

The Arthrex-ABPS 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 animals own blood, the possibility of adverse allergic or anaphylactic side effects is drastically reduced.



## Features/Benefits

The serum produced by the Arthrex-ABPS is autologous, which reduces potential side effects or complications associated with other treatment methods.

Blood processing using the Arthrex-ABPS device produces serum containing anti-inflammatory and anti-degenerative compounds.

The newly designed Arthrex-ABPS device increases the concentration levels of the beneficial factors in the autologous serum.



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# Arthrex-ABPS

## Autologous Blood Processing System

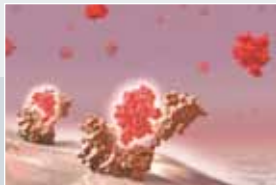


# The Science Behind the Arthrex-ABPS Process

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 Arthrex-ABPS, 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.



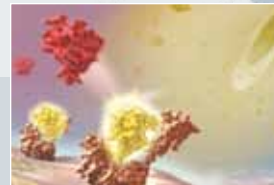
In osteoarthritis, IL-1 is produced in large amounts and binds to receptor sites on the cartilage signaling cell destruction.



In the Arthrex-ABPS System, monocytes bind to the beads stimulating the regenerative and anti-inflammatory proteins during incubation.



Introduction of Arthrex-ABPS serum into the joint.



The Arthrex-ABPS 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.

## Technique

During the Arthrex-ABPS process, 50 mL of blood is harvested into a syringe and transferred into the Arthrex-ABPS device.

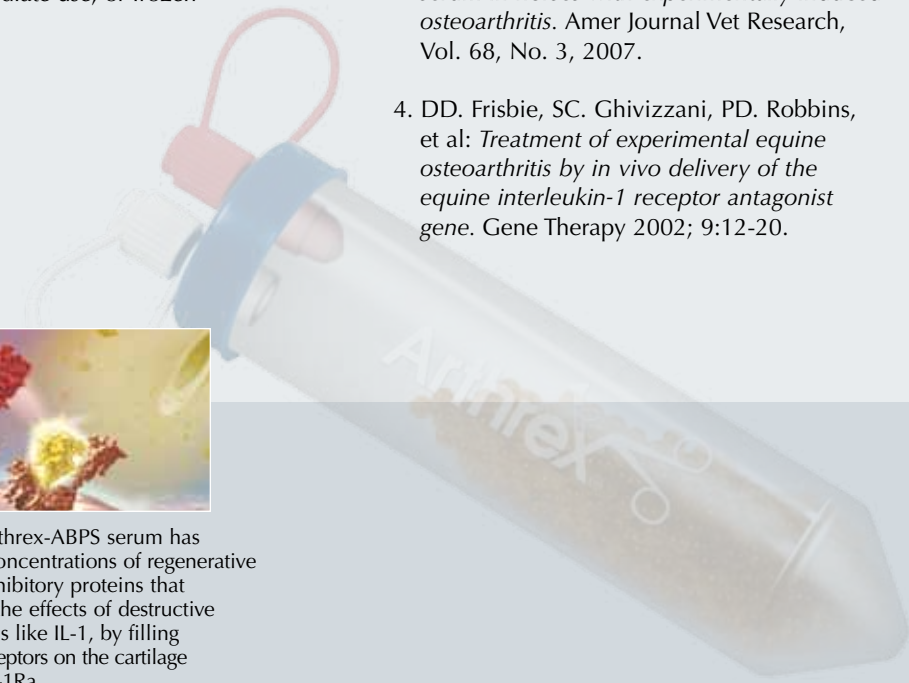
The harvested blood is incubated for 24 hours to increase anti-inflammatory and regenerative protein concentration levels.

After incubation, the Arthrex-ABPS device is placed into a centrifuge to separate the serum from the blood.

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

## References

1. M. Goldring, *Osteoarthritis and Cartilage: The Role of Cytokines*. Current Rheumatology Reports 2000; 2:459-465.
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## References

1. M. Goldring, *Osteoarthritis and Cartilage: The Role of Cytokines*. Current Rheumatology Reports 2000; 2:459-465.
2. W. Arend, M. Malyak, C. Guthridge, C. Gabay, *Interleukin-1 Receptor Antagonist: Role in Biology*. Annual Review of Immunology 1998; 16:27-55.
3. Thomas Weinberger, Equine Clinic Burg Mueggenhausen, *Postoperative Intraarticular Treatment of Joint Disease in Horses with Autologous Enriched IL-1Ra Protein Solution - A New Biotechnical Approach*.
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6. D. Frisbie, G. Trotter, S. Ghivizzani, P. Robbins, C. Evans, C. W. McIlwraith, *Interleukin-1 Receptor Antagonist (IL-1Ra) Delivery Through Adenoviral Mediated Gene Transfer as a Treatment for Equine Joint Disease*. Proc Orthop Res Soc. 2000.

**Arthrex<sup>®</sup>**  
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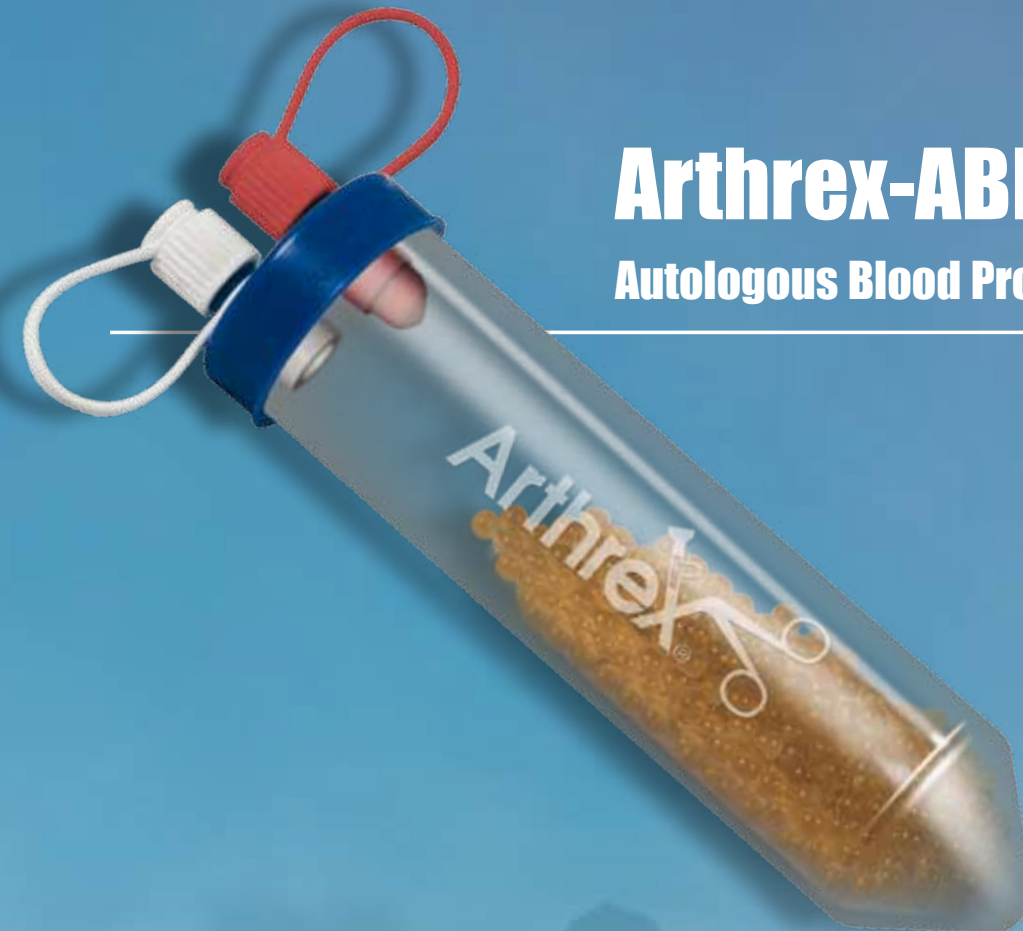
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# Instructions For Use

## Arthrex-ABPS

### Autologous Blood Processing System



**Arthrex<sup>®</sup>**  
**Vet Systems**



## Preparation of Autologous Blood Serum

Defects in articular cartilage can induce osteoarthritis by causing molecular changes in the synovial fluid. One of the major inducers of osteoarthritis is 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 finally cartilage destruction.

The following technique explains how to process autologous serum containing increased levels of anabolic and inhibitory cytokines for use at the point of care.



### Products

**Arthrex-ABPS** VAR-1010  
Kit contains one Arthrex-ABPS device with dual ports, one 60 mL syringe and one butterfly cannula

**Incubator** VAR-1040

**Centrifuge** ABS-10019

**Arthrex-ABPS Rotor** VAR-1021

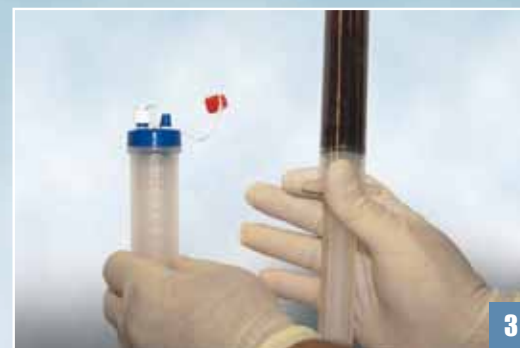
## Technique



After routine preparation of the jugular vein, put on sterile gloves. Hook up the enclosed butterfly needle of the kit to the 60 mL syringe and use the butterfly needle to puncture the jugular vein.



Draw 50 mL of blood into the syringe. Remove the butterfly cannula from the jugular and detach from the syringe.



Remove the red tethered cap and loosen the white tethered cap on the Arthrex-ABPS device.



Attach the syringe with blood to the red luer and inject the blood into the Arthrex-ABPS device while holding the devices at about a 60° angle.



Detach the 60 mL syringe, recap and tighten both tethered caps and then gently rock the blood in the Arthrex-ABPS device. It is recommended that you label the Arthrex Arthrex-ABPS device with the owner, patient name, date and time.



Place the Arthrex-ABPS device horizontally, the red cap down and the white cap up, in an incubator for approximately 16-24 hours at 37° C. Do not exceed 24 hours.



Place the incubated Arthrex-ABPS device into the centrifuge and spin at 4000 rpm for 10 minutes. The centrifuge should contain proper counter weight, if appropriate.



Using aseptic technique, remove the white tethered cap from the Arthrex-ABPS device. Slowly draw the serum into a 20 mL syringe using a spinal needle. Be careful to not pull up any red blood cells.



Attach a sterile .22 um millipore filter and a female-female luer lock adapter between the 20 mL syringe containing the serum and an empty sterile 6 mL syringe. Transfer 4 mL of serum to the 6 mL syringe, detach the 6 mL syringe and cap. Repeat until all serum has been transferred through the sterile filter into the 6 mL syringes. Individual doses may be used immediately or frozen at -18° C for use at a later date.

*Excess blood should be disposed of and disposal documented according to applicable regulations. When using at site of treatment, a sterile filter should be placed on the syringe containing the autologous serum prior to use.*