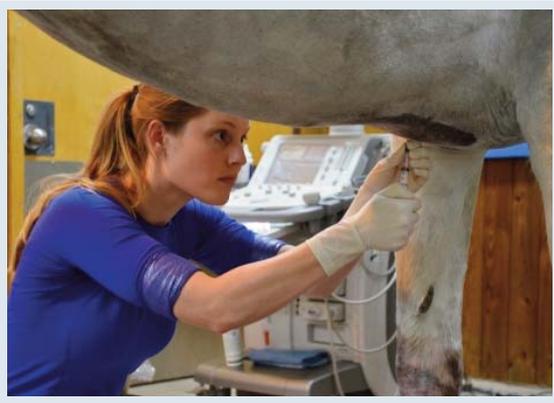




## ROLE OF BIOFILM WITH INFECTIOUS ENDOMETRITIS IN MARES

By Jamie Haydon



### **Sophie Bogers**

**BVSc, MVSc, DACVS-LA**

*Veterinary Specialist*

*Virginia Tech's*

*Marion duPont Scott Equine Medical Center*

A note from Dr. Bogers:

*"I want to take a moment to thank the Grayson-Jockey Club and the Klein Family again for the award given to me in 2015. Since that time, I finished my residency in Equine Surgery at Virginia Tech and continued to work on the emergency surgical rotation at Marion duPont Scott Equine Medical Center, while I completed my PhD. This would not have been achieved so smoothly if not for the Klein Family's support and also the excellent mentorship of Dr. Jennifer Barrett. I am excited to be in a faculty role in Large Animal Surgery at Virginia Tech and continuing to contribute to Equine Musculoskeletal Research."*

### ***In this edition:***

- [Interview with Dr. Sophie Bogers](#)
- [2017 Saratoga Golf Highlights](#)
- [Elizabeth Locke Trunk Show](#)
- [Junior Memberships](#)

***What was your initial impetus to explore this area of equine research? Have you studied this area of equine research before?***

As an intern in Kentucky in 2010 I was exposed to the expanding industry of regenerative medicine and saw the detrimental effects that musculoskeletal disease could have on horses. Some benefits of regenerative therapies were being realized, but I wanted to understand their therapeutic mechanisms and how to enhance their potential. Being primarily interested in surgery and lameness, I wanted to ask questions about stem cells in the context of orthopedic disease. Of all the orthopedic diseases that face our horses, osteoarthritis is perhaps the most common and challenging as once the cycle of chronic inflammation and tissue break-down begins it is impossible to stop or repair the damage.

Dr. Jennifer Barrett mentored me to put these interests together in the context of my PhD, which explored how the physical and biochemical environment could affect the therapeutic potential of equine bone-marrow derived stem cells. I had no background in stem cell or molecular biology so it was a learning curve, but with excellent mentorship and determination I was able to couple my existing knowledge of veterinary medicine with stem cell biology to do clinically relevant research.

***What was the most significant finding from this research? What, if anything, surprised you about your findings?***

We learnt that it can be therapeutically beneficial to alter the environment of stem cells before they enter

*Continued on page 2*

the disease environment. For inflammatory conditions, like the low-grade inflammation in osteoarthritis, this is important because stem cells need to be triggered into an anti-inflammatory state. It's not only the culture conditions that affect the stem cells, but also what horse they came from and the level of inflammation they encounter in the horse. It's not that surprising because we have known for a while that stem cells are sensitive to all sorts of donor-related and environment-related factors, but it is rewarding to find specific relationships and use them to a therapeutic advantage.

### *What did you learn about the research process through your project?*

From having done my Master's I knew that the PhD would take a good degree of perseverance, especially when things don't go according to plan. What I didn't fully appreciate was how important the relationships I built would be on the ease of doing my experiments. When it came to long hours of live-horse experiments it was amazing the number of people who put their hand up to volunteer. It really showed me that the research process is about involving and motivating a range of people who just want to help horses and horse health. I also learnt that it's important to personally embrace and be involved with all aspects of the research process, from statistics to presentations, because the continuity contributes to improved quality and professional development.

### *How will this research improve equine health and welfare?*

Knowing about how stem cells respond to their environment for therapeutic applications is the initial step to producing effective stem cell therapies. The ultimate goal is to produce an anti-inflammatory and regenerative stem cell therapy for osteoarthritis. The more basic research we do the more we will understand how to reach our ultimate goal. It is an extremely exciting goal to work toward because, if achieved, it will alter the outlook for so many of our horses with osteoarthritis, which is currently a progressive, degenerative disease with no cure.

### *Has this research led to additional projects?*

That's the excellent thing about research: One question answered generates many more questions! We are keen to use similar concepts in other species and for different diseases. We will continue developing the techniques we used during these experiments.

### *What is next in your career?*

I am starting a faculty position at Virginia Tech in Blacksburg, VA. It will be exciting to continue to practice Equine Surgery as well as contribute to equine stem cell and orthopedic research. My mentors at Virginia Tech have been amazing, and it will be great to continue to work with them and also build other relationships outside the university. I'm also hoping that I will get to spend some time riding dressage and checking out southern Virginia too!



Applications for the 2018 Career Development Awards are now open. Deadline is November 1, 2017

The applicant must be working under the supervision of a tenured faculty member who is responsible for directing the post-graduate fellowship experience. By approving an applicant for an award, the university agrees to provide equipment, facilities, and any other support consistent with the successful completion of the project.

[Click here for application and more information.](#)

## Saratoga Golf Outing 2017



Our 17th Annual Charity Golf Tournament was held Tuesday, August 15, 2017 at the Saratoga National Golf Club in Saratoga Springs, NY.

After a beautiful afternoon of golf, awards were given during a cocktail reception on the patio overlooking the course followed by a delicious buffet dinner. Dr. Tom Qualtere and team took first place honors. Second place went to Steve Young and team and third place went to Nelson Soracco and his team.

The Foundation would like to give special thanks to our golfers, who play in our outing year after year and to the golf staff at Saratoga National. We extend our deepest appreciation to our sponsors, who make this event possible with their continued generosity:

Tom Albertrani, Mike DeAnzeris/Embrace the Race, Adele Dilschneider, Michael Dubb, Steve Duncker,

Equibase, Dr. Patty Hogan, Michael Hushion, Keeneland, Pat Kelly, Stoll Keenon Ogden, Lindsey Laroche, Neuman Equine Insurance, NTRA, John M.B. O'Connor, Phipps/Janney Stables, Roberts Communications, Saratoga Spring Water Co. and Adam Madkour, the Saratoga jockey colony, Martin Schwartz, The Jockey Club Information Systems, Charlotte Weber, West Point Thoroughbreds.



## ELIZABETH LOCKE JEWELRY SHOW

Thursday • September 14<sup>th</sup> • 11am- 6pm

Friday • September 15<sup>th</sup> - 10am- 6pm

### KEENELAND LIBRARY

4201 Versailles Road, Lexington, KY

*A portion of all sales will be donated to equine research funded by*



**GRAYSON-JOCKEY CLUB  
RESEARCH FOUNDATION**

*For further information contact:*

Elizabeth Locke Jewels • [elockej@earthlink.net](mailto:elockej@earthlink.net) • 540-837-2215

Grayson-Jockey Club Research Foundation

[contactus@grayson-jockeyclub.org](mailto:contactus@grayson-jockeyclub.org) • 859-224-2850



## Junior Membership Program Highlight



Our Junior Membership program is off and running. We were delighted to have three new members stop in to personally join and pick out their very own toy pony. After receiving their first newsletter they tried out Admiral's recipe for Pony Popsicles on page 4 of the Grayson Grazette Newsletter.

This program is helping young horse enthusiasts learn about horse health in a fun and interactive way and helping them understand philanthropy.

*Don't get left in the starting gate. Join Now.*

Along with supporting equine research, each member receives a stuffed pony, an annual membership certificate with their pony's name, as well as a breed card with a photo of one of Admiral's equine buddies, such as Secretariat or the Snowman. Their story is on the back of the card. Periodic newsletter, *The Grayson Grazette*, will be emailed to each member and will highlight tips on the care and management of horses and ponies. There will also be fun activity pages, recipes and surprises in store for his fans. Special contest and sharing horse stories are planned for the future. Junior members also will have access to Admiral's email.

[Click here for our first Grayson Grazette.](#)

You can get a printable sign up sheet and more information by [clicking here.](#)

You may also sign up online your favorite young horse lover under our [Membership page here.](#)

Philanthropy isn't just for the young horse enthusiasts. Everyone is encouraged to support equine research and be a friend to all horses. Donations of any amount are always welcome. To become a member of the Foundation, all that is required is a gift at one of the levels outlined below. Please Join Us.

## GRAYSON-JOCKEY CLUB RESEARCH FOUNDATION

I wish to be enrolled as a member or donor of Grayson-Jockey Club Research Foundation as follows:

| MEMBERSHIP LEVELS (Check one)              | ANNUAL CONTRIBUTION |
|--|---------------------|
| <input type="checkbox"/> ROKEBY CIRCLE     | \$10,000 or more    |
| <input type="checkbox"/> Platinum Circle   | \$ 7,500 or more    |
| <input type="checkbox"/> Gold Circle       | \$ 5,000 or more    |
| <input type="checkbox"/> Silver Circle     | \$ 2,000 or more    |
| <input type="checkbox"/> Patron            | \$ 1,000 or more    |
| <input type="checkbox"/> Supporting Member | \$ 500 or more      |
| <input type="checkbox"/> Sustaining Member | \$ 200 or more      |
| <input type="checkbox"/> Annual Member     | \$ 100 or more      |

I do not wish to be a member at this time, but choose to donate \$ \_\_\_\_\_ to the Foundation.

NAME \_\_\_\_\_  
(Corporate or Individual as you wish it to appear in Foundation publications)

ADDRESS \_\_\_\_\_

CITY/STATE/ZIP \_\_\_\_\_

TELEPHONE \_\_\_\_\_

Email \_\_\_\_\_

RETURN TO:

Edward L. Bowen, President  
Grayson-Jockey Club Research Foundation, Inc.  
821 CORPORATE DRIVE LEXINGTON, KY 40503  
(859) 224-2850 FAX (859) 224-2853 E-MAIL: [ebowen@jockeyclub.com](mailto:ebowen@jockeyclub.com)

Grayson-Jockey Club Research Foundation is exempt from Federal income tax under section 501 (c) (3) of the Internal Revenue Code of 1986 as an organization operated exclusively for educational and scientific purposes. Contributions made to the Foundation are deductible by donors in