Diseases with Highly Active Stem Cell Factors:

	Disease List
	Internal Medicine Diseases
1.1	Liver Fibrosis
1.2	Liver Ischemia-Reperfusion Injury
1.3	Non-Alcoholic Fatty Liver Disease
1.4	Liver Cirrhosis
	Cardiovascular Diseases
2.1	Myocardial Infarction
2.2	Type 2 Diabetes Cardiomyopathy
	Bone & Joint Diseases
3.1	Osteoarthritis
3.2	Rheumatoid Arthritis
3.3	Joint Trauma
3.4	Cartilage Repair
3.5	Ankylosing Spondylitis
	Neurological Diseases
4.1	Parkinson's Disease
4.2	Alzheimer's Disease
4.3	Multiple Sclerosis
4.4	Traumatic Brain Injury & External Brain Injury

4.5	Spinal Cord Injury
4.6	Huntington's Disease
4.7	Stroke
4.8	Lysosomal Storage Disease
	Cancer-Related Diseases
6.2	Hematological Malignancies
6.3	Solid Tumors
6.4	Tumor-Related Complications
6.5	Immune Modulation & Reconstruction
	Immune & Inflammatory Diseases
7.1	Lupus Erythematosus
7.2	Localized Scleroderma
7.3	Hypertrophic Scars
	Reproductive System Diseases
8.1	Premature Ovarian Failure
8.2	Endometrial Injury
8.3	Intrauterine Adhesion Repair
8.4	Fallopian Tube Disease Treatment
	Metabolic Diseases
9.1	Type 1 Diabetes
9.2	Type 2 Diabetes

9.3	Hypertension
9.4	Hyperlipidemia
9.5	Hyperuricemia
9.6	Diabetic Syndrome
	Anti-Aging
10.3	Anti-Aging & Beauty Rejuvenation
10.4	Sub-Health Condition Improvement
10.5	Immune Boosting
10.6	Degeneration of Visceral Organs
10.7	Endocrine Decline
10.8	Skeletal & Musculoskeletal Degeneration
10.9	Cardiovascular System Degeneration

Components and Efficacy of Highly Active Stem Cell Factors:

1. Insulin-like Growth Factor (IGF): Promotes cell regeneration, proliferation, differentiation, and tissue/organ regeneration; maintains cell survival; and enhances tissue repair.

2. Interleukin-10 (IL-10): Inhibits inflammatory responses, regulates immune reactions, and promotes tissue repair.

3. Hepatocyte Growth Factor (HGF): Promotes cell proliferation, differentiation, and tissue/organ regeneration; enhances cell migration; has anti-fibrotic effects; promotes angiogenesis; and exhibits

anti-inflammatory properties.

4. TGF-beta3: Promotes cell differentiation, prevents uncontrolled cell division, regulates cell migration, enhances matrix synthesis, and modulates inflammation and immune responses.

5. Platelet-Derived Growth Factor (PDGF): Promotes angiogenesis, cell proliferation, and tissue repair.

6. Tumor Necrosis Factor-alpha (TNF-α): Promotes inflammation and immune responses, and enhances tissue repair.

7. Epidermal Growth Factor (EGF): Promotes cell proliferation and differentiation, and aids in the repair of skin and mucous membranes.

8. Fibroblast Growth Factor (FGF): Promotes cell proliferation and differentiation, and supports angiogenesis and tissue repair.

9. Nerve Growth Factor (NGF): Promotes the survival and growth of neurons, aiding in the repair of nerve damage.

10. Basic Fibroblast Growth Factor (bFGF): Promotes cell proliferation and differentiation, and supports angiogenesis and tissue repair.

11. Vascular Endothelial Growth Factor (VEGF): Promotes angiogenesis and cell proliferation, aiding in tissue repair.

12. Mesenchymal Stem Cell Growth Factor (MSCGF): Promotes the proliferation and differentiation of mesenchymal stem cells, aiding in tissue repair.

13. Hematopoietic Stem Cell Growth Factor (HSCGF): Promotes the

proliferation and differentiation of hematopoietic stem cells, aiding in their expansion.

Anti-Aging Stem Cell Intravenous Infusion: No medical examination required. Currently, the only product clinically available for cancer patients.

Comparison of Traditional Stem Cell Technology and Highly Active Stem Cell Factor Technology:

1. Traditional Stem Cell Technology:

- Involves conventional stem cell culture and differentiation methods, typically relying on a combination of growth factors and culture media to induce stem cells to differentiate into specific cell types.

- During the culture and differentiation process, stem cells may lose some of their activity.

- Used in tissue engineering, regenerative medicine, and disease modeling.

- May require a longer time to obtain sufficient quantity and quality of cells.

2. Highly Active Stem Cell Factor Technology:

- Emphasizes the use of specific highly active growth factors and cytokines for anti-inflammatory and regenerative purposes. By precisely regulating stem cell behavior, it promotes the production of more anti-inflammatory, antioxidant, and regenerative highly active factor

combinations. Through cell disruption, ultrafiltration, extraction, and concentration, the activity and biological functions of stem cell factors are enhanced.

- Aims to optimize culture conditions to enhance stem cell activity, producing an ideal combination of highly active factors to improve anti-inflammatory, antioxidant, anti-stress, and regenerative efficacy.

- Focuses on enhancing the effectiveness of stem cell technology in anti-inflammatory treatments, tissue regeneration, and anti-aging, with an emphasis on the regulation and selection of growth factors.

- Aims to accelerate the production of specific highly active factors, improving the safety, anti-inflammatory, regenerative, and anti-aging efficacy, as well as the speed of treatment.

Breakthroughs in Highly Active Stem Cell Factor Technology:

1. Resolved Safety Issues of Allogeneic Stem Cell Use in Humans:

- The highly active stem cell factors developed by the team are immunogen-free products, currently the safest globally, with no side effects. They do not cause uncontrolled proliferation of live stem cells in the body, nor do they induce graft-versus-host disease or adverse reactions such as pulmonary embolism from infusions.

2. Overcame Bottlenecks in Efficient Stem Cell Expansion and Quality Control:

- Efficient cell proliferation and consistent cell quality are crucial. The

team developed unique culture techniques, applying compound stress stimuli (e.g., chronic inflammatory factors, oxidative stress, hypoxia, mechanical stimulation) to enhance stem cell proliferation and the production of highly active anti-inflammatory, antioxidant, anti-stress, regenerative, and anti-aging factors. This rapidly generates large quantities of stem cells and highly active stem cell factors, addressing challenges in stem cell culture and improving production efficiency and therapeutic outcomes.

3. Achieved Targeted Regulation of Specific Highly Active Factor Secretion:

- The team developed unique technologies to regulate the dominant release of specific active factors. For example, enhancing the release of TGF-IGF axis active factors to improve joint anti-inflammatory effects, or boosting the release of CXCL4-CXCL12 axis active factors to enhance central nervous system regeneration.

4. Achieved Reversal of Aging Using Stem Cells:

- The team's anti-aging stem cell technology, completed in 2024, can reverse aging and extend lifespan.

5. Achieved Disease Treatment Based on Stem Cell Technology:

- The team's stem cell technology has shown over 85% efficiency in reversing liver cirrhosis, over 75% efficacy in treating osteoarthritis, and over 75% effectiveness in reversing premature ovarian failure. Significant

results have also been observed in treating Parkinson's disease, Alzheimer's disease, and amyotrophic lateral sclerosis (ALS). Highly active stem cell factors can achieve the tissue repair, regeneration, and anti-aging effects of live stem cells, with higher activity and faster, better therapeutic outcomes due to concentrated factors. The purification, enhancement, and sustained-release technology of anti-inflammatory and regenerative factors help achieve better efficacy than live cells.

6. Achieved Convenient Storage, Transportation, and Simple Use of Stem Cells:

- The highly active stem cell factors developed by the team are easy to store and transport, requiring only standard cold chain conditions. The treatment process is simple, without the need for complex surgeries. Methods include injections, infusions, nebulization, and topical application, making it convenient for patients to receive treatment.

High-Activity Stem Cell in Clinical Applications					
	Source of Secretome	**Disease Model**	**Key Molecules**	**Mechanism of Action**	**Effects**
1	Human Bone Marrow Mesenchymal Stem Cell (MSC)-Exosomes	Liver Fibrosis	Not Described	Inhibits hepatic stellate cell activation via Wnt/β-catenin pathway	Improves liver fibrosis
2	Human Adipose MSC-Exosomes	Liver Fibrosis	Not Described	Inhibits proliferation of activated hepatic stellate cells by suppressing PI3K/AKT/mTOR signaling, promoting apoptosis, and arresting G1 phase	Improves liver fibrosis

3	Human Adipose MSC-Exosomes	Localized Scleroderma	let-7a-5p	Targets transforming growth factor receptor to regulate the Smad pathway	Reduces fibrosis in localized scleroderma
4	Human Adipose MSC-Exosomes	Fibroblasts from Hypertrophic Scars	miR-192-5p	Targets interleukin-17RA to regulate the Smad pathway	Reduces fibrosis in proliferative scars
5	Bone Marrow MSC-EVs	Osteoporosis	Ubiquitin-specific peptidase 7	Activates Wnt/ β -catenin pathway	Improves bone formation in osteoporotic mice
6	Mouse Bone Marrow MSC-EVs	Myocardial Infarction	miR-210	Inhibits epidermal growth factor-like factor A3 expression, activating PI3K/AKT pathway	Promotes angiogenesis and improves post-MI function
7	Bone Marrow MSC-EVs	Avascular Necrosis of Femoral Head	miR-148a-3p	Inhibits Smad ubiquitin regulatory factor 1, promoting SMAD and Bcl-2-mediated decompression and endocrine function	Improves avascular necrosis
8	Human Bone Marrow MSC-Exosomes	Intrauterine Adhesions	Not Described	Inhibits TGF- β 1/Smad signaling pathway	Promotes endometrial repair
9	Human Umbilical Cord MSC-Exosomes	Type 2 Diabetic Cardiomyopathy	Not Described	Regulates autophagy via AMPK-ULK1 signaling pathway	Reduces expression of autophagy-related proteins
10	Human Umbilical Cord MSC-EVs	Avascular Necrosis of Femoral Head	miR-21	miR-21-PTEN-AKT signaling pathway	Effectively inhibits osteocyte apoptosis
11	Human Umbilical Cord MSC-Exosomes	Hepatic Ischemia-Reperfusion Injury	miR-1246	Regulates glycogen synthase kinase 9-mediated Wnt/ β -catenin pathway	Improves liver function in ischemia-reperfusion injury mouse model
12	Mouse Bone Marrow MSC-Exosomes	Human Skin Fibroblasts	miR-26a	Regulates TLR4/NF- κ B signaling pathway	Inhibits fibroblast proliferation, migration, transdifferentiation, and promotes apoptosis
13	Bone Marrow MSC-Exosomes	Non-Alcoholic Steatohepatitis	miR-96-5p	Targets Caspase-2	Exhibits anti-apoptotic effects
14	Human Umbilical Cord MSC-EVs	Lipopolysaccharide-Induced Neuronal Injury	miR-29b-3p	Targets PTEN, activating PI3K/AKT pathway	Reduces neuronal apoptosis

15	Mouse Bone Marrow MSC-Exosomes	Nucleus Pulposus Cells	miR-142-3p	Targets mixed lineage kinase, inhibiting MAPK signaling activation	Reduces nucleus pulposus cell apoptosis
16	Human Bone Marrow MSC-EVs	Nucleus Pulposus Cells	miR-217	Targets enhancer zinc finger protein 2, downregulating Forkhead Box Protein O8 expression	Inhibits nucleus pulposus cell apoptosis
17	Human Umbilical Cord MSC-Exosomes	Nucleus Pulposus Cells	miR-26a-5p	Targets methyltransferase-like 14, downregulating NOD-like receptor family pyrin domain-containing 3 expression	Inhibits nucleus pulposus cell apoptosis
18	Human Bone Marrow MSC-Exosomes	Fibroblast-Like Synoviocytes from Ankylosing Spondylitis	miR-5189-3p	Targets basic leucine zipper transcription factor family member 2, inactivating JAK2/STAT3 pathway	Increases apoptosis of fibroblast-like synoviocytes
19	Human Umbilical Cord MSC-Exosomes	Esophageal Squamous Cell Carcinoma	miR-375	Downregulates activator protein N	Slows esophageal squamous cell carcinoma progression
20	Human Bone Marrow MSC-Exosomes	Prostate Cancer Cells	miR-99b-5p	Downregulates insulin-like growth factor 1 receptor	Slows prostate cancer progression
21	Human Umbilical Cord MSC-Exosomes	Breast Cancer Cells	miR-342-3p	Downregulates inhibin BA expression, further inhibiting interleukin-13 receptor α 2 expression	Inhibits breast cancer growth and metastasis
22	Human Bone Marrow MSC-EVs	Ovarian Cancer Cells	miR-18a-5p	Not Described	Inhibits ovarian cancer progression and chemotherapy resistance
23	Human Adipose MSC-Exosomes	Premature Ovarian Insufficiency	Not Described	Regulates SMAD signaling pathway	Improves ovarian function