



**IPHASE**

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Innovative Reagents for Innovative Research

# Cell and Cell Separation Product Brochure

## **IPHASE Biosciences**

Add: 418 Industrial Drive, North Wales, PA 19454  
Web: [www.iphasebio.com](http://www.iphasebio.com)  
Email: [info@iphasebio.com](mailto:info@iphasebio.com)  
Tel: 1 267-613-8425



IPHASE Biosciences

# ABOUT US

IPHASE Biosciences is a high-tech enterprise dedicated to biomedical and life science research. Leveraging the extensive knowledge and passion for scientific research, our scientific team is committed to providing scientists with high-quality innovative biological reagent products and technical services.

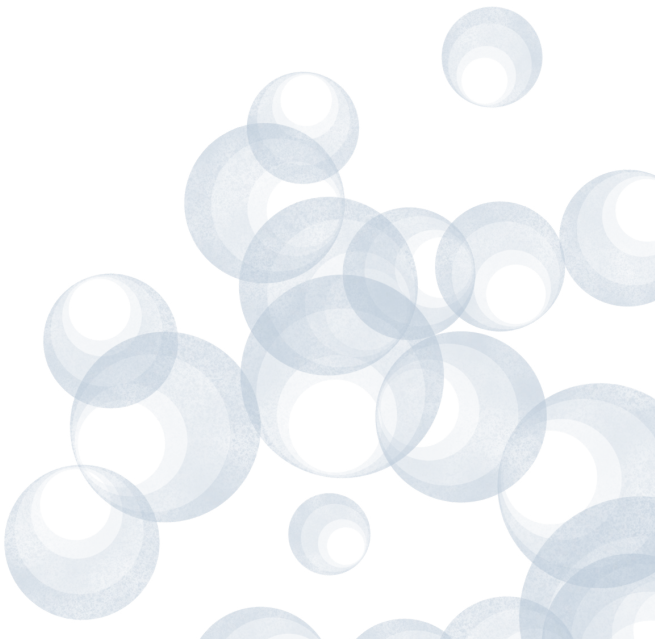
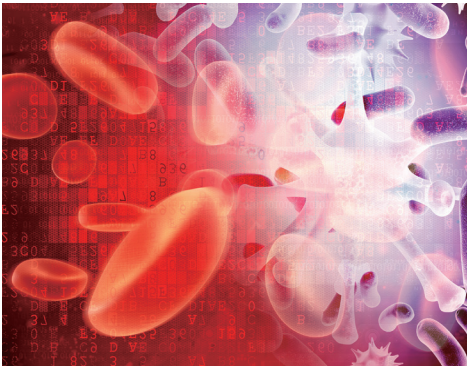
A high-tech enterprise focused on biomedical and life science research	for over a decade Extensive experience in independent R&D and product support
Innovative Reagents for Innovative Research	
	Extensive knowledge Passion for scientific exploration

IPHASE was initially established to develop ADME products for early drug screening. The company has expanded its product portfolio by increasing its efforts in the R&D of innovative products for pharmacokinetics, pharmacology, microbiology, immunology, genetics and clinical medicine based on over a decade of successful experience in independent product R&D and product support. Our marketed products have been validated by in-house or international standards (e.g. OECD and ICH) and have gained qualification/patent certificates and wide recognition from peers in the industry.

The core competencies of IPHASE lie in the company's extensive innovative capability and experience in chemical and biological analysis, cytogenetics, DNA engineering, protein and antibody development, and immunoassay. Our mission is to provide innovative reagents for innovative research!

## Corporate philosophy +

IPHASE Biosciences pursues the development concept of "innovative reagents for innovative research" and adheres to the corporate purpose of "honesty, rigor, pragmatism, and innovation". Being market-oriented, we strive to provide high-quality and technologically advanced products for domestic and foreign enterprises and research institutions, thus achieving our brand commitment.





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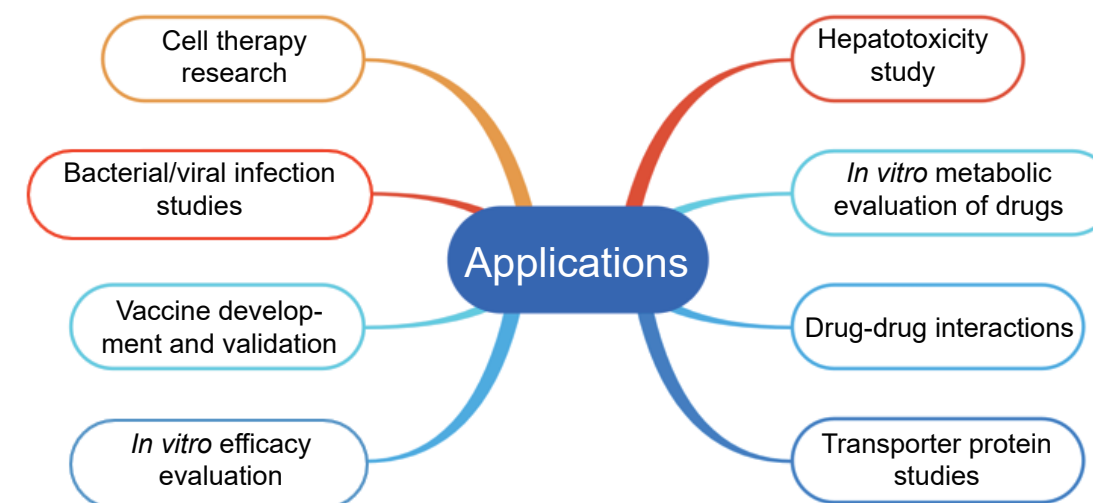
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## Introduction

Biotechnology drugs have been increasingly developed and approved for marketing as molecular biology research and gene recombination technology advanced. In recent years, biotechnology drugs have entered the clinical phase at an extremely fast pace every year, becoming the most active field in pharmaceutical research and development. The development and preclinical research (e.g., drug activity and drug stability) of biotechnology drugs as well as drug production are all dependent on cells, especially cellular immunotherapies such as stem cell reinfusion, cell exosome reinfusion, chimeric antigen receptor T Cell therapy, tumor-Infiltrating lymphocyte (TIL) therapy, engineered T-cell receptor (TCR) therapy, and natural killer (NK) cell therapy. A large number of cells (such as T lymphocytes, B lymphocytes, monocytes, NK cells, macrophages, dendritic cells and hepatocytes) are required for the development, *in vitro* efficacy evaluation and production of these drugs. Cells and cell-related products have an important place in the R&D of new biotechnology drugs.

Therefore, providing high-quality cells and cell related products for enterprises and research institutions has become the key to promoting the development of biotechnology drugs. These products have long been monopolized by some suppliers and have posed great challenges to major enterprises such as high cost, high cost, inflexible procurement, and no guarantee of some product quality.

In response to the R&D and production needs of life science and biomedical industries, IPHASE pursues the development concept of "innovative reagents for innovative research" and provides clients with professional life science research and product development services. Our cells and cell related products can meet the R&D and production needs of biotechnology drugs, with performance comparable to various imported brands. The company responds to customer needs quickly and provides high-quality services. Our products are free of problems faced by equivalent products such as high cost, difficult transportation, and unresponsiveness to technical problems, thus laying a solid foundation for equivalent substitution.





## Primary Cells

Primary cells are cells obtained from the blood or tissues through enzymatic digestion or other methods. Primary cells retain key characteristics of the originating tissues and have better physiological relevance and greater *in vivo* predictive values. Therefore, primary cells are essential for the translation of basic research to preclinical or clinical applications. Primary hepatocytes are widely used in basic molecular biology, cell biology, proteomics, genetics and biomedicine research and can also be used for drug screening, drug metabolism, toxicology studies, and cancer drug studies in the biomedical industry. Therefore, these cells play an irreplaceable role in the field of biomedicine.

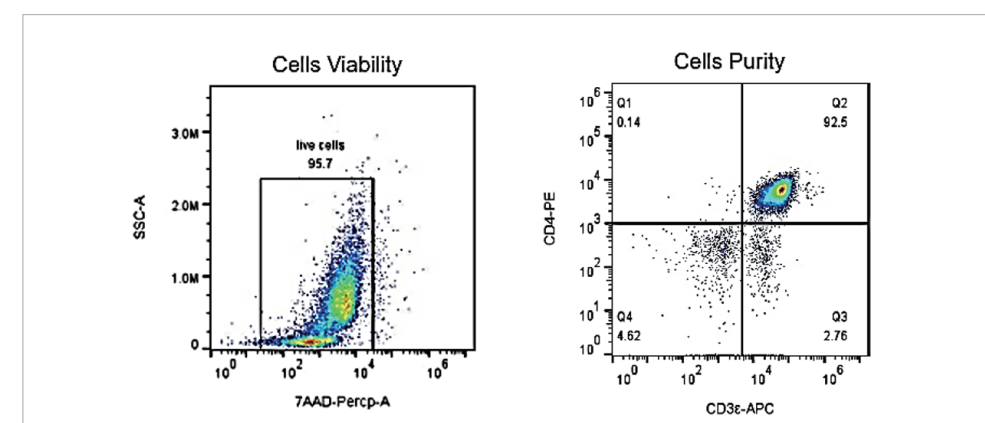
IPHASE can provide primary cell products (immune cells, mononuclear cells, red blood cells, platelets, and primary hepatocytes) from multiple species, including human, monkey, dog, rat, mouse, pig, rabbit, cat, and alpaca. All cells are obtained from fresh tissues, which ensures the viability of cells and meet the research needs of customers in various fields.



## Immune cell subsets>>>

Immune cells are composed of many different types of cells, such as monocytes, macrophages, dendritic cells, and NK cells. As important members of the immune system, immune cells can engulf foreign objects, produce antibodies, heal injuries and cure diseases, and resist pathogen invasion. Immune cells are essential for executing immune responses and immune functions. In recent years, immune cell therapy has made rapid progress in disease treatment. The success or failure of immunotherapy is not only dependent on studies of immune cell functions and mechanisms but also on the supply of high-quality immune cells.

IPHASE offers products for isolating highly pure human and mouse immune cells using negative immunomagnetic cell selection while maximally retaining the original state and viability of the cells. IPHASE now offers fresh and frozen products of CD3+ T cells, CD4+ T cells, CD8+ T cells, CD19+ B cells, monocytes, NK cells, and other cells as reliable raw materials for immunology research.



Quality Control Result of IPHASE Mouse CD4+T Cells after Isolation

## Product advantages>>>

- ◇ Compliance Compliance is the beginning of research. The tissues from which our products derive are obtained through legitimate channels with clear sources, eliminating concerns.
- ◇ Safety Human and animal products have been tested for infectious agents, which makes the products safe for use.
- ◇ High purity Cells are over 90% pure.
- ◇ High cell viability Cells are over 85% viable.
- ◇ High recovery rate Cells are over 90% recoverable after freezing and thawing.
- ◇ Customization We provide customized cell products from specific species and tissues according to the specific needs of the customers.

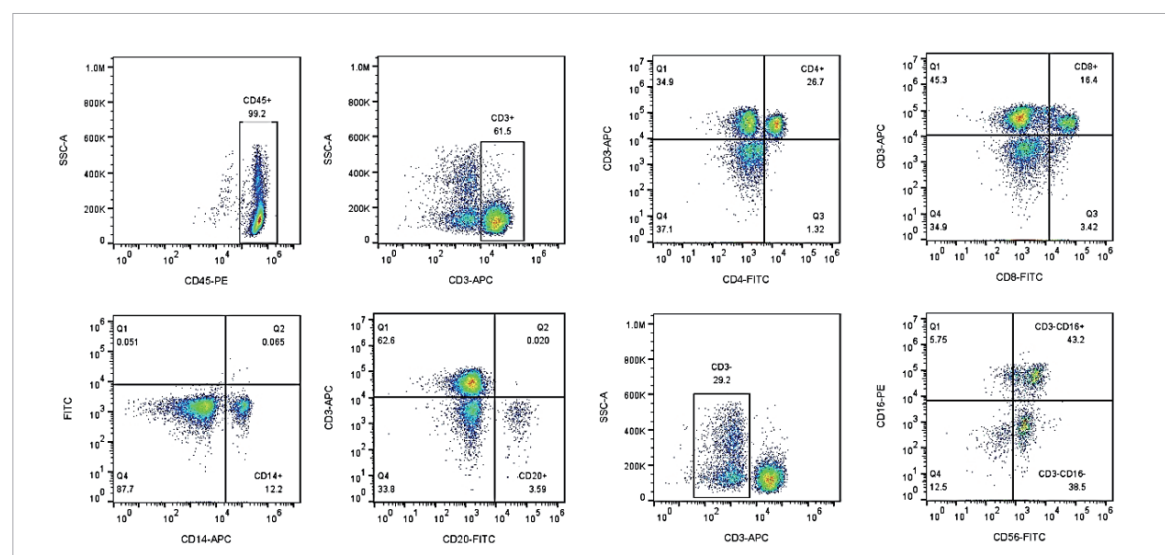
Product Description	Species	State	Size
IPHASE CD3+T Cells, Negative Selection	Human/ Mouse	Fresh/Frozen	5/20 million
IPHASE CD4+T Cells, Negative Selection	Human/ Mouse	Fresh/Frozen	5/20 million
IPHASE CD8+T Cells, Negative Selection	Human/ Mouse	Fresh/Frozen	5/20 million
IPHASE CD14+Monocytes Cells, Negative Selection	Human/ Mouse	Fresh/Frozen	2/5 million
IPHASE CD19+B Cells, Negative Selection	Human/ Mouse	Fresh/Frozen	2/5 million
IPHASE CD56+NK Cells, Negative Selection	Human/ Mouse	Fresh/Frozen	2/5 million
IPHASE Peripheral Blood Dendritic Cells	Human/ Mouse	Fresh/Frozen	0.5million
IPHASE Peripheral Blood Macrophages	Human/ Mouse	Fresh/Frozen	1.5million



## Mononuclear Cells>>>

Mononuclear cells are white blood cells with only one nucleus, with a relative density between 1.076 and 1.090. These cells can be further divided into Peripheral Blood Mononuclear Cells (PBMCs), Cord Blood Mononuclear Cells (CBMCs), Spleen Mononuclear Cells, Bone Marrow Mononuclear Cells (BMMNCs) according to their tissues of origin.

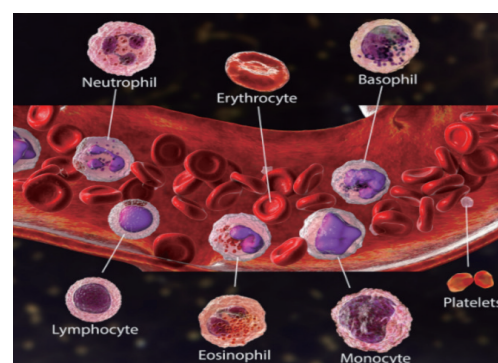
In response to the needs of the life science field and biomedical industry as well as leveraging its professional technology platforms and years of R&D experience, IPHASE not only offers PBMC products, SMC products and BMMNC products of different animal species, but has also expanded the mononuclear cell bank by adding human CBMCs and mobilized PBMCs for special purposes. In addition, fresh and cryopreserved mononuclear cell products can be provided according to the customer's usage requirements and habits. Customers can select and order products based on their actual needs and product characteristics.



Proportion of Subtype Cells in IPHASE Frozen PBMCs

## Peripheral Blood Mononuclear Cells

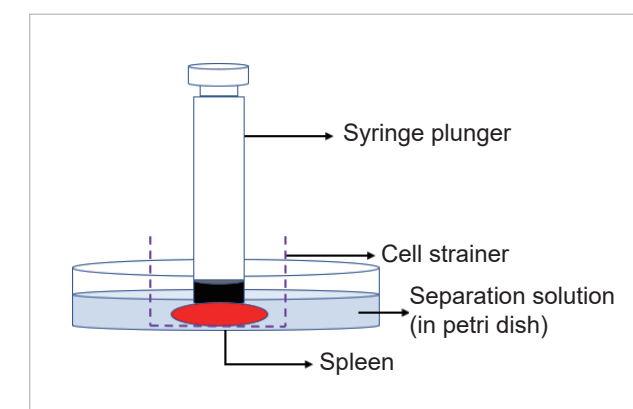
Peripheral blood refers to the blood that can be obtained from superficial peripheral blood vessels in the limbs aside from the bone marrow. Peripheral blood mononuclear cells (PBMCs) are mononuclear cells in the peripheral blood and a subset of white blood cells (WBC). PBMCs are mainly composed of lymphocytes (T cells, B cells and NK cells) and monocytes, which are separated from peripheral whole blood by density gradient centrifugation. PBMCs are widely used in drug discovery/development, analytical validation/development, and other immunology research.



Product Description	Strain	Size
IPHASE Human Peripheral Blood Mononuclear Cells	Homo Sapiens	5/10/50million
IPHASE Monkey Peripheral Blood Mononuclear Cells	Cynomolgus, Rhesus	5/10/50million
IPHASE Dog Peripheral Blood Mononuclear Cells	Beagle	5/10/50million
IPHASE Rat Peripheral Blood Mononuclear Cells	Sprague-Dawley, Wistar, Wistar-Han	5/10/50million
IPHASE Mouse Peripheral Blood Mononuclear Cells	ICR/CD-1, C57BL/6, KM, BALB/c, CH3	5/10/50million
IPHASE Rabbit Peripheral Blood Mononuclear Cells	New Zealand White, Japanese White	5/10/50million
IPHASE Minipig Peripheral Blood Mononuclear Cells	Miniature Pig	5/10/50million
IPHASE Feline Peripheral Blood Mononuclear Cells	/	5/10/50million
IPHASE Alpaca Peripheral Blood Mononuclear Cells	/	5/10/50million

## Spleen Mononuclear Cells

The spleen is a large and elongated organ located on the left posterior side of the upper abdomen. It is the largest lymphatic organ in the body and a blood-filtering organ. The spleen is home to a large number of lymphocytes and other immune cells and the site for eliciting specific immune responses. Spleen mononuclear cells are mainly comprised of B cells, T cells, and natural killer (NK) cells.

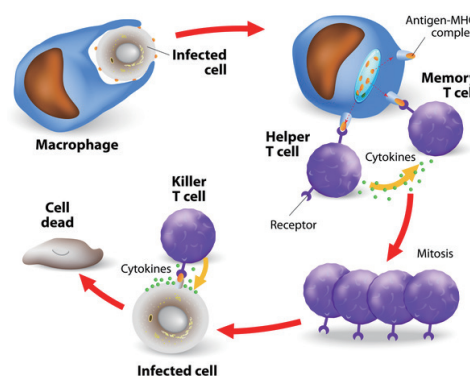


Product Description	Strain	State	Size
IPHASE Human Spleen Mononuclear Cells	Homo Sapiens	Fresh/ Frozen	5/10/50million
IPHASE Monkey Spleen Mononuclear Cells	Cynomolgus, Rhesus	Fresh/ Frozen	5million
IPHASE Dog Spleen Mononuclear Cells	Beagle	Fresh/ Frozen	5million
IPHASE Rat Spleen Mononuclear Cells	Sprague-Dawley, Wistar, Wistar-Han	Fresh/ Frozen	5million
IPHASE Mouse Spleen Mononuclear Cells	ICR/CD-1, C57BL/6, KM, BALB/c, CH3	Fresh/ Frozen	5million
IPHASE Rabbit Spleen Mononuclear Cells	New Zealand White, Japanese White	Fresh/ Frozen	5million
IPHASE Minipig Spleen Mononuclear Cells	Miniature Pig	Fresh/ Frozen	5million



## ◆ Bone Marrow Mononuclear Cells

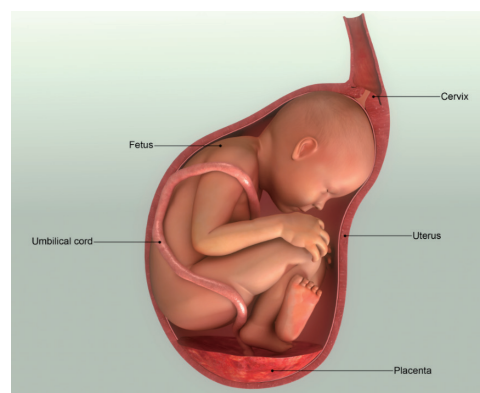
The bone marrow is an important hematopoietic organ of the body and the source of various cells. Multipotent hematopoietic stem cells (HSCs) in the bone marrow first differentiate into myeloid progenitors and lymphoid progenitors. Myeloid progenitors further differentiate into the red blood cell lineage, monocyte lineage, granulocyte lineage and megakaryocyte lineage. Lymphoid progenitors develop into precursor cells of various lymphocytes (T cells, B cells, NK cells). Bone marrow mononuclear cells (BMMNCs) are a group of mixed cells, including lymphocytes, monocytes, HSCs, and progenitor cells. They have similar densities and can be isolated from bone marrow fluid by density gradient centrifugation.



Product Description	Strain	State	Size
IPHASE Human Bone Marrow Mononuclear Cells	Homo Sapiens	Fresh/ Frozen	5million
IPHASE Monkey Bone Marrow Mononuclear Cells	Cynomolgus, Rhesus	Fresh/ Frozen	5million
IPHASE Dog Bone Marrow Mononuclear Cells	Beagle	Fresh/ Frozen	5million
IPHASE Rat Bone Marrow Mononuclear Cells	Sprague-Dawley, Wistar, Wistar-Han	Fresh/ Frozen	5million
IPHASE Mouse Bone Marrow Mononuclear Cells	ICR/CD-1, C57BL/6, KM, BALB/c, CH3	Fresh/ Frozen	5million
IPHASE Rabbit Bone Marrow Mononuclear Cells	New Zealand White, Japanese White	Fresh/ Frozen	5million
IPHASE Minipig Bone Marrow Mononuclear Cells	Miniature Pig	Fresh/ Frozen	5million

## ◆ Cord Blood Mononuclear Cells

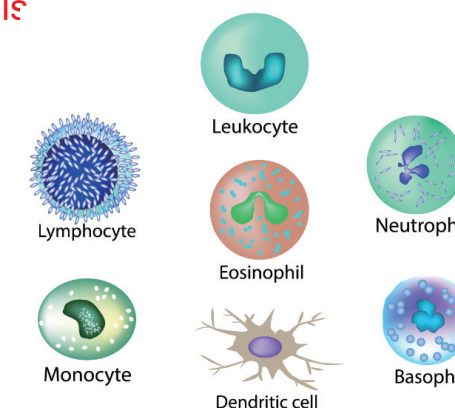
Umbilical cord blood refers to the blood in the blood vessels inside the umbilical cord of a born fetus and near the fetal side of the placenta. Mononuclear cells in the cord blood include lymphocytes, monocytes, and various HSCs. These cells are an important component of the host defense system. Currently, umbilical cord blood stem cells have been used in the treatment of more than 80 diseases, including leukemia. Due to the weak immunogenicity of cord blood mononuclear cells, allogeneic cord blood immune cells do not elicit immune responses in the recipient, making them a safe allogeneic cell therapy.



Product Description	State	Size
IPHASE Human Cord Blood Mononuclear Cells	Fresh/ Frozen	5/10/50million
IPHASE Mouse Cord Blood Mononuclear Cells	Fresh/ Frozen	5/10/50million
IPHASE Rat Cord Blood Mononuclear Cells	Fresh/ Frozen	5/10/50million
IPHASE Minipig Cord Blood Mononuclear Cells	Fresh/ Frozen	0.5 million

## ◆ Mobilized Peripheral Blood Mononuclear Cells

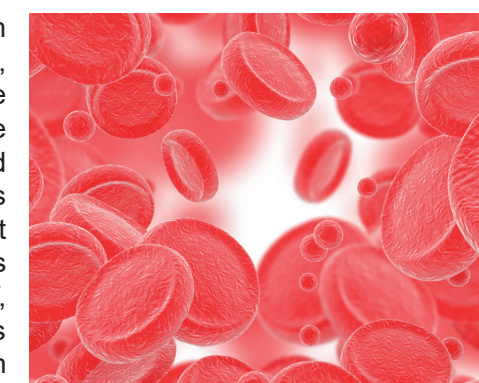
Stem/progenitor cells in the peripheral blood account for about 1% of total nucleated cells in an individual. After effective mobilization, HSCs in the bone marrow are released into the peripheral blood, resulting in a significant increase in the percent of stem/progenitor cells in the peripheral blood. The mobilization of peripheral blood refers to the peripheral blood collected from donors after stimulation with an effective mobilization agent. The number and phenotype, cytokine secretion, and proliferation of various immune subtypes may differ from those in non-mobilized peripheral blood.



Product Description	State	Size
IPHASE Human Mobilized Peripheral Blood Mononuclear Cells	Frozen	5/10/50million
IPHASE Human Mobilized Peripheral Blood CD34+ Cells	Frozen	0.5/1/5million
IPHASE Mouse Mobilized Peripheral Blood Mononuclear Cells	Frozen	0.5/1/5million
IPHASE Rat Mobilized Peripheral Blood Mononuclear Cells	Frozen	0.5/1/5million

## Red blood cells>>>

Red blood cells originate from bone marrow multipotent stem cells and account for about 50% of the volume of whole blood, making them the most important cellular component of the blood. Red blood cells were previously thought to have a simple structure and are solely responsible for transporting O<sub>2</sub> and CO<sub>2</sub>. With the increasing knowledge in immunology, researchers now recognize that red blood cells are an important component of the host immune system. Red blood cells not only express numerous immunological substances, such as CR, LFA-3, DAF, MCP, and SOD, but can also identify, adhere to and kill antigens as well as clear immune complexes. They are also involved in various immune responses and immune regulation processes and have a complete self-regulatory system. At present, red blood cell immunology has become one of the most promising research areas in immunology.

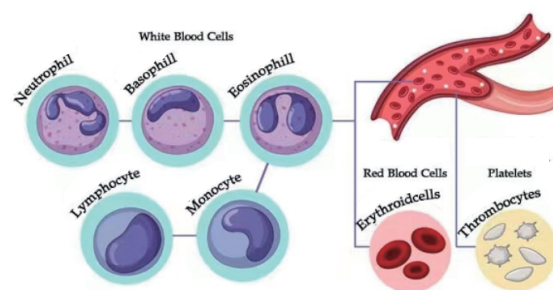




Product Description	Size
IPHASE Human Red Cells	From 5mL Blood/100mL (4%)
IPHASE Monkey Red Cells	100mL (4%)
IPHASE Rat Red Cells	100mL (4%)
IPHASE Dog Red Cells	100mL (4%)
IPHASE Mouse Red Cells	100mL (4%)
IPHASE Minipig Red Cells	100mL (4%)
IPHASE Rabbit Red Cells	100mL (4%)
IPHASE Feline Red Cells	100mL (4%)
IPHASE Alpaca Red Cells	100mL (4%)

## Platelets>>>

Platelets are the smallest disc-shaped blood cells that lack a nucleus. Platelets are present in the bloodstream and play an important role in physiological and pathological processes such as hemostasis, wound healing, inflammation, thrombus formation, and organ transplant rejection. Cytokines, glucocorticoids, immunosuppressants, and traditional Chinese medicine/natural medicine are the four major types of treatments for thrombocytopenia. In particular, thrombopoietin (TPO) and interleukins (especially IL-11) are currently the hot topics of cytokine research.

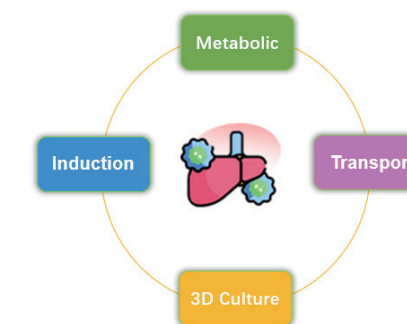


Product Description	Size
IPHASE Human blood platelet	From 5mL Blood
IPHASE Monkey blood platelet	From 5mL Blood
IPHASE Rat blood platelet	From 5mL Blood
IPHASE Dog blood platelet	From 5mL Blood
IPHASE Mouse blood platelet	From 5mL Blood
IPHASE Minipig blood platelet	From 5mL Blood
IPHASE Rabbit blood platelet	From 5mL Blood
IPHASE Feline blood platelet	From 5mL Blood
IPHASE Alpaca blood platelet	From 5mL Blood

## Primary Hepatocytes>>>

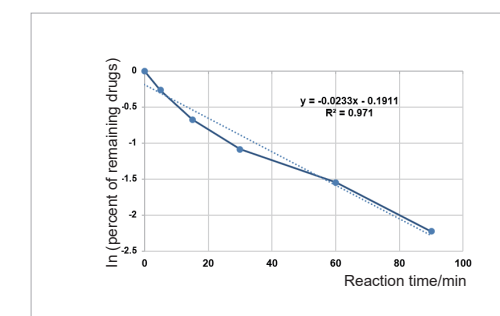
Primary hepatocytes are liver parenchymal cells directly isolated from animal livers. Primary hepatocytes have good *in vitro* reproducibility and retain similar enzyme levels and liver metabolic functions as those *in vivo*, which renders them the "gold standard" for *in vitro* drug testing. Primary hepatocytes are widely used in drug metabolism and toxicology studies and play an irreplaceable role in examining the metabolic pathways, pharmacokinetic profile, induction of cytochrome P450 enzymes and associated mechanisms, drug-drug interactions, and cytotoxicity of drugs in the liver.

IPHASE can provide 3D cultured suspension and plateable primary hepatocytes from humans, monkeys, dogs, rats, mice, and pigs that have been certified by metabolic stability, induction, and transporter assays to help with *in vitro* drug studies.



### ◇ Metabolism certified primary hepatocytes

As a classic model for *in vitro* drug research, primary hepatocytes have played an important role in the study of drug metabolic stability. Metabolic stability reflects the sensitivity of compounds to biological transformation. A low metabolic stability indicates that the compound is easily metabolized in the body, often indicating adverse pharmacokinetic properties such as low oral bioavailability and short duration of action. The *ex vivo* human intrinsic clearance rate (Cl<sub>int</sub>) determined in metabolic stability test can be used to predict human clearance rate. The consistency in metabolic rates among species can provide some support for the selection of animal species for safety evaluation.



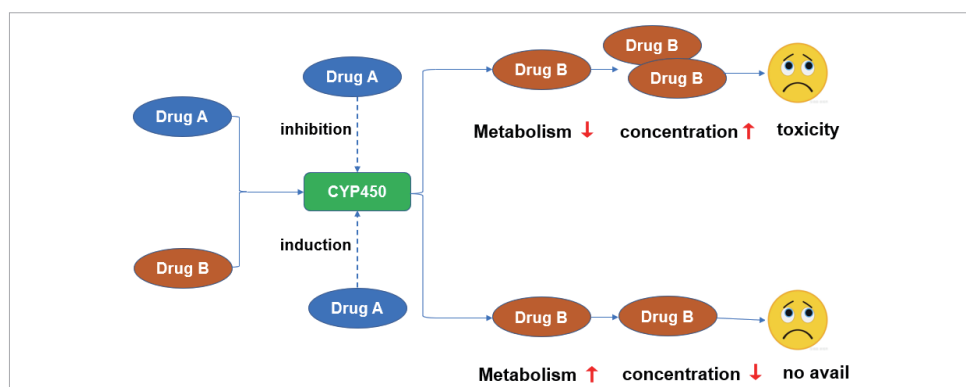
Metabolic stability of suspension hepatocytes of Beagle dogs

Product Description	Strain	Size
IPHASE Suspension Human Hepatocytes	Homo Sapiens	2~4/4~6million
IPHASE Suspension Monkey Hepatocytes	Cynomolgus, Rhesus	2~4/4~6million
IPHASE Suspension Dog Hepatocytes,	Beagle	2~4/4~6million
IPHASE Suspension Rat Hepatocytes,	Sprague-Dawley	2~4/4~6million
IPHASE Suspension Mouse Hepatocytes	ICR/CD-1, C57BL/6	2~4/4~6million
IPHASE Suspension Minipig Hepatocytes	Miniature Pig	2~4/4~6million
IPHASE Suspension Rabbit Hepatocytes	New Zealand White, Japanese White	2~4/4~6million



### ◇ Induction certified primary hepatocytes

Enzyme induction refers to the ability of certain compounds to increase the activity of liver drug-metabolizing enzymes. This results in accelerated metabolism of concomitant drugs, which leads to decreased plasma concentration of the prototype drug and hence reduced or loss of therapeutic effect. If drug A can induce the activity of a certain metabolic enzyme and the concomitantly administered drug B is a substrate of that enzyme, then drug A may increase the metabolic clearance rate and reduce the exposure of drug B, thus preventing the drug from achieving its expected therapeutic effect. Plateable primary hepatocytes are a classic model for enzyme induction research. Using the fold change method, the drug of interest is incubated with the cells in an *in vitro* system calibrated with known positive and negative controls to measure the fold change in CYP enzyme mRNA expression in order to evaluate whether the test drug is an inducer of the enzyme.

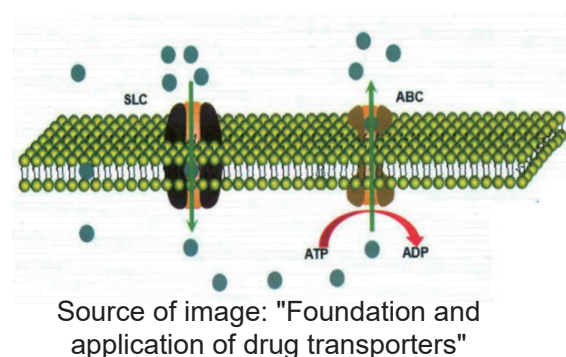


Schematic diagram of drug-drug interactions

Product Description	Strain	Size
IPHASE Plateable Human Hepatocytes	Homo Sapiens	2~4/4~6million
IPHASE Plateable Monkey Hepatocytes	Cynomolgus, Rhesus	2~4/4~6million
IPHASE Plateable Dog Hepatocytes	Beagle	2~4/4~6million
IPHASE Plateable Rat Hepatocytes	Sprague-Dawley	2~4/4~6million
IPHASE Plateable Mouse Hepatocytes	ICR/CD-1, C57BL/6	2~4/4~6million
IPHASE Plateable Minipig Hepatocytes	Miniature Pig	2~4/4~6million
IPHASE Plateable Rabbit Hepatocytes	New Zealand White, Japanese White	2~4/4~6million

### ◇ Transporter certified primary hepatocytes

Transporters are transmembrane proteins located on the membranes of various tissue cells that mediate the transmembrane influx and efflux of endogenous or exogenous substances. Transporters also mediate the transmembrane transport of drugs and can impact drug absorption, distribution, metabolism, and excretion. Primary cells are derived from intact tissues and can express all transporter genes present in the original tissue. They are better correlated with *in vivo* models and can be used to study drug metabolism, transport, and clinical drug-drug



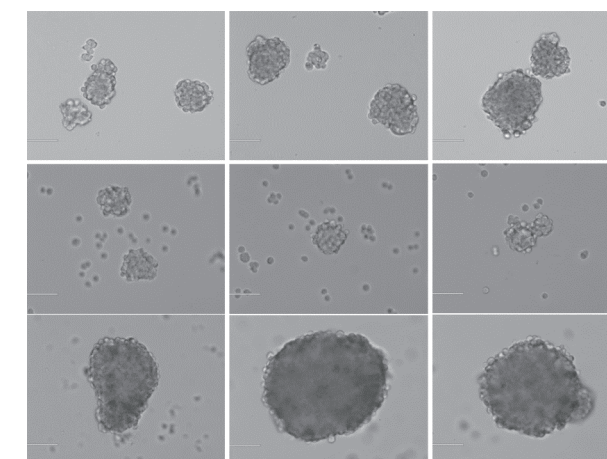
Source of image: "Foundation and application of drug transporters"

interactions. Specifically, primary hepatocytes can fully express liver drug-metabolizing enzymes and transporters, and are one of the most commonly used models for assessing drug transport, metabolism, and toxicity in the liver.

Product Description	Strain	Size
IPHASE Human Hepatocytes Cells, Transporter Certified	Homo Sapiens	5 million
IPHASE Monkey Hepatocytes Cells, Transporter Certified	Cynomolgus, Rhesus	5 million
IPHASE Dog Hepatocytes Cells, Transporter Certified	Beagle	5 million
IPHASE Rat Hepatocytes Cells, Transporter Certified	Sprague-Dawley	5 million
IPHASE Mouse Hepatocytes Cells, Transporter Certified	ICR/CD-1, C57BL/6	5 million
IPHASE Minipig Hepatocytes Cells, Transporter Certified	Miniature Pig	5 million

### ◇ 3D culture of primary hepatocytes

3D cell culture refers to the co-culture of cells with three-dimensional materials *in vitro*, allowing the cells to migrate and grow in a three-dimensional space. 3D culture is similar to the way cells grow *in vivo*, which preserves the material and structural basis of the *in vivo* cell microenvironment and provides intuitive and controllable conditions for cell culture. 3D primary hepatocyte culture can provide a scaffold system and growth environment similar to those *in vivo*, and exhibit structural and functional characteristics that are very reminiscent of those of the source tissue. Therefore, 3D culture plays an important role in drug metabolism and toxicity evaluations.



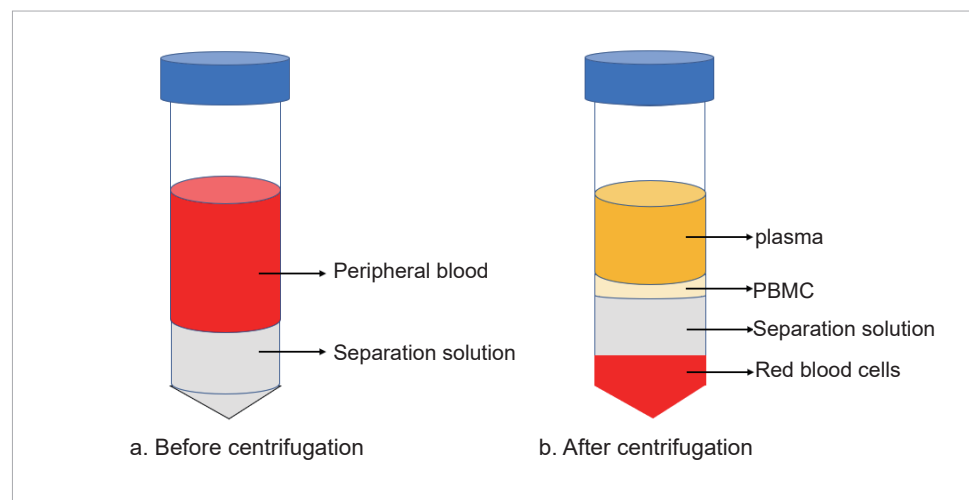
Product Description	Strain	State	Size
IPHASE Human Hepatocytes Cells	Homo Sapiens	Sphere/ Organoids	5 million
IPHASE Monkey Hepatocytes Cells	Cynomolgus, Rhesus	Sphere/ Organoids	5 million
IPHASE Dog Hepatocytes Cells	Beagle	Sphere/ Organoids	5 million
IPHASE Rat Hepatocytes Cells	Sprague-Dawley	Sphere/ Organoids	5 million
IPHASE Mouse Hepatocytes Cells	ICR/CD-1, C57BL/6	Sphere/ Organoids	5 million
IPHASE Minipig Hepatocytes Cells	Miniature Pig	Sphere/ Organoids	5 million



## Cell separation products

Cell separation and purification are crucial topics in cell biology research, especially when studying the function of specific cells. Highly pure target cells are necessary for analyzing cytokines in cell culture supernatant using ELISA and for understanding cell functions in cell co-cultures. Therefore, an efficient cell separation method is a critical for studying cell functions.

Based on the traditional density gradient centrifugation method, IPHASE has developed separation kits for mononuclear cells, red blood cells and platelets from different tissues and organs of different animal species based on differences in sedimentation coefficient among various cell populations, thus providing convenient products for cell biology research.



### Product advantages>>>

- ◇ Convenience. Simple operation, clear process, and user-friendly.
- ◇ Efficiency. Includes all reagents required for cell separation, saving time and effort.
- ◇ Accuracy. Refined procedures that account for inter-species differences, resulting in high separation efficiency, high purity, and good cell condition.
- ◇ Sterility. Products are manufactured under strict aseptic conditions to ensure product quality.
- ◇ Pyrogen-free. Low endotoxin level that prevents cell stimulation.
- ◇ Customizable. Customized cells from specific species and tissues according to the needs of the customers.

### ◇ Mononuclear Cell Separation Kit

Product Description	Strain	Size
IPHASE Human Mononuclear Cell Separation Kit	Homo Sapiens	100mLWhole Blood
IPHASE Monkey Mononuclear Cell Separation Kit	Cynomolgus, Rhesus	100mLWhole Blood
IPHASE Dog Mononuclear Cell Separation Kit	Beagle	100mLWhole Blood
IPHASE Rat Mononuclear Cell Separation Kit	Sprague-Dawley, Wistar, Wistar-Han	100mLWhole Blood
IPHASE Mouse Mononuclear Cell Separation Kit	ICR/CD-1, C57BL/6, KM, BALB/c, CH3	100mLWhole Blood
IPHASE Minipig Mononuclear Cell Separation Kit	Miniature Pig	100mLWhole Blood
IPHASE Rabbit Mononuclear Cell Separation Kit	New Zealand White, Japanese White	100mLWhole Blood

### ◇ Red Blood Cell Isolation Kit

Product Description	Strain	Size
IPHASE Human Red Cells Separation Kit	Homo Sapiens	100mLWhole Blood
IPHASE Monkey Red Cells Separation Kit	Cynomolgus, Rhesus	100mLWhole Blood
IPHASE Dog Red Cells Separation Kit	Beagle	100mLWhole Blood
IPHASE Rat Red Cells Separation Kit	Sprague-Dawley, Wistar, Wistar-Han	100mLWhole Blood
IPHASE Mouse Red Cells Separation Kit	ICR/CD-1, C57BL/6, KM, BALB/c, CH3	100mLWhole Blood
IPHASE Minipig Red Cells Separation Kit	Miniature Pig	100mLWhole Blood
IPHASE Rabbit Red Cells Separation Kit	New Zealand White, Japanese White	100mLWhole Blood

### ◇ Platelet Separation Kit

Product Description	Strain	Size
IPHASE Human Blood Platelet Separation Kit	Homo Sapiens	100mLWhole Blood
IPHASE Monkey Blood Platelet Separation Kit	Cynomolgus, Rhesus	100mLWhole Blood
IPHASE Dog Blood Platelet Separation Kit	Beagle	100mLWhole Blood
IPHASE Rat Blood Platelet Separation Kit	Sprague-Dawley, Wistar, Wistar-Han	100mLWhole Blood
IPHASE Mouse Blood Platelet Separation Kit	ICR/CD-1, C57BL/6, KM, BALB/c, CH3	100mLWhole Blood
IPHASE Minipig Blood Platelet Separation Kit	Miniature Pig	100mLWhole Blood
IPHASE Rabbit Blood Platelet Separation Kit	New Zealand White, Japanese White	100mLWhole Blood



## Cell Selection Products

Cell sorting is a technique that separates a specific cell population from a mixed cell sample based on characteristics of the target cells. This process is important for the biochemical and functional analysis of a given cell population. The commonly used methods of cell sorting are flow cytometry and magnetic cell sorting. The latter has become the preferred method of cell sorting due to its high sensitivity, high purity, ease of operation, and minimal stimulation of the target cells, and thus has promising application prospects.



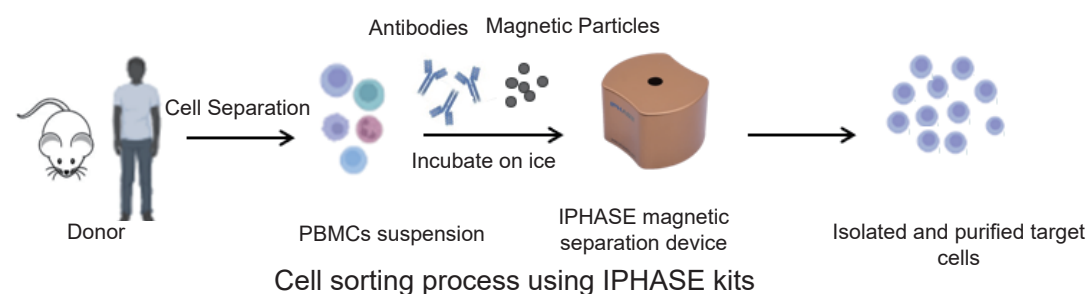
Based on immunology, cell biology, and magnetism, IPHASE has developed a series of cell selection products, including cell selection reagent kits, sorting magnetic beads, and flow cytometry antibodies, to provide convenient products for research in cell biology and biomedicine.

### Product advantages>>>

- ◇ Convenience. Simple operation, clear process, and user-friendly.
- ◇ Efficiency. It only takes 15 minutes to obtain the target cells by selection, which saves time and effort.
- ◇ High purity. Sorted cells are over 95% pure.
- ◇ High viability. Sorted target cells are over 95% viable.
- ◇ High yield. The yield of target cells is greater than 90%, which is comparable to well-known imported brands.

### Selection Kits>>>

Magnetic cell sorting systems can be divided into positive selection and negative selection according to the different types of labeled cells during the sorting process. Positive selection directly separates the target cells from cell suspension. Negative selection removes non-target cells from the mixed cell suspension to obtain the target cells. Positive selection has high purity and good specificity, but cells are bound to the magnetic beads. On the other hand, negatively selected cells are not bound to magnetic beads but have slightly lower purity than those selected by positive selection.



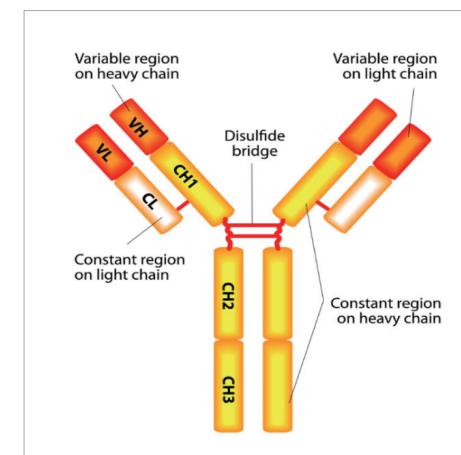
IPHASE has launched positive and negative selection kits for human and mouse cells based on the needs of life science research and different experimental purposes. The positive selection kit is recommended for the removal of certain cell types by magnetic beads. The negative selection kit is recommended for obtaining the target cell for subsequent culture.

Product Description	Species	Method	Size
IPHASE CD3+ T Cells Isolation Kit	Human/Mouse	Positive/Negative	10/20/200 test
IPHASE CD4+ T Cells Isolation Kit	Human/Mouse	Positive/Negative	10/20/200 test
IPHASE CD8+ T Cells Isolation Kit	Human/Mouse	Positive/Negative	10/20/200 test
IPHASE Monocytes Isolation Kit	Human/Mouse	Positive/Negative	10/20/200 test
IPHASE B Cells Isolation Kit	Human/Mouse	Positive/Negative	10/20/200 test
IPHASE NK Cells Isolation Kit	Human/Mouse	Positive/Negative	10/20/200 test

### Antibodies>>>

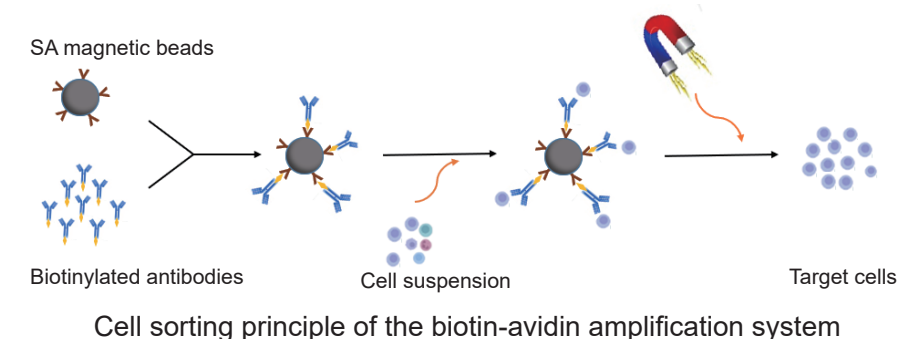
Antibodies (Ab) are immunoglobulins (Ig) produced by plasma cells differentiated from B lymphocytes or memory cells in response to stimulations by antigens such as foreign molecules and microorganisms. Abs are characterized by their ability to specifically bind to their corresponding antigens. Due to their antigen specificity, Abs can be labeled with biotin or fluorescein using antibody labeling technology and used in different fields of research.

According to the special needs of cell selection, IPHASE has developed human and mouse biotinylated antibodies and flow cytometry antibodies to assist with cell selection and validation of cell selection.



### ◇ Biotinylated antibodies

Cell capture based on the highly efficient and sensitive biological reaction between streptavidin and biotin is a commonly used technique for cell sorting. The combined use of biotinylated antibodies and streptavidin-labeled magnetic beads in an experimental system allows efficient selection of target cells. IPHASE has launched biotinylated antibodies targeting different human and mouse immune populations to assist customers with immunology research.

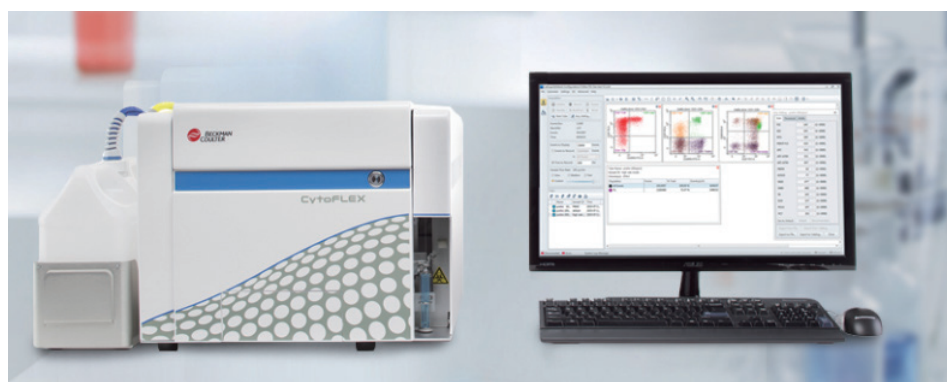




Product Description	Strain	Size
IPHASE CD3 epsilon/CD3e Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE CD4/LEU3 Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE CD8a Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE CD11b Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE CD14 Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE CD19 Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE CD20 Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE CD28 Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE CD34 Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE CD45/ PTPRC Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE CD123 Antibody, Biotin	Human, Mouse	25ug/100ug
IPHASE NCAM-1/CD56 Antibody, Biotin	Human	25ug/100ug
IPHASE CD49b Antibody, Biotin	Mouse	25ug/100ug

### ◇ Flow cytometry antibodies

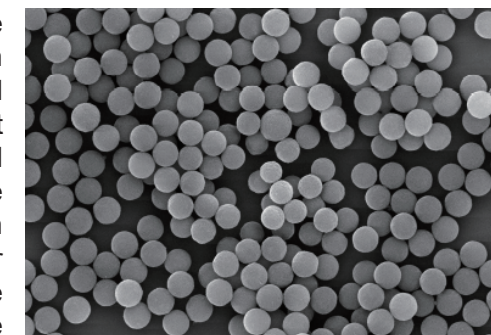
Flow cytometry antibodies are antibodies used for cell analysis using a flow cytometer. Fluorescently labeled flow cytometry antibodies can specifically bind to cells expressing the corresponding antigens, allowing for fluorescent labeling of the cells. When fluorescently labeled cells in a single-cell suspension flow through the flow cytometry fluidic chamber one by one, the fluorescent detector captures the fluorescent signal and converts it into electric pulse signals that represent forward scatter angle, side scatter angle, and different fluorescence intensity. The single-cell suspension can be subsequently analyzed using a computer analysis system. IPHASE offers different fluorescently labeled flow cytometry antibodies for human and mouse to assist in flow cytometric analysis.



Product Description	Strain	Size
IPHASE Human CD3 epsilon/CD3e Antibody, FITC	Human	20/100 test
IPHASE Human CD4 / LEU3 Antibody, FITC	Human	20/100 test
IPHASE Human CD8a Antibody, FITC	Human	20/100 test
IPHASE Human CD20 Antibody, FITC	Human	20/100 test
IPHASE Human CD14 Antibody, FITC	Human	20/100 test
IPHASE Human CD16 Antibody, FITC	Human	20/100 test
IPHASE Human NCAM-1/CD56 Antibody, PE	Human	20/100 test
IPHASE Human CD45/ PTPRC Antibody, PE	Human	20/100 test
IPHASE Mouse CD3c Antibody, APC	Mouse	20/100 test
IPHASE Mouse CD4 Antibody, PE	Mouse	20/100 test
IPHASE Mouse CD8a Antibody, PE	Mouse	20/100 test
IPHASE Mouse CD49b Antibody, PE	Mouse	20/100 test

### Magnetic Beads>>>

Magnetic beads are an important component of the magnetic cell isolation system and play a crucial role in the cell isolation process. Magnetic beads that are used for cell isolation must be selected according to very strict standards, such as having good chemical stability and good dispersion. In addition, magnetic beads must not aggregate in cell suspensions, show hysteresis after removal of an external magnetic field, adsorb to non-specific cells, nor detach from affinity ligand during storage. Therefore, the supply of high-quality magnetic beads is a key factor for the success or failure of cell isolation.



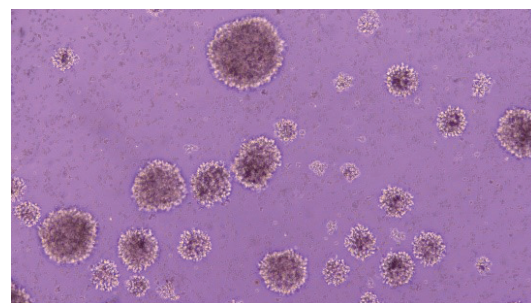
Based on years of R&D experience, IPHASE has launched magnetic beads for human and mouse immune cell separation, as well as streptavidin magnetic bead products of different sizes, which not only meet the needs for cell selection but also provide high-quality raw materials for research in other fields.

Product Description	Strain	Size
IPHASE CD3+ T Cells Magnetic Beads	Human/Mouse	1mL/5mL
IPHASE CD4+ T Cells Magnetic Beads	Human/Mouse	1mL/5mL
IPHASE CD8+ T Cells Magnetic Beads	Human/Mouse	1mL/5mL
IPHASE CD14+ Monocytes Magnetic Beads	Human/Mouse	1mL/5mL
IPHASE CD19+ B Cells Magnetic Beads	Human/Mouse	1mL/5mL
IPHASE NK Cells Magnetic Beads	Human/Mouse	1mL/5mL
IPHASE Streptavidin Magnetic Beads, 1um	/	1mL/10mL
IPHASE Streptavidin Magnetic Beads, 2.8 um	/	1mL/10mL
IPHASE Streptavidin Magnetic Beads, 300nm	/	1mL/10mL



## Cell Culture Products

Cell culture is a method of harvesting tissues or cells from an organism and culturing them *in vitro* under sterile conditions with appropriate temperature and nutrients to simulate the physiological environment *in vivo*. This process allows tissues/cells to survive, grow, and maintain their structure and function. Based on the characteristics of different types of primary cells, IPHASE has developed various products including compatible culture media, cytokines, and supporting consumables to meet the research needs of different fields.



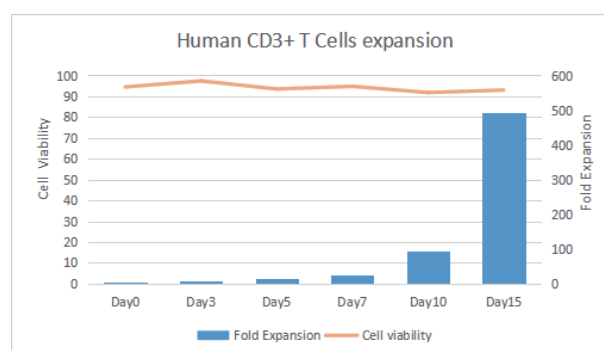
Morphology of proliferating human T cells

## Product advantages>>>

- ◇ Convenience Simple and convenient to use.
- ◇ Specificity Product is developed based on the characteristics of species and cells and has high specificity.
- ◇ Sterility Products are manufactured under strict aseptic conditions to ensure product quality.
- ◇ Pyrogen-free Low endotoxin level that prevents cell stimulation.

## T lymphocyte activation/proliferation >>>

T cells are an important type of immunocompetent cells in the body. These cells are characterized by their ability to undergo a series of morphological and functional changes and produce various cytokines after being stimulated by antigens or mitogens, thereby mediating immune responses. The activation of T cells is a key step in initiating adaptive immune responses. CD3 antibodies can specifically identify CD3 molecules on T cells. Binding of the TCR-CD3 complex on T cells to antigenic peptide presented by MHC-II molecules on antigen-presenting cells leads to the activation and proliferation of T cells. Full activation of T cells not only requires signal 1 from the TCR-CD3 complex, but also signal 2 from the co-stimulatory molecule CD28 to enhance the activation and proliferation of T cells. Based on the characteristics of T cells, IPHASE has developed a series of products for T cell activation/proliferation, including activation magnetic beads, activation/proliferation kits, and cytokines, to provide customers with high-quality products for their research.

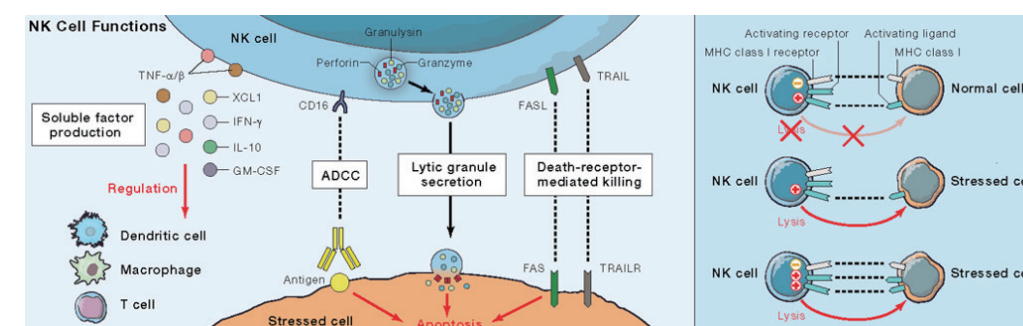


Human T cell proliferation data  
(A: Fold expansion; B: Cell viability)

Product Description	Strain	Size
IPHASE CD3/CD28 T Cells Activation/Expansion Beads	Human/Mouse	1mL/5mL
IPHASE CD3/CD28 T Cells Activation/Expansion Kit	Human/Mouse	20million/100million
IPHASE CD3/CD28 T Cells Activation/Expansion Kit, Beads Free	Human/Mouse	20million/50million
Purified CD3 Antibody	Human/Mouse	25ug/100ug
Purified CD28 Antibody	Human/Mouse	25ug/100ug
IL-2 Protein, His Tag	Human/Mouse	25ug/100ug
IPHASE T Cells Expansion Medium	Human/Mouse	500mL

## NK Cell Culture>>>

NK cells are the third most abundant lymphocytes besides T cells and B cells, accounting for about 15% of all immune cells (white blood cells) in the blood, and are a key member of the innate immune system. In recent years, NK cells have received widespread attention from the scientific and industrial communities due to important progress in basic biology studies and the huge potential in their clinical applications for tumor therapy. IPHASE has launched NK cell culture kits and reagents to assist researchers with NK cell studies.



NK cell function (Source: Cell)

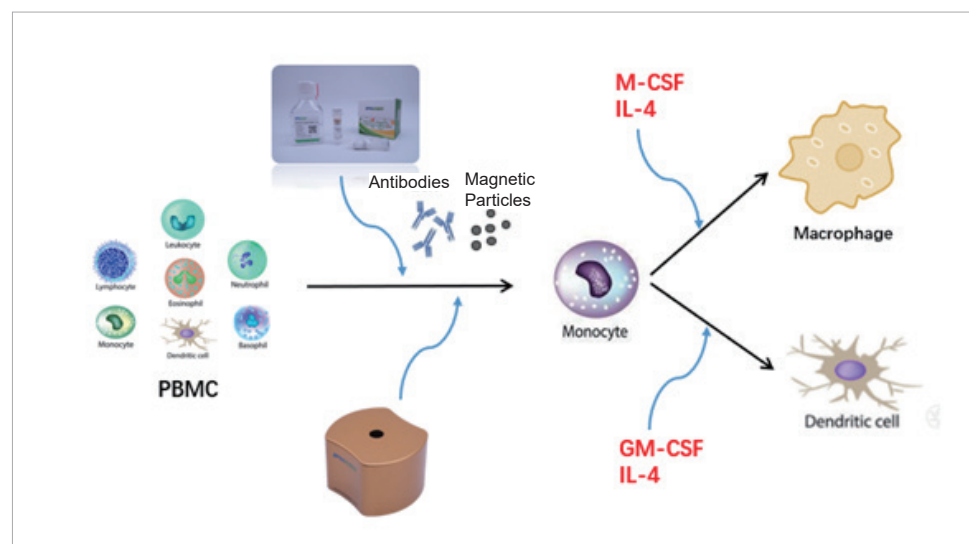
Product Description	Size
IPHASE Human NK Cell Expansion Kit	20million/100million
Human IL-6 Protein, His Tag	25ug/100ug
Human IL-7 Protein, His Tag	25ug/100ug
Human IL-10 Protein, His Tag	25ug/100ug
Human IL-15 Protein, His Tag	25ug/100ug
Human IL-21 Protein, His Tag	25ug/100ug
IPHASE NK Cells Expansion Medium	500mL



## DCs and Macrophage Culture>>>

Dendritic cells (DCs) are the most important specialized antigen-presenting cells (APC) in immune responses. These cells can capture, process, and present foreign antigens, and transmit antigen signals to T cells. Furthermore, DCs express a series of molecules that activate T cells (such as CD80 and CD86), which enable T cells to receive co-stimulatory signals and produce cytokines such as IL-12 that can further enhance T cell activation and function. Macrophages are important innate immune cells that engulf and kill intracellular parasites and bacteria, tumor cells, as well as senescent and abnormal cells. Macrophages play an important role in immune defense, immune homeostasis, and immune surveillance.

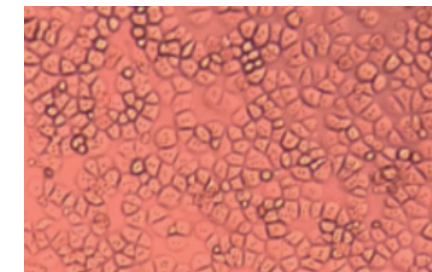
However, for practical reasons, it is difficult to obtain sufficient numbers of DCs and macrophages by direct separation methods to meet the need of immunology research. A common method to overcome this problem is to induce the differentiation of peripheral blood monocytes into DCs and macrophages. IPHASE offers products for inducing DC and macrophage differentiation to meet the customers' needs.



Product Description	Size
IPHASE Human CD14+ Monocytes Isolation Kit	10/20/200 Test
IPHASE Human CD14+Monocytes Cells, Negative Selection	2/5 million
IPHASE Mouse CD14+ Monocytes Isolation Kit	10/20/200 Test
IPHASE Mouse CD14+Monocytes Cells, Negative Selection	2/5 million
IPHASE GM-CSF Protein	25ug/100ug
IPHASE M-CSF Protein	25ug/100ug
IPHASE IL-4 Protein	25ug/100ug

## Primary Hepatocyte Culture>>>

Primary hepatocyte culture is the basis for ADME research. In order to ensure the smooth progress of experiments, IPHASE has launched a series of compatible products including cell culture plates, culture media, and cytokines for different experimental needs, which eliminate concerns for unsatisfactory results due to the impact of noncompatible reagents.



Product Description	Size
IPHASE Ultra Low-binding Culture Plates, 96 wells plate	6 wells/24 wells/48 wells/96 wells
IPHASE Collagen-Coated Plates	6 wells/24 wells/48 wells/96 wells
IPHASE Hepatocyte Thawing Medium	10 mL
IPHASE Hepatocyte Metabolic Medium	100 mL
IPHASE Hepatocyte Plating Medium	100 mL
IPHASE Hepatocyte Culture Medium	100 mL
IPHASE Matrigel	5 mL
IPHASE Poly-D-Lysine	50 mL
IPHASE RSPO1/R-spondin-1 Protein	25ug/100 ug
IPHASE EGF (Epidermal growth factor)	25ug/100 ug
IPHASE FGF-2(Fibroblast growth factor 2) Protein	25ug/100 ug
IPHASE FGF-4 (Fibroblast growth factor 4) Protein	25ug/100 ug
IPHASE FGF-9 (Fibroblast growth factor 9) Protein	25ug/100 ug
IPHASE FGF-10 (Fibroblast growth factor10) Protein	25ug/100 ug
IPHASE HGF/ Hepatopoietin-A	25ug/100 ug
IPHASE Wnt-1 Protein	25ug/100 ug
IPHASE Wnt-3a Protein	25ug/100 ug
IPHASE Noggin Protein	25ug/100 ug
IPHASE Gastrin I	25ug/100 ug



## History of Development



2023

Established an organoid drug screening platform and developed organoid culture, cell therapy and immunotherapy reagents.

2020

Launched a cell isolation and primary cell product research and development project, developed and scaled up the production of immunomagnetic separation reagents and various immune cell products.

2019

Established and improved the development platform for biological matrix products, providing support for drug analysis, new drug development, and immunology research.

2016

Entered the field of macromolecular drug development and established a platform for the preparation of recombinant proteins and monoclonal antibodies. Developed cytokines, CD molecules, and their monoclonal or recombinant antibodies.

2013

Developed reference materials and quality control products for the clinical, food, and cosmetic inspection industries, and obtained the National Level 2 Reference Material Certificate.

2010

The first enterprise in China to develop a full range of ADME and genotoxicity products in response to the challenges and difficulties in in vitro metabolism and genotoxicity tests.

**IPHASE**  
汇智和源

■ About the Company  
IPHASE Biosciences is a high-tech enterprise dedicated to biomedical and life science research. Leveraging the extensive knowledge and passion for scientific exploration, our scientific team is committed to providing scientific researchers with high-quality innovative biological reagents and technical services.

Service

Innovation

Cooperation

Team

Develop

Struggle

Quality

## Key Customers

