

脐带间质干细胞

Umbilical Cord Wharton's Jelly Mesenchymal Stem Cell
(WJ—MSC)

ISO 9001

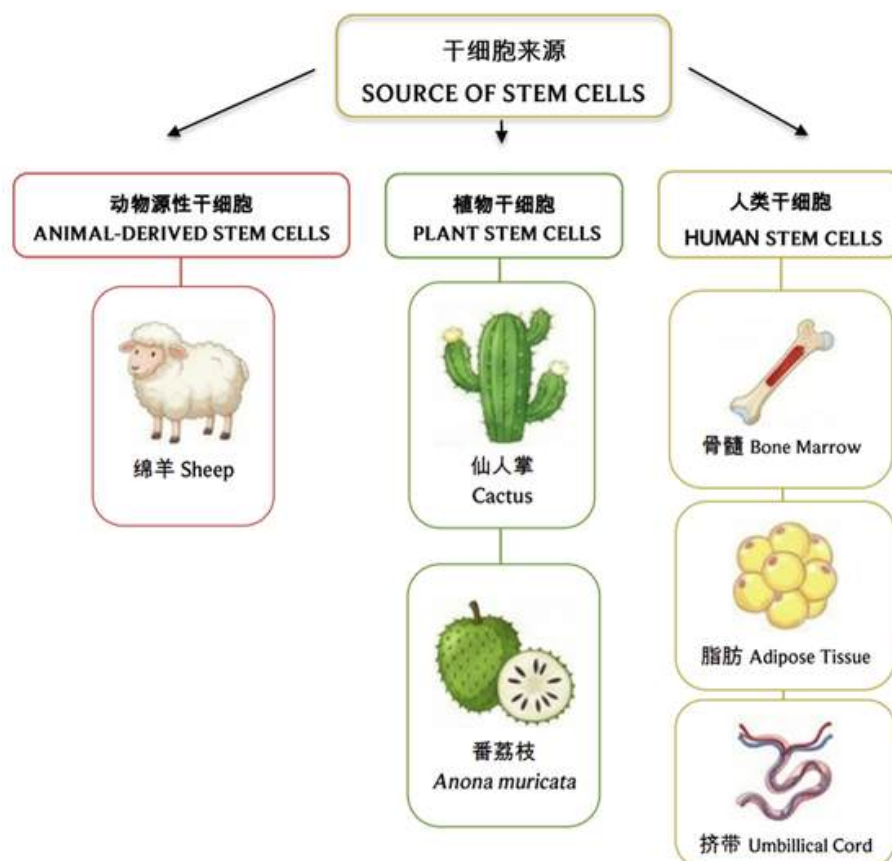
解开干细胞的奥秘

Unravelling Stem Cells

在科技日新月异的今天，干细胞疗法获得了各界的关注，尤其受到渴望保持年轻及健康的名流青睐。在现代的医疗领域，源自动物、植物和人类的干细胞在抗衰老治疗中各自发挥着不同的作用。动物源性干细胞通常取自绵羊，以促进皮肤再生和增强胶原蛋白生成的能力而闻名。至于植物干细胞，通常提取自富含抗氧化剂的植物，例如苹果，以及广为人知的仙人掌干细胞和番荔枝干细胞，也是我们旗下深受消费者喜爱的 SCFIII 所含有活性成分。植物干细胞以其天然活性因子所带来的自然且温和的皮肤修复，促进细胞的自我更新与组织再生。最后，人类干细胞可取自骨髓、脂肪或脐带等组织。其特征与我们的生理结构高度相似，并具有分化为成骨细胞、软骨细胞、肌腱细胞、心肌细胞、神经元和脂肪细胞等的能力而在再生领域广泛利用。

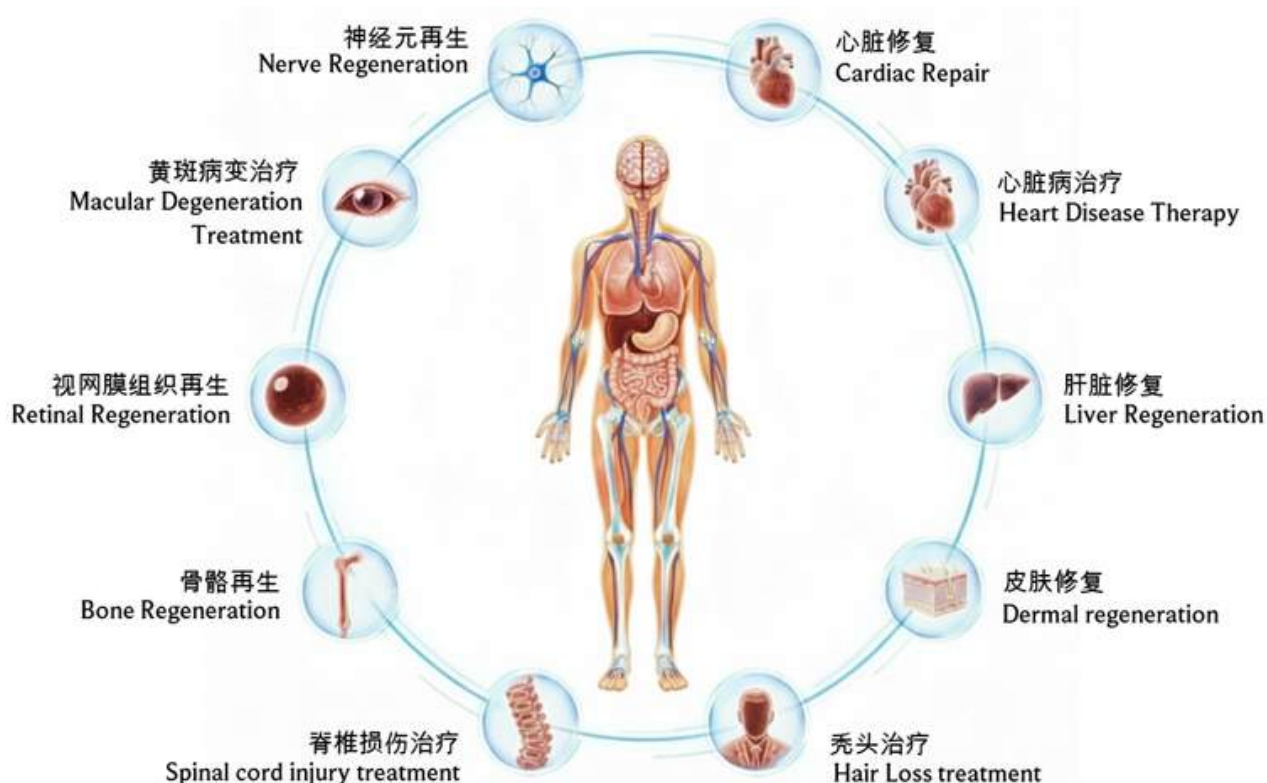
In the era of rapid technology advancement, stem cell therapy has gained widespread popularity, particularly among celebrities who are keen to maintain their youthful and

flawless appearance. In modern aesthetic treatments, stem cells sourced from animals, plants, and humans each serve distinct purposes in anti-aging treatments.



Animal-derived stem cells, commonly taken from sheep, are known for promoting skin regeneration and collagen-boosting abilities, though they pose ethical and safety concerns. Plant stem cells, extracted from plants rich in antioxidants such as apples, and also well-known cactus and Anona muricata stem cells, which are the key ingredients in our sought-after SCFIII formulation. Plant stem cells' inherent bioactive factors are highly effective in supporting skin regeneration, promoting cellular self-renewal, and stimulating tissue regeneration.

Finally, human stem cells are accessible for harvesting from human tissue such as bone marrow, adipose tissue, and umbilical cord. It possesses similar morphological properties and physiological compatibility that highly resemble the human body, and is capable of differentiating into osteoblasts (bone), chondrocytes (cartilage), tenocytes (tendon), cardiomyocytes (heart), neurons, adipocytes (fat), and a range of other specialized cells. For these reasons, human stem cells are widely utilized in cell therapy and regenerative medicine.



干细胞在细胞治疗和再生医美中的应用
Applications of Stem Cells in Cell Therapy and Regenerative Aesthetic Medicine

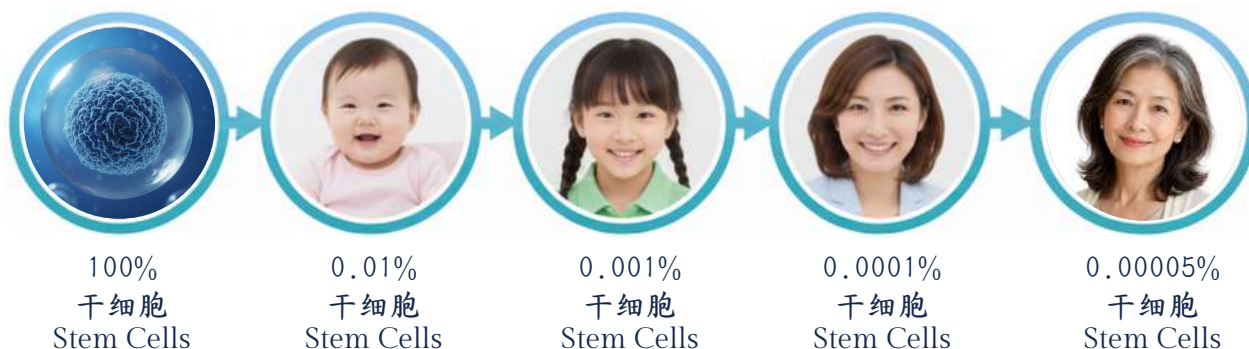
正因如此，人类干细胞在细胞治疗与再生医学领域中备受关注，被视为极具潜力的医学资源。虽然植物干细胞的选择正日益受到欢迎，但动物和人类干细胞对于更注重疗效的人士而言，仍然是不可或缺的关键选择。

干细胞是未分化的细胞，具有自我复制与分化为多种功能细胞的能力。因此这些特性使干细胞在组织修复及再生中扮演关键角色。受精卵是人体最初的干细胞，通过不断增殖与分化形成胚胎并发育成完整个体。然而，人体内的干细胞比例会随年龄大幅下降：从胚胎时期的100%，至老年时期的二百万分之一。随着细胞自我更新的频率和能力减弱，衰老过程将急剧加速，各种与年龄相关的健康问题也随之出现。

干细胞疗法是通过利用干细胞替换和再生人体细胞组织，从而促进细胞组织生长和器官修复，最终恢复年轻健康的状态。干细胞疗法涵盖多种细胞类型，每种干细胞都拥有其独特的再生潜力。其中，脐带华通氏 (Wharton's Jelly) 间质干细胞 (WJ-MS) 的潜能尤为突出。

胚胎时期
Embryo Stage

老年时期
Late Stage



In general, stem cells are “young” cells that are undifferentiated, with the ability to differentiate into a wide range of “mature” cell types (specialized cells). Hence, these exceptional properties of stem cells play a crucial role in tissue repair and regeneration. The fertilized egg is the pioneer stem cells of the human body, experiencing proliferation and differentiation continuously to develop into a complete human being from an embryo. Yet, the proportion of stem cells available within our body diminishes drastically with age, from 100% stem cells during the embryonic stage to around 1/2 000 000 in the late stage. As the frequency and the ability of stem cells' self-renewal weaken with age, our body will experience a rapid senescence process and therefore the emergence of age-related health issues.

Stem cell therapy is a process of restoring the normal function of organs by replacing and regenerating human cell tissues with stem cells to promote tissue growth and organ healing. In the matter of fact, stem cell therapy encompasses a wide range of cell types, each offering distinct regenerative potential as mentioned before. Among them, Wharton's Jelly Mesenchymal Stem Cells (WJ-MSC) stand out for their pluripotent nature and unparalleled capacity for self-renewal.

脐带间质干细胞凭借以下特性而备受关注：

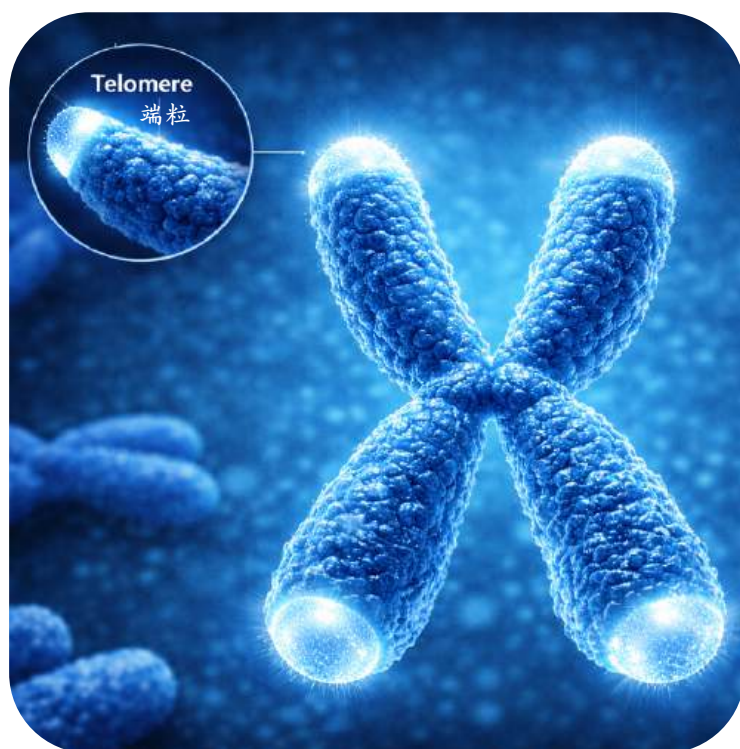
WJ-MSCs are highly noticeable due to the following defining characteristics:



这些特性使其在健康及美容领域里具有无限前景，其应用包括但不限于，增强免疫细胞，加快修复受损细胞，骨骼再生，心脏修复，皮肤活化与再生，减少皱纹和细纹，提升皮肤质地和紧致度，以及改善高血压、高血脂和高血糖等慢性疾病。

These exceptional properties make WJ-MSCs a popular choice in both health and aesthetic therapy, such as strengthening immune cells, accelerating damaged cell repair, skeletal regeneration, cardiac repair, skin rejuvenation, reduction of wrinkles and fine lines, and enhancement in skin texture and firmness, and improvement in hypertension, hyperlipidemia, hyperglycemia, and other chronic diseases.

端粒是位于染色体末端的“保护帽”，是由重复的DNA序列及相关蛋白组成的。在维持遗传信息稳定和细胞正常分裂中发挥关键作用，以防止染色体降解与异常融合。来自西班牙奥维耶多大学的卡洛斯博士以及他的团队在2013发表的论文中已表明端粒长度会随着年龄增长及细胞不断分裂而逐渐缩短。不幸的是，当端粒耗竭至极限时便会触发细胞周期停滞、导致衰老。由此可见，端粒长度与生理衰老速度、免疫功能及多种慢性疾病风险密切相关，因此被医学界视端粒为评估人体生理年龄和健康状态的重要生物学指标。万幸的是，干细胞治疗可以有效延缓端粒长度缩短而导致老化和随之而来的疾病。



Telomeres are protective structures located at the ends of chromosomes, composed of repetitive DNA sequences and associated proteins. They play a crucial role in maintaining genomic stability and ensuring normal cell division by preventing chromosome degradation and aberrant end-to-end fusion. A 2013 study by Dr. Carlos and his research team at the University of Oviedo, Spain, demonstrated that telomere length progressively shortens with age and with repeated cellular replication. Unfortunately, once telomeres reach a critically short length, they trigger cell cycle arrest, leading to cellular senescence.

Consequently, telomere length is closely associated with aging, immune system function, and the risk of various chronic diseases, and is therefore regarded by the medical community as an important biomarker for assessing biological age and overall health status. Notably, stem cell—based therapies have shown potential in effectively delaying telomere attrition, thereby mitigating aging processes and the onset of age-related diseases.

目前，提取并培养脐带间质干细胞有各种途径，但主要还是透过酶消化法或者外植体法。酶消化法是目前最常用的摘取方式。其基本原理就是先解剖脐带沃顿胶、切碎，再用胶原酶把细胞从组织中分离出来。之后经过过滤和离心分离细胞，并移植到无异种成分的培养基中培养。

相较之下，外植体法的步骤更为自然。沃顿胶切将被切成小块，然后直接移植到培养皿上，让细胞自行从组织中缓慢迁出。而这个过程通常需要7至10天的时间。虽然过程较为缓慢，但因没有使用酶而提升了细胞的质量。不管是透过哪个途径，培养好的干细胞最后将会被储存在温度低于 -150°C 的液氮储存罐中备用。

There are a few protocols for isolation and cultivation of WJ-MSCs, but enzymatic digestion methods and explant technique stand out. Enzymatic digestion involves the dissection of the umbilical cord's Wharton's jelly, followed by mechanical fragmentation. Collagenase enzyme is then used to dissociate the cells from the extracellular matrix. The resulting cell suspension undergoes filtration and centrifugation before being cultured in a xeno-free culture medium.

On the other hand, the explant technique follows a more natural process. Wharton's jelly is collected, cut into small fragments, and placed directly onto culture dishes, allowing cells to gradually migrate out of the tissue. This process typically takes 7 to 10 days, depending on the cell's condition. The absence of an enzyme in this technique often results in enhanced cell integrity and quality despite slower. All cultured stem cells from either technique are eventually preserved in liquid nitrogen storage tanks at temperatures below -150°C for future use.

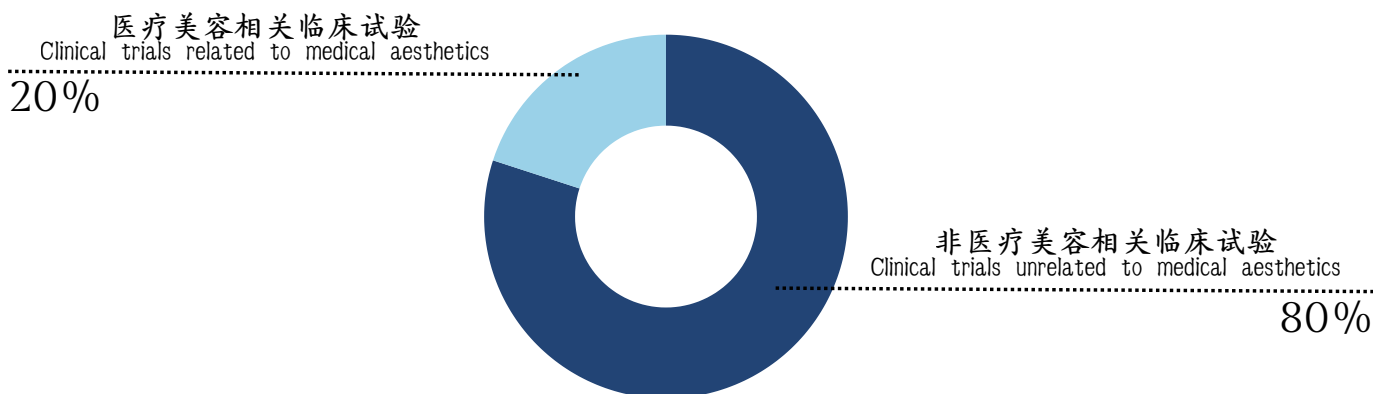


用于长期储存脐带间质干细胞得液氮储存罐
Liquid nitrogen storage tanks utilized for long-term WJ-MSC storage

在这里，我们每一项疗法都会使用通过医生专门为您打造的客制化治疗计划，让治疗效果达到最佳，甚至超出预期的好。自 2018 年起，国际上对异体干细胞的研究同样蓬勃发展。迄今为止，全球已开展了超过 2000 项脐带间质干细胞的临床试验，而其中超过 400 项临床试验是与医疗美容相关的。甚至在 2022 年，一项发表在《Frontiers in Cardiovascular Medicine》的研究成果证实脐带来源的异体干细胞能修复急性心肌梗塞造成的心脏损伤。该疗法已获美国 FDA 的认证，批准进入临床试验阶段。截至目前，已有八位患者完成治疗，并未出现副作用或排斥反应。由此可见，脐带间质干细胞作为新创疗法发展尤其迅速，在未来的医疗与美容行业里拥有着无可撼动的地位。研究人员从中获取了极具前景的数据，证实了脐带间质干细胞在改善皮肤健康方面的功效，并展现出使其恢复年轻态的巨大潜力，因此能带来强大的皮肤焕活与再生效果。凭借脐带间质干细胞独特的性质，科学家能够按照预定目标，定向诱导其分化为特定的细胞类型。

全球脐带间质干细胞临床试验分布概览

The global distribution of clinical trials involving umbilical cord-derived mesenchymal stem cells



Every therapy we provide is a personalized treatment plan, tailored specifically to each individual to achieve optimal clinical outcomes according to their personal preferences. Global research into allogeneic stem cell therapy has continued to develop rapidly since 2018. To date, more than 2,000 clinical trials involving umbilical cord mesenchymal stem cells have been conducted worldwide, with over 400 trials focused on medical aesthetics.

In 2022, a study published in *Frontiers in Cardiovascular Medicine* demonstrated that umbilical cord—derived allogeneic stem cells can effectively repair cardiac damage caused by acute myocardial infarction. What's even better is that this therapy has received approval from the U.S. FDA, authorizing its expansion into clinical trials. There are eight patients have completed this novel treatment, with no reported adverse effects or immune reaction.

These developments are working to make umbilical cord mesenchymal stem cells a transformative, essential therapeutic approach in the future of both medical and aesthetic medicine. Researchers have obtained highly promising data confirming WJ-MSCs' efficacy in enhancing skin health, revealing their capacity to restore youthful skin function and formidable skin rejuvenation and regenerative properties.

Owing to WJ-MSCs' unique biological properties, scientists are also able to precisely direct the stem cell to differentiate into desired cell types according to specific therapeutic purposes.

综合上百件干细胞在医疗以及医美应用里的临床试验，我们能总结出妥善使用脐带间质干细胞能够为使用者带来各方面的肤质提升，其中显著的效果为：

Through an integrated analysis of hundreds of clinical studies on stem cells in medicine and aesthetics, it can be concluded that the professional application of umbilical cord mesenchymal stem cells delivers significant improvements in skin quality. The most notable benefits include:

增强免疫细胞
Strengthened immune cells

改善红斑问题
Enhancement in erythema

修复受损细胞
Accelerated damaged cell repair,

提升皮肤质感
Improvement of overall skin texture

增生在真皮组织里的成纤维细胞和角质形成细胞
Increased proliferation of dermal fibroblasts and keratinocytes

加快修复受损细胞
Accelerated repair of damaged cells

促进皮肤胶原蛋白生成
Stimulate collagen synthesis within the skin

控制毛孔扩充
Regulation of pore enlargement

减少皱纹与细纹
Reduction of wrinkles and fine lines

抑制色素沉淀
Suppression of excess pigmentation

疗程后肌肤改善效果

Post-Treatment Skin Enhancement



With its outstanding performance, WJ-
MSCs offer a sophisticated approach for cell
therapy and regenerative aesthetic medicine,
unveiling renewed youthfulness.

脐带间质干细胞以其卓越的性能，为细
胞治疗和医美再生疗法提供了前卫而精致的
解决方案，逐渐为众人重现青春光采。



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