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**COLORADO STATE
UNIVERSITY**



**C. WAYNE MCILWRAITH
TRANSLATIONAL MEDICINE INSTITUTE**

Translational News

June 2024



Letter from the Associate Director



Tom Giandinoto

~~Tom Starnino~~
Associate Director of Operations & Strategy

Dear Institute Supporters and Friends,

The large, quiet atrium of the Translational Medicine Institute (TMI) is the ultimate ruse. Sitting on one of the half-moon couches or in one of the several lounge areas scattered about, the peaceful calm always present in that open space would make any visitor feel that this Colorado State University (CSU) building is idle.

They wouldn't be aware of the institute's persistent buzz behind those atrium walls.

Like the lab assistants and anesthesia teams setting up minimally invasive surgery courses in the continuing education laboratory and the veterinarians sitting in the tiered classroom listening to in-depth lectures led by CSU faculty. Or the preclinical trials occupying surgery suites, the critical discussions between directors and industry partners underway in our meeting rooms, the scientific symposiums organized by event staff on the third floor. They probably wouldn't realize all the valuable research from six research labs developing in the second-floor laboratory.

That's the magic of the teams that occupy the TMI. While the atrium provides the appearance of calm, beyond that space teams are always buzzing, always discovering. And it's their work that's helping push CSU forward to create innovative solutions that improve the lives of animals and humans.

To celebrate fiscal year 2024, I invite you to look at TMI by the numbers to see how the buzzing from the incredible clinicians, researchers, faculty, and staff at the TMI have added up since July 1, 2023.

CSU's Veterinary Continuing Education (CSUVetCE) program held 106 courses (roughly 215 course days) attended by 2,511 veterinarians. Learners traveled to TMI's facilities from the United States, Finland, Tasmania, France, Germany, Brazil, Singapore, Japan, and New Zealand. To help facilitate these courses, the program utilized the expertise of 66 CSU faculty members. To say that the program has been busy is an understatement. Considering holidays, school breaks, graduation, lead times, travel periods, and other constraints, the capacity for available course days at TMI is about 225 days. CSUVetCE will close this fiscal year with 215 course days. That's an operation capacity of 95%, an incredible feat for a program that's only five years old. As the largest academic veterinary continuing education program in North America, if not the world, the team behind its success are true trailblazers.

Now for research. We typically look at grants or measure grants by the dollars awarded. However, direct expenses are a better measure of activity. For this fiscal year, the TMI is figuring about \$4.75 million in direct expenses. That is a little less than \$400,000 per month, or \$95,000 of research expenses per week, some of which comes from our wet-bench lab space on the second floor.

TMI's MRI and CT machines were also busy this past fiscal year. From July 2023 to April 2024, imaging teams completed 403 MRI scans and 223 CT scans.

Work at the TMI would be impossible without the staff at central services who work behind the scenes accepting packages, delivering and cleaning supplies, and cataloging inventory. Central services staff handle nearly 400 packages every month. They sterilize approximately 450 items per month, making it possible for all groups within the TMI to continue researching, investigating, and providing education. They also do laundry, about 150-180 loads each month, which is roughly 5-10 loads per day. That's a lot of folding.

The TMI's video capabilities, whether that's recording lectures for hybrid CE courses, producing videos to highlight CSU labs and research teams, or facilitating events like the Veterinary Health and Education Complex's recent groundbreaking ceremony are all possible because of our

media and learning technology infrastructure. Our third-floor event spaces (Grand Event Hall, Auditorium, and Boardroom), meeting rooms, education facilities, and four surgery suites are all wired with video and audio. During this fiscal year, our media group facilitated 54 interactive surgeries (over 200 hours) for two of our research groups, supported more than 90 CE courses over 170+ days, monitored more than 80 interactive meetings, and recorded 300 hours of events and conferences for various groups within the institute, the college, the Veterinary Health System, and outside organizations. Utilizing the institute's green room for creating interactive videos for education and communications, the media team completed more than 60 production projects totaling nearly 400 hours of video shooting.

All that buzz adds up. From providing video assistance to ensuring clean scrubs are available, the people behind the TMI atrium walls consistently demonstrate how collaborative work and small steps forward elevate the institute towards excellence. Our success is dependent on each other, and it's because of all this buzz that makes it possible for the TMI to continue impacting animal and human medicine on a global scale.

I am proud to be a part of the great people who are the Translational Medicine Institute. Take a look at what we've accomplished in the past six months since our last newsletter, and I'm sure you will also feel proud to support such an incredible place.

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Inside the Institute

The people of the Translational Medicine Institute include veterinarians, physicians, clinicians, researchers, engineers, educators, administrators, industry partners, specialized staff, technicians, and research associates. It's their creativity and passion for veterinary medicine that realizes the institute's vision of leading the way in discovery and implementation of the body's therapeutics to improve the lives of animals and their humans.

The institute comprises four areas of focus: **Research**, **Education**, **Commercialization**, and **Operations**.

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Research



TMI units receive ARPA-H project awards

Orthopaedic Research Center, Preclinical Surgical Research Lab, and the Orthopaedic Bioengineering Research Laboratory join NITRO

ARPA-H is committed to advancing health outcomes for all, supporting innovative solutions to a broad range of health challenges as well as paving the way for life-saving treatments. Through

inclusive engagement and intentional design of programs that ensure accessibility and customer experience are key tenets, ARPA-H aims to ensure access to solutions regardless of demographics or geography, leveraging diverse perspectives for sustained equity across our policy, practices, and programs.

With the goal to eradicate osteoarthritis, a common and irreversible condition where bones and cartilage break down, the Novel Innovations for Tissue Regeneration in Osteoarthritis (NITRO) program's five teams (Duke University, Washington University in St. Louis, University of Colorado Boulder, Columbia University, and Case Western Reserve University) will pursue three technical areas:

- (TA1) - injectable and/or non-invasive bone regeneration
- (TA2) - injectable and/or non-invasive cartilage regeneration
- (TA3) - replacement joints built from human cells

The NITRO program will ensure access for all solutions by requiring each performer team to implement and enforce clinical trial metrics, ensuring all NITRO program trials have enrollment of more than 50% women, and are representative of the impacted populations.



Dr. Laurie Goodrich will lead the Orthopaedic Research Center in partnership with University of Colorado Boulder. Together, they will pursue TA1 and TA2, focusing on engineered therapeutic materials.

[Read more](#)

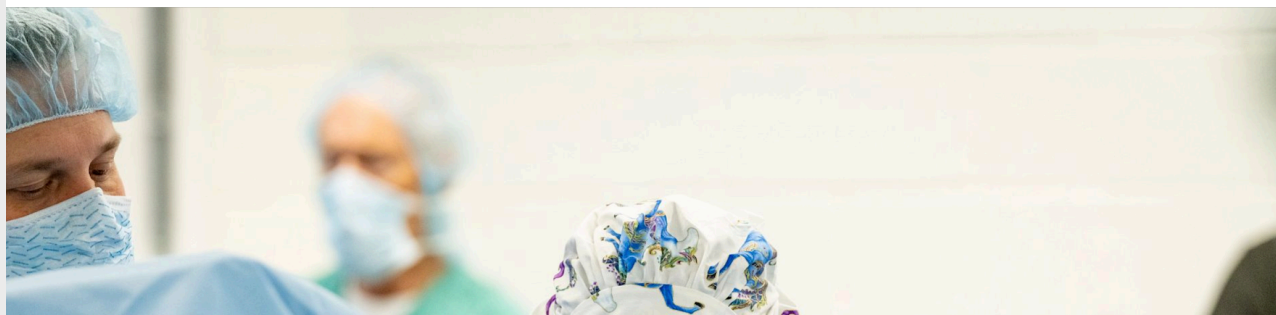


Dr. Ben Gadomski (left) and Dr. Jeremiah Easley (right) will lead CSU's pre-clinical work in partnership with Case Western Reserve University. Together, they will pursue TA3, focusing on modular total knee implants.

[Read more](#)

Translatable Research

CSU veterinarians expand on key equine orthopedic research that could also benefit people





Dr. Lynn Pezzanite in surgery

From CSU Source:

It was early November, and Dr. Lynn Pezzanite was standing in an operating room at Colorado State University's Translational Medicine Institute, flanked on either side by two of her most influential mentors, Dr. Laurie Goodrich and Dr. Jason Stoneback. Goodrich and Stoneback had scrubbed in to assist on a pair of equine surgeries tied to Pezzanite's first research grant as the principal investigator.

"They've been such supporters collectively in my success," Pezzanite said. "It was surreal to be in that position."

[Read more](#)

A Snapshot of the Next Generation

January 24, 2024



Story provided by Platinum Performance

From Dr. Luke Bass, assistant professor with CSU's Equine Field Service department:

"We've taken great strides in bridging the gap between veterinarians and farriers; the two groups have really begun to come together and, in the end, it's the horse that benefits."

[Read more](#)

Veterinary research offers hope for human arthritis

February 13, 2024



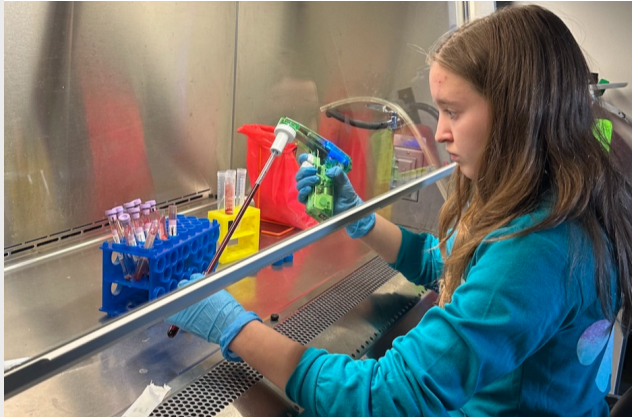
Story provided by KTTN News

Researchers at Colorado State University are advancing our understanding of how osteoarthritis progresses in horses. Their work could eventually aid individuals who develop the degenerative disease following an injury to a knee, elbow, or shoulder.

[Read more](#)

Local student's science fair project leads to co-authorship of equine research at Colorado State University

April 12, 2024
from CSU Source



Sammy Keeney aliquoting blood samples to process for plasma separation. (Photo courtesy Keeney family)

It all started with horse riding lessons. Samantha Keeney, an 8th grade student at Summit Middle Charter School from Boulder, Colorado, wanted to know more about what was happening inside her horse during her lessons. Her upcoming district regional science fair was the perfect opportunity to find the answer.

[Read more](#)

CSU develops drug that could prevent tissue loss in astronauts and immobile patients

Featuring the Cellular Engineering and Mechanobiology Laboratory



NASA astronaut Frank Rubio landed in Kazakhstan on Sept. 27, 2023, after spending 371 days in space aboard the International Space Station. Rubio's mission is the longest single spaceflight by a U.S. astronaut in history. Image credit: NASA/Bill Ingalls.

On Sept. 27, NASA astronaut Frank Rubio returned from his year-long residency in space, earning him the bragging rights of the longest time in space. However, this achievement comes with implications, as 371 days in space has quite a toll on the body.

[Read more](#)

Education





Expanded cardiology courses bring veterinarians in from around the world

Veterinary continuing education from April 2024



Participants and instructors from April's Advanced Cardiology Review course stand on the steps of the TMI.

After the success of 2023's Advanced Cardiology Review course, CSUVetCE sought to address the veterinary call for more cardiology courses.

Spring of 2024 included:

Congenital Heart Interventions in Animals, Transcatheter Edge-to-Edge

Mitral Valve Repair, and a second year of **Advanced Cardiology Review**.

Veterinarians traveled from all over the world to train alongside renowned CSU faculty and experts in cardiology from North Carolina State University, Cornell University, Texas A&M, and The Ohio State University. It was a true collaboration of knowledge and skills. Course participants trained in the state-of-the-art CE Teaching Lab and facilities performing surgeries, examining heart defects in various animals, and building critical skills with their peers that will help shape the future of veterinary cardiology.

From Brianna Potter, DVM, MS, DACVIM (Cardiology) and assistant professor at Colorado State University:

"Participating in all three cardiology courses this April was extremely rewarding. We were so fortunate to have participants in attendance from all over the world. These courses created a perfect environment to encourage collaboration and networking within our cardiology specialty. These connections are invaluable as our specialty grows and will be influential for future cardiologists as they join our specialty. After the course, our cardiology team received many notes of thanks from participants of all experience levels. It was an honor for our team to be able to host these CE events here at CSU, as well as work closely with the VetCE team who did an excellent job executing our vision."

2024 Annual Conference for Veterinarians and Technicians

May 4-5, 2024



Over **325 veterinarians and technicians** from Colorado and around the country attended this year's conference.

It was the first time the conference met full-



Participants in lecture.

It was the first time the conference met full capacity occupancy inside the institute, showcasing the impact and desire within the veterinary community to earn RACE and network with CSU faculty.

Dean Sue VandeWoude provided the keynote speech. Lectures were presented on small animal, livestock, and equine topics.

Commercialization



Disclosed inventions, intellectual property applications, and issued intellectual property

January 2020 – March 2024

58

58 inventions disclosed to the Technology Transfer Office by a CSU researcher.

41

41 intellectual property applications, including US utility patent applications, trademark applications, and copyright applications, were filed. This also includes PCT applications, the first step to filing international patent applications.

15

15 issued intellectual property, including utility patents, design patents, plant variety protection, trademarks, and copyrights, successfully completed the examination process and were granted by the applicable patent authority.

Operations



CSU welcomes new director of the Translational Medicine Institute

Dr. Michael Detamore is the founding director of the Stephenson School of Biomedical Engineering at the University of Oklahoma



Photo provided by the University of Oklahoma

Colorado State University's Translational Medicine Institute welcomes Michael Detamore, Ph.D., as its next director. He joins CSU from the University of Oklahoma where he is the founding director of the Stephenson School of Biomedical Engineering (SBME). Prior to SBME, Detamore spent 12 years at the University of Kansas as a professor in the Department of Chemical & Petroleum Engineering. His primary research interest is regenerative medicine with a particular focus on translational regenerative medicine. Throughout his academic career, Detamore has demonstrated a strong commitment in student investment as well as social equity.

[Read more](#)

Groundbreaking ceremony for CSU's Veterinary Health and Education Complex (VHEC)

CSU welcomed Governor Jared Polis to this monumental event





Watch the highlight video from the VHEC Groundbreaking Ceremony featuring Colorado Governor Jared Polis, CSU President Amy Parsons, and Dean Sue VandeWoude

On May 2, CSU celebrated the start of a new era in veterinary medicine with a groundbreaking ceremony for the Veterinary Health and Education Complex.

As leaders in this industry for more than a century, we're excited that this project will enable CSU to continue leading the way for years to come. The complex, set to be completed in 2026, will allow the College of Veterinary Medicine and Biomedical Sciences to expand its veterinary program and introduce an experiential-based curriculum, which will equip our students with practical knowledge and hands-on experience.

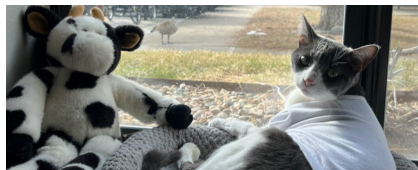
We're immensely grateful to Governor Polis, members of the Colorado General Assembly, and all of our donors, faculty, staff, and partners who have tirelessly supported this vision. Together, CSU is creating a brighter future for veterinary medicine and paving the way for generations of professionals to come.

[Read more](#) from CSU Source.



More CSU News

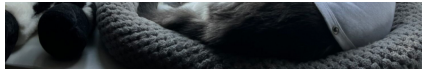
College of Veterinary Medicine and Biomedical Sciences





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of the value of animals**

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