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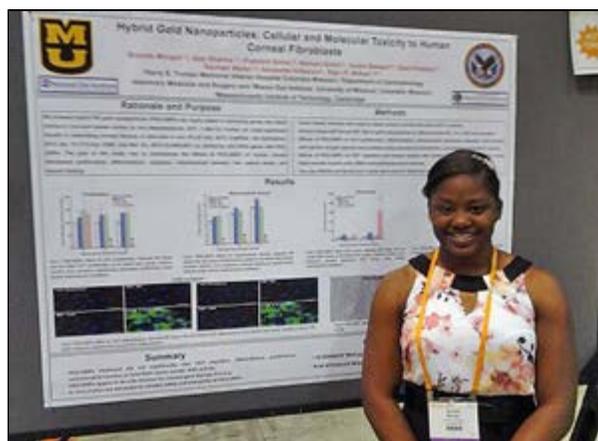
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## NEWS & EVENTS

### Ophthalmology Fellow's Research an ARVO 'Hot Topic'

The Association for Research in Vision and Ophthalmology recently selected a research abstract by Brandie Morgan, PhD, a postdoctoral fellow in ophthalmology at the MU College of Veterinary Medicine, to feature as a "Hot Topic" during the annual ARVO meeting. The distinction, awarded to less than 3 percent of all 2014 abstracts submitted for the meeting, recognizes research that holds potential interest to the press and the public. Morgan presented her research May 5 at the meeting.



Brandie Morgan presents her research into gold nanoparticles as a therapeutic delivery approach for treating corneal fibrosis.

Morgan's abstract, "Hybrid Gold Nanoparticles: Cellular and Molecular Toxicity to Human Corneal Fibroblasts," was co-authored by Ajay Sharma, PhD, Rachel A. Waller, Nishant R. Sinha, Prashant R. Sinha, Audra N. Stallard, Saad Siddiqui and Rajiv R. Mohan, PhD, MSc. Sharma is an assistant research professor of veterinary ophthalmology, and Mohan is the Ruth M. Kraeuchi Endowed Professor in Veterinary Ophthalmology. Waller is a medical student, Nishant Sinha and Prashant Sinha are high school students, and Stallard and Siddiqui are undergraduate students.

"Corneal fibrosis caused by disease or injury is the third leading cause of blindness in humans and a predominant cause of vision impairment in animals," Morgan said. "Current treatment options are limited, costly and have low efficiency. The main goal of our lab is to identify better therapeutic targets and delivery options compared to those currently on the market.

"The research I presented at ARVO highlights one novel corneal therapeutic delivery approach, the use of gold nanoparticles. This approach has the potential to safely and efficiently deliver therapeutic drugs/genes to the cornea and provide long-term or even permanent relief from vision impairment associated with fibrosis."

Gold nanoparticles (GNPs) appear to be promising drug and gene delivery tools for the treatment of corneal disease and injury, Morgan said. Toxicity profiling is necessary to determine clinical usefulness of the tool. The purpose of Morgan's work was to identify and characterize any potential toxicity GNPs may induce on human corneal fibroblasts (HCF).

HCFs obtained from donor corneas were treated with GNPs for selected durations. Following treatment, several parameters were measured to analyze GNPs' effect on overall cell health, appearance and function. The results indicated GNPs do not alter the measured cellular features and appear safe for corneal gene therapy.

"I truly enjoy being a part of a laboratory that is heavily involved in translational research," Morgan said. "I appreciate the many opportunities Dr. Mohan has given me. Having this research selected as a hot topic is like a cherry on top."

Morgan earned her bachelor's degree in biology from Northwestern State University in Natchitoches, La., and her PhD in biological science from MU. She has served as a postdoctoral fellow in Mohan's lab since October 2013.

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College of Veterinary Medicine  
W-203 Veterinary Medicine Building  
Columbia, MO 65211  
Phone: (573) 882-3554  
E-mail: [cvmwebmaster@missouri.edu](mailto:cvmwebmaster@missouri.edu)



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