



Welcome New Team Member



Ruhiyah Issah-MSTP Admin Assistant

I'm originally from Ghana, lived in Colorado for 13 years. I received my B.S in Business Management at the Metropolitan State University of Denver. I'm married with a 10 month old son (Zayd) who keeps me pretty busy. I love to cook and try out new recipes. I'm excited to be part of the MSTP family!

Welcome 2019 MSTP Students

Please look for detailed information from them in the fall newsletter



Carley
Miller



Raquel
Ortega

Welcome 2019 MSTP Students

Please look for detailed information from them in the fall newsletter



Mostafa El-Kalliny



Uma Kantheti



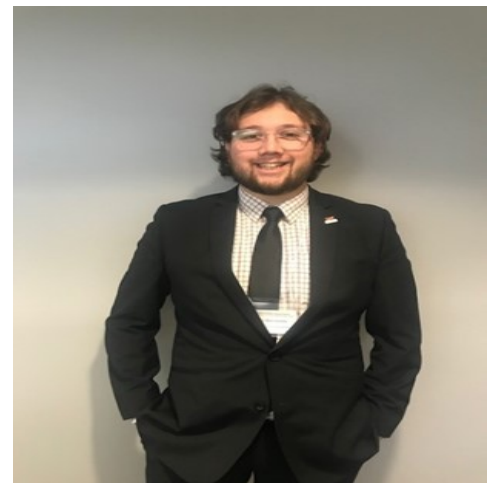
Varuna Nangia



Keith Dodd



Chole Briney



Eric Barrientos



Annika
Gustufson



Amita
Kashyap

Congratulations!

Thomas Forman, Bruce Kirkpatrick, Juan Santiago Moreno, Nathaniel Skillin, and Jackie Turner—The inaugural Holocaust Genocide and Contemporary Bioethics Case Study Writing Competition announced that Thomas Forman, Bruce Kirkpatrick, Juan Santiago Moreno, Nathaniel Skillin, and Jackie Turner, who are students in the Medical Scientist Training Program, and Galen Roda, who is a professional research assistant, received first prize for their case, “Vaccines, Biological Weapons, and Dual-Use Research.” The competition is sponsored by the [CU Center for Bioethics and Humanities](#) and [CU Center for Inter-professional Practice and Education](#). The competition for the 2019 prize will be announced in mid-April in conjunction with this year’s [Holocaust Genocide and Contemporary Bioethics program](#), Bioethics in a Violent World: Health Professional in Times of War, Genocide and Political Conflict.



Jackie Turner is a first year MSTP student. She dreams of bridging the gap between scientific medical research and patient care, and she’s already contributing to science. She’s been working on gene rearrangement that is helping stage IV melanoma patients live years longer. Because of this amazing work, Jacqueline has been named a **Hertz Foundation Fellow**. She’ll receive up to \$250,000 in academic support giving her the freedom to pursue the research that speaks to her heart. She’s been working with Will Robinson, MD, PhD, and Kasey Coutts, PhD in the International Melanoma Biorepository and Research Laboratory. “They are very pivotal influences on my life. Without them, I would not be here today.

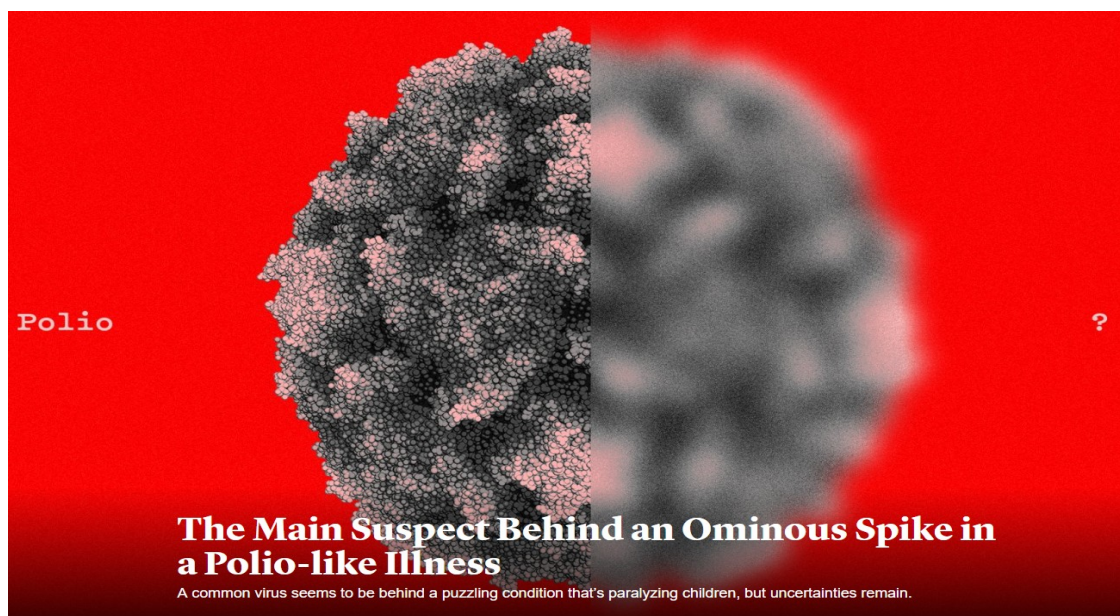
Jackie is the fourth student from the University of Colorado to receive this award, but the first from the Anschutz Medical Campus. We are so proud and look forward to seeing the science she will do here and for years to come!

Full article: - <https://www.cuanschutztoday.org/first-year-md-phd-student-wins-250000-award/>



Alison Hixon has been mentioned in the Atlantic Article.

Enterovirus D68 (EV-D68) is an emerging human respiratory pathogen that has been recently identified as a cause of a polio-like paralytic condition known as acute flaccid myelitis (AFM). In the last 6 years, the United States has experienced cyclical circulation and outbreaks of EV-D68-induced respiratory disease and AFM, which have left hundreds of children with permanent paralysis and disabilities. During my time in the Tyler lab, I developed the first mouse model of EV-D68 spinal cord infection and paralysis which recapitulates features of human AFM. I found that viral isolates of EV-D68 from recent outbreaks have the ability to cause paralytic disease in mice, while older viral isolates do not, suggesting that viral genetic changes may be responsible for the recent association between EV-D68 and AFM. I also developed an *in vitro* model of EV-D68 neuroinvasion using human iPSC motor neurons cultured in microfluidic chambers. In these models, I have found that paralytic EV-D68 directly infects at the distal end of the motor neuron axons and invades the neuronal cell bodies via retrograde axonal transport along microtubules. This ultimately results in viral replication and neuron death. While there are currently no available treatments for EV-D68-induced disease, I used the mouse model to identify intravenous immunoglobulins (IVIG) containing neutralizing antibodies to EV-D68 as a potential acute treatment for patients presenting with AFM, while also screening out ineffective and potentially harmful treatments.



MSTP News and Alumni Updates

Please note to have personal information included in future newsletters, e-mail Ruhiyah (Ruhiyah.issah@ucdenver.edu).

We will not publish information without your permission.



Congrats Sruthi Thomas on receiving a secondary appointment in the Department of Neurosurgery at Baylor College of Medicine January 2019. She is currently an Assistant Professor in Physical Medicine & Rehabilitation at Baylor College of Medicine/Texas Children's Hospital. She was named the Social Media Editor for the Journal of Pediatric Rehabilitation Medicine. Sruthi is creating a comparative effectiveness study to investigate the role of anti-spasticity interventions in the non-ambulatory cerebral palsy population.

She has received executive and investigator committee approval to pursue this study through the CP Research Network with their CP Registry, a national database currently with 2000+ patients that is expected to have 10000+ patients before the initiation of the study.

Congrats Layne Dylla (The University of Rochester Medical Center) on her first grant! It's an AHA Career Development grant for a clinical trial of oxygen for acute stroke. She is also going to be doing some biometer work for this project and possibly collaborating with a TBI researcher here on biomarkers and microRNAs in TBI.

Jason Prescott was just named Chief of Endocrine Surgery at Johns Hopkins Hospital and was named to the editorial board of 'Clinical Thyroidology for the Public'.

Aaron C. Spalding, M.D., Ph.D., has recently assumed the role of executive medical director of Norton Cancer Institute. In making this announcement, Joseph M. Flynn, D.O., physician in chief, called Dr. Spalding an accomplished clinician and researcher who has served as medical director of radiation oncology with great success. "He will work closely with me and our senior leadership team to continue the incredible things our providers and staff are doing each and every day to serve our patients," Dr. Flynn said. "Aaron is an incredible example of servant leadership." In addition to Dr. Spalding's professional achievements, he took part in a hilly off-road run with a patient and joined his staff in a "super hero" themed care plan for a young patient. Earlier this year, he was named a Business First health care hero. Dr. Spalding is excited to assume this role. One goal on his list is to expand Norton Cancer Institute's successful interdisciplinary team approach – used in caring for breast, lung and colon cancers – into caring for specific tumor types. He hopes to continue mentoring physicians, advanced practice providers, and other clinical staff. He expects to take part in strategic planning, and to be more involved in taking Norton Cancer Institute's mission out in the community. "While some of these roles will be new, they are a continuation along the same themes I have been blessed to be a part of during the last 10 years at Norton Healthcare," he said.

Full article <https://nortonhealthcareprovider.com/norton-cancer-institute-names-aaron-c-spalding-m-d-as-executive-medical-director/>



Meagan Chriswell was awarded Rheumatology Future Physician Scientist Award from the American College of Rheumatology Research Foundation. It is a two year award that provides support for MD/PhD students who demonstrate outstanding potential and significant commitment to a career in rheumatology research.

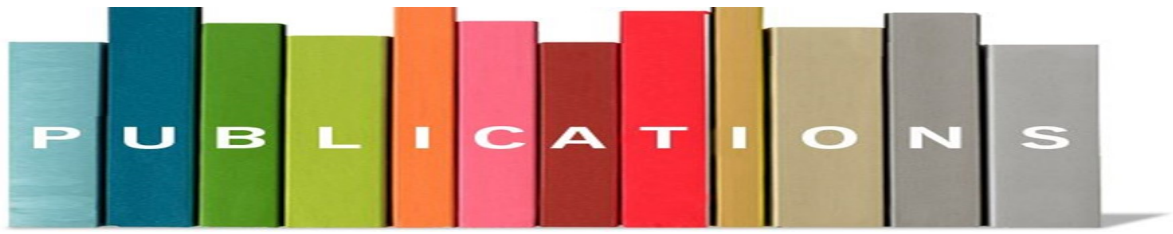
Awardees for F30/F31

Sarah Zych
Rachel Ancar
Harry Park
Wells LaRiviere
Ruth Wang
Dan Youmans
Evan Lester

Austin Jolly: CFrET Award



This year University of Colorado MSTP launched our Student Council. This group was created with the following mission: “Student Council, established in 2018, serves as a forum for MSTP students to connect with their program and their fellow classmates throughout their tenure at University of Colorado. Run by students, for the students, this council aims to unite the program from Anatomy Lab through Match Day. Student Council aims to facilitate the sharing of knowledge accumulated by students throughout their training and to develop a strong united voice.” In this first year, students ran numerous events beginning with a Park Day during the summer and a number of advice events throughout the academic year including “Choosing a lab”, “Step 1 advice”, “Success in Clinic and returning to 3rd year” and “applying to residency”. Students have also spearheaded an effort to design a MSTP logo. The involvement of students in the first year of the council was tremendous and we can’t wait to see what year two of the council brings.



Please note to have personal information included in future newsletters, e-mail Ruhiyah (ruhiah.issah@ucdenver.edu).
We will not publish information without your permission.

Congratulations **Heather M. Berens**, Kristen J. Polinski, Ted R. Mikuls, Sonia Khatter, Justin August, Ashley Visser, Michael Mahler, Michael Weisman, James R. O'Dell, Richard M. Keating, Jane H. Buckner, Peter K. Gregersen, Jill M. Norris, V. Michael Holers, Kevin D. Deane and M. Kristen Demoruelle. Anti-CCP3.1 and Anti-CCP-IgA Are Associated with Increasing Age in Individuals Without Rheumatoid Arthritis. The Journal of Rheumatology April 15 2019, jrheum.180897; DOI: <https://doi.org/10.3899/jrheum.180897>

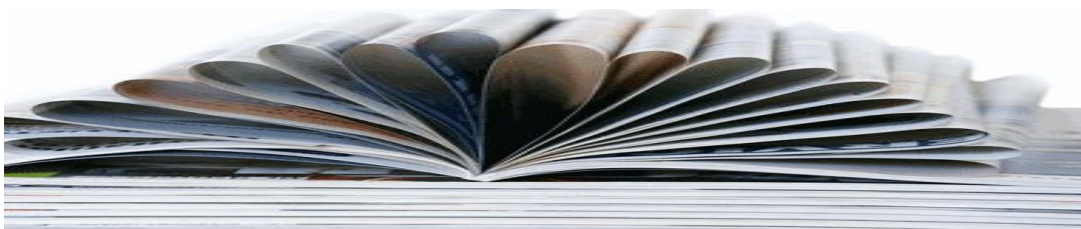
Clarke P, Zhuang Y, **Berens HM**, Leser JS, Tyler KL. Interferon- β contributes to astrocyte activation in the brain following reovirus infection. J Virol. 2019 Feb 27. pii: JVI.02027-18. doi: 10.1128/JVI.02027-18. [Epub ahead of print]

Heather Berens, MD, PhD (Graduation class 2012): Achieved Board certification in adult Rheumatology as part of the CU PSTP and also was awarded Rheumatology Research Foundation Scientist Development Award for \$50,000 salary support first and second year as faculty, and \$25,000 materials support in second year (declined for medical reasons).

Congratulations **Eric Cross** "Anti-CD8 monoclonal antibody-mediated depletion alters the phenotype and behavior of surviving CD8⁺ T cells" PLoS One. 2019; 14(2): e0211446.

Congratulations **Sruthi Thomas** (Class of 2013) published a new paper based on work from residency -> "Prevalence of metabolic syndrome and cardiovascular disease risk factors in adults with cerebral palsy." <https://www.ncbi.nlm.nih.gov/pubmed/30663044>

Congratulations **Alexandra H. Antonioli, Ph.D.** is completing her combined M.D./Ph.D. training at the University of Colorado in the Medical Scientist Training Program (M.S.T.P.) and is a member of the ABC News Medical Unit.

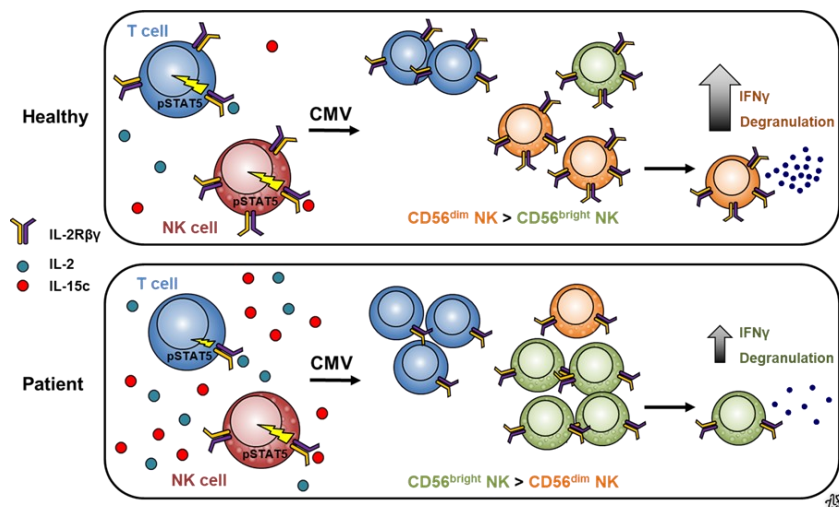


PUBLICATIONS

Please note to have personal information included in future newsletters, e-mail Ruhiyah (ruhiyah.issah@ucdenver.edu).

We will not publish information without your permission.

Congratulations Zoila Fernandez on her article “A novel human *IL2RB* mutation results in T and NK cell-driven immune dysregulation”



Patients with immunodeficiencies have immune defects that prevent their immune systems from functioning properly, resulting in repeated infections. One of the most notable examples is a genetic disorder called severe combined immune deficiency (SCID), or more commonly known as bubble boy disease. SCID patients lack various immune cell types and are susceptible to recurrent

viral, bacterial and fungal infections. Interestingly, half of SCID cases are the direct result of genetic defects in the gamma subunit of Interleukin 2 (IL-2) receptor on the surface of various immune cell types. The IL-2 receptor helps the cells to mature, survive, and multiply in response to infections. The IL-2 receptor is composed of an alpha (IL-2R α), beta (IL-2R β), and gamma (IL-2R γ) subunits. While defects in IL-2R γ in humans are now well characterized, mutations in IL-2R β have never been previously described.

In the June issue of JEM, Fernandez et al. report the clinical and immunological description of two siblings with the first known human IL-2 β defect. This mutation results in reduced IL-2 receptor levels and defective cell signaling and response as well as high circulating cytokines IL-2 and IL-15 complex. These patients present with autoimmunity and persistent cytomegalovirus infection. IL-2 β -deficient patients have decreased numbers of T cells, particularly the regulatory T cells which help keep the immune system against attacking self. IL-2 β -deficient patients also have an accumulation of natural killer cells, an immune cell type known for its antiviral and antitumor protection. The study shows that while these cells are present, their maturation into specialized cells, CD56^{dim} NK cells, with the ability to kill target cells by producing IFN γ , remains defective, resulting in the weakened immune protection observed in patients. Currently, IL-2 therapy is being evaluated in Phase II clinical trials to treat diseases such as cancer and lupus. Thus, comprehending the physiological effects of mutations in IL-2R β is not only important for immunodeficiencies but also critical to the development of these therapeutics. Understanding the biology behind IL-2R β gives us insight into the basic mechanisms of the immune system and allows us to harness this understanding toward the development of novel and better treatments.

PUBLICATIONS

Please note to have personal information included in future newsletters, e-mail Ruhiyah (ruhiyah.issah@ucdenver.edu).

We will not publish information without your permission.

Congratulations Taylor Soderborg on Gestational Diabetes Research Findings

From research led by MD/PhD student Taylor Soderborg, Karim El Kasmi, MD, PhD, Jacob Friedman, PhD (Professor, Section of Neonatology; pictured) and colleagues comes a major new article published in the October 2018 edition of the [Nature Communications](#).

In the article titled, “The gut microbiota in infants of obese mothers increases inflammation and susceptibility to NAFLD,” the investigators explore the causal drivers of the association between maternal obesity and the increased risk for offspring obesity and non-alcoholic fatty liver disease (NAFLD).

From their studies, the researchers found that babies born to obese mothers have a unique microbiome. When these microbes (bacteria) from 2-week-old infants were transferred into germ free mice, the mice developed inflammation, obesity, and signs of Non-Alcoholic Fatty Liver Disease compared to mice receiving bacteria from babies born to normal weight mothers.

This provided the first experimental evidence in support of the hypothesis that changes in the gut microbiome in infants born to obese mothers directly initiate these disease pathways.

The key finding from the research is showing that if a baby is born to an obese mother who already has dysbiosis, the infant microbes could be causing changes before obesity and diabetes develop.

Thorne, N.B., [Soderborg, T.K.](#), Glover, JJ, Hoffecker, L., Guiahi, M. Reproductive Health Care in Catholic Facilities: A Scoping Review. *Obstetrics & Gynecology*, 133(1) 105-115 (2019)
[Soderborg, T.K.](#) and Friedman J.E. Imbalance in gut microbes from babies born to obese mothers increases gut permeability and myeloid cell adaptations that provoke obesity and NAFLD. *Microbial Cell* 6:1 102-104 (2019)



Retreat

"This spring MSTP Student Council, with support from the program administration, hosted its inaugural Program Retreat. The afternoon kicked off with our Alumni Keynote from Dr. Benjamin Young, class of 1992. Dr. Young's talk "Ending a Plague: Meandered Lessons in Compassion, Humanism and HIV Medicine" spoke of his career trajectory from his days as a University of Colorado MSTP student to his work in international HIV with the UN. Students gained insight to life after graduation and the lessons that can be learned from embracing the world armed with a MD, a PhD and an open mind. The afternoon continued with a workshop on negotiation from Dr. Anne Libby, educating students on how to get what you want from your career. Continuing in the program, current students presented their research in a poster session and eight students were selected to give oral presentations of their research, including their thesis work as well as a talk on the findings from a University of Colorado alumni outcomes study. The program ended with the presentation of the first "Excellence in Service Award" for which Eric Nguyen was unanimously nominated by his peers, and a State of the Program address by our director Arthur Gutierrez-Hartmann. This retreat will take place in the Spring of 2020 and we aim to increase our alumni attendees. Look out for a save-the-date coming soon!"



Dr. Ben Young



Dr. Anne Libby



Committee Leaders: Alison Hixon, Taylor Soderborg, Taylor Yamauchi, Lily Nguyen, Brighigh



Eric Nguyen (left): Excellence in Service
Austin Jolly: Best Poster Award

The University of Colorado MSTP Excellence in Service Award

Congrats Eric Nguyen The first recipient of the University of Colorado MSTP Excellence in Service Award aims to recognize an outstanding student in the University of Medical Scientist Training Program that improves the lives of their fellow classmates and the experience of the MD/PhD training through their actions. Whether this person serves in an official role or takes initiative in an official capacity, his or her efforts are an example of self-less service. This year's winner of the MSTP Excellence in Service Award has been described as the following:

A joyful presence; a fixture in the MSTP community for years; the unfaltering glue that holds us together; mentor, and friend.

From the beginning, this student was a constant face at each recruitment dinner – famous for attending every single one during the second year despite the stress of Step 1 – and eventually hosting and leading the Second Look Weekends – probably being a major recruiter for most of you in here. In fact, this person hosted so many of you at their home it eventually became known as “Academic Office 3” – quite a testament of how much this person is an institution to this program. But besides recruitment, this person has always been generous with their time, always acting from the goodness of their heart: sharing patience, guidance, and wisdom on surviving this MD-PhD life.

Eric Nguyen matched for pathology residency at UCSF. Pathology is a great field for any MSTP student who is interested in mechanisms of disease, particularly those who want to continue doing research. I'm particularly interested in the subspecialty of molecular pathology, which is closely related to the techniques I was using during my PhD. Following residency I'm planning on applying to molecular pathology fellowships and continuing to do some research.





WOO
HOO!
you did it!!!

GRADUTES MATCH

Name	Institution	Program
Alexandra H. Antonioli	U Texas Southwestern Med	Psychiatry/Research Track Program
Hannah A. Scarborough	U Colorado SOM-Denver	Psychiatry
Aaron B. Bowen	Children's Hospital—Boston-MA	Child Neurology
Eric Nguyen	UC San Francisco-CA	Pathology
Sarah K. Nelson-Taylor	U Colorado SOM-Denver	Pediatrics
Tamara M. Garcia	U Colorado SOM-Denver	Pediatrics
Brett M. McGettigan	U Southern California	Internal Medicine
Laura A. Hancock	U Washington Affil Hosps	Emergency Medicine
Alexander Stabell	NYP Hosp-Columbia Univ Med Ctr-NY	Internal Medicine
Leon Zheng	Yale-New Haven Hosp-CT	Pathology/Comb-Anat & Clin
Alexander T. Ferber	Postdoctoral Position in Neuroscience	Working on a collaborative project with PM&R. He will be pursuing PM&R residencies in the 2020 Match

In Memorial

Our hearts are saddened to learn of the loss of *Maureen J. Garrity, passing away end of last year.*



Maureen J. Garrity, Ph.D., 70, died surrounded by friends on Sunday, Dec. 23, 2018, following a long and courageous fight with breast cancer. She was born June 23, 1948, in Bakersfield, Calif., the daughter of Joan and William Garrity.

Throughout her career, Dean Garrity was an exemplar of professionalism with a long-standing record of dedication to the well-being of students. For her efforts, she has been recognized at the CU School of Medicine with various awards, including the Chancellor's Teaching Recognition award in 2013, the Faculty Professionalism Award in 2016, and nationally with the 2014 Association of American Medical Colleges (AAMC) Group on Student Affairs

(GSA) Exemplary Service Award. She was particularly impactful in supporting student-led programs on social determinants of health, leadership and community service. In 2016, honoring her longtime commitment to the University of Colorado School of Medicine and its medical students, the Maureen Garrity Endowed Scholarship Fund was established. After retiring in 2017, students gathered to pay tribute to her by showcasing numerous programs that would not have occurred without Dean Garrity's vision and encouragement.

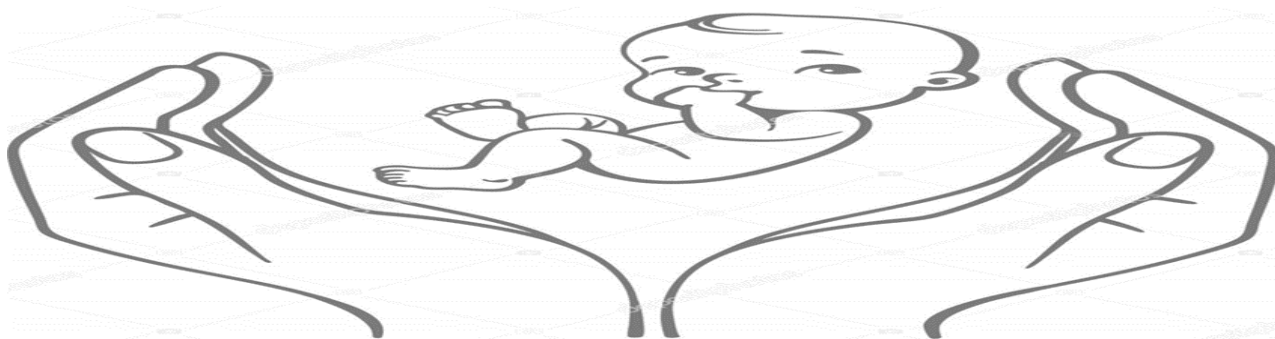
Maureen was active with the AAMC/GSA for a number of years, serving as the Western representative to the Committee on Student Affairs and then as its chair, and she was National Chair of the AAMC Group on Student Affairs from 2010 to 2011.

After suffering a recurrence of cancer in September of 2016, she retired after 34 years at the university in March of 2017 and moved to Estes Park, Colo., where she was able to explore her love for cooking, sewing, quilting and photography. Maureen helped establish the Nan Ryan Invitational in Estes Park in 2004, a golf tournament with proceeds going to the Estes Park Junior Golf Program. For 16 years she was a year-round volunteer for the Pepsi Little People's Golf Championships in Quincy, an international junior golf tournament, and was awarded its Volunteer of the Year award for her long service in 2017.

SERVICES: Celebrations of her life will be held in Denver, Estes Park, and Quincy later in 2019.

MEMORIALS: University of Colorado Maureen Garrity Endowed Scholarship Fund at giving.cu.edu/GarrityScholarship, or to the Maureen Garrity/Little People's Scholarship Fund, Mary Jo Hunt, 2030 Lind, Quincy, IL 62301.

Full obituary <https://www.legacy.com/obituaries/Whig/obituary.aspx?page=lifestory&pid=191142479>



7 month old girl
Logan Cross born
September 20th
2018. Daughter of
Eric Cross(class of
2020)



Sruthi (Class
of 2013) and
Ajay Thomas
(Class of
2017) wel-
come Rithik
Thomas born
February
15th 2019 to
the family -
now a family
of 4!



10 month
old boy
Zayd
(Ruhayah's
son) born
July 3rd
2018
chilling with
his bottle

34th Annual MD/ PhD National Student Conference

Copper Mountain Colorado July 12th -14th 2019

