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As you prepare for the arrival of your baby, one of the first and most important decisions you may need to make is choosing to save your baby’s cord blood.

Today, diseases including certain cancers and blood disorders may be treated with hematopoietic stem cells that can be found in cord blood. A recent study reported that as many as 1 in 217 individuals may need a stem cell transplant in their lifetime.*

That is why saving your baby’s cord blood could be a lifesaving decision for your little one and your family. Find out more about cord blood banking with Cordlife today.

• A subsidiary of Cordlife Group Limited, a company listed on the Singapore Exchange.
• Officially launched in February 2010 as Philippines’ first and only private cord blood processing and cryopreservation facility.
• First and the only ISO 9001:2008 and DOH-registered facility in the country.
• Facility was built in accordance to global gold standards such as AABB to give local families peace of mind.
• The 365-day facility is equipped with the world’s most advanced fully automated cord blood processing system, SEPAX, and has a storage capacity for 30,000 cord blood units.
Listed on the Main Board of the Singapore Exchange ("SGX"), Cordlife Group Limited ("Cordlife", and together with its subsidiaries, the "Group") is presently a service provider of umbilical cord blood and cord lining banking.

The first cord blood bank to be set up in Singapore (May 2001) and amongst the first in Asia, Cordlife Group Limited has more than 16 years of cord blood banking experience as well as a published track record of cord blood transplants.

The Group currently owns and operates full processing and cryopreservation storage facilities across Asia (Singapore, Hong Kong, India, Indonesia, Malaysia and the Philippines). The Group also extends its products and services to families in the region through its associates, sub-licensing partners and marketing agents in China, Thailand and Myanmar.
• Umbilical Cord is a tube-like structure that connects the fetus to placenta, providing nutrients and removing waste.
• The umbilical cord contains cord blood, Wharton’s Jelly, umbilical arteries and an umbilical vein. The components are protected by a sheet-like membrane known as the cord lining.

Three main types of stem cells can be found in the umbilical cord:

• Hematopoietic Stem Cells (HSCs)
• Mesenchymal Stem Cells (MSCs)
• Epithelial Stem Cells (EpSCs)

The stem cells in the umbilical cord are the youngest and inherently valuable cells that have the potential to keep your baby protected for the years to come.
By storing HSCs, EpSCs and MSCs from umbilical cord blood and umbilical cord lining— the youngest and most potent adult stem cells—your child may have access to more medical options in the future.

### DIFFERENCES BETWEEN UMBILICAL CORD BLOOD & UMBILICAL CORD LINING BANKING

<table>
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<th>Type of Stem Cells</th>
<th>Cord Blood Banking</th>
<th>Cord Lining Banking</th>
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<td>Hematopoietic Stem Cells (HSCs)</td>
<td>Mesenchymal Stem Cells (MSCs) and Epithelial Stem Cells (EpSCs)</td>
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<td>Treatment type</td>
<td>Standard treatment: blood, immune and metabolic disorders</td>
<td>Potential treatment: heart disease, stroke, diabetes type 1, bone or cartilage disorder, liver disease, lung disease</td>
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<tr>
<td></td>
<td>Potential treatment: cerebral palsy, autism, spinal cord injury</td>
<td></td>
</tr>
<tr>
<td>Number of uses</td>
<td>One or two uses</td>
<td>Multiple uses</td>
</tr>
<tr>
<td>HLA match</td>
<td>Required for standard treatment</td>
<td>Potentially unnecessary for certain allogenic uses</td>
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Cord blood is a rich source of Hematopoietic Stem Cells (HSCs), which are responsible for replenishing blood and regenerating the immune system. HSCs are known as ‘precursor cells’, as they have the unique ability to differentiate into the different types of cells found in the body, namely:

- Red Blood Cells - transport oxygen
- White Blood Cells - produce antibodies and fight infections
- Platelets - assist in blood clotting

The hematopoietic stem cell differentiates into all other blood cells including these illustrated here:

- Red blood cells carry oxygen to the organs and tissues
- White blood cells fight infections
- Platelets help blood to clot
DISEASES TREATED WITH STEM CELLS & OTHER POTENTIAL APPLICATIONS*

**Standard Treatment**

**BLOOD CANCERS**
- Acute Myelogenous Leukaemia
- Acute Lymphoblastic Leukaemia
- Chronic Myelogenous Leukaemia
- Histiocytic Neoplasms
- Other Myeloproliferative Neoplasms
- Myelodysplastic syndrome
- Multiple Myeloma
- Plasma Cell Leukaemia
- Systemic Mastocytosis
- Waldenstrom’s Macroglobulinemia

**SOLID TUMORS**
- Hodgkin Lymphoma
- Non-Hodgkin Lymphoma
- Langerhans’ Cell Histiocytosis
- Neuroblastoma
- Retinoblastoma

**NON-MALIGNANT BLOOD DISORDERS**
- Aplastic Anaemia
- Chediak-Higashi Syndrome
- Congenital Dyserythropoietic Anaemia
- Diamond-Blackfan Syndrome
- DiGeorge Syndrome
- Evans Syndrome
- Fanconi’s Anaemia
- Glanzmann’s Thrombasthenia
- Gunther’s Disease (erythropoietic porphyria)
- Hereditary BM failure syndromes
- Hemophagocytic Lymphohistiocytosis
- Leukocyte Adhesion Deficiency
- Paroxysmal Nocturnal Hemoglobinuria
- Pure Red Cell Aplasia
- Sickle Cell Anaemia
- Thalassemia Major

**IMMUNODEFICIENCY DISORDERS**
- Chronic Granulomatous Disease
- Common Variable Immunodeficiency
- Cartilage-Hair Hypoplasia
- Reticular Dysgenesis
- Severe Combined Immune Deficiency (SCID)
- Shwachman-Diamond Syndrome
- Wiskott-Aldrich Syndrome

* Reference:
Potential Applications

Clinical Trials

- Autism
- Brain Tumor
- Cartilage Repair
- Cleft Palate Repair (Alveolar)
- Cerebral palsy
- Crohn’s disease
- Critical Limb Ischemia
- Diabetes Type 1
- Epidermolysis Bullosa
- Ewing Sarcoma
- Graft-versus-Host Disease (GvHD)
- Hypoxic Ischemic Encephalopathy (HIE)
- Hearing Loss
- HIV
- Ischemic Stroke
- Lupus
- Multiple Sclerosis
- Myocardial Infarction
- Ovarian Cancer
- Rheumatoid Arthritis
- Spinal cord injury
- Scleroderma
- Testicular Tumour
- Liver cirrhosis
- Parkinson’s Disease
- Traumatic Brain Injury

Experimental Treatments

- Alzheimer’s Disease
- Amyotrophic lateral sclerosis
- Congenital hydrocephalus
- Huntington’s Disease
- Adrenoleukodystrophy
- Gaucher’s Disease
- Hurler Syndrome
- Hunter’s Syndrome
- Krabbe Disease
- Lesch-Nyhan Syndrome
- Maroteaux-Lamy Syndrome
- Metachromatic leukodystrophy
- Osteopetrosis
- Sly Syndrome, Beta-Glucuronidase Deficiency
- Wolman Disease

* Reference:
Mesenchymal Stem Cells (MSCs) are multipotent stem cells which can differentiate into various types of specialized cells (i.e. bone, cartilage, fat, muscle, etc.).

Mesenchymal Stem Cells (MSCs)
- Assist in repair
- Reduce inflammation
- Divide into other tissues, such as neural tissue, under induction

Mesenchymal Stem Cells (MSCs) also possess immunomodulatory properties. They can be used to promote engraftment for cord blood transplants and hence increase the success rate of blood (hematopoietic) stem cell transplants.
Mesenchymal Stem Cells (MSCs) have immense potential to be used as therapeutic cells for tissue or organ regeneration due to physical injury or biological damage caused by degenerative disease progression or aging (e.g. heart disease, stroke, diabetes type 1, bone or cartilage disorder, liver disease, lung disease, etc.)

Skeletal tissues – bone & cartilage

Cardiac muscle

Nervous system – brain & spinal cord

Pancreatic cell
MSC and Heart Attack

- 69 heart attack patients were treated;
- Following angioplasty, doctor directly injected patients’ damaged heart site with MSC harvested from patients’ own bone marrow;
- Results showed significant improvements in patients’ left ventricular function.


MSCs and stroke

- 12 patients with various brain lesions due to ischemic stroke
- Treated with intravenous injection of ex-vivo expanded patients’ own MSC harvested from marrow
- Safe: no tumors, neurologic deterioration, infection from treatment
- More than 20% reduction of lesions after MSC treatment


MSC-HSC co-transplantation

- In 2002, Sydney Scott at 13 weeks, was diagnosed with Acute Myeloid Leukemia (AML)
- Treated with chemotherapy followed by umbilical cord blood and MSC co-transplantation – world’s first
- MSC thought to enable faster blood stem cell engraftment
- Sydney is relapse and medication free
CORD LINING MSC – CELLRESEARCH CORP TRIALS

- 1 yo male, non-healing wound on left ankle 90 days post hemangioma radiotherapy
- Treatment with cord Tissue MSC in conjunction with Tegaderm™ wound dressing
- Wound healing and closure at 20 days post MSC treatment

- 82 yo male, with non-healing diabetic wound after 15 weeks, chronic leg wound
- Treatment with cord lining MSC in conjunction with Tegaderm™ wound dressing
- Wound healing and closure at 45 days post MSC treatment

- 30 yo male, chemical burn on left foot
- Treated with cord lining MSC
- Wound closure and healing by 21 days post MSC treatment

Since 2006, 1500+ patients treated with cord tissue MSC therapy for difficult to heal wounds. Cord Tissue MSC heal 80% of these wounds, improve wound beds for skin graft success.

Source: National Institute of Burns, Hanoi Vietnam
• Sep 1998 – Feb 1999, 8 patients with 10 skin wounds treated in SGH Burn Centre
• Autologous and allogeneic skin epithelium (keratinocytes) cultured and transplanted with polymer dressing aid
• Rapid re-epithelialization, closure and healing of wounds


In 2003, 7 patients in Singapore with various ocular surface disorders
• Autologous harvesting and cultivation of conjunctival epithelial stem cells
• Transplantation of cultured stem cells on human amniotic membrane
• All 7 patients fully recovered: disease resolution and complication free

• Cord lining EpSC transplant in 31 eyes with persistent epithelial defect (PED) – Jan 2011 to Dec 2012
• 29 out of 31 eyes (93.5%) healed with a single EpSC transplant
• Normal corneal healing found in all 29 cases with 3-27 months follow up

Source: Department of Cornea and External Diseases, National Eye Institute, Hanoi, Vietnam
Enrollment & Collection: Overview & Reminders

- A personalized collection kit will be provided to you.
- Bring collection kit to hospital on the day of delivery.
- Trained hospital staff (doctor or nurse) will perform maternal blood and cord blood collection.
- Call Cordlife immediately after birth of your baby.
- Cord blood unit will be picked up by Cordlife or its representative within 24 hours, for processing and storage within 48 hours of collection.
- Cord blood unit can be maintained at room temperature prior to storage, and must not be subjected to x-ray.

* Refer to Cordlife Service Agreement for details.
Infectious diseases screening done on maternal blood:

- Human immunodeficiency virus (HIV 1 / 2)
- Syphilis (Treponema pallidum)
- Cytomegalovirus (CMV)
- Hepatitis B (HBV)
- Hepatitis C (HCV)
- HTLV-I/II (Human T-lymphotrophic virus)

For HCV/HIV/HTLV reactive samples:

- Consent for discard is required
- If client insists on storage, a waiver is required
- Need to consult MD for advice

For Hepa B reactive samples:

- May be limited to autologous use
The process of collecting your baby's cord blood & cord lining

The OB-GYNE is the designated Healthcare Professional for collection

Inform your OB that you will be banking your baby's cord blood

The baby is safely delivered.

The umbilical cord is clamped

The cord blood is collected

Cord blood collection is a safe, painless and risk-free procedure. It is easily collected within a few minutes.

Picked-up and Delivered to Cordlife laboratory for processing and storage in a cryogenic environment

A segment of umbilical cord is collected

If cord lining is being stored

4 tubes of maternal blood are collected for a panel of infectious diseases testing.

Cordlife Laboratory
CORD BLOOD AND CORD LINING PROCESSING & LONG TERM STORAGE

1. Cord blood collection kit
   - Collected cord blood in collection bag
   - HSCs SEPARATION
     - Sepax machine
   - PLACEMENT IN CRYO BAG
     - Dual compartment cryo bag with HSCs

2. Cord lining collection kit
   - Collected umbilical cord in a sterile container
   - CLEANING AND SEGMENTATION OF THE CORD
   - CRYO-PRESERVATION
     - Liquid nitrogen cryogenic tank
   - PLACEMENT IN INDIVIDUAL CRYO VIALS

CORD BLOOD AND CORD LINING PROCESSING & LONG TERM STORAGE

20
1. Publicly Listed, Transparent Credibility

Listed on the Singapore Exchange, Cordlife Group Limited is well established as the largest network of private stem cell banks across Asia with state-of-the-art umbilical cord blood and cord tissue processing and cryopreservation facilities in Singapore, Hong Kong, India, Indonesia, Malaysia, and the Philippines as well as a network that extends through its associates and sub-licensing partners and marketing agents in China, Thailand, and Myanmar.

2. The Only Private Cord Blood Bank with Local Facility in the Philippines

Located in UP-AyalaLand Technohub, our ISO 9001:2008 certified local stem cell processing and storage facility is the first and only in the Philippines with a storage capacity of over 30,000 units. Cordlife prides itself as the widest network of cord blood bank in Asia, and is trusted by over 300,000 parents worldwide. Cordlife’s facilities are managed by highly qualified laboratory biotechnologists. Built using stringent criteria set by AABB, our facilities are closely monitored and equipped with multiple back-up systems.
3. Quality You Can Trust

The Company’s in-depth knowledge of stem cell banking practices and standards is well recognized by numerous world class quality standard organizations as well as country regulators in the Asia Pacific region. In 2007, Cordlife was bestowed the prestigious 'Technology Pioneer' title by the World Economic Forum, which further validated the Company’s outstanding performance in the industry.

4. Most Experienced

- Started in 2001, Cordlife is highly regarded as the largest and most experienced network of cord blood banks with more processing and storage facilities across Asia than any other cord blood banks in the region.
- As a Group, Cordlife has released a total of 35 cord blood units* to our clients for treatment. Our proven track record for release is the ultimate validation of our processing and storage methods.
- Passed through stringent tests by external medical professionals before infusion.
- Ultimate validation of Cordlife’s processing and long-term storage capability.

* For details, visit www.Cordlife.ph/en/release-track-record
5. Client Protection

- Full Refund for No Blood Collection, Low Blood Collection and Unprocessed Samples
- Partial Refund for samples unsuitable for storage
- Guaranteed Continuity of Storage to comparable facilities at no cost

6. Total Stem Cell Banking Solution

Cordlife is the only stem cell bank in the Philippines that provides Total Stem Cell Banking Solution for your family’s complete protection against potential diseases.

Unlike conventional technology, Cordlife’s Cell Optima™ technology can harvest two other potentially useful stem cells from the umbilical cord lining: mesenchymal and epithelial stem cells. This patented technology is exclusively available at Cordlife.

7. Highest Quality Service at Reasonable Prices

Cordlife is a world-recognized healthcare company that can provide you with the highest quality services. At the same time, our services are priced affordably so that every family can benefit from private cord blood banking to safeguard their family’s health.

8. Best Solution for Cord Blood Banking

When it comes to stem cell banking for your family, we go all out for quality. We always insist on the best so our clients can receive better transplant and cellular therapy outcomes. Unlike other processing and storage technologies, our technology has never been recalled by manufacturers.

- Eliminates cross-contamination.
- Trusted by the majority of private cord blood banks worldwide.
- Lowest sample temperature at -190 C.

*As of July 2016, based on consolidated figures of Cordlife Group Limited and its associates.*
9. Double Protection Guarantee

Your baby’s cord blood could turn out to be the most precious gift to your child. That is why we have it doubly protected by the Cordlife Quality Guarantee* to assure you of a cord blood unit of suitable match or SGD 50,000 if the cord blood stem cells lost its viability at the point of transplant to safeguard you and your family.

10. Cordlife Transplant Care*

Cordlife will provide a one-time subsidy of SGD 50,000 to partially cover medical costs of transplantation for the child whose cord blood unit is stored (autologous use), applicable for use in standard treatment at any accredited hospital in the Philippines.

11. Cordlife Shield*

Cordlife Shield provides coverage for a pregnant mom who has availed of Cord Blood Banking from 7 types of pregnancy complications, 16 types of congenital illnesses and maternal or child death. Cordlife will provide a subsidy of SGD2,000 for pregnancy complications and congenital illnesses. For maternal or child death, coverage is SGD5,000. Cordlife Shield may only be availed once and is subject to Terms and Conditions and Provisions of the Insurance Policy.

12. Cord Blood Network*

Assisted Search for Matching Cord Blood

for Legal Parents and Grand Parents of Cordlife Child, tapping Asia’s largest network of public cord blood banks

- Protection for 3 generations of your family
- Child whose cord blood is stored with Cordlife
- Legal parents
- Legal grandparents
- Assistance in the search for a matching cord blood unit should the need arise

* Details are discussed in the Cordlife Service Agreement.
Justin (alias) was diagnosed with a common childhood cancer, neuroblastoma, at a tender age of one and half years old. Over the course of 1 year, the child had to endure numerous rounds of high-dose chemotherapy to treat his condition. Chemotherapy destroyed cancer cells, but at the same time also killed normal cells. Fortunately, Justin’s parents had his cord blood stored at birth with Cordlife. The cord blood stem cells were infused back to his body after a course of chemotherapy in January 2011 at Queen Mary Hospital and he was discharged from hospital after 3 months. The cord blood unit used had been cryopreserved in Cordlife Hong Kong facility for 29 months. Cordlife is very proud to achieve this milestone in the cord blood banking industry in Hong Kong.

Moinam was diagnosed with Thalassemia when he was barely one year old. If left untreated, most of the children inflicted with this disorder do not live beyond the age of 10. Fortuitously, his newborn sister was free from Thalassemia and her cord blood stem cells were a perfect match for Moinam, with small amount of bone marrow to supplement the transplant, Moinam is now in his recovery phase and the results from his blood is very heartening.
"We decided to use a mixture of bone marrow and cord blood cells as it has a better and faster chance of success than only bone marrow cells. Bone marrow stem cells, on the other hand, could lead to Graft Versus Host Disease, triggered by the body’s defense mechanism while the transfusion is being done. Not only increase the stem cell count, but also reduce the chance of any complications. It is the treatment of choice in such cases and leads to a complete cure," explained Dr Mukherjee, Medical Director of NetajiSubhash Chandra Bose Cancer Research Institut.

Source: The Telegraph, 7 May 2011

Georgia

An accident at birth 2.5 years ago deprived Baby Georgia of oxygen to her brain, resulted in cerebral palsy. The damage to the toddler’s brain caused her to move involuntarily, suffer from muscle spasms and have up to 50 seizures a day. It was only after Cordlife put the family in touch with a renowned neurosurgeon that enable Georgia to be infused with her own cord blood, also stored by Cordlife. Her conditions have improved since then.

"Georgia has made good progress since her stem cell infusion. She has better visual focus and eye contact with adults during play. She has more vocalization and tries to ‘sing-a-song’ by making different sounds to nursery rhymes. Georgia has improved postural and head control and is observed to be reaching more with her arms," said Ms. Jaclyn Tan, Consultant Occupational Therapist at OzWorks Therapy.

Source: The Sun, 3 December 2009
“This is my family.

I will do everything in my power para maalagaan sila ng maayos, to provide for them, to spoil them, and to give them an advantage sa future.

I will save and invest all my money for them. I will take care of myself better para mabantayan ko sila hanggang sa paglanda ko. I will behave and not do anything stupid, I will work harder, and spend as much time with them as possible.


Parang spare tire lang yan eh. Ayaw mo syempre na ma-flatan ka, pero at least kampante ka na may reserba ka...just in case. Hindi yung maghahanap ka lang ng reserba kung kelan flat na yung gulong mo.

Anyway, tulog ngayon ang mag-ina ko. Sarap ng tulog nila pareho. Both of them, safe and healthy.”

Chito Miranda
Songwriter, Lead Singer for Parokya ni Edgar, Proud Dad to Miggy and Husband to Neri

“Banking Primo’s cord blood and lining was a no brainer! Who knows who might need his stem cells! He just might end up being his Lola’s hero or maybe even mine one day”

Iya Villania-Arellano
TV Personality, Proud Mom of Primo and Wife to Drew

“As a mother, I strongly recommend cord blood banking to other parents. It is a health insurance that is safe, painless, and non-disruptive to your birth plan.”

Isabel Oli Prats
Model, Television Host, Movie Actress and Mom to Feather and Wife to John
“My heart was broken in a million pieces when I found out that my first born was stricken with Leukemia at 2 years old. When almost all hope is gone, his pedia-oncologist recommended stem cells to help treat his illness. I recently gave birth to a healthy baby girl and through the help of Cordlife Cares Program, we were able to store the stem cells from her umbilical cord blood. Now we have a ready source of stem cells for her older brother! In the midst of all our worries and fears, Cordlife gave us hope that we can conquer the big C. I consider it as the wisest decision a parent could ever have, like getting a life security blanket to keep the family safe and warm in time of need.”

Luzelle Atienza-Zata  
Mother of three & Cordlife Cares recipient

“I’m a first-time mom to six-month old triplets. I asked my OB-Gyne about cord blood banking even before I got pregnant to ensure that we are on the same page. I believe having a doctor who is very knowledgeable about cord blood banking plays a vital role in making the journey to motherhood smooth and worry-free. I can say that I’m in good hands, have peace of mind and am now a proud Cordlife mom.”

Tammy Banate  
Cordlife Parent

“Wala kaming medical history ng leukemia—just diabetes in the family, but alam naman namin na along the way madami pang mga research and findings, so kumuha kami ng Cordlife tapos ayun, na-lessen yung worry ko for my kids’ health kasi may hope if ever may mangyari.”

Leanne Joy Marie Co Pacheco  
Cordlife Mom since 2012
A Singapore Exchange mainboard-listed mother and child healthcare company.

Trusted by 300,000* parents in Asia since 2001.

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* As of July 2016, based on consolidated figures of Cordlife Group Limited and its associates.

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