ROBOTIC STEMCELL BIOTECH LTD.

REGENERATIVE MEDICAL TECHNOLOGY

STEM CELLS ARTIFICIAL INTELLIGENCE CULTIVATION ROBOT

PREPARED AND PRESENTED BY

ROBOTIC STEMCELL BIOTECH LTD.
PROJECT MANAGER

OUR BACKGROUND

WE SERVE HUMANS PROVIDING THE MOST ADVANCED BIOTECHNOLOGY PRODUCTS

The application of regenerative medical technology in Japan is at the world's leading level. Represented by the clinical application technology of mesenchymal stem cells, Japan has widely used stem cells in the treatment of diseases and anti-aging treatments.

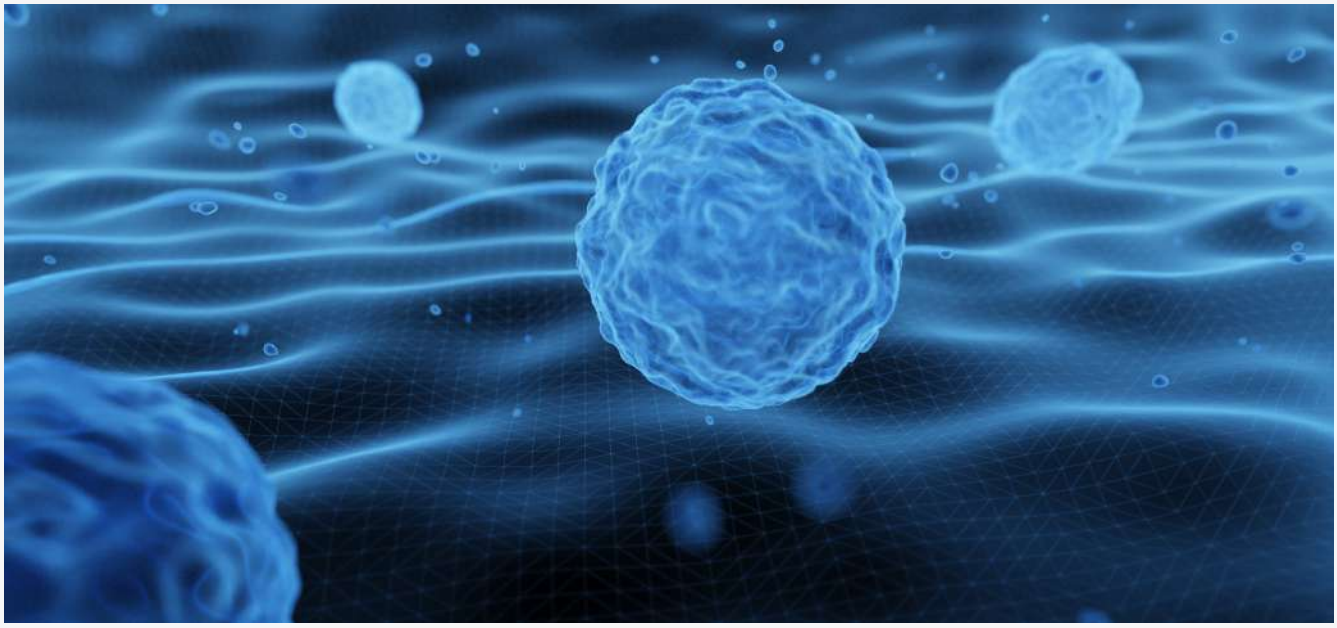
Regenerative medicine using autologous cells is a type of customized medicine. Regenerative medicine application technology is to prepare the cells provided by patients after culturing and provide them as products. It is a very difficult science and technology application mode. Japan has been at the forefront of the world and has constructed a highly reliable biological science application system that can be directly applied to human health and regeneration.

Japan already has the most advanced GMP stem cell laboratory, and now through the painstaking research of Japanese researchers, a fully automated mesenchymal stem cell culture robot that can be used in business has been developed.

We cooperated with the Faculty of Medicine of the University of Hong Kong to set up a GMP stem cell laboratory in Hong Kong to serve Asian and Middle Eastern countries and provide stem cell therapy. At the same time, we exports products and technical services to various countries, and provides regenerative medical products and biotechnology products.

Relying on years of cell processing experience, combined with medical institutions to put high-quality cell therapy products into related applications, we are a leader in benefiting patients throughout different countries and promoting the progress of the medical industry. We are currently the only biotech company with a full range of cell storage, immune cell therapy, and diagnostic reagents. It takes the improvement of human health and life quality as its core, and to innovate and develop protect human's health.

STEM CELLS AI CULTIVATION ROBOT MACHINE



ABOUT THE STEM CELLS AI ROBOT

The Stem Cells AI Robot was developed jointly by two companies, the well-known Japanese robot company DENSO WAVE (デンソーウェブ) and the medical and pharmaceutical equipment development company ANIMAL SYSTEM (アニマルステム).

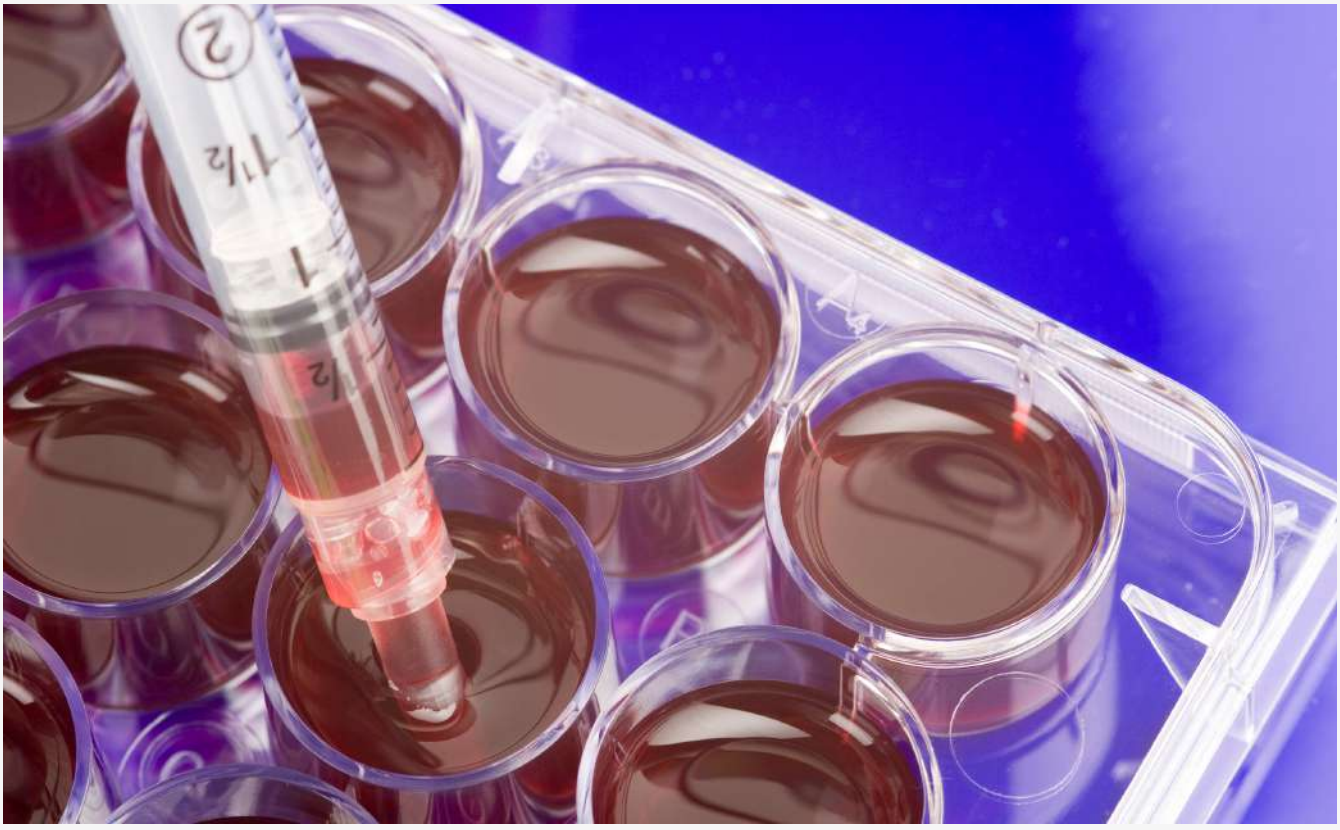
The Robot has successfully obtained the 15 billion Yen research funding approved by the New Energy and Industrial Technology Development Organization (NEDO). The Japanese government provide free assistance in the development of equipment.

The ownership of the product is jointly held by DENSO WAVE and ANIMAL SYSTEM. The internal software of the device was developed by IMAGE ONE (イメージワン 東証JQS 2667), a medical imaging technology company listed in Japan. The mesenchymal stem cell culture method and culture software were developed and provided by the company. This product has been introduced to the East Hospital of the National Cancer Research Center of Japan in Kashiwa City, Chiba Prefecture, and is used in abdominal pressure incontinence and intestine surgery.

At present, the global exclusive sales agency rights for the robots are jointly held by IMAGE ONE (イメージワン) and its subsidiary RMDC. We have obtained its authorization for the sales of robots and its by-products.

APPLICATIONS OF STEM CELL THERAPY

THE USE OF AI ROBOTS AND GMP LABORATORY

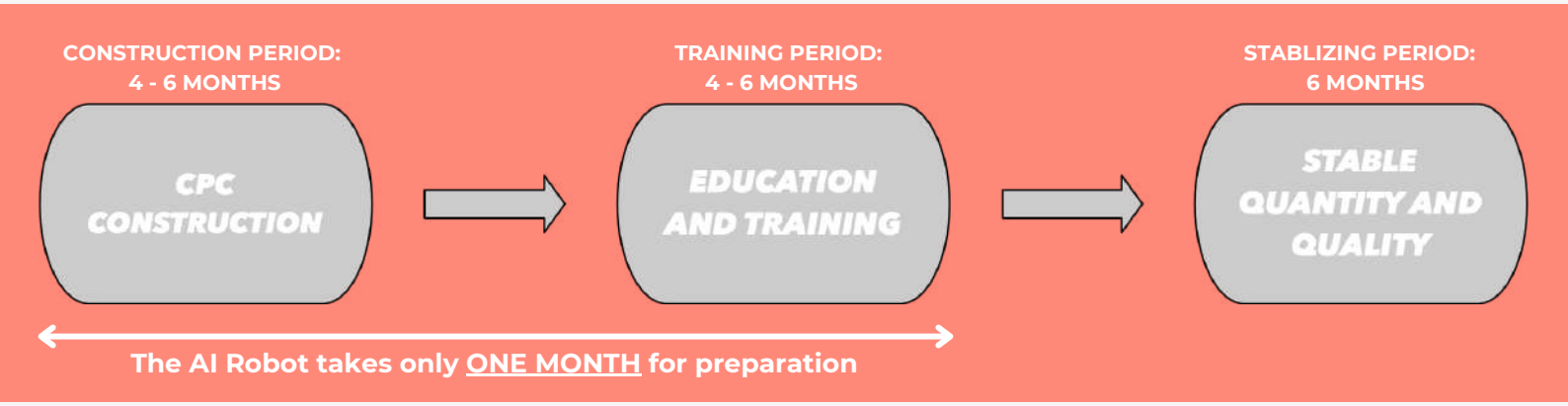


- Diabetes
- Renal Hypertension
- Myocardial Infarction
- Anti-aging
- Skincare
- Hair growth and care
- Joint tissue injury
- Spinal cord injury
- Cerebral haemorrhage
- Cerebral infarction
- Alzheimer's prevention
- Liver (hepatitis and cirrhosis)

THE USE OF AI ROBOTS IN STEM CELL LABORATORY TO CULTIVATE A LARGE NUMBER OF MESENCHYMAL STEM CELLS FOR THE PRACTICAL TREATMENT

THE CONSTRUCTION OF A GMP LABORATORY

THE ADVANTAGES BEHIND THIS AI ROBOT



The construction of an ordinary GMP stem cell culture laboratory (CPC) requires:

- Careful business plan: number of patients, production cost, the construction cost of stem cell GMP culture laboratory, equipment acceptance, hygiene management, reagent and sample storage system, etc.
- Confirmation of site configuration: floor height, pipeline configuration, outdoor unit placement site, power distribution, etc.
- Selection of a variety of cultivation equipment: cost-effectiveness, delivery time, power supply
- GMP laboratory acceptance: it needs to comply with various standards and laws
- Skilled cell culture personnel: more than 20 weeks of personnel training, avoiding personnel changes, and the skills of the cultivator will determine the yield and quality of stem cells

IN ORDER TO SOLVE AND SIMPLIFY ALL THE PROBLEMS AND PROCEDURES OF ESTABLISHING A GMP LABORATORY, WE HAVE INTRODUCED A FULLY AUTOMATED STEM CELL ARTIFICIAL INTELLIGENCE CULTURE ROBOT DEVELOPED BY JAPAN SCIENTISTS

COMPARISON BETWEEN GMP LABORATORY AND THE AI ROBOT

THE AI ROBOT BENEFITS EVERYONE IN STEM CELL INDUSTRY

	Considerations for the construction of a conventional stem cell culture laboratory (CPC)	The Stem Cell AI Robot Advantages
Business plan	Careful business plans: number of patients, production costs, construction costs of GMP center, culture equipment acceptance, hygiene management, reagent and storage system.	Simplify business plan: the number of equipment invested = the processing capacity of patients or stem cell products; only the storage of samples, reagents and finished products is required.
Configuration	High requirements: floor height, pipeline configuration, outdoor unit placement site, power distribution, etc.	Only need to ensure the power supply of the site and consider whether it is possible to place more than one cultivation equipment.
Cultivation equipment	Compare the cost performance, processing time, and power supply of each instrument.	All equipment is integrated, no need to select equipment, only need to consider stable power supply.
GMP laboratory acceptance	Need to comply with various standards and local laboratory regulations to start production.	No requirements, but you can also apply for marketing. All operations are performed inside the robot to achieve complete sterility.
Human resources	Skilled personnel are required: more than 20 weeks of training and the skills of the personnel will determine the yield, quality and safety of stem cells.	No need for training to avoid personnel changes affecting laboratory operation and production. The computer AI monitors the progress of cell culture 24 hours a day. Only technical personnel need to receive short-term training to learn how to use the software.

THE AI ROBOTS BENEFITS

KEY	DESCRIPTION
SIMPLE APPLICATION	JUST CONSIDER THE SPACE REQUIREMENTS AND POWER REQUIREMENTS OF THE ROBOT.
STABLE AND HIGH QUALITY	ALL LABORATORY PROBLEMS CAUSED BY HUMANS ARE ELIMINATED: NO POLLUTION, NO EXPERIMENTAL OPERATION ERRORS, 24 HOURS AND 365 DAYS OF STABLE CULTIVATION, OBJECTIVE JUDGMENT OF THE CULTIVATION PROGRESS AND APPROPRIATE OPERATIONS.
INSTANT	NO TRAINING IS REQUIRED, AND NO BIOLOGICAL EXPERTISE IS REQUIRED. USING REMOTE NETWORK AND ARTIFICIAL INTELLIGENCE MANAGEMENT, INCREASING THE NUMBER OF UNITS CAN EXPAND THE PRODUCTION CAPACITY OF STEM CELL CULTIVATION.

CHARACTERISTIC OF THE AI ROBOT

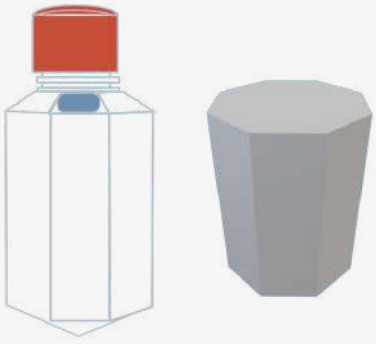
- Small size with H2050mm x W1700mm x D1100mm. Integrated design with incubator, centrifuge and other equipment are integrated into one single machine, only equivalent to the size of a vending machine. The integrated functions include culture, microscopic observation, medium exchange, cell recovery, centrifugation, consumable storage, cryopreservation, pipetting, stirring, waste liquid recovery, etc..
- All consumables and internal spaces are disinfected with hydrogen dioxide spray to keep the internal space sterile.
- The DENSO WAVE six-axis robotic arm is applied, which is used in Toyota's production line with quality assurance. There are no screw holes and gaps on the surface of the robot arm, so dust and dirt will not accumulate. Also, the arm with a special coating, which can withstand the corrosion and disinfection of hydrogen peroxide, and it can prevent rust permanently. Moreover, multi-joint, flexible movement, ultra-low friction, can simulate all the movements of the experimenter.

- The three-dimensional integrated design distributes each experimental device module vertically in all directions of the robotic arm to maximize the use of space.
- The camera is used to collect images, and then AI is used to judge the progress of culture and the timing of medium replacement, so as to maximize the efficiency of culture.
- Unique patented octagonal culture flask design with multiple characteristics:
  - easy for rotating culture;
  - convenient for microscope observation;
  - each bottle has a large culture area of 160cm2;
  - directly centrifuged;
  - completely sealed, and the pH is adjusted through the special coating inside the bottle to get rid of the use of CO2 when cultivating cells and avoid the pollution from CO2 gas.

CAMERA

SOFTWARE RECOGNITION AND AI ANALYSIS

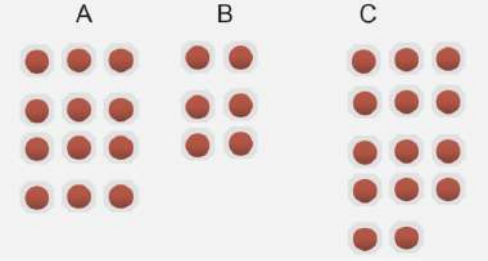
JUDGE THE STATUS OBJECTIVELY



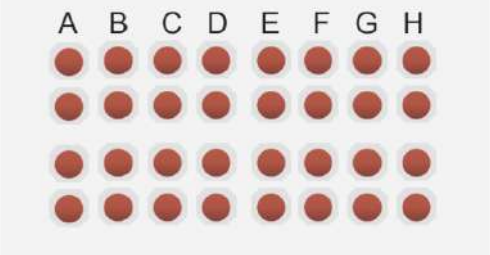
OCTAGONAL CULTURE FLASK PROTECTING SAMPLES FROM CONTAMINATION

- Primary culture is regarded as a difficult problem in cell culture, and requires cultivators to have skilled technology and judgment ability. The stem cell AI robot is the only full automatic stem cell culture device in the world that can perform automatic primary culture.

- It can hold 32 octagonal bottles, each bottle can be cultured independently, and stem cell culture can be carried out for up to 32 people at the same time, which can be freely distributed according to the patient's situation. Each bottle can recover 100 million stem cells, and the culture time is 10 to 15 days.



SAMPLE 1



SAMPLE 2

THE USE OF AI ROBOTS IN CANCER TREATMENT

CHALLENGE THE MOST COMPLICATED DISEASE IN THE MEDICAL FIELD

IMAGE ONE (IMAGE ONE JQS 2667), a listed medical imaging technology company in Japan, plans to gradually update the product control software to upgrade and expand its functions so that it can cultivate immune cells for the treatment of cancer:

- NK cells;
- T cells;
- B cell;
- DC cells, etc.

At present, experiments on culturing IPS cells, CAR-T cells and fibroblast with this device are already in progress.

WE HAVE PARTNERED WITH THE UNIVERSITY OF HONG KONG AND NON-GOVERNMENT MEDICAL ORGANIZATIONS ON THIS PROJECT.

STEM CELLS THERAPY CENTRE

THE ONLY LICENSED REGENERATIVE MEDICINE RESEARCH AND TREATMENT CENTER IN ASIA

The purpose of this center is to integrate the research resources of major medical schools and affiliated institutions in Asia engaged in cell therapy and regenerative medicine, and work together to promote the application of clinical cell therapy. The center will establish a GTP laboratory (Good Tissue Practice) that meets international standards to provide a stable source of cells for clinical cell therapy trials. In addition, the center will devote itself to the cultivation of professionals in cell therapy and regenerative medicine, and develop treatment technologies for different diseases to make long-term contributions to human health.

The GTP laboratory has two independently operated cell clean rooms. The clean room can reach the Class 1000 standard, which is higher than the requirements of the Class 10000 standard, and all the instrument and environmental parameters are monitored by a central monitoring system, and a high-spec chip flow cytometer is used, which will help separate and purify cell products, and it will be able to be used with an automatic temperature riser and an automatic liquid nitrogen product storage tank. There are samples storage facilities that store a large number of cell products; there are also professionals to perform maintenance, calibration and regular cleaning, and establish strict quality and production control to ensure the safety and effectiveness of clinical cells.

WE ARE BUILDING THE HIGHEST QUALITY STEM CELLS THERAPY CENTRE

MISSION AND PURPOSE

We will integrate the cross-field research resources of cell therapy and regenerative medicine in medical schools in Asia, establish a clinical research database and data analysis and processing, and promote the basic and clinical translational medical research of cell therapy and regenerative medicine.

HIGHEST STANDARD CELL THERAPY CENTER IN ASIA

Establish standard procedures for GTP laboratories and clinical-grade cell manufacturing processes that comply with the Hong Kong Department of Health regulations to provide a stable and high-quality clinical-grade cell source that meets regulations and promote clinical trials with cell therapy and regenerative medicine.

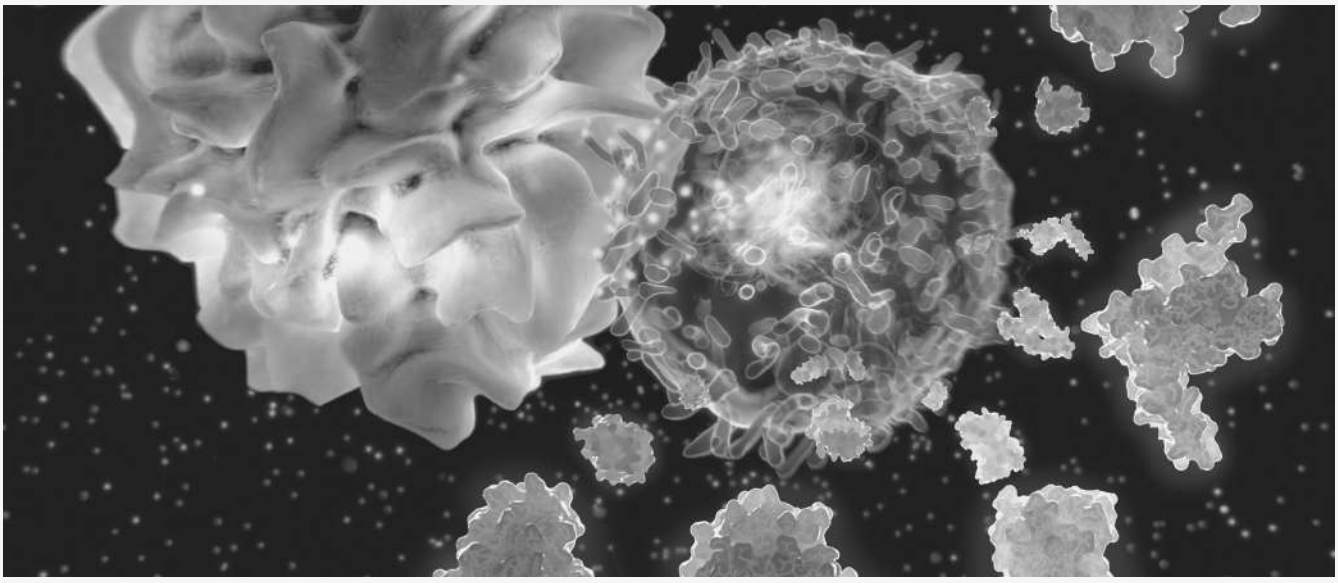
INTERNATIONAL COOPERATION

Strengthen international cooperation and promote opportunities for industry-academic cooperation related to cell therapy.

PROMOTE STEM CELL THERAPY TECHNOLOGY

Promote the Asian stem cell therapy project, overcome the problems caused by high-risk diseases, and make epoch-making contributions to health technology.

ASIA'S MOST SUCCESSFUL ADVANCED CELL THERAPY COMMERCIALIZATION COMPANY



STEM CELL THERAPY

IMMULANA™ PLACENTAL IMMUNOMODULATOR

Beginning in 1985, Dr. Eva Bykofa, Professor of Immunology at the Medical Reproductive Center of Latvia and Lithuania, and his laboratory research team, based on the concept of Professor VIGovallo, produced a freeze-dried diagnostic substance from the tissue of the trophoblast cells of the placenta. With the assistance of the Pharmaceutical Department of the Latvian Medical College, with new and advanced placental extraction technology, we have successfully developed a new century drug with a strong immunomodulatory effect --- IMMULANA™. The technology of manufacturing IMMULANA™ and its trademark registration have been protected by local and Eurasian patents in Latvia.

In the process of manufacturing IMMULANA™, all the active biological substances extracted from the placenta, such as cytokine, interferon, tumor necrosis factor, fetal protein, etc., are completely preserved. These preserved biological substances have significantly improved the immune system function of subjects no matter in experiments, pre-clinical tests or clinical use.

STEM CELL THERAPY

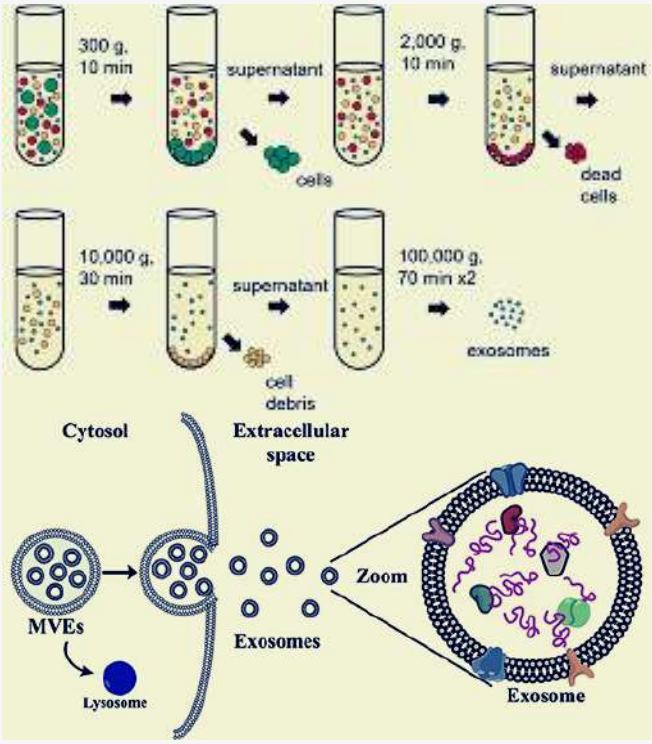
PTAC CANCER VACCINE

- TAA* (tumor associated antigen) based on general cancer
- Effective against all cancers and gliomas (most solid tumors)
- After more than 10 years of clinical treatment, and tested in more than 1,000 patients in Central Europe, it was confirmed as a preventive anti-cancer treatment
- Proven high tumor prevention and killing effect
- There are no side effects or adverse effects
- PTAC is an ATMP biological vaccine, which can be administered through a prescription from a medical institution

STEM CELL THERAPY

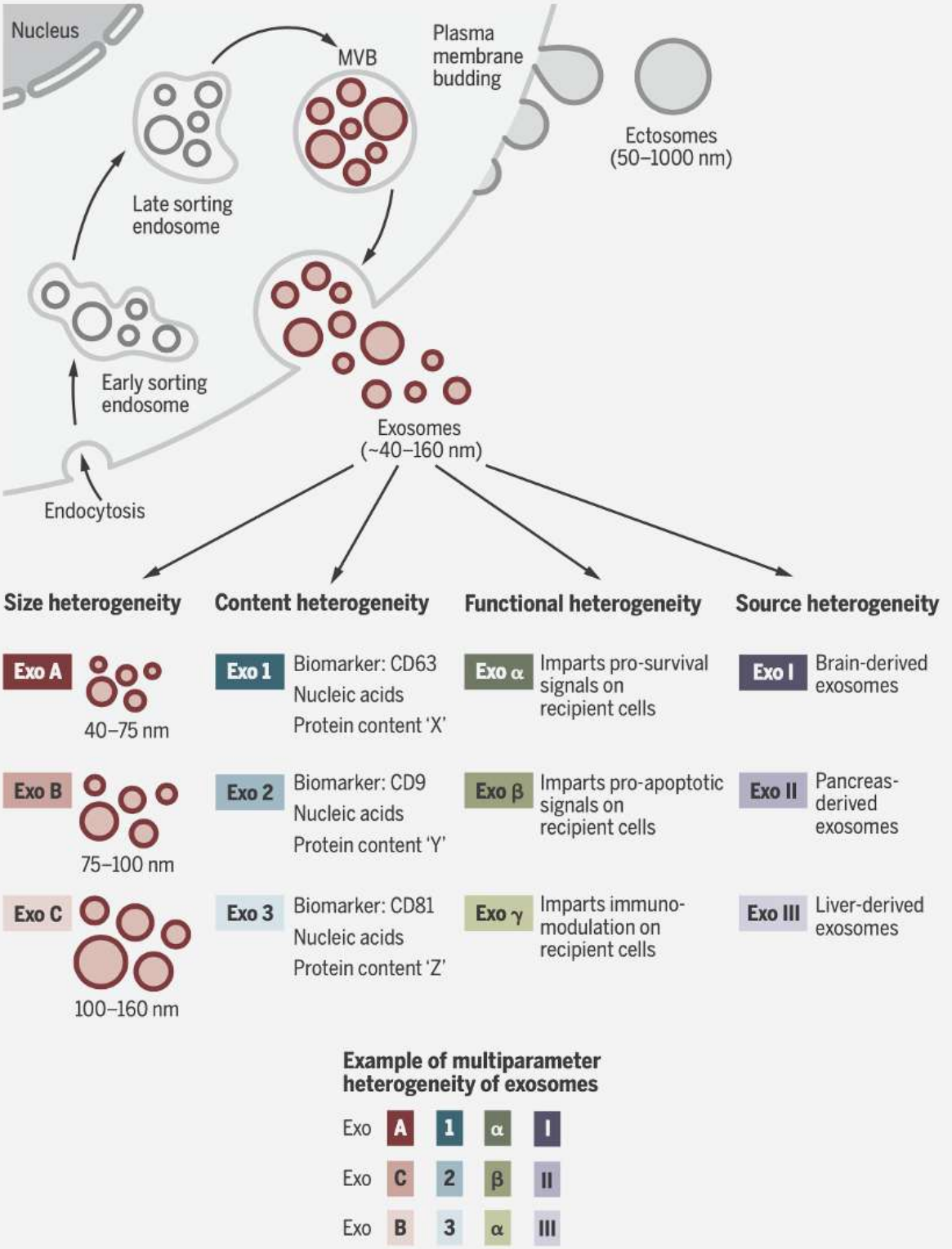
APPLICATION OF EXOSOMES PREPARATIONS

Exosomes are secreted from donated human umbilical cord blood mesenchymal stem cells, contain a wide range of growth factors, and are purified through a proprietary process. Exosomes are small and flexible, and can carry multiple doses of protein across barriers that cells cannot cross. Exosomes have anti-inflammatory properties, help to heal and regulate the immune system, and promote the regeneration of tissues and cells. Exosomes have only been discovered by scholars in recent years, and they are the most cutting-edge direction and new hot spot in stem cell research.



STEM CELL THERAPY

MECHANISM OF EXOSOMES

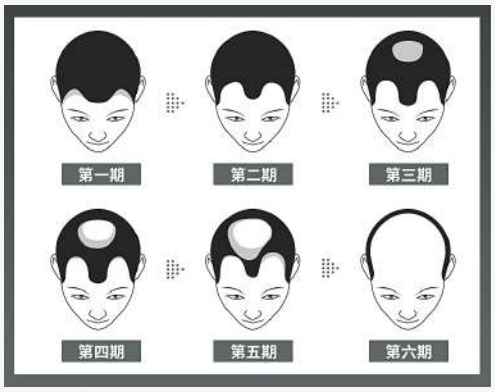


STEM CELL THERAPY

APPLICATIONS OF EXOSOMES

HAIR GROWTH

Extracted from peripheral blood, separated and purified by a patented method to obtain nucleated cells, platelets, and plasma (to filter out red blood cells), and then fused with AVIC exosomes products and injected into the scalp hair follicles to provide signal conduction and information while giving nutrition to the hair follicles Transfer and repair damage, which can effectively accelerate the speed and density of hair growth.



BEAUTY AND COSMETIC

Extracted from peripheral blood, separated and purified by a patented method to obtain nucleated cells, platelets, plasma (to filter out red blood cells), etc., and add exosomal preparations to return to their own skin, awaken dormant skin cells, activate skin cell regeneration, and repair skin cells. It is a lifting therapy that damages the skin and reshapes smooth, firm and elastic skin and the face in a short time.

STEM CELL THERAPY

RMDC STEM CELL COSMETIC CULTURE FLUID

RMDC Co., Ltd. continuously researches and manufactures high-functional stem cell culture solutions through carefully managed cell culture facilities. The culture fluid is made in Japan and can be sold to cosmetic raw material customers or cosmetic manufacturers. RMDC stem cell culture fluid has a variety of applications in skincare, hair care and other products, and it is a widely used cosmetic raw material.

RMDC cell culture fluid contains not only collagen and hyaluronic acid and other proteins that makeup skin tissues, but also cytokines and other substances that convey cells and information. There are more than 500 kinds of proteins in total. This is a unique function of stem cells, and ordinary cell culture cannot secrete such a variety of proteins.

There are about 60 trillion cells in the human body, of which only 0.005% stem cells, about 3 billion. With aging, the number of stem cells decreases, leading to aging of the human body. The stem cells of the skin exist in the basal layer of the lowermost layer of the epidermis and the dermis.

Epidermal stem cells will replicate themselves to increase the number, and then differentiate into keratinocytes.

Multiple layers of keratinocytes are stacked to form the stratum corneum, thereby maintaining the elasticity of the skin. Stem cells in the dermis also replicate themselves and differentiate into fibroblasts, and fibroblasts can secrete collagen, hyaluronic acid and elastin and other skin-beautifying components.

The culture medium contains EGF, EDP3, FGF, IGF, TGF and high-concentration placenta extract and other essences. In terms of technology, nano-impregnation technology is adopted, which allows advanced ingredients to penetrate directly to the bottom of the skin without applying any additional ingredients. The absorption is very fast. It can be absorbed within a few seconds of application. Since the structure of human stem cells is similar to that of human skin, it is easy to absorb.

STEM CELL THERAPY: EXOVETS

ADVANCED STEM CELL THERAPY PRODUCTS THAT CAN PROMOTE THE HEALTH AND LONGEVITY OF PETS AND HORSES

PET STEM CELL THERAPY PROCESS

- The veterinarian diagnoses patients who are suitable for stem cell therapy.
- Use the appropriate dose of stem cells according to the diagnosis report.
- The laboratory takes out the stem cells stored in the freezer and transports the cells safely to the treatment room.
- After receiving the stem cells, the veterinarian injects them into the pet patient.
- After the treatment, the veterinarian will continue to follow up, communicate with the pet owner and propose the highest treatment efficiency recommendations (such as appropriate rehabilitation or nutritional supplements), and the optimal treatment effect has been obtained.

STEM CELL THERAPY: EXOVETS

PETS STEM CELL THERAPY AND TREATMENTS

PETS IMMUNOTHERAPY

Can be applied to cancer tumor treatment, such as melanoma, lipoma, lymphoma, pancreatic tumor, spleen tumor, liver tumor

PETS EYE DISEASE THERAPY

Use functional eye drops to improve cataracts and ocular degenerative diseases

PETS CARE TREATMENT AFTER SURGERY

Allow pets to recover faster after surgery and reduce complications

PETS ANTI-AGING

Health care, help in digestion and avoid depression in older pets in the form of functional food

STEM CELL THERAPY: EXOVETS

PETS STEM CELL THERAPY AND TREATMENTS

PETS IMMUNE SYSTEM

Promote and improve the daily performance of immune system function

PETS JOINT TREATMENT

Applied to degenerative diseases of knee and hip joints

PETS SKIN TREATMENT

Applied to chronic skin diseases

PETS FERTILITY TREATMENT

Used to promote reproductive health

APPENDIX I

INTRODUCTION OF THE AI ROBOT SYSTEM

コンパクト自動細胞培養システム

Compact automatic cell culture system

細胞培養から製剤化（シリンジ充填）までの工程を、1台のロボットと新開発の多機能ハンドの活用によって自動化を実現。小型化を実現した小規模施設に導入可能なコンパクト自動細胞培養システムです。

※NEDO「ロボット活用型市場化適用技術開発プロジェクト」に採択

One robot and newly developed multiple grippers have automated the process from cell culture to formulation (syringe filling) This compact, space-saving automatic cell culture system is suited for small-scale facilities.

* Adopted "technological development project for robot utilization in the market" by NEDO.
(NEDO is "New Energy and Industrial Technology Development Organization" of Japan)

（協賛：株式会社アニマルステムセル）

作業を1台のロボットに集約する事で、
装置の大幅な小型化を実現。

ピペッティング

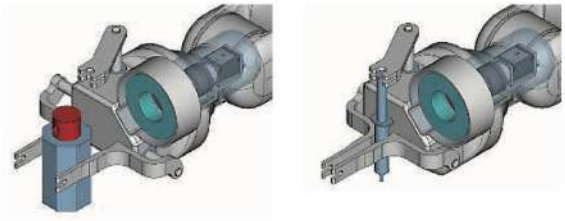
キャップ開栓

培地注入

注射器充填

多機能ハンド〈新開発〉

平行開閉グリッパーとサブフィンガーにより、
フラスコの把持やピペット/注射器の
押上げ・引出し作業が可能。



APPENDIX II

OPERATION OF THE AI ROBOT SYSTEM

自動細胞培養システム
Cell Processing Automation System

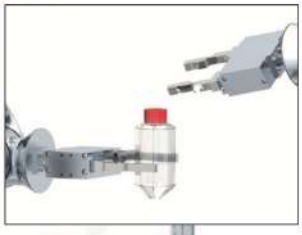
安全・高品質な自動細胞培養システムを実現
Safety and high-quality automated cell culture system

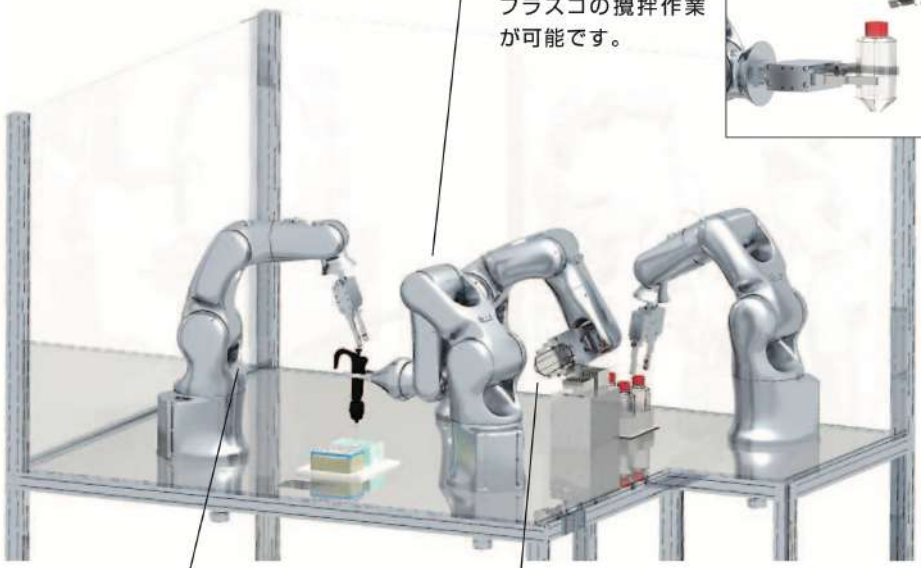
デンソーロボットの高信頼性、高性能を継承した医薬・医療用ロボットにより、
安全・高品質な自動細胞培養システムに貢献します

Medical and Pharmaceutical Robot handed down high-reliablity and performance of DENSO Robot contributing to automated cell culture system

1 キャップ開栓・攪拌

ロボットでフラスコのキャップ開栓およびフラスコの攪拌作業が可能です。





2 採取・分注

2台のロボットでピットのチップ装着、液体の採取、マイクロプレートへの分注作業が可能です。

3 廃液

ロボットで液体をこぼさずに廃液作業が可能です。

APPENDIX III

STEM CELL MEDICAL CENTRE

WE ARE WORKING FOR THE HEALTH OF HUMANS

維港健康科技有限公司
Victoria Harbour Health Technology Limited

VICTORIA HARBOUR HEALTH TECHNOLOGY LIMITED

MEDICAL TEAM

SKYSMARTOR
MANAGEMENT CONSULTANCY

SKYSMARTOR DEVELOPMENT COMPANY LIMITED

MANAGEMENT TEAM

PRECIOUS
INVESTMENT GROUP

PRECIOUS INTERNATIONAL INVESTMENT MANAGEMENT GROUP LIMITED

FINANCING TEAM

WE LOOK FORWARD TO COOPERATING WITH YOU.