

Commonly Asked Questions for the Press

What is a stem cell? A stem cell is a cell that can renew itself and can differentiate or make other cell types. Below is the formal definition...

From Gimble et al, 2007:

By definition, a stem cell is characterized by its ability to self-renew and its ability to differentiate along multiple lineage pathways (cartilage, bone, tendon, etc.). Ideally, a stem cell for regenerative medicinal applications should meet the following criteria

1. Can be found in abundant quantities (millions to billions of cells)
2. Can be harvested by a minimally invasive procedure
3. Can be differentiated along multiple cell lineage pathways in a regulatable and reproducible manner
4. Can be safely and effectively transplanted to an autologous host
5. Can be provided in accordance with current Good Manufacturing Practice guidelines

Do canine stem cells function in the same way as human stem cells? There are no direct comparisons between canine and human stem cells in the literature.

Please give a brief history of stem cell therapy in pets.... Vet-Stem was formed in 2002 and since that time they have treated close to 3000 horses. A clinical program for dogs and cats was introduced in 2007 to boarded surgeons and was expanded to general practitioners in 2008.

What are the most common problems currently being treated by veterinary stem cell therapy? Osteoarthritis (OA) and tendon and ligament injuries. However, other applications are being investigated such as liver disease, renal disease and immune-mediated diseases.

What are the main controversial barriers surrounding canine stem cell therapy? Because the stem cells used in our therapy are from the pet's own fat and are considered "adult" stem cells, not embryonic stem cells, there are really no controversial barriers to using this type of therapy in dogs.

How can stem cell therapy help a pet that has been diagnosed with cancer? Currently we do not treat animals with cancer. While there is some human literature suggesting that stem cells modified genetically to kill cancer cells have some efficacy we do not have any data in companion animals and therefore do not treat this disease.

Are stem cells used to prevent disease or to treat it? Currently they are used to treat disease.

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When did research into veterinary stem cell therapy begin? Some of the initial work in mesenchymal stem cell therapy research goes back to the early 1990s (by Arnold Caplan). Research dogs were used as animal models. Vet-Stem has been treating dogs and cats for a few years as part of a clinical development program. In May of 2007, boarded orthopedic veterinary surgeons were trained in the science and techniques. In January of 2008 Vet-Stem launched the Introductory & Orthopedic Training Program for small animal veterinarians.

Are there any examples of dogs being helped with stem cell therapy where otherwise they would have had no chance of survival? We have many dogs with such severe OA that the owners were considering euthanasia that have been helped by Vet-Stem stem cell therapy. Testimonials supplied upon request.

What is the main difference between adult and embryonic stem cells? Adult stem cells are found in the body's tissues such as fat, bone marrow, muscle, etc, and have an ability to help the natural healing process. Embryonic stem cells can form a whole organ or organism.

Is stem cell therapy painful for pets? There is an initial collection of fat from the animal, that is a simple surgical procedure, but the patient must be healthy enough to undergo anesthesia for the procedure. Wound healing and pain control are important considerations as well. When the cells are injected under anesthesia or light sedation, there may be minor temporary discomfort. Your veterinarian will determine if pain medicine is indicated.

For Veterinarian Files

Preparation for Media Interviews

Dear Doctor,

Many Vet-Stem Credentialed Veterinarians have been contacted by local and national media. As Vet-Stem's new technology launches across the nation we would like to keep information as consistent and factual as possible. We created these resources to help you prepare for media inquires.

When the media contacts you, please email or call me (Dr. Julie Ryan Johnson, Ryanjohnson@vet-stem.com, 858-748-2004) ASAP so that I can answer your questions and also help prepare the reporter prior to your interview. Our professional Public Relations Team, Bailey Gardiner, is more than happy to coordinate your interview with the reporter.

Please use the sample Q&A as a preparation piece for your interview. Take special note that some questions, such as those pertaining to costs and recovery, are better answered without quoting exact numbers because they vary with each case and clinic. Please refrain from quoting specifics.

We understand that media may ask you questions regarding the history and development of Vet-Stem's stem cell therapy. We have included in this packet a press kit that you can review. Please print a copy of the fact sheet, background information sheet, press release and process overview documents for the reporter. This should cover all the information and facts that a reporter may need.

We do not expect you to be an expert in these areas and want you to feel comfortable letting the interviewer know this. If you are asked a question regarding Vet-Stem that you aren't comfortable answering, please tell the reporter: "Vet-Stem can more accurately answer that question for you. I have a press kit for you and will put you in touch with their PR contact." In the best case scenario, my team will have already been in touch.

If the media contacts you and you are not comfortable doing an interview, please forward the reporter's information to me, and my team will assist the reporter in finding what s/he needs.

Thank you for being an advocate of Vet-Stem's stem cell therapy for companion animals. Should you have any additional questions, please feel free to contact me.

Thank you,

Dr. Julie Ryan Johnson
V.P. of Sales and Marketing
Vet-Stem

For Veterinarian Files

Preparation for Media Interviews

1. Can I do a “before and after” story following one of your clients?
We don't do before and after media with our patients because we can't guarantee an outcome in a specified amount of time. We prefer not to introduce added pressure onto our clients, and we like to ensure the patient goes through a full rehabilitation program. I'd be happy to introduce you to cases that have completed rehabilitation after the treatment, and are comfortable with sharing their experience with the media.
2. How long is the recovery from a stem cell treatment?
An exact recovery time with this therapy is not specific. Each pet's recovery is dependent upon the severity of its case and how long the pet needs to be in a rehab program. Most patients will show clinical signs of improvement in the first few weeks, but without physical therapy and time off, these results may not occur as soon, nor last as long as they would if the animal went through the recommended rehabilitation program.
3. How long does the treatment last?
The longevity of the results varies from case to case. Vet-Stem studies show that many dogs treated with stem cells have had long-term success with one injection, while a few patients have required a second injection to continue the healing process in a severe injury site.
4. How much does a stem cell treatment cost?
The cost for this therapy varies according to the patient's injuries and the clinic visited. The best option is to inquire with their local vet regarding their dog's specific ailment, and what other therapies their dog may need in conjunction with stem cells.
5. Is this technology being used with other animals?
Currently the process is only authorized to treat osteoarthritis, polyarthritis, tendon injuries and ligament injuries in horses, dogs and cats.
6. When will this treatment be available for humans?
Fat derived stem cell therapy is only approved for the use in animals within the United States. Although Vet-Stem does collaborate with human-side development companies, you would have to inquire directly with them on any advancements in the human field.
7. What is the next step for stem cells?
Vet-Stem is in the process of studying stem cell therapy use in internal medicine conditions in dogs such as liver disease, as well renal disease and autoimmune disorders. It is uncertain if and when these applications will be available. Vet-Stem will contact their credentialed veterinarians when a new indication is launched.
8. Are there any chances the animals will be harmed?
Since the animal's own fat is the source of the stem cells, there is little chance of rejection. Vet-Stem has provided stem cell therapy for treatment of over 2500 horses and 300 dogs since 2003. As of February 2008 Vet-Stem has had no systemic effects reported in the dog and mild inflammation in 0.5% of the cases. In horses, no systemic effects have been reported and mild inflammation in 1.0% of the cases. Stem cells are a new and exciting field; the client's veterinarian will need to determine the risk benefit ratio for the particular pet since the process does involve a surgical procedure.

For Veterinarian Files

Preparation for Media Interviews

9. Please tell me about the history and/or development of this treatment.
Vet-Stem can most accurately answer this question for you. I have a press kit I can leave with you with much of this information and they'd be happy to speak with you via phone if you like to arrange an interview with a Vet-Stem veterinarian.



Vet-Stem Backgrounder

San Diego-based Vet-Stem, Inc. formed in 2002 to become the nation's sole licensed company in fat-derived stem cell veterinary regenerative medicine. They process Vet-Stem Regenerative Cells (VSRC) for the treatment of horses, dogs and cats suffering from a variety of tendon, ligament and joint injuries.

Vet-Stem has perfected a procedure that isolates stem and regenerative cells from the animal's own fat for a therapeutic injection to the injured tissue. Cells are isolated and returned to the authorized veterinarian for treatment within 48 hours.

Since its creation, Vet-Stem has worked with hundreds of veterinarians who have treated more than 2,500 horses and 700 dogs with VSRC therapy. In the case of horses, the procedure has seen a return to prior level of performance rate of 77 percent, 76 percent, and 57 percent respectively tendon, ligament, and joint injuries. In a blinded, controlled study of osteoarthritis in dogs, 80% of the dogs showed improvement.

In 2005, Vet-Stem began working with select clinics in treating dogs with osteoarthritis and orthopedic soft tissue injuries. Vet-Stem launched the small animal veterinary training program in early 2008.

Vet-Stem is a privately held company with a portfolio of intellectual property centered around Regenerative Veterinary Medicine. The founders of Vet-Stem have more than 15 years of experience in development and testing of human and veterinary pharmaceuticals as well as production and processing of sterile biological samples.

Sample case studies

Mister Nicadual, quarter horse stallion

Mister Nicadual bowed his left front superficial digital flexor tendon in a reining competition on November 15, 2005. The athlete received his stem cell therapy on November 20, 2005. An ultrasound 35 days later showed that the lesion was 90 percent better and the horse could soundly hand trot. On April 9, 2006, 130 days after his Vet-Stem treatment, Mister Nicadual had no evidence of lameness or soreness of the tendon. Within ten months of his injury, he won team gold and individual silver at the FEI World Equestrian Games.

Rio, polo mare

High-goal professional polo player Adam Snow has a remarkable string of polo ponies, including his top mare Rio. In the third game of the 2005 U.S. Open, Rio suffered a common injury of the sport, a tear in her right front superficial digital flexor tendon. Refusing to sacrifice the health of his horse to the usual costly and limited treatments for the injury, Snow turned to Vet-Stem Regenerative Cell Therapy. After an injection of the horse's own regenerative cells and an eight-month turn out, Rio returned to the sport to win the 2006 U.S. Open, win the 2007 CV Whitney and to compete in the 2007 U.S. Open tournaments. She is currently eyeing a performance in the 2008 U.S. Open.

Bella Racca, pit bull

In September 2007, eight-year-old pit bull Bella Racca had Vet-Stem Regenerative Cells injected into both elbows to treat her chronic arthritis from severe bilateral elbow dysplasia. In less than one month, the guard dog had marked improvement as shown by her decreased lameness and improved range of motion. Six weeks after the treatment, Bella's owners report she is jumping up in chairs and into the car, an activity she hadn't done in a while. They say she is like a puppy again.

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Vet-Stem Timeline/ History

2002

Oct: Vet-Stem founded.

2003

Oct: Vet-Stem signs worldwide exclusive license to fat-derived stem cell technology for veterinary applications.

2004

Jan: First stem cell treatment in a horse.

Jan: Introduced the first veterinary stem cell service in the United States.

Oct: Vet-Stem secures exclusive worldwide veterinary rights for equine umbilical cord stem cell technology from Kansas State University.

Nov: Vet-Stem, Inc. and Cognate Therapeutics, a leader in human stem cell technology, signed an agreement for the further development of stem cell therapy for use in veterinary medicine.

2005

July: First stem cell treatment in a dog.

Sept: The first milestone, 500 horses have been treated by Vet-Stem Veterinarians.

2006

April: The second milestone, Vet-Stem is the first company to provide regenerative stem cell services for 1,000 animals.

April: First stem cell treatment in a cat.

Sept: Vet-Stem secures additional exclusive worldwide veterinary rights from University of California for fat-derived stem cells.

Nov: Vet-Stem grand opening of new laboratories in Poway, Calif., with expansion to over three times its prior laboratory space.



2007

May: Vet-Stem secures exclusive worldwide rights to the Emcyte Genesis blood platelet concentrating system (Platelet Rich Plasma, PRP) for providing growth factor therapy in animals.

May: Vet-Stem conducts first formal small animal credentialing course for California Board Certified Surgeons at a workshop in San Diego, CA.

Sept: Vet-Stem signs exclusive license to Central Veterinary Research Labs of Dubai, United Arab Emirates. This gives the CVRL the rights to provide fat-derived stem and regenerative cells to veterinarians throughout the Middle East region.

Nov: Double blinded placebo controlled study published showing that intraarticular injection of fat derived stem cells into the hip joint of the dog decreases patient discomfort and increases patient functional ability.

2008

Jan: Small animal online training program launched on the East Coast at the North American Veterinary Conference in Orlando, Fla.

Feb: Small animal online training program launched on the West Coast at the Western Veterinary Conference in Las Vegas.

April: Greg's Gold runs for the ninth time since his stem cell treatment, beating two other Grade I winners handily pushing his earnings to \$1,067,923.

July: Cornell researchers publish a study in the effects of adipose-derived stem cells on tendon repair in horses. Historical evaluation revealed a significant improvement in tendon fiber architecture; reduction in vascularity, inflammatory cell infiltrate, and collagen type III formation; and improvements in tendon fiber density and alignment in tendons treated with Vet-Stem Therapy.

Sept: Veterinary Therapeutics publishes a peer reviewed study on the use of stem cells for treatment of chronic osteoarthritis in the elbow of dogs. This clinical trial reports a significant improvement in lameness, range of motion, and functional ability in dogs treated with Vet-Stem Therapy.

Oct: 3,000 horses have been commercially treated by Vet-Stem Veterinarians and 9 months after launching Small Animal applications, over 1,000 dogs have been treated commercially with stem cells for orthopedic conditions.



Dec: After being treated with stem cells in January 2008, Little Bit of Baja comes back to set a new track record at Los Alamitos after running in the Z. Wayne Griffin Directors Trials.

2009

April: 1,500 dogs have been commercially treated by Vet-Stem credentialed veterinarians.

July: Company offers Vet-Stem Culture, a service expanding the supply of stem cells for the life of a pet.

July: Results from a voluntary survey of dog owners indicate that at 90 and 246 days after Vet-Stem treatment, more than 62% of dogs with osteoarthritis discontinued or decreased the use of non-steroidal anti-inflammatory drugs after stem cell therapy.

Aug: Owner evaluations report that for orthopedic conditions, 85% of dog owners would recommend Vet-Stem Regenerative Cell Therapy to others and greater than 80% of these owners reported that their dogs treated with fat-derived stem cells showed an improvement in quality of life.



Robert J. Harman, DVM, MPVM

CEO, founder of Vet-Stem, Inc.

Dr. Harman has more than 15 years experience as a chief executive officer and biotechnology entrepreneur in three novel businesses, all successful enterprises. Dr. Harman is a veterinarian and statistician and has overseen the completion of more than 1,000 contract research projects for the development of veterinary and human biotechnology products. He has led the following companies: HTI Bio-Services, a contract research company, HTI Bio-Products, a biological reagent and antibody production company, and now Vet-Stem, Inc., the leader in Regenerative Veterinary Medicine™.

In 2002, he and business partner, Mike Dale, incorporated Vet-Stem, Inc. Dr. Harman combined his passion for the quickly evolving world of stem cell therapy with his experience in clinical development to bring regenerative medicine to veterinarians and their animal patients.

Dr Harman is a frequent lecturer in regenerative medicine at regional, national and international stem cell conferences as well as veterinary conferences and clinics. He serves as a resource to both the human and animal medical community in the field.

Julie Ryan Johnson, DVM

V.P. of Sales and Marketing

Dr. Julie Ryan Johnson, DVM, brings a breadth of experience to Vet-Stem; including 17 years at a private veterinary practice in both small animal and equine. She has worked as the director of one of the largest animal shelters in the country and is a co-owner of AAHA-certified Dana Niguel Veterinary Hospital. Dr. Ryan Johnson was a technical equine and small animal veterinarian for Merial, and a brand manager for Waltham Pet Foods.

After attending Cal Poly San Luis Obispo, she attended veterinary school at the University of Wisconsin followed by an internship in Large Animal Medicine and Surgery at Virginia Tech. Dr. Ryan Johnson started her career in veterinary medicine as an equine and small animal practitioner while doing research at UC Irvine School of Medicine.

She is the former President of the Southern California Veterinary Medical Association and the current President of the Southern California Veterinary Medical Association Equine Chapter as well as the San Juan Capistrano Equestrian Coalition and serves as Veterinary Disaster Coordinator for Orange County. With her husband, veterinarian Gary Johnson, she enjoys the company of her three dogs, three cats and three horses.

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FOR IMMEDIATE RELEASE

CONTACT: Jamie Ortiz or Lauren Clapperton
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New Fat Stem Cell Therapy Helps Dogs Find Relief Regenerative cell therapy available nationwide in 2008!

SAN DIEGO, Calif. – March 18, 2008 – Building on equine veterinarian's fat stem cell therapeutic successes in horses, Vet-Stem has expanded the availability of Vet-Stem Regenerative Cell (VSRC) therapy to small animal veterinarians for the treatment of arthritis and tendon and ligament injuries in dogs. For the first time, these veterinarians can use stem cells to treat dogs and cats for the above injuries.

Vet-Stem is also studying the use of VSRC therapy for other diseases in dogs and horses.

San Diego-based Vet-Stem, the nation's only company offering veterinarians fat-derived stem cell therapy, has developed a procedure that isolates stem and regenerative cells from the animal's own fat for therapeutic injection into injured tissue. The cells are isolated and returned to the authorized veterinarian for treatment of the injured animal within 48 hours.

"This is a breakthrough. The cells aren't foreign to the body, engineered or modified in any way," says Dr. Robert Harman, founder of Vet-Stem. "Fat stem cell therapy avoids the ethical concerns surrounding embryonic stem cell research because our process uses the animal's own fat to isolate adult stem cells."

After having clients successfully treat more than 2,600 tendon, ligament joint injuries in horses, Vet-Stem has nationally unveiled its online veterinary training course to small animal veterinarians. Once a veterinarian completes the VSRC therapy credentialing course, they will have the education to use VSRCs to treat arthritis, fractures and tendon and ligament injuries in dogs and cats.

"We've seen stem cell therapy help dogs whose pain was previously so severe that they struggled to stand, jump into cars, chase balls or run up and down stairs," said Dr. Harman. "Stem cell therapy stimulates healthy cells to grow within the injured area, spurring regeneration."

Vet-Stem is very pleased to announce that their first blinded, controlled multi-center osteoarthritis study was recently published in *Veterinary Therapeutics*. Clinical trials studying the use of VSRCs for arthritis in dog elbows and knees are concluding with successful results to be published later this year. Vet-Stem is currently conducting studies for the use of VSRC therapy for internal medicine conditions as well.

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In the case of Vet-Stem's work with horses, the therapy has shown a return to prior level of performance rate of 77 percent, 76 percent and 57 percent respectively in tendon, ligament, and joint injuries. Many horses, such as 2006 U.S. Open polo champion Rio, have overcome potentially career-ending injuries to return to competition at their prior level of performance.

With the help of an informative new online credentialing course, any small animal veterinarian in the U.S. has the opportunity to offer stem cell therapy to their clients.

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About Vet-Stem, Inc.

Vet-Stem, Inc. was formed in 2002 to bring regenerative medicine to the veterinary profession. In January of 2004, Vet-Stem introduced the first veterinary stem cell service in the United States. The privately held company is working to develop therapies in veterinary medicine that apply regenerative technologies while utilizing the natural healing properties inherent in all animals.

For more information log on to www.vet-stem.com or call 888-387-8361. Interested media should contact Jamie Ortiz, Bailey Gardiner, at 619-295-8232 x106.