

**STEM CELL THERAPY** has been utilized in horses to help heal tendon, ligament, and joint injuries for two decades. At this point there are basically two sources of stem cells for clinical use—from bone marrow and from fat tissue. Cells harvested from bone marrow are usually cultured and expanded, putting them back into the horse some weeks later. Cells harvested from fat can be collected and utilized within a much shorter time.

“We use autologous cells—from the patient’s own body,” says Dr. Scott McClure, owner of Midwest Equine Surgery & Sports Medicine in central Iowa.

Allogenic stem cells, from another (donor) horse, and preserved cells, such as from umbilical cord blood from newborn foals, are not commonly used.

“The primary and most common applications for stem cells are in treating ligament and tendon injuries,” he said.

### Continues to be an option for treating injured horses

“Stem cells are also used fairly frequently in osteoarthritis cases, but they don’t work quite as well as we’d hoped.

“Meniscal injuries in the stifle joint are one area where we often tend to use stem cells. There have definitely been some positive outcomes associated with stem cells in meniscal injuries. This depends on case selection, however; some of these injuries will respond better than others. You need to have a stable joint for good results. If there is meniscal injury and additional ligamentous injuries, stem cells are not going to solve that entire problem.”

There has been a lot of discussion regarding the best source of stem cells.

“Some people use the bone marrow cultured stem cells, and others use the adipose (fat) stem cells,” McClure said. “There are other things on the market that pop up from time to time, that people are calling stem cells, but there are actually very few to no stem cells in some of these products. Horse owners need to discuss these things with a veterinarian who understands the difference before using them.

“The ways we can use a large number of stem cells are either to utilize harvested bone marrow (and cultured cells) that are sent to a lab to culture and produce a high number of stem cells, or the adipose stem cells that are processed on the spot, to get a large number of stem cells out of the fat,” he said. “The cells from fat have the advantage that you can do this on site; you can liposuction fat from the horse, process, and reinject those cells. You don’t have to wait for culturing. There are 500-1,000 times the number of stem cells in adipose than there is in bone marrow.”

There are some other therapies, such as bone marrow concentrate, that have some stem cells and growth factors but relatively few stem cells. This extract contains a mix of things that might be helpful, but the actual number of stem cells is very low.

“There are also therapies such as amnion that have benefits but are not actually true stem cell therapy,” McClure said. “It is important to be working with a veterinarian who understands the differences and has experience with these.”

### HISTORY OF STEM CELL USE IN HORSES

Dr. Troy Herthel, a surgeon for the Alamo Pintado Equine Medical Center in Los Olivos, Calif., has worked with stem cells for a number of years. His father, Dr.



PHOTOS COURTESY HEATHER SMITH THOMAS

It is important to work with a veterinarian who understands stem cell therapies



# Congratulations JUSTIFY

2018 TRIPLE CROWN WINNER

Real Clients. Real Results.

A History of Racing Success with Platinum:

#### JUSTIFY

2018 Kentucky Derby  
2018 Preakness Stakes  
2018 Belmont Stakes

#### EXAGGERATOR

2016 Preakness Stakes

#### NYQUIST

2016 Kentucky Derby

#### AMERICAN PHAROAH

2015 Kentucky Derby  
2015 Preakness Stakes  
2015 Belmont Stakes  
2015 Breeders Cup Classic

#### WIGGLE IT JIGGLE IT

2015 Little Brown Jug  
2015 US Harness Horse of the Year

#### WISE DAN

2012 & 2013 Eclipse Horse of the Year  
2012 & 2013 Breeders' Cup Mile

#### I'LL HAVE ANOTHER

2012 Kentucky Derby  
2012 Preakness Stakes

#### OCHOA

2011 All-American Futurity  
2012 All-American Derby  
QH Racing's All-Time Leading  
Money Earner

#### WELL ARMED

2008 G1 Goodward at Del Mar  
2009 Dubai World Cup

#### ZENYATTA

2009 Breeders Cup Classic  
2010 Eclipse Horse of the Year  
Winner of 19 Consecutive Races

#### DEWEYCHEATUMNHOWE

2008 Hambletonian Stakes  
Won 22 of 25 Races

#### PEPPERS PRIDE

Undefeated in 19 races  
Overachiever of the Year 2008 Insider  
Award

#### COLONEL JOHN

2008 G1 Travers Stakes  
2008 Santa Anita Derby

#### MINE THAT BIRD

2008 Kentucky Derby

#### LAVA MAN

Winner of 17 Races  
Stable Pony to Ill Have Another

#### FUSAICHI PEGASUS

2000 Kentucky Derby

JUSTIFY 2018 Triple Crown Winner

For the Health & Performance of the Horse

We believe that when you give a horse the very best, anything is possible. That's why for two decades, we have been researching, formulating, testing and manufacturing nutritional formulas to the highest standards. Whether you are keeping a healthy horse healthy, a performance horse competing at the top of their game, or supporting a horse in recovery, see the difference Platinum Performance® can make in every horse.

PLATINUM  
PERFORMANCE®

Nourish Your Passion™

1-800-553-2400

PlatinumPerformance.com



Doug Herthel, pioneered the early use of stem cells from bone marrow in treating injured tendons and ligaments. Alamo Pintado has utilized stem cell therapy on more than 4,000 patients over the past 23 years.

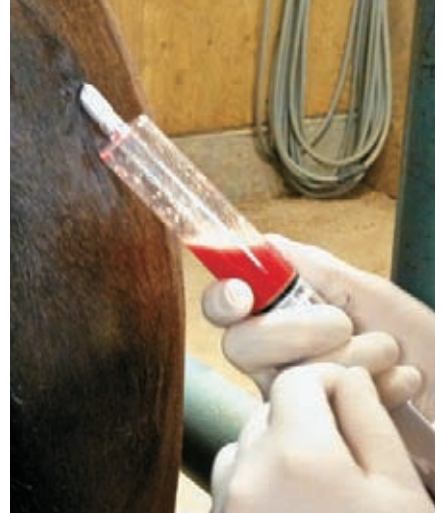
“The first stem cell procedures in equine athletes were done in the mid-1990s with direct bone-marrow injections,” Herthel said. “We harvested bone marrow from the sternum of the horse and injected it directly into the lesion we wanted to treat—which at that time was primarily suspensory ligament injuries. That was one of the original uses and beginnings of regenerative medicine for equine athletes.

“Then we progressed to using bone marrow concentrate, a further refinement of using native or unprocessed bone marrow,” he continued. “In this procedure we harvest bone marrow and centrifuge it in a special apparatus to

concentrate some of the stem cells as well as a lot of the growth factors and some of the other components we are looking for that can help stimulate healing.

“That use evolved into actually expanding and growing stem cells. When we do the expansion and grow stem cells from the original bone marrow source, it takes about two-to-three weeks to obtain the number of cells we feel would be adequate for the appropriate dose for a typical bowed tendon or suspensory ligament injury. We typically harvest 20-30 million cells, to be injected into the lesion, often via ultrasound guidance.

“We started out primarily treating soft tissue injuries and then progressed to treating joints. Some people started to treat laminitis with stem cells—and it blossomed from there. That’s where we are now, and because there’s been such an expansion of stem cell therapy in veterinary medicine in the past 15-plus



**Adding stem cells stimulates the patient to send more local stem cells into the lesion**

years, the Food and Drug Administration is trying to make sure this use is regulated and that this kind of therapy isn’t used inappropriately,” he explained.

As stem cell therapy was expanding its role in regenerative medicine, other techniques were also becoming popular, such as autologous condition serums, and components such as PRP (platelet rich plasma). These modalities are often vet-

## EQUISUL-SDT®

(Sulfadiazine/Trimethoprim)  
Oral Suspension

For use in horses only.  
NADA 141-360

**CAUTION**  
Federal Law (USA) restricts this drug to use by or on the order of a licensed veterinarian.

**DESCRIPTION**  
EQUISUL-SDT is a broad-spectrum antimicrobial from the potentiated sulfonamide class of chemotherapeutic agents. These two drugs block different sequential steps in the biosynthesis of nucleic acids. Sulfadiazine inhibits bacterial synthesis of dihydrofolic acid by competing with para-aminobenzoic acid. Trimethoprim blocks the production of tetrahydrofolic acid from dihydrofolic acid by reversibly inhibiting dihydrofolate reductase. The effect of the dual action is to reduce the minimum inhibitory concentration of each agent (synergism) and to convert a bacteriostatic action to a bactericidal action. Sulfadiazine is the non-proprietary name for 4-amino-N-2-pyrimidinylbenzenesulfonamide. Trimethoprim is the non-proprietary name for 5-(3,4,5-trimethoxyphenyl)-2,4-pyrimidinediamine.

Figure 1. Structure of sulfadiazine

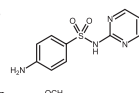
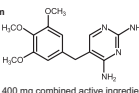


Figure 2. Structure of trimethoprim



Each mL of EQUISUL-SDT contains 400 mg combined active ingredients (333 mg sulfadiazine and 67 mg trimethoprim) in an aqueous suspension.

**INDICATION**  
EQUISUL-SDT is indicated for the treatment of lower respiratory tract infections in horses caused by susceptible strains of *Streptococcus equi* subsp. *zooepidemicus*.

**DOSE AND ADMINISTRATION**

Shake well before use.

Administer EQUISUL-SDT orally at the dosage of 24 mg combined active ingredients per kilogram body weight (10.9 mg/lb) twice daily for 10 days. EQUISUL-SDT can be administered by volume at 2.7 mL per 45.4 kg (2.7 mL/100 lb) body weight.

**CONTRAINDICATIONS**  
EQUISUL-SDT is contraindicated in horses with a known allergy to sulfadiazine, sulfonamide class antimicrobials, or trimethoprim.

**WARNING**  
Do not use in horses intended for human consumption.

**HUMAN WARNINGS**  
Not for use in humans. For use in animals only. Keep this and all drugs out of the reach of children. Consult a physician in the case of accidental human exposure.

Antimicrobial drugs, including sulfonamides, can cause mild to severe allergic reactions in some individuals. Avoid direct contact of the product with the skin, eyes, mouth, and clothing. Persons with a known sensitivity to sulfonamides or trimethoprim should avoid

exposure to this product. If an allergic reaction occurs (e.g., skin rash, hives, difficulty breathing, facial swelling) seek medical attention.

**PRECAUTIONS**

Prescribing antibiomatics in the absence of a proven or strongly suspected bacterial infection is unlikely to provide benefit to treated animals and may increase the risk of development of drug-resistant animal pathogens.

The administration of antimicrobials, including sulfadiazine and trimethoprim, to horses under conditions of stress may be associated with acute diarrhea that can be fatal. If acute diarrhea or persistent changes in fecal consistency are observed, additional doses of EQUISUL-SDT should not be administered and appropriate therapy should be initiated.

The safe use of EQUISUL-SDT has not been evaluated in breeding, pregnant, or lactating horses. Potentiated sulfonamides should only be used in pregnant or lactating mares when the benefits to the foal justify the risks to the fetus. Use of potentiated sulfonamides during pregnancy has been associated with an increased risk of congenital abnormalities that may be related to folate deficiency. In humans, sulfonamides pass through the placenta, are excreted in milk, and may cause hyperbilirubinemia-induced neurotoxicity in nursing neonates.

Decreased hematopoietic activity and blood dyscrasias have been associated with the use of elevated doses and/or prolonged administration of potentiated sulfonamides. EQUISUL-SDT should be discontinued if prolonged clotting times, or decreased platelet, white blood cell or red blood cell counts are observed.

Sulfonamides should be used with caution in horses with impaired hepatic function. Although rare, sulfonamide use has been associated with fulminant hepatic necrosis in humans.

Neurologic abnormalities have been reported in several species following administration of potentiated sulfonamides. In horses, potentiated sulfonamides have been associated with gait alterations and behavior changes that resolved after discontinuation of the drug.

The safe use of EQUISUL-SDT has not been evaluated in horses less than 1 year of age.

**ADVERSE REACTIONS**

Adverse reactions reported during a field study of 270 horses of various breeds, ranging from 1 to 25 years of age, which had been treated with either EQUISUL-SDT (n = 182) or with a saline control (n = 88) are summarized in Table 1. At least one episode of loose stool of varying severity was observed in 69 of 182 (38%) of the EQUISUL-SDT-treated horses, and 29 of 88 (33%) saline control horses. Of those animals experiencing loose stool, 2 of 182 (1.1%) of the EQUISUL-SDT-treated horses and 0 of 88 (0%) placebo-treated horses were removed from the study due to diarrhea (defined as at least one episode of watery stool). Both cases of diarrhea in this study were self-limiting and resolved without treatment within 5–10 days after discontinuation of EQUISUL-SDT.

Table 1. Number of Horses with Adverse Reactions During the Field Study with EQUISUL-SDT

Adverse Reactions	Equisul-SDT (n=182)	Saline control (n=88)
Loose stool (including diarrhea)	69 (38%)	29 (33%)
Colic	3 (1.6%)	2 (2.2%)
Diarrhea	2 (1.1%)	0 (0%)

To report suspected adverse events, for technical assistance or to obtain a copy of the MSDS, contact Aurora Pharmaceutical LLC at 888-215-1255 or www.aurorapharmaceutical.com. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at <http://www.fda.gov/Animal/Veterinary/SafetyHealth>.

**CLINICAL PHARMACOLOGY**

Following oral administration, EQUISUL-SDT is rapidly absorbed and widely distributed throughout body tissues. Sulfadiazine levels are usually higher in the kidney, while the tissue concentration in other tissues

is only slightly lower than plasma concentrations. Concentrations of trimethoprim are usually higher in the lungs, kidney, and liver than in the blood. Sulfadiazine and trimethoprim are both eliminated primarily by renal excretion, both by glomerular filtration and tubular secretion. Urine concentrations of both sulfadiazine and trimethoprim are several-fold higher than blood concentrations.<sup>1</sup> Sulfadiazine and trimethoprim are 20% and 35% bound to plasma protein, respectively. Administration of sulfadiazine and trimethoprim with food has no apparent effect on the absorption of sulfadiazine but the absorption of trimethoprim is decreased.

Based on a study in fed horses, trimethoprim concentrations following repeat oral administration of 24 mg/kg EQUISUL-SDT to 6 horses reached peak concentration in 0.5 to 12.0 hours. The median plasma elimination half-life was 3 hours, with a range of 2.31 to 4.96 hours. Peak sulfadiazine concentrations were reached within 1.0 to 12.0 hours in the same study. The median plasma elimination half-life for sulfadiazine was approximately 7.80 hours, with a range of 6.78 to 10.39 hours. Only minor accumulation of both drugs was observed following repeat oral administration of EQUISUL-SDT and both drugs reached steady state by day 3. Sulfadiazine and trimethoprim key steady state parameters associated with administration in 6 fed horses over a period of 7 days are found in Table 2.

Table 2. Median (Range) of sulfadiazine and trimethoprim pharmacokinetics parameters following repeat dosing of 24 mg/kg bid EQUISUL-SDT for 7 days to six horses in fed condition

Drug	Sulfadiazine	Trimethoprim
Tmax (hr)	4.75 (1.00–12.00)	8.50 (0.50–12.00)
Cmax (µg/mL)	17.63 (10.10–31.15)	0.78 (0.60–1.14)
AUC 0–12 (last dose) (hr*µg/mL)	159.35 (73.90–282.54)	5.47 (3.31–10.91)
T1/2 (hr)	7.80 (6.78–10.39)	3.00 (2.31–4.96)

**MICROBIOLOGY**

EQUISUL-SDT is the combination of the sulfonamide sulfadiazine and trimethoprim. These two drugs block sequential steps in nucleic acids biosynthesis. Sulfadiazine inhibits bacterial synthesis of dihydrofolic acid by competing with para-aminobenzoic acid. Trimethoprim blocks the production of tetrahydrofolic acid from dihydrofolic acid by reversibly inhibiting dihydrofolate reductase. The two drugs act synergistically, reducing the minimum inhibitory concentration of each, while enhancing the bacteriostatic action of each separately to a bactericidal action when combined.

EQUISUL-SDT administered as a combined sulfadiazine-trimethoprim dose of 24 mg/kg body weight twice daily for 7 days provided concentrations of sulfadiazine and trimethoprim with T<sub>MIC90</sub> (%T) values of 100% and 98% respectively. The minimum inhibitory concentration (MIC) values for EQUISUL-SDT against indicated pathogens isolated from lower respiratory tract infections in horses enrolled in a 2010–2011 effectiveness field study are presented in Table 3. All MICs were determined in accordance with the Clinical and Laboratory Standards Institute (CLSI) Approved Standard M31-A3 using a broth microdilution system and 3% lysed horse blood.

Table 3. Trimethoprim/sulfadiazine minimum inhibitory concentration (MIC) values of isolates recovered from horses with lower respiratory infection caused by *Streptococcus equi* subsp. *zooepidemicus* treated with EQUISUL-SDT in the U.S. (2010–2011)

Treatment Outcome	Success	Failure
Number of Isolates	65 <sup>a</sup>	46
Time of Sample Collection	Pre-Treatment	Pre-Treatment
MIC 50 <sup>b</sup> (µg/mL)	0.25/4.75	0.25/4.75
MIC 90 <sup>b</sup> (µg/mL)	0.25/4.75	0.25/4.75
MIC Range (µg/mL)	0.12/2.4 to 0.5/9.5	0.12/2.4 to 0.5/9.5

<sup>a</sup> The correlation between in vitro susceptibility data and clinical effectiveness is unknown.  
<sup>b</sup> The lowest MIC to encompass 50% and 90% of the most susceptible isolates, respectively.  
<sup>c</sup> One isolate of *S. equi* subsp. *zooepidemicus* was not tested.

**EFFECTIVENESS**

A negative control, randomized, masked, field study evaluated the effectiveness of EQUISUL-SDT administered at 24 mg/kg body weight, orally, twice daily for 10 days for the treatment of lower respiratory tract infections in horses caused by *Streptococcus equi* subsp. *zooepidemicus*. In this study, a total of 182 horses were treated with EQUISUL-SDT, and 88 horses were treated with saline. One hundred seventy-three horses (112 EQUISUL-SDT and 61 saline) were included in the statistical analysis. Therapeutic success was characterized by absence of fever and no worsening of clinical signs at Day 5 and Day 10, and significant clinical improvement or resolution of clinical signs of lower respiratory tract infection by Day 17. The observed success rates are 58.9% (66/112) and 14.8% (8/51) for the EQUISUL-SDT and saline-treated groups, respectively.

Table 4 summarizes the statistical analysis results on the overall success rate.

Table 4. Overall Clinical Effectiveness Results

	Equisul-SDT	Saline	P-value <sup>a</sup>
Least Square Means	61%	13.1%	0.0123

<sup>a</sup> P-value and estimated success rates are based on back-transformed mean estimates from the statistical analysis.

**ANIMAL SAFETY**

In a target animal safety study, EQUISUL-SDT was administered orally to 32 healthy adult horses at 0 (OX), 24 (1X), 72 (3X), or 120 (5X) mg/kg twice daily for 30 days. Loose stool was the most common abnormal observation. Observations of loose stool (pellets with liquid or formed/couple stool) occurred more often in horses treated with EQUISUL-SDT with the incidence of loose stool increasing in a dose related manner. All incidents of loose stool were self-limiting and resolved without treatment.

Horses in all EQUISUL-SDT groups demonstrated statistically significantly higher mean serum creatinine concentrations, and those in the 3X and 5X groups demonstrated statistically significantly higher mean serum albumin concentrations. Statistically higher mean neutrophil counts and mean serum gamma glutamyl transferase (GGT) activity were seen in the 1X and 5X groups. Individual animal creatinine, GGT, and albumin concentrations remained within the reference range. Individual animal elevations in absolute neutrophil counts ranged up to 7.09 x 10<sup>9</sup>/mL (reference range: 1.96–5.31 x 10<sup>9</sup>/mL).

Based upon blood concentrations obtained during the study, it was noted that the sulfadiazine and trimethoprim plasma concentrations did not increase in proportion to dose. For sulfadiazine, a 3X and 5X dose resulted in an average exposure of 2.0X and 2.6X the concentrations observed following a 1X dose. For trimethoprim, the corresponding values were 2.5X and 3.6X as compared to the 1X dose. Furthermore, marked intersubject variability, particularly with sulfadiazine, resulted in substantial overlap of individual subject blood levels across the three dosing groups.

**STORAGE CONDITIONS**

Store at 50°–86° F (15°–30° C). Brief periods up to 104° F (40° C) are permitted. Protect from freezing.

**HOW SUPPLIED**

EQUISUL-SDT is available in the following package sizes: 135 mL, 280 mL, 560 mL, 900 mL.

[footnote]

<sup>1</sup> Kahn CM, Line S, eds. The Merck Veterinary Manual. 10th Ed. Merck & Co. 2010.



# BREATHE EASY

Ask your veterinarian for the **ONLY** liquid FDA-approved oral antibiotic for treatment of equine respiratory tract infections



## ▶ **Equisul-SDT<sup>®</sup>** (sulfadiazine/trimethoprim)

- Clinically proven safe and highly effective
- Unique packaging lets you easily treat your horse at home
- Has a refreshing apple-flavor your horse will love and readily consume – No bitter-tasting pills or pastes
- Sold exclusively through your trusted equine veterinarian
- Available in convenient 135 mL, 280 mL and 560 mL bottles

“ Our equine practice has switched totally to Equisul-SDT<sup>®</sup> when we diagnose respiratory infections. Because of the proven safety and efficacy, the client can easily administer the apple-flavored product at home without the need to crush pills or force-feed bitter paste products. The beneficiary is the equine patient who is getting a strong, well absorbed antibiotic specifically designed for horses. The assurance of using an FDA-approved drug like Equisul-SDT meets the standard of care which cannot be overstated. ”

- Dr. John Bennett  
Equine Services, LLC  
Shelbyville, Tennessee



MANUFACTURED IN THE USA  
ad000045 06/2018

Equisul-SDT is a Registered Trademark of Aurora Pharmaceutical, LLC.

Federal law restricts this product to use by or on the order of a licensed veterinarian.

EQUISUL-SDT is contraindicated in horses with a known allergy to sulfadiazine, sulfonamide class antimicrobials, or trimethoprim. The safe use of EQUISUL-SDT has not been evaluated in breeding, pregnant, or lactating horses. Potentiated sulfonamides should only be used in pregnant or lactating mares when the benefits to the mare justify the risks to the fetus. Do not use in horses intended for human consumption. Not use in humans. For animal use only. Keep this and all drugs out the reach of children. Refer to the package insert in this issue or visit [www.aurorapharmaceutical.com](http://www.aurorapharmaceutical.com) for complete product information.

 **Equisul-SDT<sup>®</sup>**  
(sulfadiazine/trimethoprim)

**aurora**  
PHARMACEUTICAL<sup>®</sup>

[www.aurorapharmaceutical.com](http://www.aurorapharmaceutical.com)



erinarian-specific, in terms of how each veterinarian prefers to treat certain injuries and which regenerative therapy is utilized.

“There has been a lot of clinical research as well as research at the microscopic level, looking at stem cell therapy, trying to determine what is truly going on in that horse when we use those cells,” Herthel explained. “It was once believed that stem cells would develop into whatever tissue type they are injected into. Now we realize it is more likely that these cells are a composite mixture and have many effects other than just the pure cells themselves. Their presence stimulates the patient to send more local stem cells into the lesion. It is a complex biologic process. Stem cells are like paramedics that rush in to give assistance and provide multiple factors that improve the healing process.”

### ADVANCES IN HARVESTING STEM CELLS FROM FAT

Dr. Michael Coleman (former president and CEO and now on the scientific advisory board of InGeneron in Houston, Texas) says that in the past dozen years scientists have found that all body tissues have a pool of regenerative cells (stem cells).

“These cells are located on the outside of small blood vessels,” he said. “We can obtain these cells from many different tissues, but it’s easiest and less traumatic for the patient to harvest them from fat, and there are lots of blood vessels in fat.”



Stem cell infusion

“These cells, in the matrix of the tissue, are frequently called stromal cells. They can have a regenerative effect on different tissues in the musculoskeletal system, for example, such as tendons and ligaments, even though we got them from fat. When cultured, they can actually be differentiated into bone, cartilage, or tenocytes (tendon cells).”

These cells are good at becoming whatever tissue they are placed into, to aid the healing of that tissue.

“I liken it to putting a plant in different soils,” Coleman said.

“Stem cells, when put into the context of a tendon or a bone, they don’t make fat; they secrete soluble factors—mostly proteins—called growth factors. These help the neighboring cells and have a nursing effect on the damaged tissue. On their own they can actually form new tissue. In an injured tendon or bone, these are the two main ways they have an effect. They can have a bystander nursing effect and a direct regenerative effect by forming new tissue.



Needle for bone marrow aspiration

“In arthritis these cells can actually reprogram the body’s immune cells within the inflamed joint to reduce the level of inflammation and slow the progression of the disease,” he continued. “This strategy is used in horses, dogs, and humans.

“In the early days of stem cell processing, fat tissue was obtained from the horse by making an incision and dissecting out a piece of fat. This is fine for obtaining good stem cells but leaves a scar, and horse owners didn’t like that. Now we use liposuction, just like in humans. We can take a small amount of fat from the horse and leave no visible evidence.”

There is only a small incision into the tissue.

“The tube we use is very small in diameter, no larger than a big needle,” Coleman said. “This is minimally invasive. The horse is mildly sedated and local anesthesia is used in the area where we harvest the fat.”

Once the fat tissue is removed with liposuction, cells from that fat can be isolated in about an hour and then re-adminis-

**QUILLIN**  
Leather & Tack

Sale Halters (from) \$34.95  
Lead Shanks (from) \$29.95  
Sale Catalog Covers \$89.95

Plus MORE Great Custom-Made Leather Goods  
Full Service Repair & Engraving - All In Our Paris Shop!

In Lexington For Keeneland or Rolex 3DE?  
CALL OR DROP BY OUR MAIN STREET SHOP  
VISIT & ORDER ONLINE AT QUILLIN.COM  
SINCE 1982 ... KENTUCKY'S LARGEST CUSTOM SHOP  
WE SHIP WORLD WIDE

1929 South Main Street • Paris, Kentucky • 40361  
(859) 987-0215 • www.Quillin.Com • facebook.com/QuillinLeather

tered into the injury. The horse only has to be at the veterinary clinic or hospital for a short time. The veterinarian only has to see the horse once, rather than waiting more than a day for the sample to be sent to a lab, processed, and sent back—necessitating having the horse brought in again for administration of the processed cells.

### PROCESSING THE REGENERATIVE CELLS

“We, as a company, have created a small machine (portable, if desired), comprised of a processing unit that looks and functions such as a centrifuge but also has several other functions,” Coleman said. “The spinning force of the centrifuge sends the heavier material to the outside.

“For this processing step, when the inner tubes are fixed in inverted position, the outside is a little higher than the inside. When centrifugal force is applied and everything goes to the outside, it travels upward because the tube is a little inverted. When it stops and there is no more force to push the contents of the tube to the outside, gravity causes the material to fall—and it gently falls back to the center.

“In the processing steps, rather than needing multiple pieces of equipment to accomplish the separation of these cells from the fat tissue, our one piece of equipment has multiple functions, and this is one of the key functions,” Coleman said.

“We can accomplish the whole process for a horse in about an hour—collecting and processing the fat to harvest the cells. For a dog it might take a little longer because the fat from a dog is more dense.

“We now have a portable unit. For instance, one of our veterinarian customers sees a lot of horses in the Ocala, Fla., area and travels with this device. We supply a sterile drape and other items that can be used, and the veterinarian can do the procedure at the horse farm.”

The portable unit was road tested in the back of an SUV to make sure it wouldn't be damaged by the movement and jostling of travel. Veterinarians can put it in their truck and take it to their patients.

“It weighs about 48 pounds and can be run off a DC converter and powered from the veterinarian's vehicle,” Coleman said. “It draws about the same amount of power as a desktop computer, but can be readily operated out of the vehicle.”

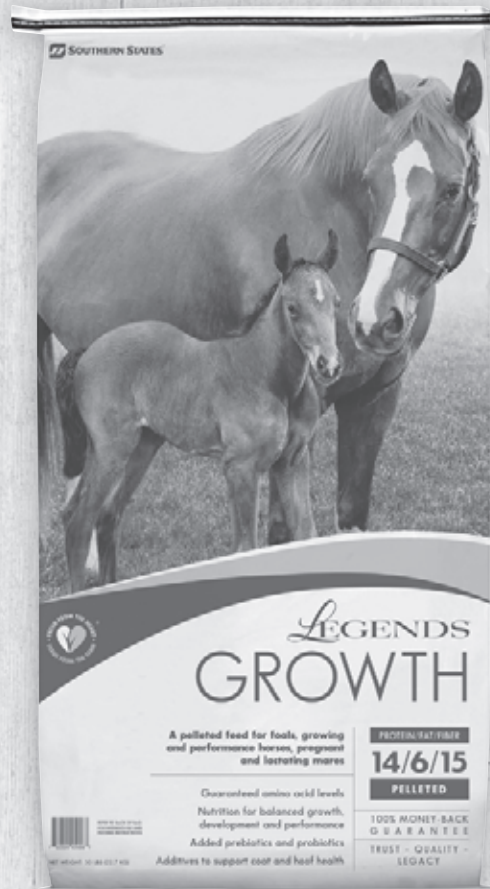
With some injuries, such as a tendon injury, it's best to treat them at a specific time, such as just after the inflammation subsides. The veterinarian can monitor the patient and then collect and process stem cells to inject them at the most optimum time.

“This process enables the veterinarian to use the cells on demand,” Coleman said. “When he/she determines the best time to treat, the fat can be harvested and the cells processed and available. This provides more flexibility in a treatment schedule.” **BH**

*Heather Smith Thomas is a freelance writer based in Idaho.*

# LEGENDS GROWTH

AVAILABLE IN PELLETTED AND TEXTURED FORMS



## HORSE FEED. DEFINED.

[southernstates.com/legends](http://southernstates.com/legends)



Legends® feeds are fortified by Kentucky Equine Research to meet your horse's individual needs. For feeding advice or to create a custom ration, visit [microsteed.com/legends](http://microsteed.com/legends). Visit [ker.com/legends](http://ker.com/legends) to read the latest in equine nutrition and health and subscribe to the *Equineews*® newsletter presented by Legends® Feeds.

Questions or Comments: [Southern\\_States\\_Feed\\_Questions@cargill.com](mailto:Southern_States_Feed_Questions@cargill.com)

Legends® and Fresh From the Heart, Fresh From the Farm® are registered trademarks of Cargill, Incorporated. Southern States® is a registered trademark of Southern States Cooperative, Incorporated. Kentucky Equine Research®, *Equineews*® and MicroSteed™ are trademarks of Kentucky Equine Research, Incorporated.

©2018 Cargill, Incorporated. All rights reserved.