

## PRP (Platelet Rich Plasma)

PRP uses the concentrate of intact blood cells from your horse; mostly platelets and in some cases white blood cells. Platelets are non-nucleated cells containing a variety of granules. These granules store cellular molecules important for vital physiological functions. They also contain large amounts of growth factors and chemokines which attract white blood cells to sites of infection.<sup>5,6</sup>

Blood is collected from your horse and mixed with an anticoagulant solution and then placed into a specialized device. This device is then centrifuged at a specific G-force to separate out the red blood cells, buffy coat layer, and platelet poor plasma. The buffy coat layer contains beneficial platelets and white blood cells and is harvested for use on the patient.

**1**  
**Collect blood**  
(with anticoagulant)



**2**  
**Fast centrifugation**

**FAST  
Centrifugation**



**3**  
**Harvest PRP**  
**for injection**  
**or freezing**



### *Benefits<sup>7</sup> of irap/ACS and PRP include:*

- Provides a more physiological alternative to conventional treatments which may help support a healthy inflammatory response in the joints
- May help relieve inflammation associated with horses being widely used in competition

### References

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04CB-REG2001-0722



# Equine Regenerative Therapies

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Regenerative therapies promote self-healing of the body through internal or external delivery of beneficial cells, cellular molecules, and supporting structures.<sup>1</sup>

To put it in simpler terms, regenerative therapies are healing components from the body for the body. These treatments replace or regenerate body cells by stimulating the immune system to promote healing.

## Healing components can include:

- **Scaffolds**, which provide structural support for cell attachment
- **Cells** such as platelets, white blood cells, and stem cells
- **Bioactive signals**, including cytokines (cellular proteins) and growth factors

## The goals for regenerative therapies<sup>1</sup> are to:

- **Restore normal structure**
- **Return to previous function or athletic level**
- **Prevent injury**

The final product from each device is called an autologous blood product (ABP). Autologous means the blood products are collected from the patient.

Many different regenerative medicine devices exist on the market, and it is important to know how each one works when considering the best therapy for the patient.

ABPs are either serum-based or plasma-based:

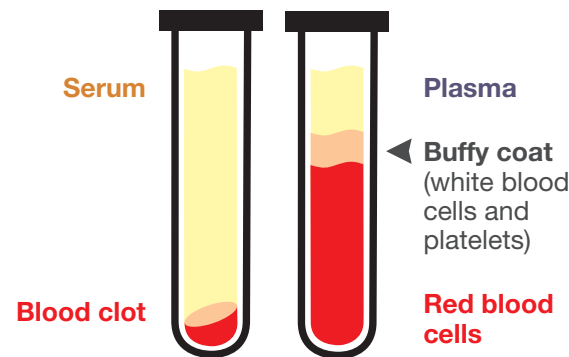
### Serum-based (contains no cells)

Autologous Conditioned Serum (ACS)/Interleukin-1 Receptor Antagonist Protein (IRAP)

### Plasma-based (cellular)

Platelet Rich Plasma (PRP)

Autologous Protein Solution (APS)



## Serum vs Plasma<sup>2</sup>

### Serum (ACS)

Fluid that remains after blood has clotted and is spun in a centrifuge

Contains:

- Protein, enzymes, and nutrients
- Beneficial cytokines

### Plasma (PRP)

Fluid that remains when clotting is prevented by adding an anticoagulant

Contains:

- Intact blood cells
- Proteins, enzymes and nutrients
- Lower levels of inflammatory substances

## ACS and IRAP

ACS uses white blood cell activation to release anti-inflammatory cytokines such as IRAP<sup>3</sup> as well as platelet activation to release beneficial growth factors.<sup>4</sup>

Blood is collected from your horse in a specialized device, incubated for a specific time and temperature, and then centrifuged at a specific G-force which causes the serum to separate from the red blood cells. The concentrated serum is then collected for immediate use or frozen for future use.

