

22歲啦! Mature 22nd Birthday!

幹細胞革命：未來醫學新趨勢

Stem Cell Revolution : The Future of Medicine

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最新質檢報告 ◎ **Latest QA Test Report**

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幹細胞革命： 未來醫學新趨勢

Stem Cell Revolution: The Future of Medicine

未來的研究和前景－幹細胞和再生醫學

Future researches and prospects – Stem cells treatment & regenerative medicine

幹細胞於臨床證實能治療多達 113 種疾病，全球已超過 40,000 多宗臍帶血幹細胞移植成功案例。

從 90 年代發現幹細胞，以造血幹細胞代替骨髓移植，到時至今日，科學家從胎盤中發現多功能幹細胞，並臨床證實誘導多功能幹細胞能治療白內障³及修復受損心臟⁴等，可見幹細胞於再生醫學上的科技日趨成熟，治療疾病及用途將會更普及化！

Under clinical trials, stem cells can now treat 113 diseases with positive results. There are over 40,000 cord blood stem cell transplant successful cases worldwide.

Stem cells were discovered in the early 60's, and hematopoietic stem cells were used to replace bone marrow transplant. Scientists recently discovered the efficacies of pluripotent stem cells from placenta. Clinical trials reveal successful uses of induced pluripotent stem cells for the treatments of cataracts³, and repairing damaged hearts⁴. It is believed that the application on stem cells treatments and regenerative medicine will become more mature, extensive and popular.



幹細胞應用影片一掃
Scan for stem cells video

幹細胞 – 最具研究價值的獨特細胞

Stem Cells – Unique Cells with Ultimate Research Value

幹細胞具有重複分化和獨特的複製能力，可分化成身體多達 200 種¹不同類型的細胞。而胚胎中的所有器官組織，便是由幹細胞建造形成。幹細胞在成人身體中，充當重要的修復系統和取代生病或年老的細胞。

Stem cells have a unique ability to divide and replicate repeatedly as well as an unspecialized nature that allows them to differentiate into more than 200 cell types¹ of the body. In a developing embryo, stem cells can differentiate and form into all of the embryonic tissues. In adult organisms, stem cells act as a repair system for the body, replenishing specialized cells.

多達 More than
6,000 宗
臨床醫學²
Clinical Trials²

於全球臨床測試註冊處登記以幹細胞作臨床醫學
Using "stem cell" or "stem cells" are registered via ClinicalTrials.gov, a global registry of clinical trials.

多達 Up to
296,399
科研報告²
Scientific Papers²

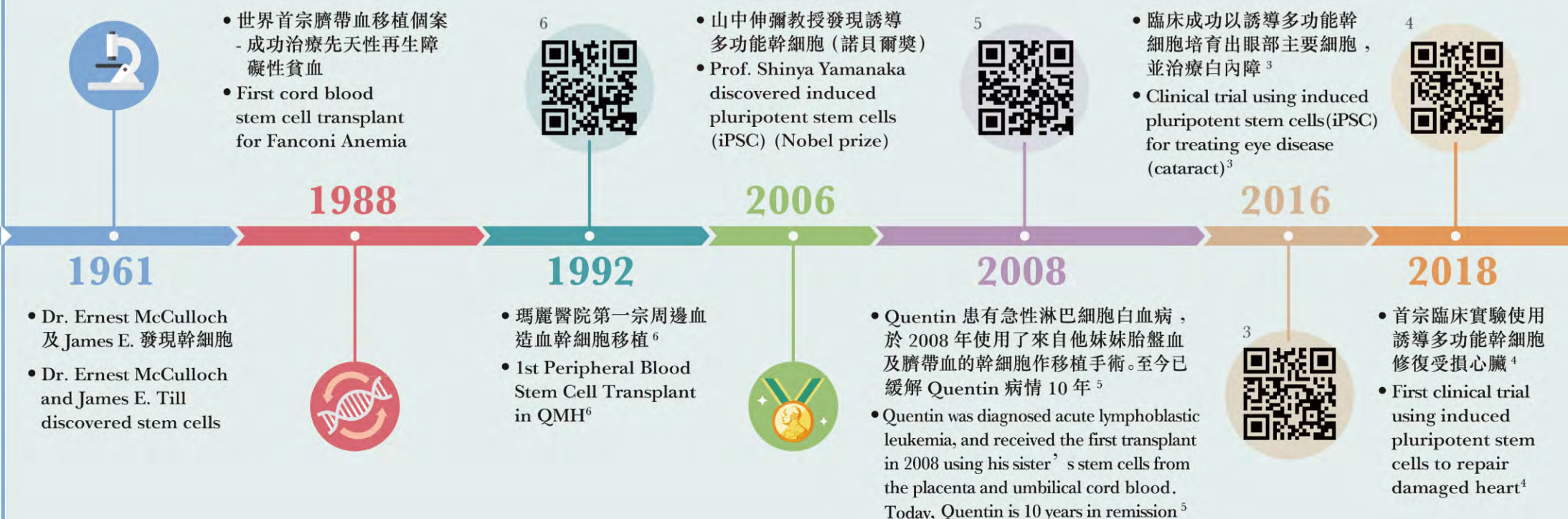
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資料來源：
Reference



胎盤幹細胞 – 臨床醫學及應用例證

Amniotic Stem Cells – Clinical Trials and Treatments



2018 年 5-6 月品質檢定 (細胞活躍測試結果)

May - June Quality Assurance (Variability Results)

全面檢測 • 信心保證

CRYOLIFE 每年進行兩次品質檢定，確保每年檢測範圍覆蓋每一個儲存缸及每一個年度的樣本。全面而透明度高的檢測除了顯示 CRYOLIFE 對實驗室儀器及專業技術人員的信心外，亦同時反映其對品質之要求極高。

一般幹細胞儲存庫都會作「解凍後幹細胞恢復之存活能力」測試，確保幹細胞解凍後仍具備理想的恢復之存活能力。然而，對 CRYOLIFE 而言，這只是最基本的測試，並未能確保幹細胞最具醫療價值的特性未被破壞！幹細胞的珍貴，全在於其自我倍增及自我分化的特性。因此，CRYOLIFE 早於 2008 年起引入「細胞聚落形成單位 (CFU)」測試，檢驗不同儲存年份的樣本是否仍能保持自我倍增及自我分化能力。據國際品質鑑定機構 AABB 標準，血庫於發放幹細胞作任何醫療用途前，必須進行「細胞聚落形成單位 (CFU)」測試確保幹細胞品質，足以證明 CRYOLIFE 的定期質檢超越國際水平。

CRYOLIFE 新一期的測試剛於 6 月 12 日進行，從儲存缸中提取了 5 份[#]樣本檢測。測試結果顯示所有樣本於解凍後，幹細胞恢復之存活能力均超逾 82.1%，證明長期超低溫儲存對臍血幹細胞之存活率、自我倍增及自我分化能力並無影響。總括而言，是次測試結果令人非常滿意。

Comprehensive Quality Assurance Test

Committed to deliver the highest service quality, and taking pride in its cutting edge facilities, CRYOLIFE undertakes comprehensive quality assurance test twice a year. At least one sample from each storage tank – of all prior preservation years – will be evaluated with test results published on website.

Conventional cord blood banks will conduct Recovery of Viability Test to evaluate the preservation of stored stem cell's viability. CRYOLIFE's quality control and quality assurance go beyond that. Apart from basic tests, CRYOLIFE conducts the advanced Colony Forming Unit (CFU) Test since 2008 to investigate the ability of proliferation and differentiation of hematopoietic stem cells. According to AABB, the industry's leading authority, this CFU test must be performed before the cord blood is being released for any medical treatment to ensure the quantity, quality and stability of stem cells meeting transplantation requirements. This highlights CRYOLIFE's achievement in international assessment standard on stored stem cells from umbilical cord blood.

In the latest test carried out in 12 June 2018, 5 samples[#] have been thawed to evaluate the viability of preservation. The result shows that the recovery of viability of all samples is at least over 82.1%. The result indicates that long-term storage has no negative effects on the cord blood stem cell's viability. Overall the quality test result is encouraging.

| 臍血處理年份 (存放時間) Year of Storage (Storage Period) | 解凍後幹細胞存活能力之恢復率 * Recovery Rate of Viability* |
|--|---|
| 2001 (17 年 Y) | 84.7% |
| 2002 (16 年 Y) | 99.6% |
| 2004 (13 年 Y) | 82.1% |
| 2007 (11 年 Y) | 94.9% |
| 2008 (10 年 Y) | 87.0% |
| * 國際醫療指標的移植存活能力要求 : >50% International medical viability standard: >50% | |
| # 品質檢定測試結果是來自隨機抽樣方式來選取樣本，測試結果並不代表其他儲存中的樣本會有相同的結果。 QA Results shown are from randomly selected samples. It does not represent that other samples within the storage will bear the same result. | |

焦點案例 NEW CLIPS

胎盤幹細胞可以治癒中風患者的大腦 Placenta Stem cell infusion trial could help heal stroke victims' brains

墨爾本科學家於研究發現，通常在出生後丟棄的胎盤，其中蘊含大量的幹細胞可以幫助中風患者治愈大腦。

拉籌伯大學的 Chris Sobey 教授指出，幹細胞可以從羊胎膜（嬰兒胎盤）中分離出來，為中風患者接受靜脈注射幹細胞後，能減輕腦部組織受損及幫助修復。

澳洲每 9 分鐘便會有 1 人發生中風情況 - 這是該國成人頭號殺手之一，也是導致殘疾的主要原因。

幹細胞靜脈注射的臨床試驗預計將於今年下旬澳洲維多利亞州實行。科學家們表示，經過全面臨床安全性評估，5 年內可為患者提供治療。這證實胎盤幹細胞具有很好的治療潛力。

A study led by Melbourne scientists has found that placental cells usually discarded after birth could help healing the brain after stroke.

Professor Chris Sobey from La Trobe University pointed out that amniotic sac contains stem cells, which can be injected intravenously after a stroke to reduce brain injury and aid recovery.

A stroke occurs every nine minutes in Australia — it's one of the country's biggest killers causes of disabilities in adults.

Trials of the therapy are expected to begin in Victoria later this year and scientists believe following a full clinical safety assessment, the treatment could be available for patients within five years.

This shows great future therapeutic potential with placental cells.



Feb 20, 2018
9NEWS

<https://www.9news.com.au/national/2018/02/20/06/56/placental-cells-could-heal-brains-after-stroke>



影片一掃
Scan for video

醫生為患有心臟病嬰兒嘗試臍血幹細胞新技術 Doctors try new technique for babies with life-threatening heart condition using umbilical cord blood treatment

HLHS（左心發育不全綜合症）是一種先天性缺陷，醫生通常會為兒童做三次手術，使心臟發達的一側將血液泵送至整個身體。當踏入成年時，心臟便會開始衰竭。

洛杉磯兒童醫院的醫生收集了患病嬰兒的臍帶血，然後在嬰孩接受第二次手術時，將臍帶血幹細胞注入右心室。

到目前為止，臨床試驗顯示接受臍血幹細胞注射的兒童有良好的改善。

HLHS (hypoplastic left heart syndrome) is a birth defect which typically needs three surgeries to enable the developed side of children's heart to pump blood to the entire body. But by early adulthood, the patient's heart starts to fail.

Doctors at Children's Hospital Los Angeles collected the baby's cord blood stem cells, then injected the stem cells into the right ventricle when the child undergoes the second HLHS surgery.

Clinical trial so far reveals positive results in the child who received the injections of cord blood stem cells.

Delaney said in a press release.



CBS News
13 Jun, 2018
Chris Martinez

<https://www.cbsnews.com/news/stem-cell-technique-babies-with-heart-condition-hlhs/>



影片一掃
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