



*PRPHD*

PLATELET RICH PLASMA KIT



NEW CONVENIENT PRP KIT



# THE MOST ADVANCED / IMPROVED THROMBOCYTE RATIO ON THE MARKET

During the R&D period of PRP HD Kit, we have examined the structures of all other PRP products and we have consulted to our medical doctors.

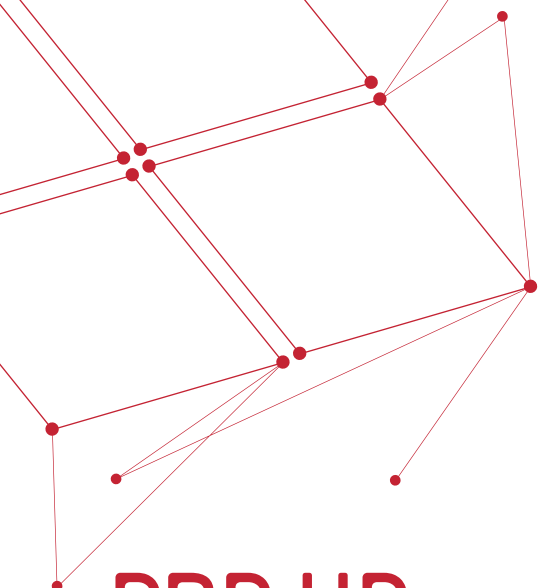
Due to lack of knowledge and constitution of the other products, we have developed safe, effective, injectable, re-suspension featured and quality product along with our doctors' qualified experiences.

## // REAL PRP VITALITY IS IN THIS TUBE

We are not talking about an IVD Tube, or imported products and packed in bags or boxes. We are talking about our tubes developed for the purpose of PRP applications along with other supportive equipments for safe, sterile and effective applications.







## PRP HD TUBES

PRP is an abbreviation of Platelet-rich Plasma. PRP can be obtained due to a strong centrifugal force by separating the cells according to their molecular weights layer by layer.

Platelets can be determined as the reparative cells in our bodies. Remember how they act even on a small wound on your skin. PRP is simple as that such a concentration of those cells collected in a plasma milieu. PRP HD Tubes offer 2 ml of PRP from 9ml of whole blood. Platelets cause the coagulation but also secrete growth factors. Normal platelet counts can be considered as 200.000/microliter but PRP means the platelet count goes up to 1.000.000 – 1.500.000/microliter.

PRP can only be applied by qualified medical doctors and this technique is an autologous procedure.

## ARE PRP AND STEM CELL TREATMENT THE SAME? WHAT ARE THE DIFFERENCES?

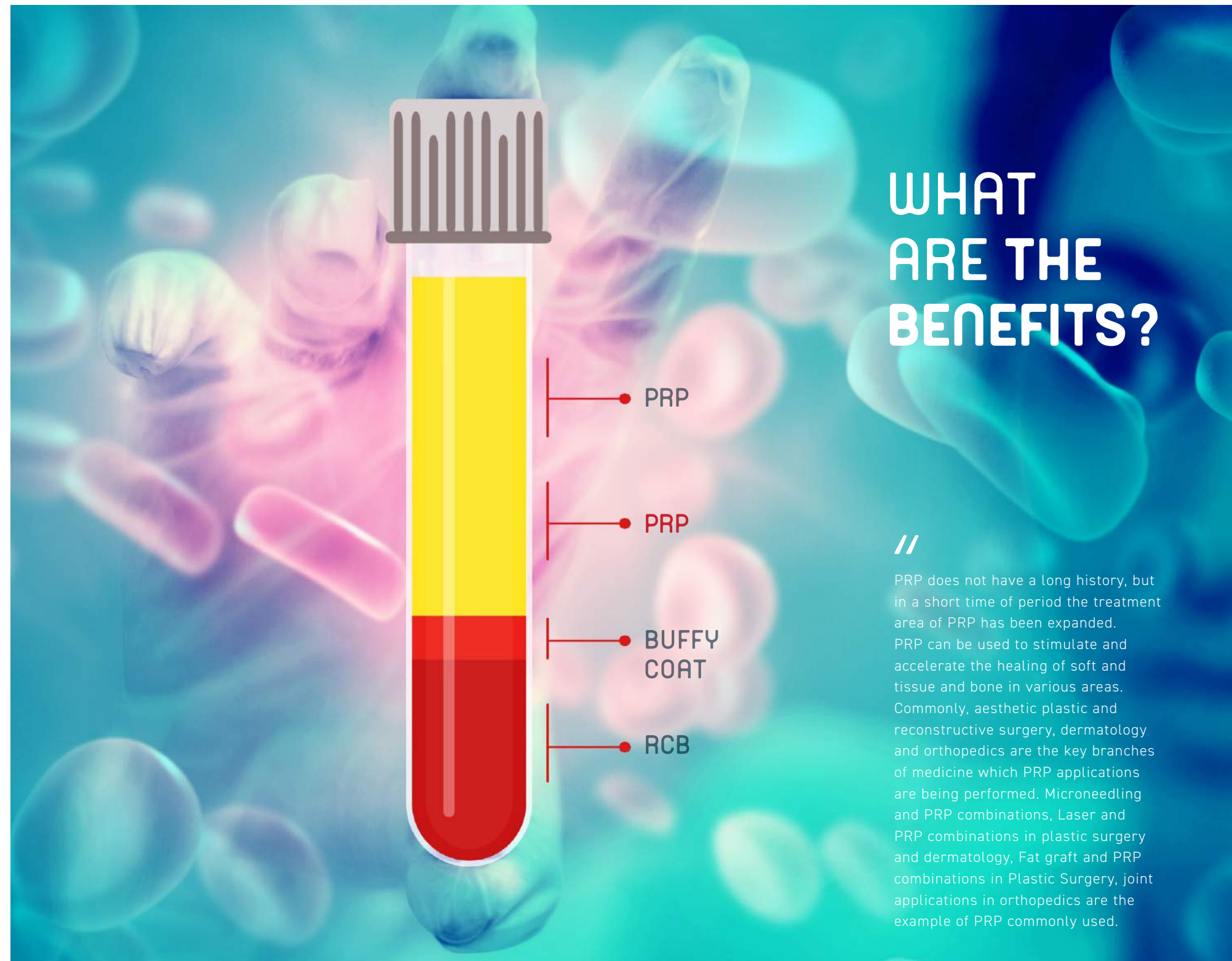
PRP shall not be considered or marketed as a Stem Cell treatment. But, PRP can lead the stem cells to be involved in the healing process of the tissue. Due to activation of platelets, growth factors are secreted.

Application may lead to fibroblast generation, fibroblasts may generate the collagen and elastin as a chain reaction. Also, on autologous fat graft and PRP combination procedures, PRP may help the viability of the grafted tissue on its new place.

## WHAT ARE THE BENEFITS?

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PRP does not have a long history, but in a short time of period the treatment area of PRP has been expanded. PRP can be used to stimulate and accelerate the healing of soft and tissue and bone in various areas. Commonly, aesthetic plastic and reconstructive surgery, dermatology and orthopedics are the key branches of medicine which PRP applications are being performed. Microneedling and PRP combinations, Laser and PRP combinations in plastic surgery and dermatology, Fat graft and PRP combinations in Plastic Surgery, joint applications in orthopedics are the example of PRP commonly used.



# WHAT IS IN THE PRP KIT?



## // PRP HD TUBES

PRP HD Kit includes 2 PRP HD Tubes in each kit. PRP HD Tube is a 10ml volume, vacuumed tube, includes 1ml of anticoagulant. PRP HD Tube is interior Gamma Sterilized tubes. The tubes do not include Ficoll or gel. PRP HD Tubes are non-hemolytic. It is recommended that 2 ml of PRP shall be harvested from each PRP HD Tubes. And totally it can be harvested 4ml of PRP from one PRP HD Kit.



## // PRP HD RE-SUSPENSION TUBE PHLEBOTOMY

PRP HD Kit includes 1 PRP HD Re-Suspension Tube in each kit. PRP HD RE-Suspension tube is a 5ml volume, plain tube. PRP HD Re-Suspension Tube is interior Gamma Sterilized Tube. The tube is non-hemolytic. Total 4 ml of PRP is collected to 5 ml PRP HD Re-suspension tube according to instruction of the manufacturer. Recommended Re-Suspension process is gently shaking the tube for 30 seconds - 1 minute.



## // INJECTORS & NEEDLES

There are 2 injectors in each kit. One of them is 5ml capacity and the other one is 1 ml capacity sterile injectors. 5 ml injector is used to collect the PRP and to carry the PRP to PRP HD Re-Suspension tube. 1 ml injector is used to apply the PRP to the patient. There are 3 needles in each kit. A Long Needle, a 21G Needle and a 30G needle. Long needle is used to harvest the PRP from PRP HD Tube and to carry the PRP from PRP HD Tube to PRP HD Re-Suspension Tube. 21G needle is used to harvest the re-suspended PRP inside from the PRP HD Re-Suspension Tube. 30G needle is for injection.



## // PHLEBOTOMY SET TUBE PHLEBOTOMY

There is a 2 pieces equipment in the kit. It is used to draw blood from patient into PRP HD Tube. No other equipment is needed to draw the whole blood from the patient.



# WHAT OUR PRP KIT HAS MORE TO OFFER?

01

## Injectable

PRP HD Kit is not a Blood Storage Tube or Blood Separation kit unlike the many other products. The requirements of CE Class IIb has been acquired.

02

## Does not include Ficoll

Unfortunately, some IVD tubes are marketed as PRP products. IVD tubes' intended use are diagnoses outside the human body.

The section of the catalogues of these tubes express that "do not inject to humans" .

03

## CE Class IIb Certificate

According to 93/42/EEC directive Annex IX and MEDDEV guidance document Classification of the Medical Devices MEDDEV 2.4/1 Rev 9, June 2010, expresses on Rule 3: Non-Invasive devices that modify biological or chemical composition of blood, body-liquids or other liquids intended for infusion into the body are in Class IIb. PRP HD Kit has Class IIb medical device certificate.

04

## Not just a blood storage tube, but a real prp kit.

There are various products in the market sold as PRP tubes or collection of products along with PRP Tubes. As many of them are not certified to be used on PRP procedures, also some of tubes have certificate as "Blood Storage Tube" or "Blood Separation Kit".

But, PRP HD Kit is equipped with every necessary equipments to be used on PRP Procedures.

05

## Includes Anticoagulant

Blood Storage Tubes and Blood Separation Kits do not include any anticoagulant. So, instructions lead the user to collect anticoagulant from outer sources that eliminates the standardization of anticoagulant quality and the possibility of choosing the wrong anticoagulant.

PRP HD Kit does not let the user to change the anticoagulant or have the risk of misuse of anticoagulant.

06

## Re-suspension mechanism

Due to strong centrifugal force, the clump formation of the platelets can occur. Re-suspension of the platelets helps to homogenize the platelets in the plasma milieu.

07

## Cell-Cell Interaction

Cell-Cell interaction determines that the platelets' role to become proaggregator and interact with the other cells around the microenvironment. Publications have shown that the PRP+RBC in collagen-induced activation leads ADP and ATP synthesis fivefold - sevenfold in comparison to PRP alone.

08

## No Gel

Some kits have gel in the tubes. During centrifugation, gel keeps RBCs under the gel. But RBCs are bigger molecular structures than platelets and during the centrifugational movement of the cells, RBCs collect many Platelets under the gel along with RBCs. Also, it is a risk that the gel may be allergen. In some cases, there may be some risks to collect the gel inside the tubes and re-inject to patients. Due to those risks, PRP HD Tubes do not include gel.

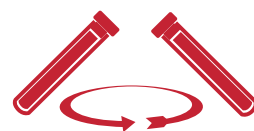
# EASY TO USE, ONLY IN 4 STEPS



01

## HARVESTING THE WHOLE BLOOD

The whole blood is harvested into PRP HD tube from the patient's arm using phlebotomy set of PRP HD Kit. Each PRP HD Tube is 10ml volume including 1ml of anticoagulant. Tubes provide easily harvesting of the whole blood as they are vacuumed tubes. Both tubes stop when vacuum is finished. So, you have totally the 18ml of whole blood. After harvesting the whole blood, gently shake both tubes to permeate the anticoagulant into whole blood in the tubes.

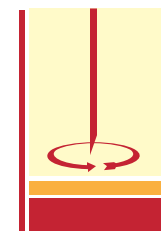


1.500 G

02

## CENTRIFUGATION

Each centrifuging unit can be used to perform this process. Tubes shall be put accordingly in order to achieve the centrifuging balance. No special centrifuging device is provided or recommended. The most important subject for centrifuging is to perform 1500 G for 8 minutes according to instructions for use. Swing rotor centrifugation devices are recommended for more convenient results. Centrifuging devices generally express the RPM (Repeat Per Minute) instead of G force but RPM and G Force can lead to different ratios due to radius difference of the devices. Please check our web page out to convert the RPM into G Force.



03

## HARVESTING THE PRP

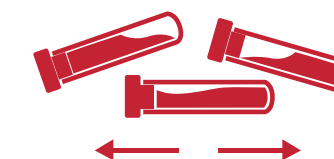
This section is the crucial part to obtain the platelet rich plasma. Please do not shake or move the tubes upside down after centrifugation process. After centrifugation you shall see 3 layers in the tube. It means centrifugation process is done properly.

## UNDERSTANDING THE PRP LAYER

Centrifugation process makes the cell layers separated each other according to the molecular weight of the cells. RBC (Red Blood Cell) layer is formed at the bottom of the tube as RBCs are bigger cells in comparison to other component of the whole blood. Right above the RBC layer, there is buffy coat layer with a very small volume (<1% of the whole blood vol.) where the possible clump formation occurs. Upper Layer is yellowish colored layer. This layer includes PRP and PPP layers together. But those layers can not be recognized with naked eye. PRP is defined as 2ml volume right above the buffy coat layer. Upper part of it is PPP.

## HARVESTING THE PRP

Long needle is attached to 5ml injector and this equipment is put vertically into the tube. The edge of the needle is placed right on the Buffy coat layer and PRP is collected with tornado movement of the needle and injector. 2ml of PRP shall be collected. There is also recommended to collect small amount of RBCs along with Buffy Coat layer and PRP. This is important for the Cell-Cell interaction during the Re-suspension process.



04

## RE-SUSPENSION PROCESS

The PRP collected into 5ml injector is carried to T-LAB Re-Suspension Tube. Re-suspension Tube is plain and sterile. This tube is 5ml volume and totally 4 ml PRP collected from PRP HD Tubes (2ml each as recommended) are placed in this tube. After carrying the PRP into T-LAB Re-suspension tube, gently shake the tube for about 30 seconds to 1 minute to avoid possible clumped cells. This process supports the homogenization of the cells in the plasma milieu. Attach 21G needle to 1ml injector and collect the PRP inside from the T-LAB Re-suspension tube. Change the needle to 30G and you are ready to apply the injection method to the patient.





# USAGE OF PRP IN MEDICAL SECTOR

## Ophthalmology

The use of PRP is getting increased in the field of ophthalmology lately. Many peer reviewed journals has published various articles regarding the use of PRP has reached to safe and effective results on Cornea Ulcers and Dry Eye Syndrome cases. There are some minor issues on Eye treatments as PRP is basically an injection method but on Dry Eye Syndrome, it is not injected into eye but dropping method is used. Especially on Cornea Ulcers, PRP is important to prevent the inflammation.

## Dermatology

In Dermatology field, mostly, PRP is aimed to stimulate the quality of the skin. The usage of PRP in Dermatology has similar features with Aesthetic Plastic and Reconstructive Surgery without surgical procedures. But both fields can be expressed in medical-aesthetic frame.

## Veterinary

As mostly, PRP is used on humans but also it is used on animals with very promising results. PRP is systematically also effective on animals. Especially the orthopedic disorders on horses are commonly used area of the PRP in Veterinary medicine. Also, it is known that PRP is safe and effective on other animals too.

## Oral and Maxillofacial Surgery

PRP is used to accelerate the stimulation of soft tissue and bone. Many other branches are commonly interested in soft tissue recovery. But, Oral and Maxillofacial surgery field is interested in the bone and oral soft tissue both. Since PRP is very safe and effective on bone healing, it is also used in oral surgery applications to various bone defects such as from gingival applications to osteonecrosis of the jaw. Also, oral area is very open to risks of inflammation which PRP decreases the risks of inflammations as published on various articles.

## Aesthetic Plastic Surgery

Aesthetic, Plastic and Reconstructive Surgery is one of the most common field that PRP is being applied. Usage of PRP in Plastic Surgery is mostly aimed to accelerate the stimulation of soft tissue healing along with Fat Graft combinations. Principally, according to the effectiveness of PRP locally; PRP is used in order to achieve the acceleration of the stimulation of soft tissue, fine wrinkle treatments by the stimulation of tissue elasticity and collagen reproductivity, hair-prp applications on various hair problems (alopecia treatments)

## Orthopedics and Sports Medicine

This field can be expressed as the most amount of PRP applications can be applied whole around the world. The most common use of PRP in this field is relieving the pain, decreasing the need of drug injections, decreasing the need of surgical procedures which lead the patients to keep going on their daily lives. Generally PRP in Orthopedics and Sports Medicine; Tendinosis, Ligament defects, Plantar Fasciitis, Achilles Tendon damages, Cartilage defects, Rotator Cuff Injuries, Joint treatments, BMSCs combinations related to bone.

# WHO WE ARE?

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T-Biotechnology was established as T-Biotechnology Laboratory Aesthetics and Co in 2012.

T-Biotechnology was established as T-Biotechnology Laboratory Aesthetics and Co in 2012. T-LAB's main activity is regenerative medicine. T-LAB's personnel is qualified and experienced in the sector for many years also working as partners with the quality companies such as manufacturers and suppliers, experienced luminary doctors, dealers in the sector. T-LAB's first experience is acquired by manufacturing the PRP Kit according to all related standards.

## Goals of T-LAB in Medicine

T-LAB specifically researches and develops the autologous systems, obtaining the regenerative group of tissue/cells in a safe, effective, easy and sterile in order to achieve the stimulation of soft tissue and bone healing. It is totally targeted to safe and effective procedures. It aims help to improve the future's medicine with minimal invasive procedures.

## Goals of T-LAB in Commerce

Our company's mission is to research and develop the autologous systems with technology and knowledge in the frame of regenerative medicine; and to become one of the sector leaders with its distributors, doctors and other partners.



## T-LAB PRP Kit Compared to Other Conventional Tubes for In Vitro Diagnostic

IVD – In Vitro Diagnostic	MDD – Medical Device Directive
EU Directive 98/79/EC	Directive 93/42/EEC
List A ve B devices of list.	Class I, Is, Im, IIa, IIb, III
Special symbol IVD required..	Special symbol required CE. (CE 2195)
Not allowed for clinical use.	Approved for clinical use.
No test required for biocompatibility.	Complete required biocompatibility. (ISO 10993)
No clinical assessment.	Clinical evaluation required.

As it is expressed on the table that the IVD Tubes do not require any clinical evaluation process and they are not tested in the frame of biocompatibility. For this reason, IVD tubes are prohibited from clinical applications. T-LAB PRP Kit is CE marked of Class IIb according to European Commission's MEDDEV 93/42/EEC, Classification Document Annex IX with the Rule 3 that requires clinical evaluation and biocompatibility tests that leads the permission of clinical applications.



