

# **Innovative technology and clinical application of separation and preparation of blood-derived growth factors**

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## **1. Overview (the composition and mechanism of action of blood-derived growth factors)**

Derivatives derived from autologous blood of patients belong to the category of regenerative medicine. In recent years, it has been widely used in clinical practice. For example, platelet-rich plasma (PRP) extracted from patients' autologous blood has more than millions of clinical applications worldwide. From a technical point of view, the body's immune system reacts quickly after blood-derived growth factor injection. The influx of special white blood cells called "macrophages" takes away damaged cells and prepares for cooperation in this part. Then, stem cells and other cells begin to proliferate, repairing and reconstructing the injured tissue. At the same time, a large number of autologous growth factors can improve microcirculation in patients and become a medium for stem cells to survive and grow more easily. In addition, the wound repair factor that comes with the blood activates the body's own immune and repair signals, helping the body to achieve rapid self-healing.

## **2. Preparation (the conventional related preparation technology for blood-derived growth factor)**

There are many methods for blood separation preparation, and it is generally carried out by centrifugation. By using the difference in sedimentation ratios of different components in the blood, various components in the blood are collected by a centrifuge, including separation of platelets, active substances, and growth factors, thereby obtaining a platelet concentrate, platelet-rich plasma (PRP). PRP has been widely used in neurosurgery, orthopedics, rehabilitation, ophthalmology, dentistry, and neurorestoration. It is used in the treatment of facial paralysis, peripheral nerve injury, knee osteoarthritis, gingival recession, periodontitis, and refractory wound following by good outcome. The number of centrifugation, centrifugal force and centrifugation time are different, and the PRP produced is different. In addition, different lengths of centrifugal shafts, centrifuge tubes of different diameters and lengths, centrifuge tube materials (glass or plastic), even different body positions or blood draw at different times of the day can affect the blood platelet recovery rate and activation rate. At present, there is no uniform standard for the preparation of global blood-derived growth factors.

## **3. Innovation (innovative preparation technology and solutions adopted)**

Our team brings together the advantages of multidisciplinary and multidisciplinary research, and has made a lot of attempts and innovations in the technology of separation and preparation of blood-derived growth factors, and has achieved scientific and clinical breakthroughs.

First, no substances, including anticoagulants, are added throughout the preparation process. In traditional blood purification and preparation processes, an anticoagulant must be added, otherwise, the blood will solidify during the preparation process. We take the optimization of environmental quantity and preparation process and consumables, especially in the preparation process, using the physical properties of the Tesla wave (scalar wave), delaying the blood coagulation time. After the blood-derived growth factor is prepared, it can still be non-condensed for about ten minutes.

Second, through the use of polymer materials, the blood is passed through a molecular sieve of different pore sizes under a certain pressure to complete the separation of blood components and the extraction of growth factors, so that the separation is more complete and the cell activity is also retained to the greatest extent.

Finally, the individual differences of each patient are very different. The same patient is different at different times and in the field to be treated. The procedure and state of separation and preparation of blood-derived growth factors should also be different from person to person and accurately prepared, so a big data platform is established. Separation preparation schemes for precise diagnosis and treatment are also of particular importance.

#### **4. Application (selection of patient indication and extensive medical applications)**

For blood-derived growth factors, in addition to conventional injection, topical application and tissue repair and anti-aging, we particularly emphasize that the injection of blood-derived growth factors at acupoints is significantly better than similar injections in other parts. The Yellow Emperor's Internal Classic, the most classic Chinese medical masterpiece, said: "The meridians, the reason why people are born, the reason why the disease is made, the reason why people are ruled, the reason for the disease", also said: " The meridians decide life and death, deal with all diseases, and regulate imaginary and real. Therefore, the meridians cannot be blocked. ". The frequency of energy fluctuations emitted by the human body conveys the health information of the whole body by meridians and acupuncture points, and the disorders of the meridian function produce various diseases. The "openness" of the human body's meridians is the decisive factor of the human health state, and it is also a sign of the human health state; the conditioning of the human body function and the treatment of the disease can be achieved by dredging the meridians. The meridian is the human body's control center---the essence of the body, and the path of the human body's blood, organs, and limbs. Accurate injection of blood regenerative factors at acupoints will exert greater therapeutic effects.

#### **5. Perspective (future application prospects of blood-derived growth factors)**

As a nutrient and medium for cells, blood-derived regeneration factor has important clinical significance for improving microcirculation and improving autologous repair ability. As research in the field of cells continues to deepen, the integration and complementarity of biomedical and informational medicine are also growing. Through the current loading of scalar waves to improve the activity of cells, the future technological breakthroughs in energy medicine and information medicine can accurately intervene in cells, and many degenerative diseases including cancer and even cancer will become preventable, controllable, even can be cured.

The scalar wave was first discovered by Nikola Tesla more than 100 years ago and is also known as Tesla. The study of scalar waves can be applied to sterilization, accelerate wound healing or postoperative rehabilitation, enhance cell activity, delay platelet activation time, etc. It has been reported that former Soviet experts can enhance drug efficacy through bioinformatics resonance techniques and scalar waves. Scalar waves can transmit energy and information through resonance amplification, which has many peculiar properties. For example, it can penetrate any hard object and even penetrate the Faraday screen and the entire earth. The scalar wave is not an electromagnetic wave transverse wave, so it can exceed the speed of light. Some researchers believe that aliens use scalar wave communication. It transmits energy and the energy is amplified several times during the transfer. The study of biological science is to study the organic unity of matter, energy, and information. As early as 1943, the Austrian scientist Elwin Schrödinger proposed the basic problem of life is the information problem. In the existence of the Maxwell equations in classical physics and the energy fields not explained in the Schrödinger equation, we have achieved the use of scalar waves to improve the activity of blood-derived growth factors in blood preparation. It is believed that the preparation technology of blood-derived growth factors and the enhancement of precision treatment will bring more benefits to human beings.