

# Zweig

NEWS CAPSULE

A report from the Harry M. Zweig Memorial Fund for Equine Research at the College of Veterinary Medicine at Cornell University.

## Keeping blood free to flow

Even in their mothers' wombs unborn foals need proper blood flow to survive and grow. A clot cutting off blood to the wrong place can spell disaster or death.

That's exactly what happens when the infectious disease equid herpes virus-1 (EHV-1) causes abortions and adult neurological disease. Infected horses can form clots in blood vessels feeding the placenta or spinal cord.

No one yet knows why horses with EHV-1 get clots, but clinical pathologist Dr. Tracy Stokol plans to find out by investigating platelets as potential culprits. Platelets are involved in normal blood clotting, which stops bleeding after an injury. Following injuries, platelets start attaching to blood vessels, become activated, and stick together, helping a clot to form. But this same process that closes off wounds to stop blood flowing where it shouldn't can also form clots that stop blood from flowing where it should.

"My theory is that EHV-1 is somehow activating platelets to start forming clots and encouraging them to grow," said Dr. Stokol. "The question is how: is it through direct contact between the virus and platelets, indirect contact with virus-infected cells releasing fragments that turn platelets on, or some combination?"

Using flow cytometry, Dr. Stokol's lab tested whether certain neurologic and abortion-causing strains of EHV-1 directly bind to and activate equine platelets. Preliminary data suggest they do. Yet questions remain: how does EHV-1 activate platelets? Can we prevent this from happening? Can cells infected with EHV-1 activate platelets that haven't been exposed to the virus?



A technique novel to veterinary medicine will help Dr. Stokol and postdoctoral associate Dr. Wee Ming Yeo determine whether platelets are activated by EHV-1-infected cells that make up the inner lining of blood vessels (endothelial cells). Using a microfluidic device her lab made in 2010 with help from bioengineer Dr. Michael Shuler, Dr. Stokol made a life-sized model (0.1mm thick) that mimics equine endothelium using living horse cells. By infecting the model cells with EHV-1 and infusing platelets over the cells, her lab can watch the platelets' interactions with infected endothelium in real-time using digital video microscopy, then analyze the recordings.

"This device lets us examine what's happening in a life-like environment," said Dr. Stokol. "If we can show platelets are the missing link bridging EHV-1 infections to the clots that cause EHV-1-related abortions and neuropathy, we'll have found a new target for therapies. There are several commercially available platelet inhibitors, such as clopidogrel and aspirin, that could easily be tested for their ability to prevent platelet activation after EHV-1 infection. If effective, these medicines could potentially help change the outlook for infected horses and their young."

*Funded by the Zweig Memorial Fund for Equine Research*

# Long-time Zweig member Dr. John Jagar '74 retires

After a fruitful career as an equine veterinarian, Dr. John Jagar '74 is retiring in Fall 2012 to Beaufort, S.C. Dr. Jagar joined the Harry M. Zweig Memorial Fund Committee in 1994 and has been one of its longest-standing members.

“The Zweig Committee has held a special place for me,” said Dr. Jagar. “It is humbling to realize that, in a small way, I aided the process that provides significant funding to so many brilliant people at Cornell in equine research. I am in awe that Dr. Zweig had the foresight to establish this fund and of the benefits it continues to accrue for the horse and mankind.”

Originally from Atlanta, Ga., Dr. Jagar first came to N.Y. to earn a DVM from Cornell's College of

Veterinary Medicine. He earned a master's degree in large-animal surgery at Auburn University, and later returned to N.Y. in 1980 as a resident veterinarian at a breeding farm. In 1984, he and two partners opened the Millbrook Equine Veterinary Clinic, P.C. in the Hudson Valley, hub of N.Y.'s horse breeding industry, where he has practiced since.



At its annual November meeting, the Zweig Committee acknowledged Dr. Jagar's many talents and contributions to the committee and the fund, applauding his dedication, expertise, and commitment, and adding that he would be sorely missed.

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## New N.Y. Breeding Fund Executive Director

Mr. Mike Mullaney will take the reins as Executive Director of the Agriculture and New York State Horse Breeding Development Fund, having been appointed unanimously by the fund's board in September 2012.

His duties will include promoting the breeding of Standardbred horses bred in New York; helping organize the New York Sire Stakes harness racing program; and overseeing administration of the Excelsior, State Fair, and County Fair harness races. He will also coordinate distribution of the Fund's contributions to the Harry



M. Zweig Fund for Equine Research, New York's 4-H program, and county agricultural societies.

“Throughout his career, Mike Mullaney has demonstrated a great ability to see the big picture and bring forth positive results,” said Darrel J. Aubertine,

Commissioner of the Department of Agriculture and Markets and member of the Board of Trustees. “I congratulate him on this well-deserved appointment and look forward to working with him on behalf of New York's agriculture and horse racing industries.”

Over the last year Mr. Mullaney has served as General Manager of Arizona's Yavapai County Farm & Agriculture Association. Prior to that, he was Director of Media Relations for Gulfstream Park in Hallandale Beach, Fla., for 10 years.

“I'm proud to promote and enhance New York's already-stellar Standardbred breeding and racing programs and further the Fund's mission,” said Mr. Mullaney. “The Fund plays a vital role in supporting New York's agricultural economy, and I am eager to do my part to help our breeding program grow even further.”

The Agriculture & New York State Horse Breeding Development Fund administers the New York Sire Stakes, the country's oldest harness racing program. Established in 1965, the Fund receives capital from the pari-mutuel handle at the licensed tracks across N.Y. to fund purse money for harness racing in the state.

# N.Y. Equine Health Seminar 2012

Six researchers from Cornell's College of Veterinary Medicine trekked to Saratoga Springs, N.Y. on August 18, 2012 to talk with horse breeders, owners, trainers, and other equine stakeholders from across N.Y. about advances in equine health procedures and practices. Discussions during the day-long event included overviews of clinical services Cornell can provide to the equine community, ways to make horses safer on the farm and the track, and best practices for preventing equine disease.

Talks and speakers for the seminar included:

- "Upper Airway Dynamic Diagnosis" (Dr. Norm Ducharme)
- "Stem Cells for Tendonitis" (Dr. Lisa Fortier)
- "Lyme Disease in Horses" (Dr. Bettina Wagner)
- "Equine Protozoal Myelitis: Diagnosis and Treatment" (Dr. Thomas Divers)
- "Breeding Success after a Racing Career" (Drs. Robert Gilbert and Jennifer Sones)
- "Bio-security and Strangles" (Dr. Thomas Divers)

Zweig Committee member Ms. Jean Brown coordinated the event hosted by the Harness Horse Breeders of New York State, of which she is a board member. Fellow members Mrs. Anna Zweig and her son, Brian, attended.

"Much of the Zweig-supported research contributed to the topics," said Ms. Brown. "It was a great outreach opportunity to share information and bridge the gap between clinicians and equine-related communities in N.Y."

This event was sponsored by The Agriculture and New York State Horse Breeding Development Fund.

## Horses at home photo series

Many members of the Zweig Fund Committee enjoy equine companions at home as well as at work. The "Horses at home" photo series will run over several issues of the *Zweig News Capsule* featuring images of committee members with their horses.



Above: Ms. Jean Brown with Neat, her 2012 yearling.

(continued on back cover)

The **Harry M. Zweig Memorial Fund for Equine Research** honors the late Dr. Harry M. Zweig, a distinguished veterinarian, and his numerous contributions to the state's equine industry. In 1979, by amendment to the pari-mutuel revenue laws, the New York State legislature created the Harry M. Zweig Memorial Fund to promote equine research at the College of Veterinary Medicine, Cornell University. The Harry M. Zweig Committee is established for the purpose of administering the fund and is composed of individuals in specified state agencies and equine industry positions and others who represent equine breeders, owners, trainers, and veterinarians.

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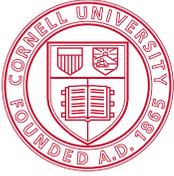
Middlebrook Farm

**Brian Zweig**

Rensselaer, NY

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## Cornell University College of Veterinary Medicine

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### Horses at home

Zweig Committee member Ms. Patricia Wehle tends her yearling stud colt, Timothy. They are watched by the horse's namesake: Mr. Timothy McCormick (right.) Mr. McCormick was CEO of the hospital system in Rochester that Ms. Wehle chaired for six years. She named the colt in his honor.



Above: Cornell staff and faculty joined Mrs. Anna Zweig in the Winner's Circle for the 2012 Harry M. Zweig Memorial Trot at Vernon Downs on Sunday, August 26.