REJUBEAU

The first and only exosome from iPSC-derived iMSC

100% CONCENTRATED AND PURIFIED EXOSOME BOOSTER FOR SKIN AND HAIR

by BREXOGEN Technology

VACUSERA Biostimulants

MESENCHYMAL STEM CELLS (MSC)

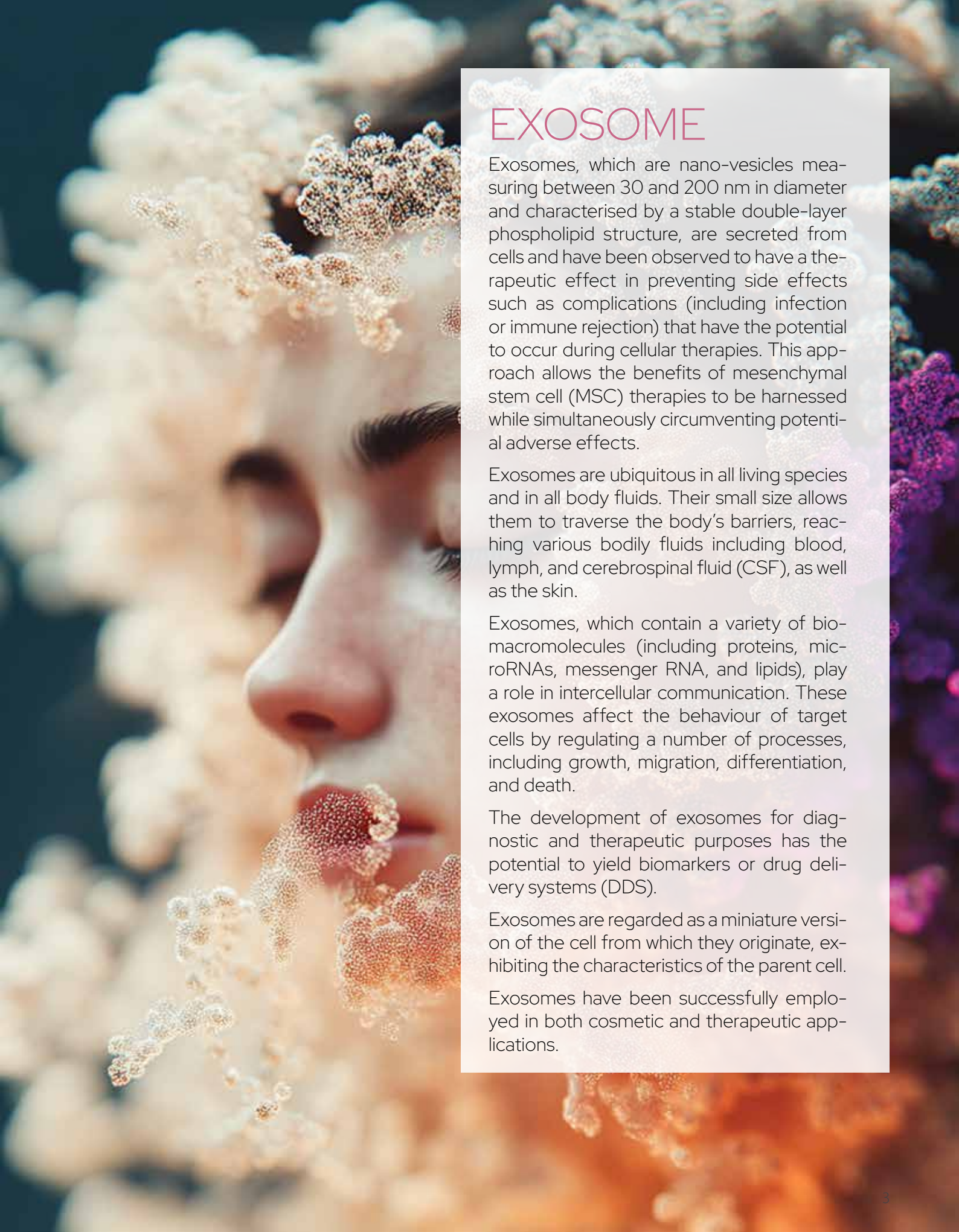
MSCs (Mesenchymal stem cells) are progenitor cells of connective tissues (including osteoblasts, chondrocytes and adipocytes). These cells can be isolated from a variety of adult tissues, including bone marrow, adipose tissue, umbilical cord, and peripheral blood.

MSC Advantages

Mesenchymal stem cells (MSCs) have been demonstrated to possess a number of crucial antiinflammatory, immunoregulatory and regenerative functions. Mesenchymal stem cells (MSCs), which are pericytes in our capillaries, secrete exosomes that facilitate repair and regeneration in the event of injury. The exosomes serve to initiate the healing process by stimulating local stem cell niches.

MSC Limitations

In therapeutic applications, mesenchymal stem cells (MSCs) transplanted into the body have a limited viability and exert their effects through exosomes. Despite the vital roles that MSCs play, these cells are not without shortcomings. One such limitation is their inherent heterogeneity, which can be influenced by the age and overall health status of the donor. In light of these potential risks, exosomes may be regarded as a viable alternative to MSCs.



EXOSOME

Exosomes, which are nano-vesicles measuring between 30 and 200 nm in diameter and characterised by a stable double-layer phospholipid structure, are secreted from cells and have been observed to have a therapeutic effect in preventing side effects such as complications (including infection or immune rejection) that have the potential to occur during cellular therapies. This approach allows the benefits of mesenchymal stem cell (MSC) therapies to be harnessed while simultaneously circumventing potential adverse effects.

Exosomes are ubiquitous in all living species and in all body fluids. Their small size allows them to traverse the body's barriers, reaching various bodily fluids including blood, lymph, and cerebrospinal fluid (CSF), as well as the skin.

Exosomes, which contain a variety of biomacromolecules (including proteins, microRNAs, messenger RNA, and lipids), play a role in intercellular communication. These exosomes affect the behaviour of target cells by regulating a number of processes, including growth, migration, differentiation, and death.

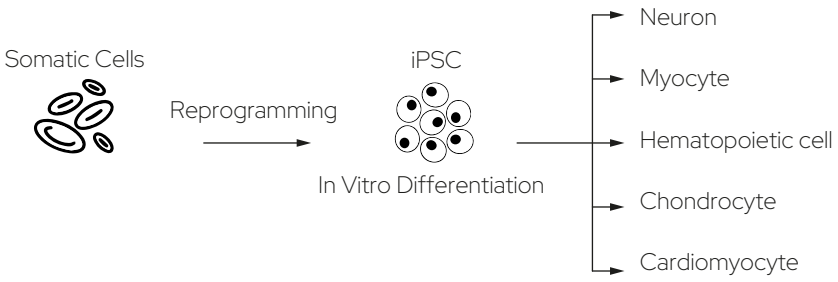
The development of exosomes for diagnostic and therapeutic purposes has the potential to yield biomarkers or drug delivery systems (DDS).

Exosomes are regarded as a miniature version of the cell from which they originate, exhibiting the characteristics of the parent cell.

Exosomes have been successfully employed in both cosmetic and therapeutic applications.

INDUCED PLURIPOTENT STEM CELL (iPSC)

Following prolonged periods of culture, the capacity of mesenchymal stem cells (MSCs) to proliferate and differentiate into diverse cell types is diminished. Furthermore, alterations in the genetic structure of the cultured cells may also occur. This situation represents a limitation on the quantity of mesenchymal stem cells that can be obtained from humans. The advent of induced pluripotent stem cells (iPSCs) has the potential to address this challenge. Induced pluripotent stem cells (iPSCs) are cells that can maintain their proliferation rate for an extended period and retain the capacity to differentiate into various cell lines. These cells are generated from a somatic cell through the process of artificially induced de-differentiation, resulting in a pluripotent state. iPSCs exhibit a high degree of similarity to embryonic stem cells in terms of their intrinsic characteristics.



REJUBEAU is the FIRST and ONLY exosome originating from induced pluripotent stem cell-derived mesenchymal stem cells (iMSC), exhibiting a markedly superior efficacy and potency compared to contemporary technological capabilities.

Exosomes generated from induced pluripotent stem cell (iPSC)-derived mesenchymal stem cells (iMSCs) exhibit a number of advantages in comparison to exosomes derived from iMSCs alone.

P-Exosomes >>> M-Exosomes

(Generated from **iP**SC -derived iMSCs) (Produced from **M**SCs)

P-EXOSOMES (PLURIPOTENT EFFECT)

Exosomes generated from induced pluripotent stem cell- derived mesenchymal stem cells

LIMITLESS RESOURCE

HOMOGEN

QUALITY IS STABLE

THE IMPACT IS RELATIVELY CONTROLLABLE,

THE OUTPUT IS MEASURABLE AND GRADABLE,

HIGH BENEFIT/COST RATIO

MUCH STRONGER CLINICAL EFFECT

MORE PROTEIN

MORE REGENERATION

M-EXOSOMES (MULTIPOTENT EFFECT)

Exosomes produced from MSCs

LIMITED RESOURCE

HETEROGEN

QUALITY IS UN-STABLE

RELATIVELY UNCONTROLLABLE IMPACT

MORE DIFFICULT TO BECOME A SHELF PRODUCT

LOW BENEFIT / COST RATIO

LOWER CLINICAL EFFECT

LOWER REGENERATIVE EFFECT

LESS REGENERATION

P-EXOSOMES (PLURIPOTENT EFFECT)

Exosomes produced from Induced Pluripotent Stem Cell Derived iMSCs

M-EXOSOMES (MULTIPOTENT EFFECT)

Exosomes produced from MSCs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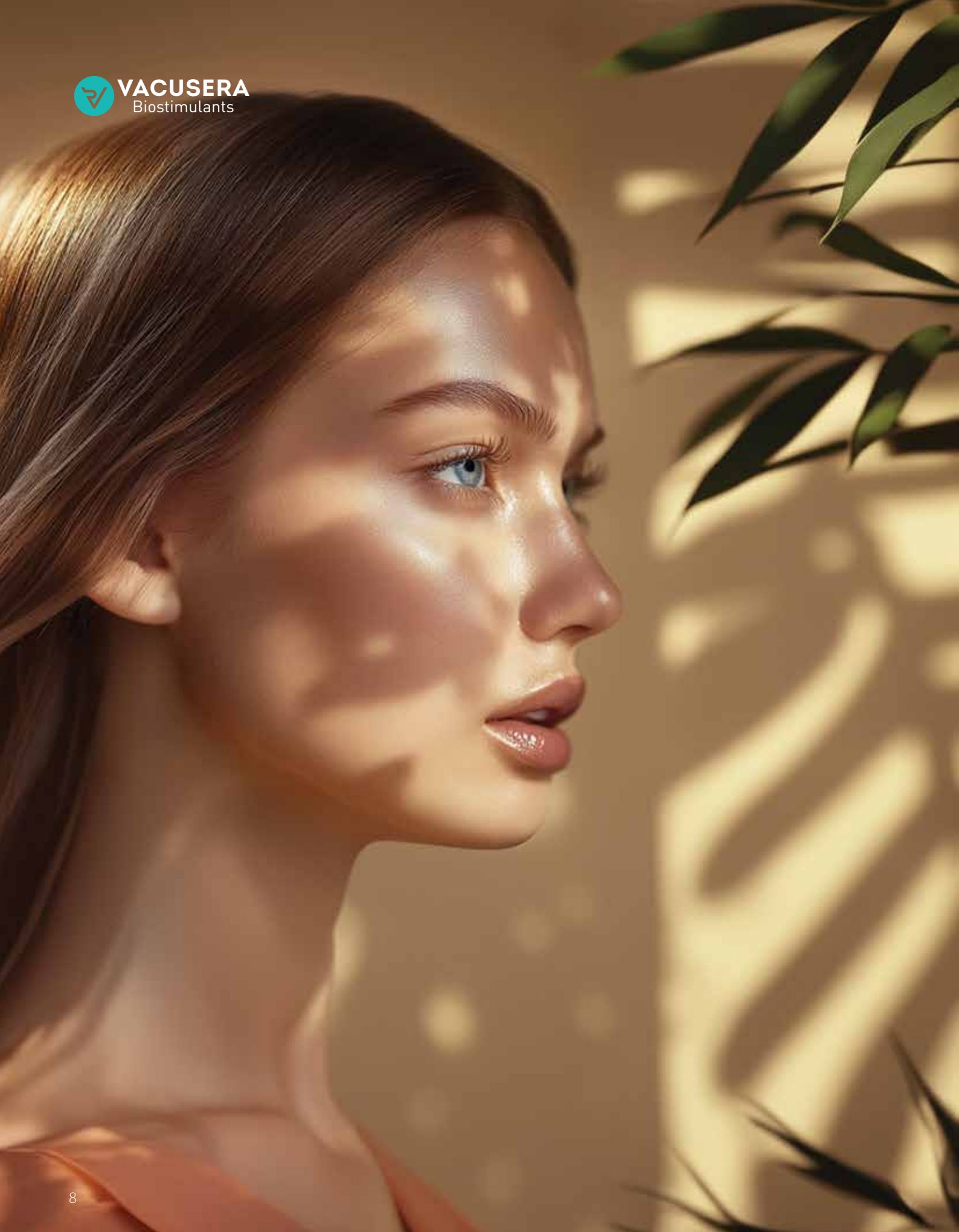
REJUBEAU SB & HB 100%

Rejubeau is a lyophilised product containing exosomes derived from over 10 billion induced mesenchymal stem cells, encapsulated in a single vial. The absence of cells and DNA in its composition renders it immune to the risk of immune rejection, thereby facilitating the implementation of regenerative therapies.

Product specifications:

- 8 Mg/ml exosomal protein content
- At least 650 different protein types
- 125.4 nm average particle size
- Particle size standard above 90%

REJUBEAU EXO 100% Concentrated and Purified Exosome Booster	
REJUBEAU EXO SB 100%	SB 100 EXSOZOM: 300 mg - Activating solution: 5 ml
REJUBEAU EXO HB 100%	HB 100 EXSOZOM: 300 mg - Activating solution: 5 ml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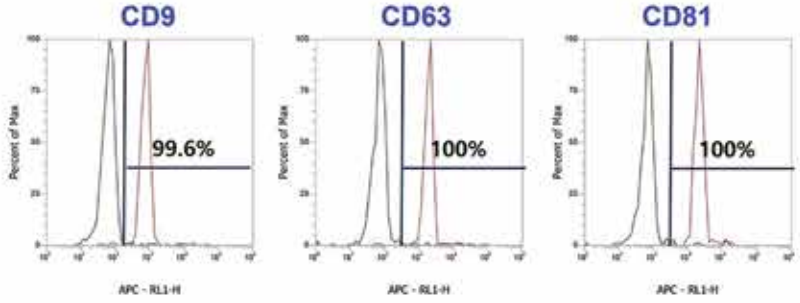
Exosomes generated from iPSC-derived MSCs (iMSCs)			
Main Content	Induced Pluripotent Cell (iPSC)-Generated Mesenchymal Stem Cell (iMSC) Exosomes (iMSC-EXO)		
Cell Type	Induced Pluripotent Stem Cell (iPCS)		
Cell Line	No modification required		
Powder	Single component		
Content	Powder: 300mg / Solution: 5ml		
Raw materials	There were no external purchases of raw materials.		
Concentration	100% (1.000.000ppm)	Average Size	125,4 nm
Protein / vial	300 mg	Pore Size Ratio	1/1700
Cargo	Skin - Hair	Growth Factor & Protein for Skin	650 Type
Partikül / flakon	> 100 billion and above	Growth Factor & Protein for Hair	650 Type
Particle Size	20 - 150 nm	Purposeful Production	Available

REJUBEAU CONTAINS THE HIGHEST PERCENTAGE OF EXOSOME MARKERS



Rejubeau EXO Skin (in-vitro)

Increasing Skin Rejuvenation

REJUBEAU has been demonstrated to stimulate the rejuvenation of skin cells to a level comparable to that of a young HDF (Human Dermal Fibroblast) by reducing biomarkers of cellular ageing.

Wound Healing Support

In comparison to the untreated area, Rejubeau has been observed to accelerate the rate of movement of skin cells, thereby stimulating the recovery of the skin cycle.

Reduce itching

The mechanism of action of REJUBEAU in atopic dermatitis is the reduction of the pruritogenic biomarker.

Increasing Skin Rejuvenation

REJUBEAU has been demonstrated to exhibit regenerative and anti-wrinkle effects by increasing the expression of growth factors that stimulate skin regeneration.

Effect on Strias

REJUBEAU has been demonstrated to stimulate collagen synthesis and elasticity production in striae and thin skin.

Rejubeau EXO Hair (in-vitro)

Stimulation of Hair Follicle Proliferation

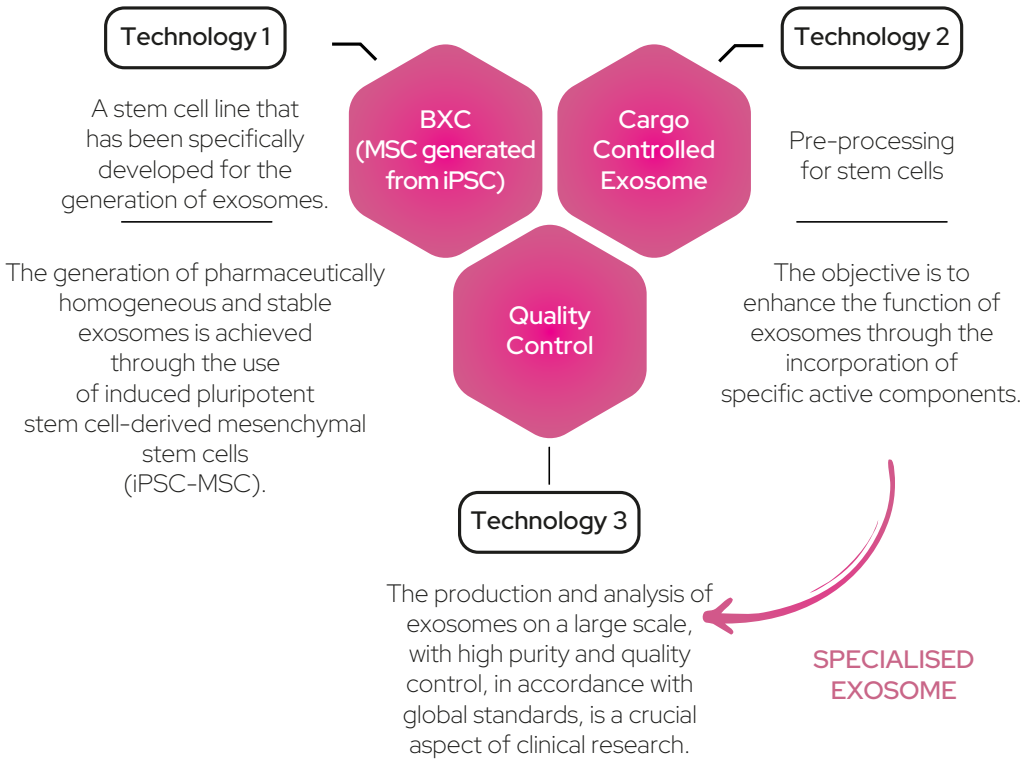
REJUBEAU has been demonstrated to impede the progression of alopecia by enhancing the growth and proliferation of DPC (Dermal Papilla Cells).

Stimulation of New Hair Growth

The mechanism of action of REJUBEAU is twofold: firstly, it prevents hair loss and, secondly, it promotes hair growth. This is achieved by reducing the expression of receptors and factors in dermal papilla cells that are associated with hair loss, and by increasing the expression of growth-promoting factors.

UNIQE EXOSOME PLATFORM TECHNOLOGY

Rejubeau is manufactured by Brexogen, which has developed and implemented superior stem cell exosome technology across all stages of the production process, including mass production, isolation, purification and quality assessment. These processes are conducted in accordance with global pharmaceutical standards. Brexogen utilises a unique exosome platform technology that ensures the production of exosomes of the highest quality.



The techniques employed throughout the product development process, culminating in the product's market release, have been executed by a dedicated scientific team. Each stage of the process has been duly patented, and rigorous quality and safety controls have been implemented. In contrast to other products currently available on the market, **Rejubeau** is supplied in a "lyophilised powder" form. The technology employed in the lyophilisation process has been demonstrated to offer a prolonged shelf life and convenient portability, while maintaining the quality and quantity of exosomes when the activator is introduced. In contrast, frozen exosome products have been demonstrated to exhibit a relatively short shelf life, significant difficulties in transportation, and minimal yield during the heating process.

REJUBEAU

Regenerative, Aesthetic, Therapeutic Exosome

Our pioneering exosome production technology has been the subject of numerous significant SCI papers and has resulted in both domestic and international patent applications/registrations. The registration of raw material ingredients in several countries has been completed. Clinical trials of exosome therapies serve to guarantee the quality and reliability of our technology, ensuring the safety and stability of our products.

Publications:

A review of the literature reveals 13 published articles on exosome platform technology. Six published research articles have been published on the following topics: skin regeneration, anti-ageing, hair loss and atopic dermatitis.

Patents:

A total of 81 patent applications have been filed, with 21 patents subsequently registered, pertaining to exosome platform technology. These applications and registrations have been made in both Turkey and abroad, with a focus on skin-related issues such as skin regeneration, anti-ageing, hair loss and atopic dermatitis.

Content Recording:

PCPC, JAPAN, FDA, OTC, EUROPE and ingredients listed in various countries.

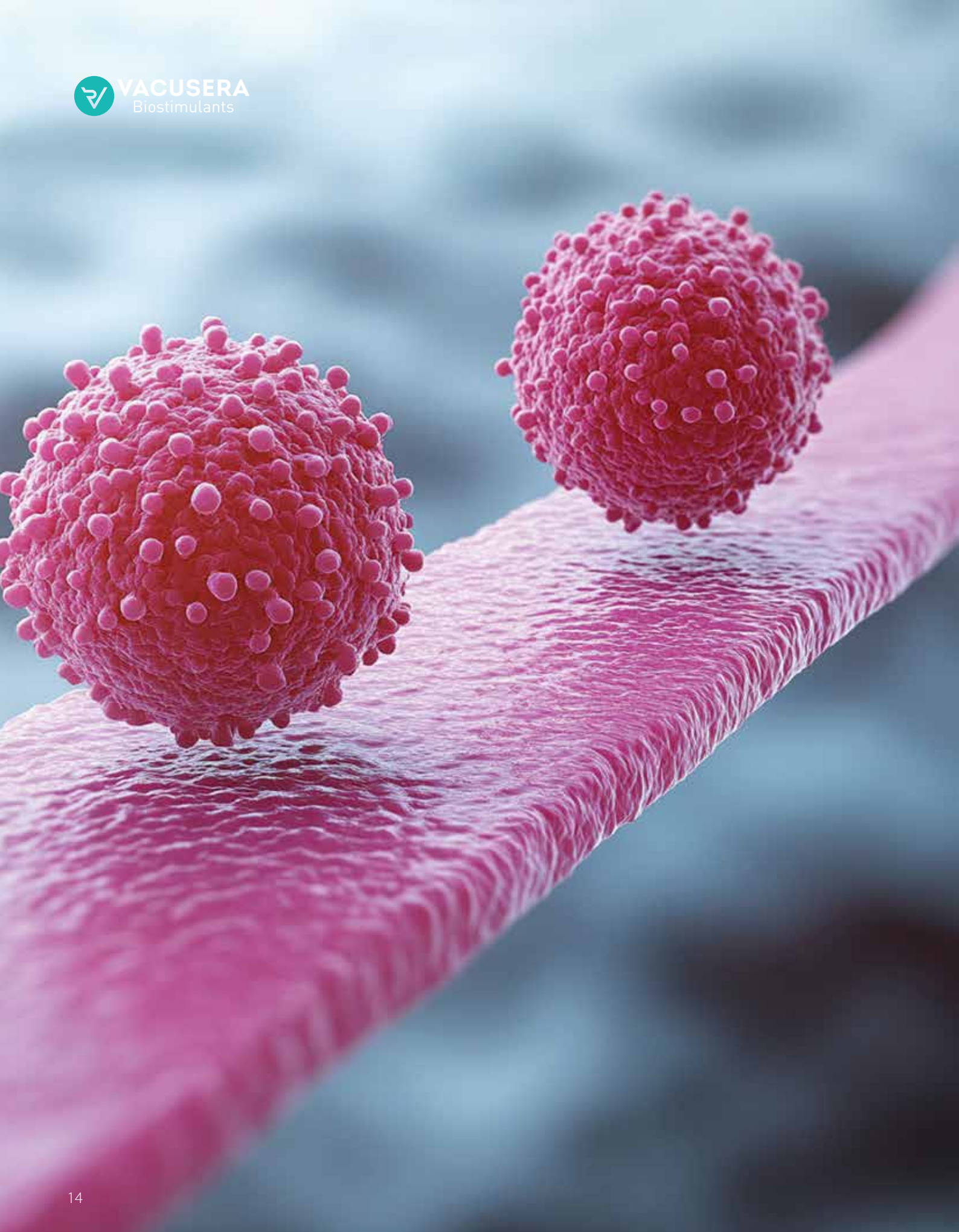
Clinical experience with exosome therapy:

The results of our research on exosome therapy clinical trials have enabled us to gather comprehensive data on exosome mass production, quality control, safety and stability. This data is then used to ensure the production of high-quality exosome products.

Clinical trials of therapeutic exosome treatments by Brexogen

Indication	Finding	Pre-clinical	IND	Phase I	Phase II
BRE-AD01	**Atopic Dermatitis** (Decreased IL-4R/IL-13R, Skin barrier regeneration)				
BRE-MI01	**Myocardial Infarction** (Cardiac regeneration, Anti-fibrosis)				
BRE-NA01	**MASH** (Liver cell regeneration, anti-inflammation, anti-fibrosis)				

Clinical trials supported by science and technology for therapeutic exosome treatments



Rejubeau, from production to reaching the end consumer all safety quality and toxicity tests have been carried out.

Subcutaneous toxicity test (single and repeated doses)

Evaluation of skin irritation

Assessment of eye irritation

Local lymph node evaluation

Phototoxicity test

Bacterial reverse mutation test

In vitro chromosome aberration test

Bone marrow micronucleus evaluation in male Sprague-Dawley rats (Transdermal application study)

Human skin irritation patch test

Although aesthetic exosomes and therapeutic exosomes differ in terms of content, no pharmacological problems were found in terms of toxicity and safety, even in therapeutic exosomes used at higher doses.

Numerous publications in journals with high Impact Factor

REJUBEAU

EXO

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by BREXOGEN Technology

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