

"VTPP, where innovation shapes the future of veterinary research and education"

Colleagues,

This months VTPP Success captures our efforts for July 2020. I truly appreciate all of your efforts to strive for more successes that ensure VTPP continues to lead in the CVMBS. Stay safe everyone and please wear your masks. I cannot wait to have VTPP back together, physically and not virtually. I encourage everyone to continue to utilize the many Zoom options for communication and interactions.

VTPP and the CVMBS are committed to a climate where all faculty, students, staff, and administrators feel that they are treated respectfully, and are fully accepted and valued for who they are. The current pandemic and the associated disruption of everything has highlighted the change we are facing. As we navigate our way through the new dynamic, VTPP and the CVMBS recognize that now, more than ever, how important it is for all of us to work together to embrace our combined future. We must reflect our core values in our words and deeds and remain acutely aware that our words and actions directly impact the sense of community and belonging that individuals feel within our department and college.



“Somewhere, something incredible is waiting to be known.”

Carl Sagan

The evolving Texas A&M University return to work plan can be found at: <https://employees.tamu.edu/covid-19/vp-memo/>

For more updates and guidance from Texas A&M University in the current COVID-19 scenario go to: <https://www.tamu.edu/coronavirus/index.html>

Don't forget to utilize the VTPP website. Please keep your personal information and webpage current as this is our first line of access for perspective students and others. For any revisions/additions that you would like or suggestions for other items to be added to the VTPP website, please let Ms. Julie Austin and I know. There is a lot there already and we are always looking to update and improve it. <https://physiology.tamu.edu/>

Thank you everyone in VTPP for leading the way in our College. Your efforts make us better every day

Larry

VTPP PUBLICATIONS (July 1, 2020-July 31, 2020)

- 30) Padgett AL, Lepiz ML, Mackay EE, Driskill AJ, **Ivanov IV**, **Fajt VR**, Konarik MM, Mays TP, **Washburn SE**. Comparison of analgesic efficacy and fetal effects between transdermal administration of fentanyl and intramuscular administration of buprenorphine in pregnant sheep. *Am J Vet Res*. 2020 7:581-593. PMID: 32584185
- 31) Zarei M, Shivanandappa T, **Zarei M**. Natural bioactive 4-Hydroxyisophthalic acid (4-HIPA) exhibited antiproliferative potential by upregulating apoptotic markers in in vitro and in vivo cancer models. *Mol Biol Rep*. 2020 Jun 30. Online ahead of print. PMID: 32607952
- 32) Brennan ML, Arlt SP, Belshaw Z, Buckley L, Corah L, Doit H, **Fajt VR**, Grindlay DJC, Moberly HK, Morrow LD, Stavisky J, White C. Critically Appraised Topics (CATs) in Veterinary Medicine: Applying Evidence in Clinical Practice. *Front Vet Sci* 2020 7:314 PMID: 32695798
- 33) Andrews DD, **Fajt VR**, Baker KC, Blair RV, Jones SH, Dobek GL. A Comparison of Buprenorphine, Sustained release Buprenorphine, and High-concentration Buprenorphine in Male New Zealand White Rabbits [published online ahead of print, 2020 Jul 16]. *J Am Assoc Lab Anim Sci*. PMID: 32674750
- 34) Noratto G, Layosa MA, Lage NN, Atienza L, **Ivanov I**, Mertens-Talcott SU, Chew BP. Antitumor potential of dark sweet cherry sweet (*Prunus avium*) phenolics in suppressing xenograft tumor growth of MDA-MB-453 breast cancer cells. *J Nutr Biochem*. 2020 Online ahead of print. PMID: 32615370
- 35) Lewis N, **Hinrichs K**, Leese HJ, McGregor Argo C, Brison DR, Sturmey RG. Glucose concentration during equine in vitro maturation alters mitochondrial function. *Reproduction*. 2020 Aug;160(2):227-237. PMID: 32413850

Faculty are denoted in **bold** text, trainees in *italics*

Please keep these important and impactful VTPP publications coming! The VTPP Success will continue to highlight our most recent achievements and is intended to serve as a concise but informative catalog of individual and departmental successes.

VTPP FACULTY

*Congratulations and thank you to all VTPP faculty who have submitted grants this month and all through the pandemic. Please keep up these efforts. VTPP needs all grant submissions to continue to increase! Also, ALL faculty are encouraged to utilize the **VTPP grant biopsy strategy** where sections (or major chunks) of grants in preparation and/or revision are read and critiques by our experienced VTPP research-intensive faculty. This is a proven successful strategy that I encourage everyone to utilize.*

- 36) Congratulations to Dr. Charles Long (PI) on a new Morris Animal Foundation application entitled "Equine anti-TNF-alpha therapy to improve recovery from injury and quality of life"
- 37) Congratulations to Dr. Ivan Ivanov (Co-I) on a new NIH R01 application entitled "Modeling human ovarian granulosa cell tumors"

VTPP STUDENTS & TRAINEES

- Congratulations to Dr. Claire Stenhouse, post doc (Drs. Bazer and Suva mentors) who was selected for a platform oral presentation at the 2020 American Society for Bone and Mineral Research (ASBMR) virtual meeting and graduate students Josh Bertels and Kirby Sherman (Drs. Gaddy and Suva mentors) for selection as ASBMR poster presenters

VTPP EDUCATION CHRONICLES

VTPP Education Chronicles is an opportunity to share specific ideas and information regarding higher education. VTPP continued excellence in education is a major departmental strength and the information is provided to support all educational pursuits.

The recent communication from Provost Fierke regarding Return to Campus for Fall 2020 is summarized below.



Texas A&M will students begin to return to campus in a few short weeks, and the DVM program even sooner. Texas A&M University is pilot testing equipment and completing appropriate documentation to make this as smooth as possible for those teaching face-to-face. For the latest in online learning resources, please visit our keep teaching page at <https://keepteaching.tamu.edu/>

COVID-19 Testing: COVID-19 testing is available Monday through Friday for Bryan/College Station Texas A&M University students, faculty, and staff. Priority for testing is given to those with symptoms associated with COVID-19 infections and those who have been in close contact with known or suspected cases. *Close contact is defined as closer than 6 feet for 15 minutes or longer.*

Tests are administered in a tent located in Lot 27 adjacent to the Beutel Health Center. Test results will be available within 2-3 days from the time the test is taken. Negative test results will be provided directly to the individual via email. **Positive test** results will be reported to state and county health offices and the Texas A&M Investigation and Operations Center will contact you directly to provide additional guidance.

Outdoor Study Space: You may have noticed reorganization of outdoor and indoor spaces in VBEC. Efforts have been made to maximize study spaces both in VBEC with expanded WiFi to provide additional seating outdoors for students, similar to efforts on the main campus. Main campus has added 40-50 tents and over 500 café tables with expanded WiFi.

More updates are available on the central COVID-19 page at <https://www.tamu.edu/coronavirus/>

Please let me know of any successes, updates and/or issues with the on-line delivery of any of your classes

VTPP RESEARCH FORECAST

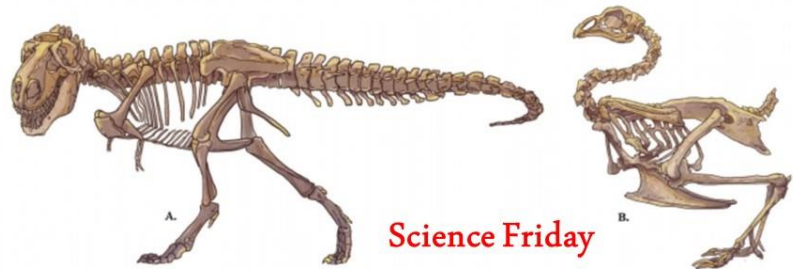
Identifying upcoming seminars, workshops, funding announcements, events, and conferences of interest to VTPP. I hope it serves as an accessible archive and reference for upcoming research events and deadlines, and sources of information to support our next discoveries.

VTPP Science Friday conversations continue to be stimulating and helping develop more interactions. All faculty are encouraged to attend these important VTPP research- and mission-focused discussions.

The next Science Friday discussions are scheduled via Zoom for **Thursday 8:30AM, August 6 and August 27.**

Science Friday discussions have developed connections between faculty around areas of VTPP research strengths. The self-assembling teams are:

- ❖ Exposure Biology
- ❖ Bone/regeneration (*frequent meetings, multiple applications submitted*)
- ❖ CV Biology and metabolism
- ❖ Mechanobiology
- ❖ Endocrinology and Reproduction
- ❖ Oncology (*has met and is active*)



VTPP Seminar Series

The Fall seminar series will be here before we know it. Dr. Clement is hard at work re-engaging with faculty who could not present as the pandemic descended upon us. The series will re-commence in the Fall, most likely remote but hopefully with some opportunities for face-to-face seminars. VTPP is looking forward to re-invigorating the seminars with a mix of VTPP faculty, Texas A&M colleagues as well as outside speakers. We are actively working to re-engage the external speakers who were also unable to visit. Please let Dr. Clement know of other speakers you would like to hear. **As always, please push, encourage and direct your graduate students to attend seminar.**

Research in the pandemic at Texas A&M University

Much is still happening with the ongoing return to research. As research activities continue to ramp up, protective measures remain essential. Please continue to monitor the VPR website regarding the latest information available regarding changes to **research** related to COVID-19 conditions.

<https://vpr.tamu.edu/covid-19>

Please remember to wear masks in all TAMU locations and minimize occupancy of elevators in all buildings, including all research buildings.

In-Person Undergraduate Research Guidelines: Guidance was recently released from the VPR. Directives apply to all undergraduate research activities including, but not limited to, credit-bearing research experiences, paid employment on a research project, paid lab-based student workers, organized undergraduate research programs, and research-oriented volunteer activities.

Research supervisors who choose not to host undergraduate researchers for credit-bearing experiences



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should refer students to their academic advisor for any related adjustments to the student's fall course schedule. **Specific details are highlighted below:**

- Research projects that students can complete remotely are exempt
- Unless previously approved prior to the start of the **summer 2020 term**, no undergraduate students may begin credit-bearing experiences or new paid research positions prior to the start of the fall 2020 term
- Research supervisors wishing to host undergraduate researchers or student workers in research positions in fall 2020 **must** provide their department head with a document describing:
 - COVID-related safety measures ongoing in the research space including face covering, cleaning, physical distancing, and other measures as appropriate; the addition of undergraduate students in the research space must accommodate 6 ft physical distancing.
 - All research-specific safety training (COVID- and facility/space-related) that undergraduate students will be required to complete prior to initiation of research activities.

Upcoming NIH Grant Deadlines and Opportunities

August 8: New, renewal, resubmission F Series Fellowships (including F31 Diversity – NOT-OD-17-029)

October 5: New R01 submissions

October 16: New R21 submissions

November 5: R01 renewal, resubmission, revision

November 15: R21 renewal, resubmission, revision

December 8: New, renewal, resubmission F Series Fellowships (including F31 Diversity – NOT-OD-17-029)

For more details and upcoming submission dates go to:

<https://grants.nih.gov/grants/how-to-apply-application-guide/due-dates-and-submission-policies/due-dates.htm>



Upcoming NSF Grant Deadlines and Opportunities

August 6, 2020: Research Experiences for Undergraduates (REU)

August 11, 2020: Faculty Early Career Development Program (CAREER)

October 20, 2020: NSF Graduate Research Fellowship Program (GRFP)

January 1-January 19, 2021: Major Research Instrumentation Program (MRI)

For more details and upcoming submission dates go to:

https://www.nsf.gov/funding/pgm_list.jsp?org=NSF&ord=date&page=4



Texas A&M Research Cores

VTPP Success provides links to TAMU research core that may help VTPP researchers and identify research resources in VTPP and across TAMU. This month we highlight the Texas A&M University Integrated Metabolomics Analysis Core (IMAC) (contact: Cory Klemashevich, PhD; Klem24@tamu.edu).

IMAC (located at 300 Olsen BI Room 402) began in 2016 as a strategic investment in TAMU research infrastructure. State-of-the-art technologies facilitate the study of the small molecules and metabolites contained within cells, tissues and biological fluids. IMAC expertise resides in the detection of small, polar compounds that are separated by liquid chromatography or gas chromatography. IMAC currently houses state-of-the-art mass spectrometers coupled to liquid chromatography (LC) or gas chromatography (GC)

separation systems, such as Q-Exacte Plus Orbitrap Liquid Chromatography – Mass Spectrometer (above). This high-resolution instrument is ideal for discovery proteomics (untargeted). For consultations, training and workshops contact the IMAC.

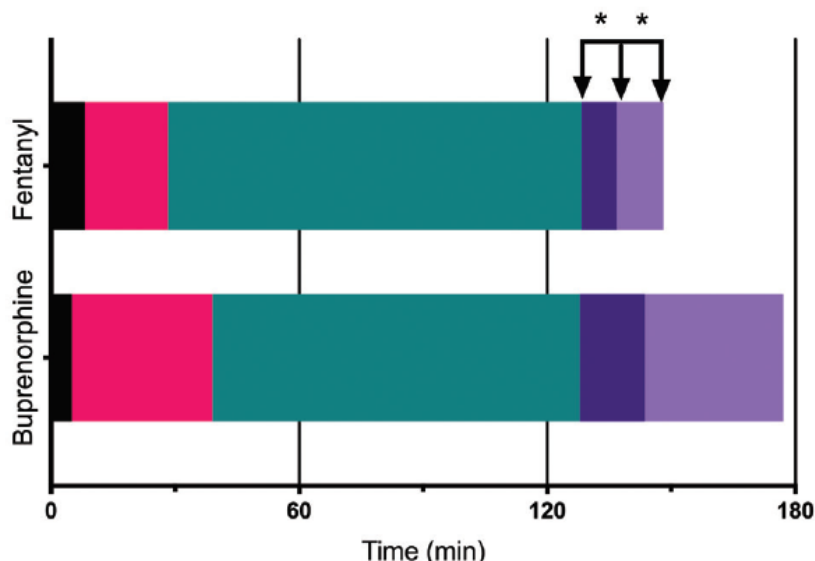


VTPP SCIENCE IN ACTION

Identifying and highlighting the impactful VTPP publications of each month. The goal is to capture these articles for annual VTPP research highlights I hope it serves as an accessible archive and reference for upcoming research events and deadlines, and sources of information to support our next discoveries. If you have suggestions for impactful VTPP publications that can be highlighted, please share these ideas with me.

The June 2020 highlighted "VTPP Science in Action" article comes from the laboratory of Dr. Shannon Washburn. The manuscript outlines a series of elegant experiments designed to examine the efficacy of buprenorphine and fentanyl in the management of perioperative pain in sheep. Both agents provided acceptable postoperative analgesia with no adverse effects observed in the ewes or fetuses. The study was highlighted by elegant and transformative data and analyses, including the use of LC-MS for the pharmacologic measurement of buprenorphine and fentanyl concentrations in plasma and amniotic fluid samples as well as validation of a scoring system assessing analgesic indices in sheep.

Figure 3 from the paper shows the mean duration between anesthesia induction and orotracheal intubation between completion of surgery and extubation (dark purple), and between extubation and the animal attaining a standing position (light purple) for the buprenorphine-treated and fentanyl-treated ewes. In all, the recovery and status of the fentanyl-treated ewes is significantly faster than buprenorphine-treatment. The study also demonstrated that the standardized multidimensional pain scores for the ewes were significantly negatively correlated with plasma drug concentrations, demonstrating the pain scoring system used is a reliable method for detecting and assessing pain in sheep.



Perhaps most importantly is the clinical relevance of the studies, where drug availability, costs, and administration logistics are important considerations in perioperative analgesic regimens for veterinary patients. In the United States, buprenorphine (schedule III) and fentanyl (schedule II) are both classified as controlled substances. As such both drugs are viewed as having an abuse potential, which affects their availability. The study reported the cost of the fentanyl protocol (\$57.89/ewe) and the buprenorphine protocol (\$241.47/ewe). Clinically, fentanyl delivery requires more skin preparation and bandaging materials for transdermal patch application than buprenorphine. However, the animals have to be restrained for analgesic administration only once rather than multiple times, likely favoring use of fentanyl. In any case, the eventual impact of the studies on the use of fentanyl and buprenorphine in the setting of perioperative pain is likely to advance based on these exciting and informative findings. Congratulations again to all the members of the Washburn laboratory on highly impactful work. <https://doi.org/10.2460/ajvr.81.7.581>

VTPP STAFF

- **VTPP always celebrates departmental birthdays,** June birthday congratulations go to Lisa Roberts-Hilton, and Drs. Ken Muneoka and Yanan Tian. We are obviously missing yet another VTPP cake celebration (its WAY too many). I sincerely hope we will be able to celebrate soon!
- **Congratulations to Sybil Camacho and Lisa Roberts-Helton,** recent winners of the CVM the U.S. Diversity & Inclusion quiz! (*I of course missed this in the June VTPP Success*)



- **Congratulations to VTPP staff longevity award winners** from the 2020 Staff Awards ceremony, presented remotely on July 29. **Mingquan Yan** (5 years) and **Becky Simmons** (20 years). Well done to you both and thank you for all that you do for VTPP



Thank you to all our fabulous VTPP staff. The faculty and students are appreciative of everything you do to ensure VTPP remains a great department. A special thanks to the business team and the office staff for their continued efforts and rotating schedule that keeps VTPP running through the pandemic! You make us better every day!

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VTPP WELLNESS

*Please enjoy how VTPP is staying well during the lockdown and social isolation. I share them with you as part of VTPP's continued success!! No names are provided, to protect the innocent. **Please keep sending images of VTPP Wellness to share, and please continue to be safe!***



"GREAT THINGS NEVER CAME FROM COMFORT ZONES"

ROY T. BENNETT