

The IRAP II System

The IRAP II consists of a dual-port, tubular device containing glass beads that maximize the surface area inside the device. Blood that has been incubated in this unique device can be separated to produce autologous serum useful at the point of care. Because the serum is derived from the animal's own blood, the possibility of adverse allergic or anaphylactic side effects is drastically reduced.



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References

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Arthrex®
Vet Systems

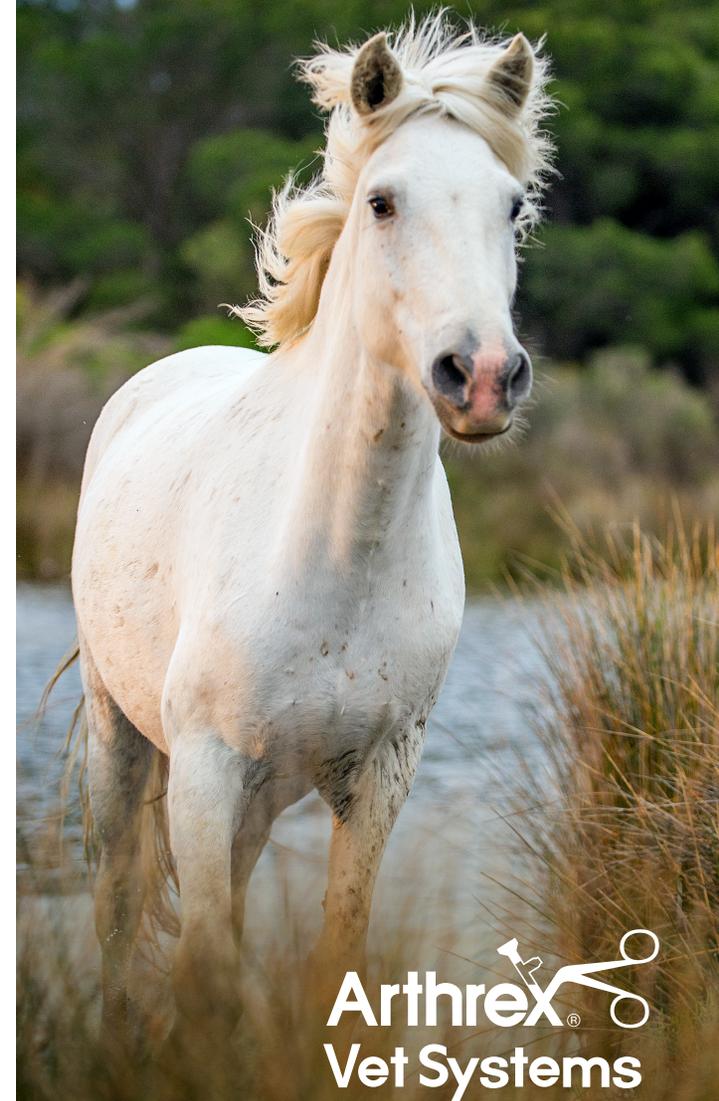
U.S. patent information at:
www.arthrex.com/corporate/virtual-patent-marking

www.arthrexvetsystems.com

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The IRAP II System

Autologous Blood Processing System




Arthrex®
Vet Systems

Features and Benefits

The serum produced by the IRAP II is autologous, which reduces potential side effects or complications associated with other treatment methods. Blood processing using the IRAP II device produces serum containing anti-inflammatory and anti-degenerative compounds. The newly designed IRAP II increases the concentration levels of the beneficial factors in the autologous serum.



The Science Behind the System

Defects in articular cartilage can induce osteoarthritis by causing molecular changes in the synovial fluid. Research in molecular biology discovered the major inducer of osteoarthritis was the general inflammatory cytokine interleukin-1 (IL-1), which plays a key role in accelerating tissue destruction and the repair mechanisms.

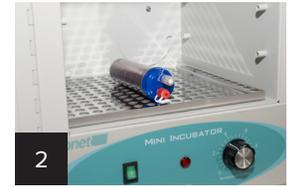
In a healthy joint, IL-1 and interleukin-1 receptor antagonist (IL-1Ra) are in balanced concentrations. In cases of osteoarthritis, there is not sufficient IL-1Ra produced to block the destructive effects of the increased IL-1. The result is inflammation, joint pain, and eventually cartilage destruction.

In the IRAP II, monocytes (a type of white blood cell) bind to the glass beads. The cells are then stimulated to produce regenerative and anti-inflammatory proteins without the addition of drugs. This process takes place over an incubation period of 24 hours.

Technique



1 During the IRAP II process, 50 mL of blood is harvested into a syringe and transferred into the Arthrex IRAP II device.



2 The harvested blood is incubated for 24 hours to increase anti-inflammatory and regenerative protein concentration levels.

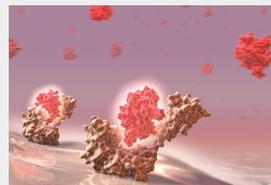


3 After incubation, the IRAP II device is placed into a centrifuge to separate the serum from the blood.

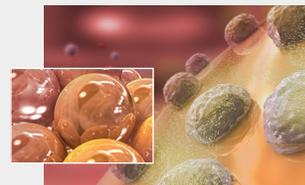


4 The serum is extracted and may be placed into syringes or ampoules for immediate use, or frozen for later use.

The IRAP II System



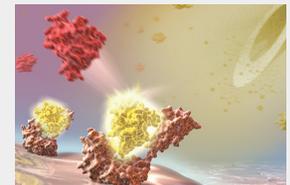
In osteoarthritis, IL-1 is produced in large amounts and binds to receptor sites on the cartilage, signaling cell destruction.



With the IRAP II System, monocytes bind to the beads and stimulate regenerative and anti-inflammatory proteins during incubation.



Introduction of IRAP II serum into the joint.



The IRAP II serum has high concentrations of regenerative and inhibitory proteins that block the effects of destructive proteins like IL-1, by filling the receptors on the cartilage with IL-1Ra.