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會員專訊 /
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CRYOLIFE
跨奧臍帶血庫
Since 1996



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以行動 守護您的健康

Safeguarding Your Health With Action

突如其來的新型冠狀病毒 COVID-19 疫情在農曆新年前爆發，震驚了全世界，亦使許多家庭陷入困境。在這段逆境中，Cryolife 跨奧以實際行動，挺身保護您的健康。

在 2020 年初口罩嚴重短缺的情況下，我們不惜工本，向客戶免費派發從歐盟國家搜購到的口罩，以感謝您們陪伴 24 載。我們很快亦將口罩派發對象擴展到所有在私人血庫儲存了臍帶血的年輕家庭，以及所有需要口罩的香港準媽媽們，希望顧及整個社群。

此外，我們的首席中醫顧問小董博士在 TVB 節目《東張西望》中，從中醫角度分析新冠病毒，並提供專業的防疫資訊，詳情可於以下鏈接查看 qrs.ly/wubqrqg。



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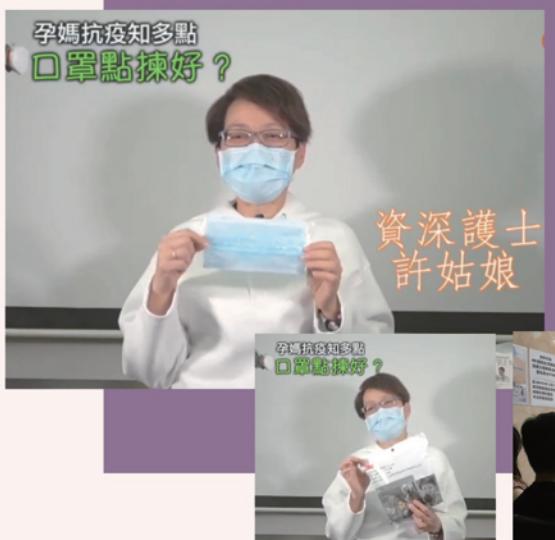
1月 Jan

跨奧首席中醫顧問小董博士在 TVB 節目《東張西望》中分析新冠病毒，並提供防疫資訊
Our Chief Chinese Medicine Consultant Dr. Hermie Lee offered her advices on TVB program "Scoop."



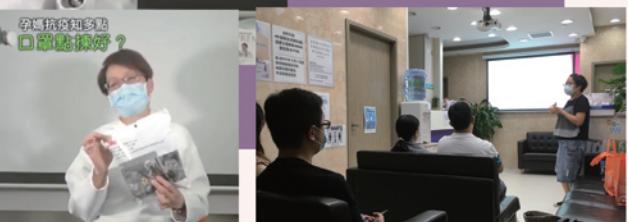
The COVID-19 pandemic has caught the world by surprise in January prior to Lunar New Year, putting many families in distress. During this period of adversity, Cryolife steps up to safeguard your health and wellness with definite actions.

Amid the shortage of face mask at the beginning of 2020, we distributed free face masks sourced with our best effort from EU countries as appreciation to our clients for their continuous support over the past 24 years. To show our care for the whole community, we soon extended the eligibility to any young families who have banked their cord blood in any private blood banks, and later to all Hong Kong mothers-to-be who are in need of face mask.



2月-3月 Feb-Mar

資深護士許姑娘解釋各種口罩的分別
Mask varieties explained by experienced nurse Shara Hui



與此同時，資深護士許姑娘亦在我們的社交媒體平台上，詳細解釋了各種口罩的優缺點，以幫助準媽媽們挑選最適合自己的口罩。

在四月份第二波疫情爆發時，我們提供了新冠病毒快速測試包，特別適用於剛回國的留學生們，以免受西方國家的疫情影響。測試結果由供應商直接發送給客戶，在最大程度上來確保用戶私隱。

我們致力守護您的健康，以行動兌現承諾！

2月 Feb

在口罩嚴重短缺的情況下，我們不惜工本，向客戶免費派發從歐盟國家搜購到的口罩

Amid the shortage of face mask, we distributed free face masks sourced with our best effort from EU countries



4月 Apr

足不出戶做化驗
Rapid test kit for COVID-19 made available

Additionally, our Chief Chinese Medicine Consultant Dr. Hermie Lee offered her professional TCM advices on TVB program "Scoop" on infection prevention which can be viewed through this link: qrs.ly/wubqrqg. At the same time, Cryolife's experienced Nurse Shara Hui also gave detailed explanations on mask varieties via our online platform to help expectant mothers choose the one most suited for their needs.

In April, we made COVID-19 rapid test kit available on our platform, especially meant for returning students from abroad to avoid the dire situation in western countries. The test results were directly sent by the vendor to the patient to ensure maximum privacy. We are truly committed to safeguard your health, and we strive to deliver our promise!



全球各地正積極研究以幹細胞治療新冠病毒 Stem Cell Therapy Against COVID-19 Begins Worldwide

台灣取得正面成果 Promising Results in Taiwan

新冠病毒侵蝕肺部組織，導致組織受損而呼吸困難，更有可能導致無法逆轉的肺纖維化，令肺功能永久下降。台灣國立陽明大學的教授正在研究以臍帶中的間葉系幹細胞，逆轉這後遺症。⁽¹⁾⁽²⁾

台灣的醫生們巧用過往以幹細胞治療肺炎的經驗，幫助新冠病毒的重症患者。⁽³⁾⁽⁴⁾

COVID-19 attacks lung tissue, which might lead to pulmonary fibrosis, an irreversible condition resulting in scarred tissue and thus causing breathing difficulties. A professor in National Yang-Ming University, Taiwan is spearheading researches to reverse this condition with mesenchymal stem cells from umbilical cord.⁽¹⁾⁽²⁾

Doctors in Taiwan are leveraging their practical experience on stem cell therapy against pneumonia to help COVID-19 patients in severe condition.⁽³⁾⁽⁴⁾

美國開始臨床試驗 Clinical Trial begins in US

邁阿密大學已獲美國食品藥品管理局批准進行臨床試驗，從臍帶組織提取的幹細胞，治療新冠病毒患者，這展示了嬰兒臍帶中的間葉系乾細胞對治療致命疾病及再生醫學巨大潛力。⁽⁵⁾

With approval from the U.S. Food and Drug Administration, the University of Miami has begun clinical trial to infuse stem cells taken from umbilical cord tissue to treat COVID-19 patients. This is another potential on the potency of mesenchymal stem cells (MSC) from baby's umbilical cord for critical illness and regenerative medicine.⁽⁵⁾



2020年7月品質檢定 (細胞活躍測試結果) July 2020 Quality Assurance (Variability Results)

■全面檢測・信心保證

CRYOLIFE 每年進行兩次品質檢定，從每個儲存缸內抽取最少一個樣本，進行全面而透明度高的檢測，顯示 CRYOLIFE 對實驗室儀器及專業技術人員的信心，測試結果亦會於在網頁上公佈。

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機能。不過，對 CRYOLIFE 而言，這只是最基本的測試，CRYOLIFE 更注重完整保存幹細胞最具醫療價值的特性。幹細胞的珍貴價值，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，簡單而言即是測試經儲存的幹細胞在解凍後的活性。據國際品質鑑定機構 AABB 標準，血庫在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，以確保幹細胞品質，足以證明 CRYOLIFE 的定期質檢已到甚至超越國際水平。

CRYOLIFE 新一期的測試剛於 2020 年 7 月進行，但為預防新型冠狀病毒 COVID-19 的擴散，實驗室人員需遵守嚴謹的社交距離指引，輪班隔天工作。此次檢測從儲存缸中提取了 5 份樣本進行解凍及檢測，進行了「解凍後幹細胞恢復之存活能力」及「細胞聚落形成單位 (CFU)」測試。結果證明即使樣本被冷凍保存超過 21 年，其活性恢復率都超過 80%，遠高於 AABB 指引中規定移植前活性恢復率必需達到的 50%。CRYOLIFE 的長期保存系統並沒有影響臍帶血幹細胞的活性，質量測試結果令人鼓舞，促使我們的客戶大可放心，孩子們的臍帶血幹細胞在 CRYOLIFE 冷凍保存下仍然活躍，可用於未來的治療。

■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 dummy sample from different storage tanks – 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 also conducts advanced Colony Forming Unit (CFU) Test to investigate the ability of proliferation and differentiation of hematopoietic stem cells. In essence, this means the ability to thaw stored stem cells to ensure its activeness after long term cryopreservation. 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 thawed stem cells meet transplantation requirements. This highlights CRYOLIFE's achievement in international assessment standard on stored stem cells from umbilical cord blood.

During the strict social distancing period and in the midst of limited laboratory manpower working on alternate days as precaution against COVID-19, 5 dummy samples were selected in the latest QA Test in July 2020 as per schedule. These selected dummy samples were thawed to evaluate their respective Viability and CFU. The result shows that the viability recoveries for all samples, even with a cryopreserved period of above 21 years are over 80% with active CFU. This is way above AABB's guideline of 50% viability prior to transplantation. This result indicates that long term storage in CRYOLIFE has no negative effects on the cord blood stem cell's viability and CFU. The quality test result is encouraging and reassuring to our customers that their child's cryopreserved cord blood's stem cells with CRYOLIFE are still active and viable for future therapies.

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* Viability Recovery Rate*	細胞聚落形成單位 CFU(x 10 ³ /mL)
1998 (21 年 8 月)	88.3%	0.60
2002 (17 年 11 月)	83.8%	1.70
2003 (17 年 5 月)	80.2%	0.96
2001 (18 年 7 月)	83.6%	0.17
2007 (13 年 6 月)	81.6%	0.24

* 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.

臍帶組織品質檢定測試 QA Test on UC Tissues Conducted

臍帶組織是 Cryolife 跨奧以非侵入性程序採集，處理及於攝氏 -196 度下冷凍保存，以確保其完整性，方便將來根據治療需要而進行增量培養。而間葉系幹細胞則可以從新鮮或冷凍保存的臍帶組織中，透過外植體培植而獲取。

在 2020 年 7 月 7 日的品質檢定測試中，我們挑選了於 2013 年冷凍保存的臍帶組織，與新鮮臍帶組織作有意義的質量對比。選出的冷凍保存臍帶組織先經解凍及沖洗，並於 14 天內培植間葉系幹細胞。提取出的間葉系幹細胞以內部評分機制，測量其細胞黏附性和增殖率。對比兩組分數後，發現經冷凍保存後解凍的臍帶組織，對可培植出的間葉系幹細胞，在細胞形態和增殖率上均沒有明顯影響。現時我們已計劃於香港大學再生醫學中心再作進一步驗證，檢查分化簇、細胞週期（流式細胞術）和幹細胞凋亡率，以更全面檢測間葉系幹細胞的功能。

通過此品質檢定測試，Cryolife 跨奧總結出經我們冷凍保存的臍帶組織，有效作為簡單及可靠的間葉系幹細胞來源，可以基於將來細胞療法的需要，培植出大量適用於臨床使用的間葉系幹細胞。這意味着未來相對於間葉系幹細胞移植，會更趨向優先以生物技術從臍帶組織中增量培養而獲取間葉系幹細胞。

Umbilical cord (UC) tissues were collected by Cryolife in a noninvasive procedure. There were processed and cryopreserved at -196 °C to protect its integrity for future culturing and expansion according to therapeutics needs. Mesenchymal Stromal Cells (MSCs) can be reliably harvested from fresh or cryopreserved UC tissue by explant outgrowth.

For the purpose of QA Test on UC tissues conducted on 7th July 2020, Cryolife selected several UC samples being cryopreserved in 2013 plus using fresh UC tissues for meaningful quality comparison. Selected frozen UC tissues samples were thawed, washed and subsequently explanted over 14 days to extract MSCs. Harvested MSCs were evaluated using an internal scoring system accounting for cell attachment and proliferation. Explant scores for fresh and cryopreserved-then-thawed tissue were compared. There are no apparent impact on cell morphology and proliferation being found. Plans are made for additional verification with Center of Regenerative Medicine, University of Hong Kong to examine the cluster of differentiation (CD) markers, cell cycle (flow cytometry), and apoptosis rates of the stem cells to further verify the functionality of the MSCs.

From this QA test, Cryolife concludes that our cryopreserved UC tissues are a simple and reliable quality source of generating large numbers of clinically utilizable MSCs for future cell-based therapies. This means using future MSCs harvesting, culturing and expansion biotechnology from UC tissues prior to any MSC transplantation.



焦點案例 NEW CLIPS



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article/2666308?r=cpsd1c](https://topick.hket.com/article/2666308?r=cpsd1c)



臍帶血拯救白血病女嬰 Cord blood Saves Leukemia Baby Girl

當一對在美國的父母決定儲存兒子的臍帶血的時候，他們絕對沒有想到九年前的這個決定，改寫了一位混血女嬰的一生。25 個月大的 Livia 起初只是向香港媽媽和德國爸爸投訴腿痛，但很快就被診斷出患有急性骨髓性白血病，並且化療無效，急需在四個月內找到合適的骨髓捐贈者進行移植手術。在命懸一線之際，Livia 的父母在網上尋求有心人幫助，最後他們獲得的不是骨髓，而是與 Livia 人類白血球抗原匹配的臍帶血，內含更具適應性的幹細胞，可幫助治療白血病，為 Livia 的生命重燃希望。

When a pair of US parents decided to store their son's cord blood nine years ago, little did they know that their decision would be saving a baby girl's life today. 25-month-old Livia first complained about leg pain to her Hong Kong mom and German dad, and was soon diagnosed with acute myeloid leukemia. Chemotherapy did not work. A suitable donor must be identified within four months for a bone marrow transplant operation before it is all too late. Devastated, Livia's parents called for help online. Instead of bone marrow, they received HLA matched cord blood which offers more adaptable stem cells for the treatment of leukemia, giving Livia a much-needed second chance in life.



[https://parentsguidecordblood.
org/en/news/how-cord-tissue-
changed-my-sons-life](https://parentsguidecordblood.org/en/news/how-cord-tissue-changed-my-sons-life)



幹細胞治療改善自閉症 Autism Improved With Stem Cell Treatment

Gage 和其他五歲男孩一樣開心上學，在鏡頭前微笑，很難想像僅於三年前，二歲的他並不會說話，社交能力就如六個月大的嬰兒般缺乏。當 Gage 被診斷出患有自閉症譜系障礙時，他的媽媽了解了幹細胞療法的潛力，並決定嘗試。治療方法很簡單，只需從臍帶組織內提取間葉系幹細胞，並進行靜脈註射。三個星期後，當 Gage 第一次向媽媽說出「我很愛你」時，她知道自己做了正確的決定。此臨床案例證明了除了臍帶血的幹細胞，臍帶組織的間葉系幹細胞同樣具有改善自閉症的潛力。

Gage smiles in front of a camera and attends a regular class like any other five years old. It is hard to imagine just three years ago, at age two, he was not verbal and interacted socially like a six-month-old baby. When Gage was diagnosed with Autism Spectrum Disorder, his mom learned about the potential of stem cell therapy and decided to try. The treatment was simple, just an intravenous infusion of mesenchymal stem cells from umbilical cord tissue. Three weeks after, Gage uttered the words "I love you so much" to his mother for the first time, and she knew she had made the right call. This clinical case study shows that besides stem cells from umbilical cord blood, mesenchymal stem cells from umbilical cord tissues also have great potential for Autism Spectrum Disorder.