



Subsidiaries of CytoMed Therapeutics Pte Ltd

**IPSCBank Pte Ltd**

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**IPSC Depository Sdn Bhd**

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**GMP Facility**

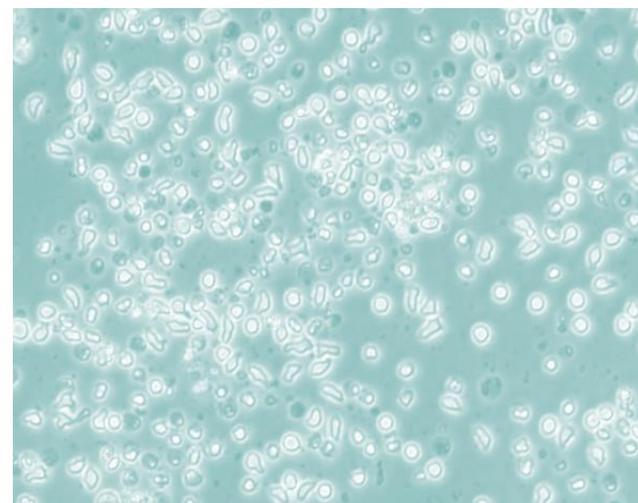
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# Peripheral Blood Mononuclear Cell (PBMC) Banking

*Bank your own cells now  
for your future health!*



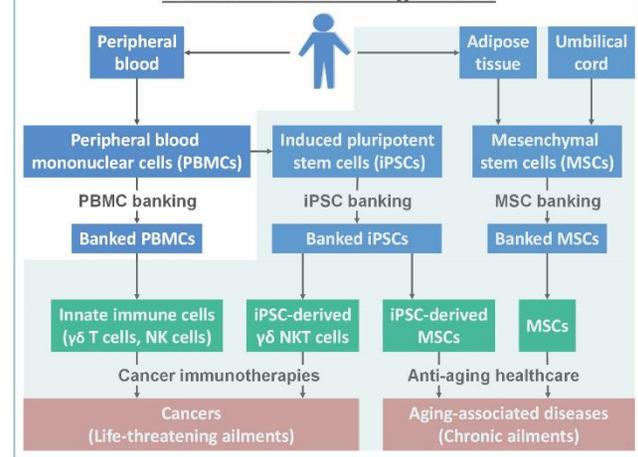
## About IPSCBank and IPSC Depository

IPSCBank and IPSC Depository are subsidiaries of CytoMed Therapeutics Pte Ltd and mainly focus on personalized cell banking. Customers can cryo-store their own cells with IPSCBank in the format of PBMCs, iPSCs or MSCs for future use.

CytoMed Therapeutics, the parent company of IPSCBank is a deep tech company incorporated in 2018. CytoMed is translating its patented technologies into “off-the-shelf” immunotherapeutics for a wide range of cancers. CytoMed Therapeutics has built its own state-of-art GMP facility to support cell banking and cell therapies.



## IPSCBank: Cell Banking Models





**Bank your PBMCs now  
for your future health!**

### 1. What are PBMCs?

PBMCs is the acronym for “**p**eripheral **b**lood **m**ononuclear **c**ells”. PBMCs circulate in the blood stream of the body and can be accessed via **non-invasive** blood withdrawal. PBMCs comprise blood stem cells and immune cells such as T cells and natural killer (NK) cells that are useful for developing a wide range of cell therapies.

### 2. What can I do with my PBMCs?

**Cell therapy** is becoming the new cure for many diseases. PBMCs are an accessible and valuable cell source to develop disease-treating cell therapies. They are currently being used by scientists and clinicians around the world for cancer immunotherapy, regenerative medicine and personalized medicine.

In **CytoMed**, the parent company of **IPSCBank**, PBMCs are being used for the following applications:

- To manufacture a potentially life-saving **cancer immunotherapeutic**, chimeric antigen receptor-grafted  $\gamma\delta$  T cells (CAR- $\gamma\delta$  T cells) for cancer patients;
- To generate **induced pluripotent stem cells** (iPSCs) that can be transformed into many functional cells for future regenerative medicine and disease treatments.

### 3. Why should I bank my own PBMCs?

In most cell therapies, using **matched** donor cells is commonly required to minimize transplant rejection and maximize therapeutic efficacy. Using **your own cells** will overcome the transplant rejection issue and the hassle of looking for a matched donor. Hence, banking your own PBMCs provides a valuable matched cell source for your own future medical needs.

### 4. Why should I bank my PBMCs now?

To provide **high-quality matched cells** for your future medical needs, bank your PBMCs now when you are still **eligible** for such banking service. The reasons are as following:

- **Inadvertent medical conditions** such as infectious diseases or cancers may **disqualify** an individual from cell banking service. As a common practice, **IPSCBank** will only process blood samples from pre-screened individuals and bank those PBMCs derived from blood samples of qualified individuals.
- **The earlier the PBMC banking, the better the PBMC quality, the lesser background genetic mutation and hence the higher usability** of the banked PBMCs in future applications.

### 5. Who is eligible to bank PBMCs? Is there an age limit?

All pre-screened pre-qualified individuals can bank their PBMCs. There is no age limit for banking PBMCs. But the earlier the better as explained above.

### 6. What is the procedure to bank PBMCs?

Interested individuals may contact **IPSCBank** to schedule blood test and blood withdrawal in partner clinic/hospital sites. Two visits to the clinical site are required:

- **1st visit for blood test:** Small amount of blood are withdrawn and sent for blood test. It is like your routine medical check-up and there is no requirement for fasting.
- **2nd visit for blood withdrawal:** After the individual has passed the blood test, 150ml (less than half volume of a soda can) of blood are withdrawn and immediately sent to the GMP facility for isolating and cryopreserving PBMCs. The banked PBMCs are cryo-stored in liquid nitrogen at the GMP facility.

### 7. How many PBMCs can be isolated from a blood sample?

Typically, around 150 million PBMCs can be isolated from 150ml of blood. The quantity varies with blood donors' age and health status.

### 8. How long can the banked PBMCs survive in cryo-storage?

Previous studies have reported that such banked PBMCs can be cryopreserved in liquid nitrogen for up to ten years or more. A sample vial will be thawed every few years to check the cell viability.

### 9. What are the advantages of PBMC banking comparing with other cell banking?

The advantages of PBMC banking comparing with other cell banking are:

- **Simple, non-invasive** starting material acquisition procedure: Only a simple blood withdrawal is required to collect the starting material for PBMC banking. In contrast, invasive and painful procedures, such as bone marrow aspiration, liposuction or skin biopsy are required for other cell banking.
- **Minimum cell manipulation** before cryopreservation: Only minimum manipulation of PBMCs is required for PBMC banking. In contrast, complicated cell manipulations, such as tissue digestion, cell purification, cell culture or cell expansion are required for other cell banking.
- **Cost-efficiency:** PBMC banking provides a cost-efficient way to cryopreserve autologous cells for future use due to the much simpler cell acquisition procedure and manipulation.

### 10. I have banked my cord blood, should I bank my PBMCs too?

If you have already banked your cord blood at birth, we congratulate you! You have a fully matched blood stem cell source that may save you from leukaemia or other blood disorders when you are young. You should keep this precious and valuable autologous cell source as it is. However, the limited number and the fetal nature of the cord blood cells may not be ideal for adult use. Hence, owning banked cord blood should not exclude you from PBMC banking and **the broader range of potential benefits** it may bring by the development of cell therapies.

### 11. Can my banked PBMCs benefit my children?

Typically, your banked PBMCs will benefit yourself most because they are **matched cells to you**. However, they are **unmatched cells to your children** and may not be the best cell source for your children.

In certain clinical setting, it is possible to use donor's PBMCs to generate cell therapy for other individuals. For example, **CytoMed** is using healthy donor's PBMCs to manufacture cancer immunotherapeutic for cancer patients.

### 12. Why banking my PBMCs with IPSCBank?

The advantages of PBMC banking with **IPSCBank** are:

- **Certified GMP facility and well-trained scientists:** Your PBMCs will be isolated and cryopreserved by well-trained and experienced scientists in a certified state-of-the-art GMP facility.
- **Therapeutic potential:** Your banked PBMCs may be further processed into therapeutic cells such as cancer-killing immune cells as well as iPSCs for both cancer treatment and regenerative medicine using our patented proprietary technologies, of which we own the global exclusive license.