CMB Newsletter

Issue 11 | Summer | 2018

The CMB Newsletter is written and published by graduate students of the CMB program. Our mission is to create a more closely-knit CMB community by providing students, faculty, friends, family and alumni with current information about the Cell and Molecular Biology Program at Colorado State University. This newsletter looks to emphasize accomplishments and activities of the CMB community as well as highlight future events. Please email Adam Heck (Adam.Heck@colostate.edu) or Kaitlin Doucette (Kaitlin.Doucette@colostate.edu) with news or if you want to become involved in future editions!

Tree Planting Ceremony Held for Retired CMB Director Dr. Howard Liber

Earlier this summer, members of the CMB community planted an American Sycamore tree at Spring Creek Park in honor of the former, and now retired, Director of CMB Dr. Howard Liber. The CMB community would like to thank Dr. Liber for his many years of service to the program prior to and during his tenure as director. Dr. Liber and his wife Peggy Liber, also recently retired, have been enjoying their first few months of retirement, which included a nice vacation to the Seattle area. All of us at CMB would like to wish Dr. Liber and his wife the best in their retirement!

Pictured right: Dr. Liber, Dr. Carol Wilusz, Charlene Spencer and Platon Selemenakis planting the tree in Spring Creek Park.

CMB Members Volunteer for 'School is Cool' Initiative

A group of CMBers volunteered at the 'School is Cool' initiative recently to help stuff nearly 2500 backpacks full of school supplies. 'School is Cool' is a CSU based community outreach effort that provides backpacks and school supplies to K-12 grade students in need throughout Fort Collins, Wellington, Timnath, LaPorte and outlying mountain schools. The CMB group consisted of (left to right) Carol Wilusz, Vanessa Selwyn, Alissa Williams, Adam Heck, Heather Deel, Sara Oehmke, Cary Mundell, Jessie Filer, Noelia Altina and Platon Selemenakis.

Scooping Our Way to Healthier Science

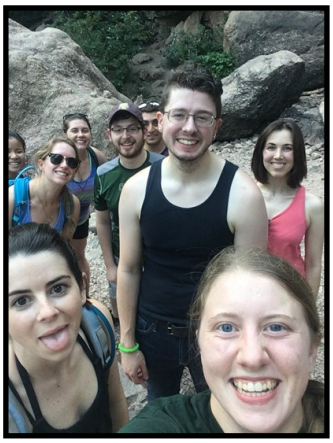
By : Jessie Filer

I remember sitting in the office one day when my colleague marched in, flustered and upset. She described to me the results of a new study, results exactly mirroring the findings she was about to publish. It was my introduction to the problem of scooping - when a research group first publishes a set of findings that multiple groups have been independently working on. In their editorial policies, many academic journals place heavy emphasis on novelty when evaluating submitted manuscripts, which often leaves scooped research sitting on a dusty shelf somewhere, unable to be published. The effect can be devastating for junior researchers who have devoted months or years to their project [1].

Some scientists note that this fear of being scooped decreases their willingness to have collaborative discussions or open-share data [2], [3]. It is also thought that the heightened competition reduces the quality of work as researchers dash to get their results out [3]. Some academic journals like PLOS Biology [4], EMBO [5], and eLIFE [6] have responded to this issue with policies on scooping that recognize the value of complementary research. The editors at PLOS state that a complementary study increases the confidence in the conclusions and allow researchers to submit complementary (i.e. scooped) research up to six months after the original publication or pre-print posting. They hope that the new policy will allow scooped researchers time to wrap up and even extend projects without rushing results out the door. The policy has received praise from the scientific community [7]; as an example of the benefits of PLOS Biology's scooping policy, Jin-Soo Kim and Jacob Corn were able to genuinely support one another in their complementary research and supplant rivalry with collaboration. Although PLOS Biology is still unique in offering such a large grace period, it is a step in the right direction toward healthier perspectives and relationships within the scientific community.

[1] K. Powell, "Winning ways," Nature, vol. 442, pp. 842–843, 2006.
[2] R. Van Noorden, "Confusion over publisher's pioneering open-data rules," Nature, vol. 515, no. 7528, pp. 478–478, 2014.
[3] H. Pearson, "Competition in biology: it's a scoop!," Nature, vol. 426, no. 6964, pp. 222–3, Nov. 2003.
[4] PLOS Biology Staff Editors, "The importance of being second," PLOS Biol., vol. 16, no. 1, p. e2005203, Jan. 2018.
[5] "Author Guidelines," EMBO Journal, 2018. [Online]. Available: http://emboj.embopress.org/authorguide#preprintservers. [Accessed: 09-Aug-2018].
[6] E. Marder, "Scientific Publishing: Beyond scoops to best practices," Elife, vol. 6, pp. 1–2, 2017.
[7] J.-S. Kim and J. E. Corn, "Sometimes you're the scooper, and sometimes you get scooped: How to turn both into something good," PLOS Biol., vol. 16, no. 7, p.

CMB Students Take to the Mountains!



CMB students hiked to Horsetooth Falls on Friday, August 10, and followed up the hike with a picnic! The 'end of summer' event was put on by the CMBSA. While the Falls were almost completely dry, it was still a great time according to CMBSA President Katy McIntyre. "The hike was great! It was a really great way to end the summer with a quick hike and dinner with members of the CMB crew. I'm excited to have more social events like this in the future!"

CMB Student Highlights– Stephen Cohen

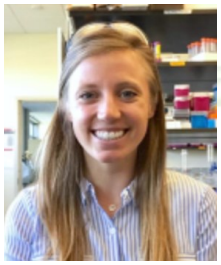
This summer was a busy one for CMB PhD student Stephen Cohen. Over the past few months, Cohen was awarded the William M. Brown Professional Development Award from the Department of Bioagricultural Sciences and Pest Management. The award recognizes those who posses a dedication to the field of integrated pest management, have demonstrated excellent academic achievement and a high potential for research accomplishments. Additionally, he was involved in two invited activities at the International Congress of Plant Pathology 2018 in Boston, MA. At the conference, Cohen gave an oral presentation at a special session- The Two-for-One Deal: Mechanisms of Plant Cross-tolerance to Biotic and Abiotic Stresses, pictured to the right, and was also a speaker for a pathogen effector visualization workshop– Effector-Detector Plants: Teaching & Research Tools for Monitoring Pathogen Virulence Live. Finally, he traveled to Halle, Germany to present a poster at the Xanthomonas Genomics Conference.

CONGRATS to CMB Graduates!

The following students have met all requirements to graduate

Katriana Popichak, Ph.D., Tjalkens Lab-

Glial signaling mechanisms in the progression of neuroinflammatory injury

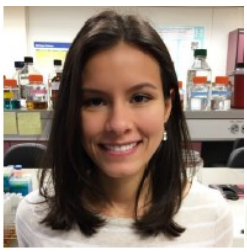


Allison Werner, Ph.D., Peebles Lab–

Day and Night for Cyanobacteria: Systems and synthetic biology approaches to understanding and engineering Synechocystis sp. PCC 6803 under day/night light cycles

Hailey Conover Sedam, Ph.D., L. Argueso Lab-

A pre-existing condition, investigation of endogenous sources of genome instability in yeast



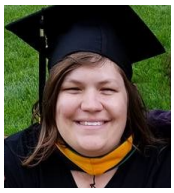
Nadia Viera Sampaio, Ph.D., L. Argueso Lab-

Systemic genomic instability and phenotypic consequences of heterozygosity in yeast

Toru Ishii, Ph.D., Telling Lab–

Development and application of new diagnostic assays for the detection of prion proteins in transmissible spongiform encephalopathies

CONGRATS to CMB Graduates Continued



K.A. Leddy, MS, Stewart Lab-

Temporal analysis of limber pine health in the U.S. Rocky Mountains

Shea Moore-Farrell, MS, Peebles & Jahn Labs–

Method development of analyzing carbon flux in the C4, drought tolerant crop Sorghum bicolor

Tymofiy Lutsiv, MS, Thompson Lab–

Inherent aerobic capacity and susceptibility to breast cancer development

CMB Grant Highlights

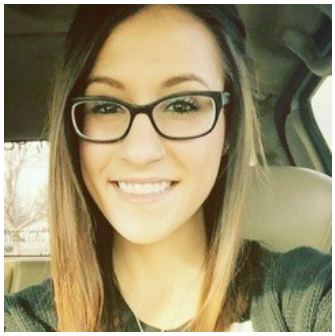
Student Grants

Kristen Brown, Summer Paid Internship at St. Jude Children's Hospital, St. Jude.
Heather Deel, Travel Grant: Hopkins Microbiology Course, CSU-GAUSSI.
Elena Pires (Wiese), Veterinary T32 fellow for 2018/19, NIH.
Katriana Popichak, Manganese-endotoxin interactions and neuroinflammatory brain injury, NIH-NIEHS.
Lisa Schlein, TL1 1 year training across the Translation Sciences Spectrum (TOTTS), CCTSI.

Faculty Grants

Dr. Cris Argueso, BSPM, Dissecting hormonal crosstalk during tomato fruit development, NSF-MCB.
Dr. James Bamburg, BMB, Fluorescence microscope for automated large array scanning and 3D imaging, NIH-OD.
Dr. Steven Dow, MIP, Optimizing novel immunotherapy combinations targeting the tumor microenvironment in canine spontaneous osteosarcoma, NIH-NCI.
Dr. Jeff Hansen, BMB, Model studies of chromosome structure and dynamics, NSF-MCB.
Dr. Jean Peccoud, CBE,EAGER: Modeling DNA manufacturing processes using extensible attribute grammars, NSF-CMMI.
Dr. Jean Peccoud, CBE, Collaborative Research: ABI Innovation: Automated prioritization and desing of experiments to validate and improve mathematical models of molecular regulatory systems, NSF-DBI.
Dr. Christie Peebles, CBE, A novel platform for the tunable production of proteoglycans, NSF-CBET.
Dr. Olve B Peersen, BMB, Engineering viral polymerase fidelity to improve live-attenuated vaccines, NIH-NIAID.
Dr. Eric Ross, BMB, Examining how functional protein aggregates evade protein quality control degradation systems, NSF-MCB.

First Year CMB Students 2018-2019



Kailee Reed: "I was born and raised in Lakewood, Colorado and received my B.S. and M.S. degrees from the Animal Science program here at Colorado State University. Throughout my Masters research, I worked under Dr. Stephen Coleman in the Breeding and Genetics Laboratory. My research focused on gene expression along the gastrointestinal tract of the horse and dynamics of the equine gastrointestinal microbiome, specifically within each compartment. I also enjoy riding horses, watching football and spending time with my family."

Sean Merriman: "I was born and raised in Fairbanks, Alaska, where I lived and attended school for my entire life until moving to Fort Collins a short time ago to begin my PhD. I attained two bachelor's degrees from the University of Alaska Fairbanks: a B.A. in English with a Japanese minor in 2012, and a B.S. in chemistry with an optional concentration in biochemistry in 2017. My research interests include epigenetics, DNA damage and repair, and the onset of cellular senescence. More broadly, I'm fascinated with the biology of aging and aging-related maladies on the molecular level. I've been a practitioner of traditional shudo-kan karate for years, earning my black belt in 2013. I am also a snowboarding fanatic with a fervent love for winter and snow. My other leisurely interests include composing guitar and electronic music (I've been a musician since age 10), anime, and videogames."

Alissa Mathias: "I was born and raised in Lancaster, Pennsylvania. I received my Bachelor's of Science degree in Exercise Science from Slippery Rock University of Pennsylvania. While in school, I started to gain interest in cancer and exercise research through my academic mentor and found the University of Northern Colorado where I ultimately decided to go for my Master's of Science in Exercise Physiology. Since moving to Colorado 3 years ago, I have developed an interest and passion for the molecular side of cancer biology and have chosen CSU to continue on with my Ph.D. in the Cell and Molecular Biology program in the hopes of one day working in a medical research hospital for pediatric or colorectal cancers. My hobbies include exercising, going on hikes with my dog, baking and cooking, as well as watching movies."

Pardis Mohammadzadeh: "I was born and raised in the southwestern region of Iran (Persia) and moved to Tehran (the capital of Iran) for my undergraduate studies in the field of Cell and Molecular Biology at University of Tehran. After graduation, I started working as a R&D expert in a cosmetics company for 1 year and then joined the graduate school to study M.Sc. of Medical Biotechnology at Isfahan University of Medical Sciences, School of Medicine. In my master studies, I attended a course in Systems Biology and for my thesis research I've worked on a novel cancer theranostics at Tehran University of Medical Sciences, School of Pharmacy joined with Pasteur Institute of Iran. Since then, I've worked as a research assistant at Tehran University of Medical Sciences on the research projects related to molecular imaging and targeted therapy of diseases. My research concerns cancer biology and novel diagnostics and treatment strategies for cancer. My interests also include computational biology and genomics, regenerative medicine and tissue engineering. In my spare time, I like doing sports, cooking and hanging out with my friends. I also like traveling the world to earn new experiences ."

We hope that Pardis will be joining the CMB community in the Spring of 2019.

First Year CMB Students 2018-2019 Continued

Kristin Scott: "I grew up in the Seattle, WA area and received a bachelor's degree from Washington State University (Go Cougs!). I double-majored in Genetics & Cell Biology and Japanese while minoring in Microbiology. As an undergraduate, I loved to teach and mentor underclassman and plan to carry that with me into my career. I hope to receive my PhD and spend my life doing research and learning about the complexities of genetic diseases while teaching the next generation of scientists to do the same. In my free time, I enjoy Taekwondo, baking sugar-free desserts, and learning new skills, like coding in python. I am very excited to start my next adventure at CSU, in the beautiful town of Fort Collins, where I can expand my intellectual interests and try new things, like hiking and skiing."

Dawn Huggins: "I was born and raised in Sioux Falls, SD, but moved to Colorado in 1991. I have past career experience and expertise in business operations and investments. However, I decided to come back to school last year, where I received my MS in Microbiology here at CSU, and I am now transitioning into a PhD. I love living in Colorado and enjoy the mountains, being outdoors, hiking, rock climbing, trail riding and science!"

Second Years: Where are they now?

Matt Dilsaver– Steven Markus, BMB

Erin Lynch– Brian Geiss, MIP; "My project is focused on flavivirus 5'-capping mechanisms of RNA and defining how the RNA structure and sequence affect capping efficiency. I am also working on characterizing the relationship between flavivirus RNA capping and host cell RNA decay pathways."

Paige Ostwald– Debbie Garrity, Biology; "In Dr. Garrity's lab I'm studying heart development using a zebrafish model. In the embryonic heart there is an extracellular matrix called the cardiac jelly and I'm looking at what happens to heart valve development when the cardiac jelly is compromised."

Lisa Schlein– Doug Thamm, Clinical Science; "I study a treatment for hematopoietic (blood-derived) cancers in dogs and its translational relevance to humans. Some of these cancers are relatively more common in dogs, giving us the opportunity to more readily understand rare disease processes in humans."

Kaila Nip– Seonil Kim, BMS; "My work in the Kim lab focuses on uncovering the neurobiological mechanism of a missense variant of the δ-catenin gene, which results in loss-of-function in the δ-catenin protein and alters synaptic and neuronal function. This particular missense variant has been found to be prevalent with severely affected Autism spectrum disorder patients in female-enriched multiple families."

Noelia Altina– Claudia Wiese, ERHS

Heather Deel– Jessica Metcalf, Animal Science; "My main project is to characterize microbial succession in human cadaver rib bones throughout decomposition. The goal is to then use machine learning with this microbiome data to build a model for estimating the postmortem interval of cadavers that have been decomposing for long time frames."

Cary Mundell– Jeff Wilusz, MIP

Tavo Ontiveros Valles– Jeff Wilusz, MIP; "My MS thesis project is focused on determining whether flaviviruses use cellular exosomes to deliver RNA messages to uninfected cells, as well as elucidating their RNA-protein interactions."

Sara Oehmke– June Medford, Biology

CMBers stayed busy this summer traveling to several conferences, workshops and internships

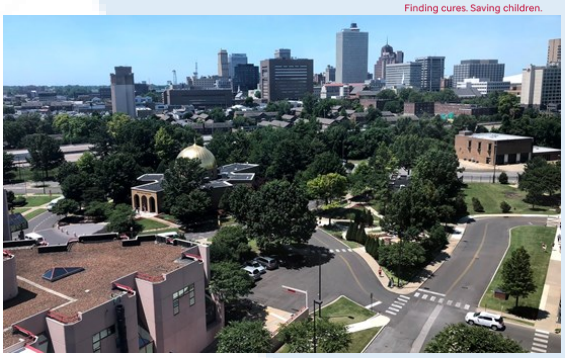
This summer, several members of CMB were awarded travel funds from the program to enhance their PhD experience by attending conferences, workshops and internships. After coming back, they shared some of their stories and experiences.

Erin Lynch– Sequencing, Finishing and Analysis in the Future

As a recipient of one of the CMB travel awards, I was able to attend the Sequencing, Finishing, and Analysis in the Future Meeting in Santa Fe, New Mexico. This conference is a small meeting focused on the newest and coolest next generation sequencing (NGS) technologies and applications. As a first-year interested in this hot research field that is rapidly growing, I found the SFAF meeting to be a valuable learning experience being submerged in the world of large datasets and tools to analyze such. The three-day conference comprised of talks given by experts in the field from both academia and industry on a wide variety of topics. Personally, my favorite topic was "Infectious Disease and Biosurveillance" which included talks focused on using new NGS tools for detection, discovery, and a greater overall comprehension of viral and bacterial infections. Other topics covered forensics, human genomics, and the "how-to" on assembling and analyzing datasets. I was lucky to be able to meet and talk with multiple professionals from different areas in the field including Gustavo Palacios (Director of the Center for Genome Sciences, USAMRIID), Chris Detter, (Chief Scientist and R&D Manager, MRI-Global), and Kendra Chittenden (Senior Infectious Disease Advisor, USAID). My hopes are to maintain the relationships I have made at this conference and continue to form a network at future meetings. I highly recommend attending the SFAF meeting next year (2019) if genomics is something that excites you, even if you are not experienced in the field. Even if SFAF is not a conference of interest, I still recommend stopping in Santa Fe, NM for some delicious grub and the hip art museum, Meow Wolf. This museum takes you on a psychedelic journey through 70+ rooms that showcase an elaborate display of art, like the one seen above.

Kristen Brown– Bioinformatics software engineer internship, St. Jude Children's Research Hospital

This summer I tested out life as a bioinformatics software engineer at St. Jude Children's Research Hospital through an internship with someone I met at the Supercomputing conference in 2016. There is a much-needed push for reproducibility in computational biology, especially at larger institutions and companies doing biomedical research. A lot of what I worked on was porting code to a workflow language designed to maximize portability of data analysis and code. I completed a few pipelines that worked on our HPC cluster and the cloud while learning about best practices in software development.



View of Memphis from Kristen's lab window.

Another valuable thing I got from this internship was experiencing a new work environment on a great team. As PhD students, we often work on projects independently instead of large team projects. In order to be a highly effective team producing a product, such as software, it requires the right leadership and training that we may miss out on in graduate school if we don't seek it. Internships in positions similar to what you may end up doing are a great way of learning what kind of work environment you thrive in and if academia is actually good fit for you. If you can do an internship, collaborate with industry partners, or attend business workshops I think it will be a valuable experience for anyone thinking about their career options. Regardless of what I end up doing, I am glad I had this opportunity to work with awesome people!

Adam Heck– FASEB Mechanisms of RNA Decay Conference, Scottsdale, AZ

I attended and presented my work at the FASEB Mechanisms of RNA Decay Conference in Arizona this summer. I really enjoyed the smaller conference atmosphere, which led to great in-depth discussions about the research presented and allowed graduate students, like myself, to brush shoulders with some of the big players in the field. The conference was international and during the World Cup, so it was a lot of fun watching some of the games with faculty and students from the countries that were playing.

CMBers stayed busy this summer traveling to several conferences, workshops and internships, continued

Heather Deel– Hopkins Microbiology Course, Stanford University

Heather (second from left, front row) and her classmates doing field work.

The Hopkins Microbiology Course is a three-week, intensive class held at the Hopkins Marine Station of Stanford University in Pacific Grove, CA. This phenomenal class has both lecture and laboratory components that facilitate understanding of microbial systems. At the beginning and throughout the course, we collected field samples from a variety of places including sloughs, local nature reserves, and exhibits in the Monterey Bay Aquarium. We worked with water, anemone, coral, and sand samples to explore the evolution of ammonia oxidizing archaea and how this could be playing a role in the nitrogen cycle in oceans. Additionally, we collected microbial mats from which we isolated and enriched for many types of bacteria, most of which use sulfur in some way. We also enriched for other kinds of organisms, including manganese oxidizers in stagnant slough water, Clostridia in potatoes, lactic acid bacteria in sauerkraut, and bioluminescent Vibrio in ocean water.

This course is great for those interested in both traditional microbiology and bioinformatics. Much of the class focused on the flow of energy throughout a microbial system, and how to use this flow to predict selection. Using this, I learned how to think about enriching a particular microbe in the context of an entire microbial system. It was also very validating to not just learn about this during lecture, but to also simultaneously see what we were doing in lab and connect it to these very complex concepts. We also processed our own samples and performed many molecular techniques, including DNA extractions, PCR, and cloning. Additionally, we learned the basics of processing different types of data, including 16S ribosomal RNA, genomic, and metagenomic. Much of this was done in Geneious and R, through which we learned about quality control and generating phylogenetic trees. While much of what we studied was based on marine microbiology, the material covered is applicable to many areas of research.

Neha Ahuja– International Zebrafish Conference, Madison, WI

At CSU, the only lab that works with zebrafish is the Garrity lab, so sometimes it can feel like zebrafish aren't broadly used. At this conference, there were over >4000 attendees from all over the world who utilize zebrafish to study numerous aspects of biology. Everything from early developmental biology to zebrafish as models for cancer and regenerative medicine was covered. It was really exciting to see all the different possible uses of the zebrafish model, and attending the conference was a great opportunity to think deeply about different model systems and their uses.

Hannah Berry– Laser capture microdissection and RNA-seq workshops, Clemson University

The Laser Capture Microdissection and RNA-seq workshop at Clemson University was a really unique learning opportunity. The workshop provided hands-on training for preparing plant tissues and isolating individual root cells with LCM. The program also covered the basics of Linux coding for RNA-seq data sets. My favorite part was meeting so many scientists from around the world and learning LCM!

Katy McIntyre– Plant Biology Conference

I went to Plant Biology in Montreal, Quebec in Canada as an Ambassador for American Society of Plant Biologists (ASPB). I presented a poster and my advisor, Dr. Argueso presented my PhD project to the community. I really enjoyed the discussions based around being a woman scientist in industry and academia as well as starting a career in agriculture science policy.

Pictured right (left to right) Alyx Shigenaga (BSPM), Dr. Cris Argueso (BSPM and CMB), Dr. Marc Nishimura (BMB), and Katy McIntyre (BSPM and CMB).

CMB Publications

CONGRATULATIONS to those pushing science forward! And don't forget to list the Graduate Program in Cell and Molecular Biology as your affiliation when you publish!

Zhou J, Lazar D, Li H, Xia X, Satheesan S, **Charlins P**, O'Mealy D, **Akkina R**, Saayman S, Weinberg MS, Rossi JJ, Morris KV. (2018) Receptor-targeted aptamer-siRNA conjugate-directed transcriptional regulation of HIV-1. Theranostics. 8(6):1575-1590.

Schmitt K, **Charlins P, Veselinovic M**, Kinner-Bibeau L, Hu S, **Curlin J**, Remling-Mulder L, Olson KE, Aboellail T, **Akkina R.** (2018) Zika viral infection and neutralizing human antibody response in a BLT humanized mouse model. Virology. 515:235-242.

Soontararak S, **Chow L**, Johnson V, Coy J, Wheat W, Regan D, **Dow S**. (2018) Mesenchymal Stem Cells (MSC) Derived from Induced Pluripotent Stem Cells (iPSC) Equivalent to Adipose-Derived MSC in Promoting Intestinal Healing and Microbiome Normalization in Mouse Inflammatory Bowel Disease Model. Stem Cells Transl Med. 7(6):456-467

Hartley G, Elmslie R, **Dow S**, Guth A. (2018) Checkpoint molecule expression by B and T cell lymphomas in dogs. Vet Comp Oncol.. doi: 10.1111/vco.12386.

Takeda K, Webb TL, Ning F, Shiraishi Y, Regan DP, **Chow L,** Smith MJ, Ashino S, Guth AM, Hopkins S, Gelfand EW, **Dow S**.(2018) Mesenchymal Stem Cells Recruit CCR2(+) Monocytes To Suppress Allergic Airway Inflammation. J Immunol. 200(4):1261-1269

Flores-Valdez MA, Pedroza-Roldán C, Aceves-Sánchez MJ, Peterson EJR, Baliga NS, Hernández-Pando R, Troudt J, Creissen E, Izzo L, Bielefeldt-Ohmann H, **Bickett T, Izzo AA**. The BCGΔBCG1419c Vaccine Candidate Reduces Lung Pathology, IL-6, TNF-α, and IL-10 During Chronic TB Infection. Front Microbiol. 9:1281.

Heck AM, Wilusz J. (2018) The Interplay between the RNA Decay and Translation Machinery in Eukaryotes. Cold Spring Harb Perspect Biol. 10(5). pii: a032839.

Afzali MF, **Popichak KA**, Burton LH, Klochak AL, Wilson WJ, Safe S, **Tjalkens RB, Legare ME**. (2018) A novel diindolylmethane analog, 1,1-bis(3'-indolyl)-1-(p-chlorophenyl) methane, inhibits the tumor necrosis factor-induced inflammatory response in primary murine synovial fibroblasts through a Nurr1-dependent mechanism. Mol Immunol. 101:46-54

Hammond SL, Popichak KA, Li X, Hunt LG, Richman EH, Damale PU, Chong EKP, Backos DS, Safe S, **Tjalkens RB**. (2018) The Nurr1 Ligand,1,1-bis(3'-Indolyl)-1-(p-Chlorophenyl)Methane, Modulates Glial Reactivity and Is Neuroprotective in MPTP-Induced Parkinsonism. J Pharmacol Exp Ther.365(3):636-651.

Elmegerhi S, Su C, Buglewicz DJ, Aizawa Y, **Kato TA**. (2018) Effect of hydroxyl group position in flavonoids on inducing single‐stranded DNA damage mediated by cupric ions. Int J Mol Med. 42(1):658-664.

Gerelchuluun A, **Maeda** J, Manabe E, Brents CA, Sakae T, Fujimori A, Chen DJ, Tsuboi K, **Kato TA**. (2018) Histone Deacetylase Inhibitor Induced Radiation Sensitization Effects on Human Cancer Cells after Photon and Hadron Radiation Exposure. Int J Mol Sci. 19(2). pii: E496.

Sztukowski K, **Nip K, Ostwald PN**, Sathler MF, Sun JL, Shou J, Jorgensen ET, Brown TE, Elder JH, Miller C, Hofmann F, VandeWoude S, **Kim S**. (2018) HIV induces synaptic hyperexcitation via cGMP-dependent protein kinase II activation in the FIV infection model. PLoS Biol. 16 (7):e2005315

Pyuen AA, Meuten T, Rose BJ, **Thamm DH**. (2018) In vitro effects of PI3K/mTOR inhibition in canine hemangiosarcoma. PLoS One. 13 (7):e0200634

Zhang H, Rose BJ, **Pyuen AA, Thamm DH**. (2018) In vitro antineoplastic effects of auranofin in canine lymphoma cells. BMC Cancer. 18(1):522.

Albaqami M, Reddy ASN. (2018) Development of an in vitro pre-mRNA splicing assay using plant nuclear extract. Plant Methods. 14:1.

Sloan DB, Warren JM, **Williams AM**, Wu Z, Abdel-Ghany SE, Chicco AJ, Havird JC (2018) Cytonuclear integration and co-evolution. Nat Rev Genet. 2018 Jul 17.

Brown KC, Montgomery TA. (2018) The long and short of lifespan regulation by Argonautes. PLoS Genet. 14(6):e1007415.

Svendsen JM, Montgomery TA. (2018) piRNA Rules of Engagement. Dev Cell 44(6):657-658.

Guzzolino E, Chiavacci E, **Ahuja N**, Mariani L, Evangelista M, Ippolito C, Rizzo M, **Garrity D**, Cremisi F, Pitto L. (2018) Post-transcriptional Modulation of Sphingosine-1-Phosphate Receptor 1 by miR-19a Affects Cardiovascular Development in Zebrafish. Front Cell Dev Biol. 6:58.

Fulbright SP, Robbins-Pianka A, Berg-Lyons D, Knight R, **Reardon KF**, Chisholm ST. (2018) Bacterial community changes in an industrial algae production system. AlgalRes. 31:147-156.

Moretti ML, **Van Horn CR**, Robertson R, Segobye K, Weller SC, Young BG, Johnson WG, Douglas Sammons R, Wang D, Ge X, d' Avignon A**, Gaines TA, Westra P**, Green AC, Jeffery T, Lespérance MA, Tardif FJ, Sikkema PH, Christopher Hall J, McLean MD, Lawton MB, Schulz B. (2018) Glyphosate resistance in Ambrosia trifida: Part 2. Rapid response physiology and non-target-site resistance. Pest Manag Sci. 74(5):1079-1088.

Van Horn CR, Moretti ML, Robertson RR, Segobye K, Weller SC, Young BG, Johnson WG, Schulz B, Green AC, Jeffery T, Lespérance MA, Tardif FJ, Sikkema PH, Hall JC, McLean MD, Lawton MB, Sammons RD, Wang D, **Westra P, Gaines TA**. (2018) Glyphosate resistance in Ambrosia trifida: Part 1. Novel rapid cell death response to glyphosate. Pest 6Manag Sci. 74(5):1071-1078.

Cohen SP, Jacobs JM, **Leach JE** (2018) In Planta Bacterial Transcriptomics Predict Plant Disease Outcomes. Trends Plant Sci. *in press*

Graduate Student Council (GSC) at CSU

Zohaib Ali, Fulbright PhD student, CMB Program GSC Representative

GSC helps to improve the experience of graduate education at CSU by promoting physical, mental and social well-being of its graduate students. It advocates for graduate and professional student concerns by working in close association with university faculty and administration and the state and national government for changes to policies, procedures and programs that benefit students. GSC also offers opportunities like travel grants, poster awards and organizes academic, social and fun events to build networking and collaboration among the culturally diverse group of students. As the CMB representative, I assist in GSC events and attend monthly meetings to communicate concerns and issues affecting CMB students. Let me know if there are any issues you would like addressed!

Do you want to become a part of GSC or know more about it? Visit http://gsc.colostate.edu

Welcome New CMB Faculty!

CMB would like to welcome new faculty Dr. Steven Markus (Biochemistry and Molecular Biology) , Dr. Amy MacNeill (Microbiology, Immunology and Pathology) and Dr. Jean Peccoud (Chemical and Biological Engineering) to the graduate program!

Dr. Steven Markus lab focuses is to understand how cellular cargos are delivered to the right place at the right time. Intracellular transport is a critical feature of cell physiology, and is largely mediated by a small group of molecular machines called motor proteins. They pay particularly close attention to one such molecule called dynein, and how this motor is regulated to perform its myriad functions during cell division. Techniques utilized in the lab include fluorescent microscopy (traditional wide-field, and total internal reflection fluorescence (TIRF) microscopy), genetics, biochemistry and various molecular biological approaches.

Dr. Amy MacNeill's research interests include isolation and characterization of canine and feline tumor cells and the study of poxviruses as anticancer agents. She joined CSU in 2014, and currently coordinates the Microbiology, Immunology and Pathology Department Combined Residency Program. Prior to coming to CSU, she was an assistant professor at the University of Illinois in the Department of Pathobiology and the Veterinary Diagnostic Laboratory.

Dr. Jean Pccoud joined CSU in January 2016 as the Abell chair in synthetic biology. In his current role Prof. Peccoud combines computational biology and cell biology efforts to develop predictive models of the phenotype encoded in natural and synthetic DNA sequences. Prof. Peccoud is also the founder of GenoFAB, LLC which provides bioinformatics services and training to biotechnology companies and government agencies.

CMB Faculty and Alumni Burn Some Rubber at BikeMS

Eric Tauchman (PhD 2016), Keith DeLuca (DeLuca Lab – rode on a fixie!) and Carol Wilusz (CMB Director) along with Eric's wife Jennifer and their friends Sara, Dawn and Randy (on a tandem) completed the BikeMS ride from Westminster to Fort Collins to raise money for the National Multiple Sclerosis Society this June. Eric was diagnosed with MS during his PhD studies and currently works for Biogen as a Territory Business Manager. Together the Roadies team raised $5595, and rode 82.6 miles in 5hr 48 min with a 2975 ft elevation gain. It was a fantastic experience. If you are interested in participating next year, you are welcome to join the team! No business riding a bike? You can still make a donation!

Cell and Molecular Biology Fall 2018 Seminar Series

September 4th: Dr. Huntington Potter

CU Denver, Department of Neurology

October 4th (Thursday): Dr. Tim Fan

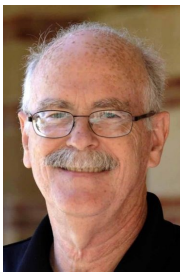
University of Illinois, Department of Veterinary Clinical Medicine

October 16th: Dr. Payal Maharaj

CDC, Fort Collins

October 30th: Dr. Art Arnold

UCLA, Department of Integrative Biology & Physiology



CM510 Professional Development Opportunities

CM510 has been revamped this year. The course now offers several professional development opportunities with a variety of speakers. While the course is required for 1st years, all CMB students are welcome to attend any of the sessions listed below.

Mon 9-10-18 10AM **My IDP** Kim Cox-York, FSHN

Mon 9-10-18 11AM **Fellowships & Funding** Carol Wilusz

Wed 9-12-18 10AM **Internships** Jean Peccoud, CBE/CMB

Wed 9-12-18 11AM **Outreach and Communication** Jess Metcalf, Animal Sciences/CMB

Mon 9-17-18 10AM **Mentoring** Lucas Argueso, ERHS/CMB

Mon 9-17-18 11AM **Networking and Career Mentors** Judy Brobst, Career Center

Wed 9-19-18 10AM **Time Management Strategies**, Debbie Colbert, TILT

Wed 9-19-18 11AM **LinkedIn and Social Media**, Jerid Lish – Career Center

Mon 9-24-18 10-noon **Core Facilities** at CSU

Wed 9-26-18 10AM **Self Care** Janelle Patrias CSU Health Network

Wed 9-26-18 11AM **Unconcious Bias and Inclusivity** Shannon Archibeque-Engle – Office of Diversity

Upcoming Events and Opportunities

CU Boulder RNA Club

What: Monthly meeting for Front Range RNA Scientists to discuss the latest and greatest research in the field of RNA biology.
When: Contact Carol Wilusz for dates
Where: CU Boulder or Anschutz Campuses

Brews and Biotech Happy Hour

When: Every 3rd Thursday of the month
Where: Ursula Brewery, CU Anschutz Campus
What: Local Denver biotech networking event sponsored by CU Academia Industry Alliance
Website: https://www.meetup.com/aia-bbhh/?_cookie-check=Fw_LLrqNGxpO5Gg8

CMBSA/PMC Announcements

- Be on the look out for upcoming emails from Erin Lynch regarding location and dates of CMB Peer Mentoring Club meetings this semester.
- Stay tuned over the semester for CMBSA emails regarding upcoming CMBSA sponsored social events for the CMB community as well as the end of the year Celebrate Success party.

Graduate Student Showcase

What: This is a showcase of research, entrepreneurship and creativity - a one-day conference for you to present your work and talents, to connect with other graduate students and faculty at CSU, learn about other disciplines and gain conference experience.

When: November 13, 2018. **Abstracts due September 21st.**
Where: Colorado State University, Lory Student Center Grand Ballroom
For more information, visit the Graduate Student Showcase website.

Fall 2018 Seminars:

Cell and Molecular Biology Graduate Seminar Series:

* Graduate Research Seminars are held Thursdays at 2pm in the Molecular and Radiological Biosciences Building, Room 123. For more information, please contact Dr. Carol Wilusz Carol.Wilusz@colostate.edu

Microbiology, Immunology, and Pathology Seminar Series:
For more information, visit the MIP seminar series page

Molecular Cellular and Integrative Neuroscience Seminar Series: http://mcin.colostate.edu/seminar.html

Chemistry Department Seminar Series:

http://www.chem.colostate.edu/seminars-current/

Biology Department Seminar Series:

http://www.biology.colostate.edu/seminars-current/

Biomedical Engineering Seminar Series:

http://www.engr.colostate.edu/bep/students/seminars.html

Bioagricultural Science and Pest Management:

http://bspm.agsci.colostate.edu/01-2/seminar-series/

CMB Newsletter Writers and Editors:

Student Writers: Jessie Filer, Alissa Williams, Vanessa Selwyn, Hannah Berry & Heather Deel

Student Editors: Adam Heck & Kaitlin Doucette

Faculty Editor: Carol Wilusz