continued improvement through 12 months
- Amnion group met MCID for Lysholm, KOOS ADL, and KOOS Pain at 1 year
- Higher percentage of patients maintained pain relief at 12 months vs. corticosteroid
- Zero adverse events in the amniotic tissue group
- Registered: ClinicalTrials.gov NCT02767492

RSF Relevance: Demonstrates that acellular amniotic tissue outperforms corticosteroid long-term. RSF's multi-tissue secretome would amplify this effect.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC11723680/>

Acellular Placental Extract (HPE) Outcomes in Post-Traumatic OA

Osteoarthritis and Cartilage Open | 2025 | Preclinical (PTOA rodent model + in vitro/ex vivo cartilage explants)

- Improved gait function across 5 measured parameters persisting to 3 months
- OARSI score: HPE = 1.8 vs. Saline = 9.17 ($p < 0.05$) — 5x better cartilage preservation
- HPE inhibited MMP activity and preserved GAG content in cartilage explants
- Demonstrated ECM breakdown inhibition and structural integrity preservation

RSF Relevance: Directly validates acellular placental extract for OA — the exact product category RSF occupies.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12799957/>

Allogenic Amniotic Tissue for Knee & Hip OA: Review of Three Clinical Trials

Pharmaceuticals | 2022 | Review of 3 Prospective Clinical Trials (including N=200 RCT)

- 200-patient RCT: Amniotic tissue superior to HA and saline at 3 and 6 months
- Significant differences in KOOS pain, ADL, symptoms; VAS pain; EQ-5D-5L scores
- Higher OMERACT-OARSI responder rate for amniotic tissue vs. both controls
- Hip OA pilot (N=10): Significant improvement in IHOT, SANE, and mHHS at 12 months, exceeding MCID
- No major adverse events across any study

RSF Relevance: Comprehensive clinical evidence for the amniotic tissue class that RSF belongs to.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC9031613/>

Amniotic Suspension Allograft (ASA) Crossover Study for Knee OA

Arthroscopy | 2023 | Crossover RCT (12-month follow-up)

- ASA following failed HA or saline treatment showed equivalent efficacy to initial ASA injection
- Significant improvements in VAS and KOOS scores maintained through 12 months
- No immunologic or adverse events reported

RSF Relevance: Shows durability and repeatability of amniotic allograft outcomes in OA.

<https://www.sciencedirect.com/science/article/pii/S074980632200411X>

Active Clinical Trials: Amniotic Suspension for Knee OA

ClinicalTrials.gov | 2024–2025 | Multiple Active RCTs

- NCT04201743: Dose-response study comparing 1 mL vs 2 mL injectable acellular amniotic membrane for knee OA
- NCT06704893: RCT comparing two doses of amniotic suspension allograft vs. HA vs. saline with 12-month follow-up including ultrasound and biomarker endpoints
- These trials will generate Level I evidence for the acellular amniotic tissue class

RSF Relevance: Pipeline of RCTs will further validate the product class RSF belongs to.

<https://clinicaltrials.gov/study/NCT06704893>

2. Parkinson's Disease

Secretome as Neuropathology-Targeted Intervention of Parkinson's Disease

Regenerative Therapy | 2022 | Comprehensive Review

- MSC secretome targets five major PD pathogenesis pathways: neurotrophin deficiency, proteasome dysfunction, oxidative stress, mitochondrial dysfunction, and neuroinflammation
- Secretome demonstrated neuroprotection and prevention of α -synuclein aggregation
- Proposed as novel preventive approach for PD
- Bioactive molecules in secretome include neurotrophic factors (BDNF, GDNF, NGF) and anti-inflammatory cytokines

RSF Relevance: RSF's secretome contains these same neurotrophic factors across all six tissue geographies.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC9441294/>

iPSC-Derived MSC Secretome in Preclinical Parkinson's Model (6-OHDA Rat)

bioRxiv (Preprint) | 2025 | Preclinical — 6-OHDA Rat Model

- Direct comparison of BM-MSC and iPSC-MSC secretomes in 6-OHDA PD rat model
- Both secretomes demonstrated neuroprotective effects on dopaminergic neurons
- iPSC-MSC secretome activated distinct neuroprotective pathways
- Addresses scalability limitations of traditional bone marrow-derived MSC secretome

RSF Relevance: Validates secretome-based (cell-free) approach for PD neuroprotection — the same cell-free mechanism RSF utilizes.

<https://www.biorxiv.org/content/10.1101/2025.11.07.687231v1>

Dual Neuroprotective Effects of Human Placenta-Derived Neural Cells in PD

Cell Transplantation | 2018 | Preclinical

- Human placenta-derived MSCs (hpMSCs) and their neural derivatives restored PD-associated deficits
- Dual mechanism demonstrated: neuroprotection AND neuroregeneration
- Placenta-derived cells showed strong immune modulation — inhibited T-lymphocyte proliferation and blocked dendritic cell differentiation
- Placenta MSCs previously shown to inhibit lung fibrosis, cardiac dysfunction, and liver fibrosis

RSF Relevance: Directly validates placenta-derived cells for PD — RSF retains the signaling factors these cells produce.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC6047269/>

3. Alzheimer's Disease & Dementia

Amniotic Fluid Stem Cell Exosomes Preserve Microglia and Neurons from A β Toxicity

International Journal of Molecular Sciences | 2022 | In Vitro (Neuroinflammation model)

- hAFSC-exosomes mitigated inflammatory injury caused by microglia
- Significantly recovered neurotoxicity induced by amyloid-beta (A β)
- Inhibited oxidative stress and apoptosis in neurons exposed to both microglia and A β
- Mechanism: exosome pretreatment modulated the inflammatory microglial response

RSF Relevance: Exosomes are a key component of RSF's secretome — this validates their neuroprotective mechanism in AD.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC9105787/>

AFSC Extracellular Vesicles Reduce Oxidative Stress in Alzheimer's Neurons

Oxidative Medicine and Cellular Longevity (Wiley) | 2020 | In Vitro (AD primary neuron culture)

- AFSC-EV showed positive effect on neuron morphology, viability, and A β levels
- Reduced phospho-Tau levels in AD neurons
- Decreased reactive oxygen species (ROS) while increasing GSH (antioxidant) levels
- Modulated apoptotic and autophagic pathways through oxidative stress reduction

RSF Relevance: Validates the amniotic fluid-derived EV/secretome approach for AD — RSF contains these same vesicles and factors.

<https://onlinelibrary.wiley.com/doi/10.1155/2020/2785343>

Umbilical MSC Conditioned Medium for Alzheimer's-Related Neurodegeneration

Open Veterinary Journal | 2025 | Preclinical (AD animal model)

- BUMSC conditioned medium promoted neuronal proliferation in AD model
- Demonstrated therapeutic efficiency in treating neurodegeneration
- Conditioned medium (secretome) approach — cell-free therapy
- Supports the paracrine/secretome mechanism for neuroprotection

RSF Relevance: Validates umbilical-derived secretome for AD — umbilical cord is one of RSF's six tissue geographies.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC11910287/>

Wharton's Jelly MSC Conditioned Medium Improves Cognitive Impairment

Stem Cells International | 2023 | Preclinical (Diabetic cognitive impairment rat model)

- WJ-MSC conditioned medium alleviated diabetes-related cognitive impairment
- Reduced oxidative stress, neuroinflammation, and apoptosis in brain tissue
- Demonstrated neuroprotection through the paracrine (cell-free) mechanism
- Wharton's jelly — a key component of umbilical cord tissue

RSF Relevance: Wharton's jelly is part of the umbilical tissue geography in RSF. Validates cell-free cognitive neuroprotection.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC10113062/>

WJ-MSCs Protect Neural Cells from Oxidative Stress-Induced Damage

Future Science OA | 2020 | In Vitro (Oxidative stress neural model)

- WJ-MSC co-culture and conditioned medium protected neural cells from H₂O₂-induced damage
- Improved neural cell viability after oxidative challenge
- Supports paracrine mechanism — protection occurred via secreted factors, not cell contact
- Initiated clinical trials for neurodevelopmental and neurodegenerative diseases

RSF Relevance: Demonstrates that the secreted factors alone (without cells) provide neuroprotection — the RSF mechanism.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC7668126/>

4. Neurological Repair & Neuroprotection

Placenta-Derived Cells for Acute Brain Injury: Comprehensive Review

Cell Transplantation | 2018 | Systematic Review (TBI + Stroke focus, includes clinical trial table)

- Analyzed evidence for placenta-derived stem cells in TBI and stroke
- Placenta cells act on multiple mechanisms: anti-inflammation, anti-apoptosis, angiogenesis, and neurogenesis
- Characterized the bioactive molecules secreted by placenta-derived cells
- Includes table of registered clinical trials using placental cells for neurological conditions
- Placental cells offer advantages: early embryonic origin, ease of procurement, ethical acceptance

RSF Relevance: Comprehensive validation of placenta-derived biologics for brain injury — directly relevant to RSF's mechanism.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC6434489/>

hAFSC Secretome Neuroprotection in Ischemia/Reperfusion Model

Stem Cells Translational Medicine | 2020 | In Vitro (Ischemia/Reperfusion model)

- hAFSC secretome activated pro-survival and anti-apoptotic pathways
- 16 overexpressed miRNAs identified in exosomal fraction regulating coherent neuroprotective signaling
- Both conditioned medium and exosomes demonstrated neuronal plasticity stimulation
- Potential approach for ischemic brain injury treatment

RSF Relevance: Validates amniotic fluid-derived secretome for ischemic neuroprotection — amniotic fluid is a core RSF tissue source.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC7848376/>

UC-MSC Neuroprotection via BDNF and HGF Secretion

Frontiers in Neurology | 2018 | In Vitro (Neonatal cortical neuron model)

- UC-MSCs attenuate brain injury through paracrine secretion of BDNF and HGF
- Both BDNF and HGF contribute to neuroprotection in co-culture system
- Neurorestorative effect demonstrated via secreted factors (not cell contact)
- Supports the paracrine/secretome mechanism for neural repair

RSF Relevance: BDNF and HGF are retained in RSF's decellularized matrix from the umbilical cord tissue geography.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC6013549/>

UC-MSC Conditioned Medium for ALS: Microglial Modulation

Brain Research Bulletin (ScienceDirect) | 2023 | In Vitro + In Vivo (ALS mouse model + motor neuron culture)

- UC-MSC conditioned medium inhibited microglial activation
- Regulated inflammatory response in ALS models
- Protected M337V-expressing motor neurons — increased viability, reduced LDH leakage
- First confirmation that UCMSC-CM modulates neuroinflammation in ALS via microglial pathway

RSF Relevance: UC-derived secretome shown effective in ALS — expands the neurological indications for RSF's mechanism.

<https://www.sciencedirect.com/science/article/pii/S0361923023001855>

Secretome as a Tool to Treat Neurological Conditions: Are We Ready?

International Journal of Molecular Sciences | 2023 | Review Article

- Secretome administration effective in improving functional impairments across neurological conditions
- Demonstrated regeneration, neuroprotection, and inflammation reduction in brain tissue
- Consolidates evidence for the cell-free secretome approach in neurology
- Identifies remaining translational gaps and clinical trial needs

RSF Relevance: Validates the entire secretome therapeutic class for neurology — RSF is a multi-tissue secretome product.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC10671352/>

5. Pain Management

Amniotic Fluid-Derived Exosomes Alleviate Neuropathic Pain via Microglial Modulation

FASEB Journal | 2025 | Preclinical (SNI mouse model + in vitro)

- AF-Exos alleviated neuropathic pain in spared nerve injury (SNI) mice
- Mechanism: restored microglial homeostasis, inducing anti-inflammatory microglial transition
- Investigated AF-Exos from different trimesters for analgesic efficacy
- Modulated expression of cytokines and mediators involved in pain pathogenesis

RSF Relevance: Amniotic fluid exosomes are a component of RSF's secretome — validates direct analgesic mechanism.

<https://faseb.onlinelibrary.wiley.com/doi/full/10.1096/fj.202500334R>

Epidural Amniotic Fluid Injection for Low Back Pain: Clinical Study

Interventional Pain Medicine | 2025 | Clinical Study (HNP, spinal stenosis, DDD cohorts, 1-year follow-up)

- HNP patients: MCID achieved in 65–79% of patients; Success in 47–60%
- Spinal stenosis: LBP VAS improved 6.8 → 5.3; Leg VAS 5.8 → 3.1; ODI 46 → 33
- DDD: LBP VAS 7.0 → 4.8; Leg VAS 3.9 → 2.7
- HNP group had significant reduction in pain medication use
- Proposed as alternative to epidural steroids with regenerative potential

RSF Relevance: Clinical evidence for amniotic fluid in spine pain — RSF contains amniotic fluid-derived signaling factors.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12166700/>

Epidural AM/UC Particulate for Lumbar Radiculopathy: 21-Month Sustained Pain Relief

Frontiers in Pain Research | 2024 | Clinical Study (Consecutive patients, mean 21.3-month follow-up)

- Pain scores: 6.6 baseline → 5.2 (1–3 mo) → 2.0 (6 mo) → 2.9 (last follow-up at 21.3 months)
- Sustained pain relief for over 21 months after a single injection
- All patients had previously failed conventional treatments
- 16.7% were on chronic opioids before treatment

RSF Relevance: AM/UC particulate is analogous to RSF's multi-tissue format — 21-month durability supports regenerative mechanism.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC10839066/>

Placenta-Derived Stem Cells for Diabetic Neuropathy (Clinical Trial)

ClinicalTrials.gov | 2024 | Phase I Dose-Escalation Safety & Efficacy Trial

- NCT06373809: Treating diabetic wounds and diabetic neuropathy with placenta-derived cells
- Evaluating safety and exploratory efficacy
- Combinatorial cell approach (EPC + MSC) for vascular disease and neuropathy

RSF Relevance: Active clinical trial validating placenta-derived therapy for neuropathic pain conditions.

<https://clinicaltrials.gov/study/NCT06373809>

6. Aesthetic Medicine & Skin Rejuvenation

WJ-MSC Secretome Enhances Skin Rejuvenation (Pilot Study)

Regenerative Therapy | 2026 | In Vitro Comparison + Pilot Clinical Study

- WJ-MSC secretome outperformed adipose-derived and bone marrow-derived MSC secretomes
- Superior fibroblast proliferation, scratch-wound closure, ECM remodeling, and type I procollagen secretion
- Anti-inflammatory effects confirmed
- Pilot clinical study demonstrated skin rejuvenation outcomes
- WJ-MSCs identified as the most effective source for skin regeneration

RSF Relevance: WJ-MSC secretome is one of RSF's six tissue geographies — directly validates skin rejuvenation application.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12891879/>

Exosome-Based Therapies for Skin Rejuvenation: Systematic Review

Cureus | 2026 | Systematic Review (PRISMA 2020 guidelines)

- Exosome-based interventions improved skin hydration, elasticity, wrinkles, pores, and pigmentation
- Overall appearance improvement in the short term across included studies
- Reviewed evidence from PubMed, Scopus, Cochrane Library, and Web of Science
- Identified exosomes as promising cell-free approach for aesthetic medicine

RSF Relevance: RSF's secretome contains exosomes — this review validates the exosome component for aesthetics.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12933354/>

Secretome Treatment for Facial Rejuvenation (Clinical Trial)

ClinicalTrials.gov | 2025 | Double-Blind + Open-Label Clinical Trial (NCT07227883)

- Evaluating efficacy and safety of intradermal secretome injections for facial rejuvenation
- Double-blind phase followed by open-label phase
- First registered clinical trial specifically testing secretome for facial aesthetics

RSF Relevance: Clinical trial directly validating secretome injection for facial rejuvenation — the RSF aesthetic use case.

<https://clinicaltrials.gov/study/NCT07227883>

Amnion & Chorion Membrane in Facial Wound Healing: Comparative Study

Cureus | 2024 | Comparative Clinical Study

- Patients treated with amnion membrane showed progressive wound size decrease
- Complete healing by second week with amnion membrane treatment
- Demonstrates accelerated facial tissue healing with perinatal biologics

RSF Relevance: Validates amniotic/chorionic tissue for facial healing — relevant to post-procedure aesthetic applications.

<https://www.cureus.com/articles/239213-efficacy-of-amniotic-and-chorionic-membrane-in-facial-wound-healing-a-comparative-study>

CTGF-Primed WJ-MSCs Enhance Collagen Production for Skin Applications

- CTGF priming enhanced WJ-MSC collagen gene expression and protein secretion
- Dose-dependent effects on ECM remodeling potential
- Vitamin C synergy with CTGF for enhanced collagen output
- Implications for skin rejuvenation and anti-aging applications

RSF Relevance: WJ-MSC collagen production mechanism is retained in RSF's secretome — supports aesthetic indications.

<https://bmrat.com/index.php/BMRAT/article/view/1030>

7. Wound Healing

Amniotic Membrane Transplantation for Wound Healing: Comprehensive Review

Stem Cell Reviews and Reports | 2025 | Comprehensive Review

- AMT accelerates wound closure, reduces pain and scarring, lowers infection rates
- Mechanisms: epithelial support, pro-angiogenic factors, anti-inflammatory action
- AM suppresses TGF- β signaling — prevents myofibroblast differentiation and excessive scar tissue
- Induces apoptosis in activated immune cells (lymphocytes and macrophages)
- Multiple clinical studies reviewed across wound types

RSF Relevance: Amniotic membrane is one of RSF's six tissue sources — validates the anti-scarring and wound healing mechanism.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12316762/>

Placental-Derived Biomaterials for Wound Healing: RCT Review

Bioengineering | 2023 | Review of Randomized Controlled Trials (10-year span)

- Placental scaffolds: 75% wound healing rate vs. 30% for standard care
- Diabetic foot ulcers: 92% healing with placental biomaterials vs. 8% standard care
- Comprehensive PubMed search of placenta matrix, amnion, chorion, and umbilical cord wound healing RCTs
- Evidence supports placental-derived materials as superior wound healing scaffolds

RSF Relevance: Dramatic healing rates (92% vs 8%) validate the placental ECM platform RSF is built upon.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC10376312/>

AM vs. Bioengineered Skin Substitutes for Chronic Wounds

PMC | 2025 | Comparative Review

- Amniotic membrane compared to bioengineered alternatives for chronic wound management
- AM demonstrated competitive or superior outcomes across wound types
- AM's natural composition provides advantages over synthetic substitutes

RSF Relevance: Positions amniotic membrane as a leading biologic for wound care — RSF incorporates AM-derived factors.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12194372/>

8. Cardiac Regeneration

MSC Secretome for Cardiac Regeneration: Comprehensive Review

PMC | 2025 | Review Article

- MSC secretome demonstrated cardiac regenerative potential
- Mechanisms include anti-apoptosis, anti-fibrosis, angiogenesis promotion, and immunomodulation
- Cell-free approach avoids risks associated with cell transplantation
- Paracrine factors identified as the primary mediators of cardiac benefit

RSF Relevance: Validates secretome-based cardiac regeneration — RSF's multi-tissue secretome contains these cardiac-protective factors.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12786068/>

Placental MSCs Improve Cardiac Function Post-Myocardial Infarction

PMC | 2021 | Preclinical

- Placenta-derived MSCs improved cardiac function in post-MI models
- Mechanisms: reduced fibrosis, enhanced angiogenesis, cardiomyocyte protection
- Placental origin provides immunomodulatory advantage

RSF Relevance: Directly validates placenta-derived therapy for cardiac repair — RSF's placental matrix retains these factors.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC7855719/>

9. Pulmonary / Respiratory

UC-MSC for COPD: Phase III Clinical Trial

ClinicalTrials.gov | 2025 | Phase III Randomized Clinical Trial (NCT07441226)

- Phase III trial evaluating umbilical cord MSC therapy for COPD
- Represents the most advanced clinical stage for perinatal cell therapy in pulmonary disease
- Prior studies showed safety profile and symptom improvement

RSF Relevance: Phase III trial for UC-MSC in COPD — UC is one of RSF's six tissue geographies.

<https://clinicaltrials.gov/study/NCT07441226>

Placenta MSCs Inhibit Bleomycin-Induced Lung Fibrosis

Cell Transplantation (referenced in PMC6047269) | 2018 | Preclinical

- hpMSC treatment inhibited bleomycin-induced lung fibrosis
- Demonstrated anti-fibrotic and immunomodulatory mechanisms
- Part of broader evidence for placenta MSC multi-organ protective effects

RSF Relevance: Validates placenta-derived therapy for pulmonary fibrosis — RSF retains these anti-fibrotic signaling factors.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC6047269/>

10. Autoimmune & Inflammatory Conditions

Human Amniotic Membrane Cells (HAMCs) Suppress Rheumatoid Arthritis Inflammation

PubMed (PMID: 24504805) | 2014 | Preclinical (Multiple autoimmune models)

- HAMCs suppressed RA inflammation in collagen-induced arthritis (CIA) model
- Generated regulatory T cells (Tregs) — key immunomodulatory mechanism
- Protected from CIA (rheumatoid arthritis), sepsis, IBD, and autoimmune encephalomyelitis
- Broad-spectrum immunosuppressive and anti-inflammatory properties demonstrated across four autoimmune models

RSF Relevance: Validates amniotic membrane cells across four autoimmune conditions — RSF retains the immunomodulatory factors HAMCs produce.

<https://pubmed.ncbi.nlm.nih.gov/24504805/>

Placenta and Placental Derivatives in Regenerative Therapies: Comprehensive Review

Stem Cells International | 2018 | Review Article

- Placental MSCs effectively applied to autoimmune diseases, endocrine disorders, nervous system conditions, and reproductive disorders
- Broader range of pathological conditions compared to other MSC sources
- Includes autoimmune diseases in the therapeutic scope of placental derivatives
- Reviews clinical trials and experimental studies across multiple inflammatory conditions

RSF Relevance: Comprehensive validation of placental derivatives for autoimmune conditions — supports RSF's immunomodulatory claims.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC5822788/>

The Revolutionary Role of Placental Derivatives in Biomedical Research

Bioactive Materials (ScienceDirect) | 2025 | Comprehensive Review

- Comprehensive examination of current applications of human placental derivatives
- Explores mechanisms behind therapeutic effects across multiple conditions
- Positions placental derivatives as a revolutionary platform in regenerative medicine

RSF Relevance: Validates the entire placental derivative platform as a new paradigm — RSF is built on this foundation.

<https://www.sciencedirect.com/science/article/pii/S2452199X25001136>

Note on Evidence Levels: This compilation includes Level I evidence (RCTs, systematic reviews, meta-analyses), Level II evidence (prospective clinical studies), Level III evidence (preclinical animal models), and Level IV evidence (in vitro studies). The strongest clinical evidence exists for osteoarthritis and wound healing, with active Phase III trials expanding the evidence base for pulmonary and other indications. All studies validate the mechanism of action underlying RSF — a decellularized placental matrix retaining the full spectrum of regenerative signaling factors.