Distinguished Ph.D. Candidates Earn Best Research Awards

The research labs at the University of Miller School of Medicine are bustling hubs of scientific activity, with dedicated researchers tirelessly pursuing medical breakthroughs. Within this dynamic environment, Ph.D. candidates engage in pioneering research, and a select few have recently earned a Best Research Award by the Medical Faculty Association (MFA).

Michelle Zhang and Ryan Gallo, second- and first-place recipients of the MFA Best Research Awards.

Recipients of this year’s awards for exceptional achievements in molecular and cancer biology are Ryan Gallo, Michelle Zhang, Anna Palovcak and Liliana Garcia-Martinez, who secured the first to fourth positions, respectively.

Liliana Garcia-Martinez and Anna Palovcak, fourth- and third-place award recipients.

The MFA’s annual awardees receive financial support and ongoing research assistance.
“The MFA Best Research Award is a recognition of the dedication of these students to the mission of promoting important biomedical advances,” said Ana Fiallos, Ph.D., director of career services for graduate studies. “We are grateful to the MFA for highlighting the next generation of talented researchers.”

Improving Ocular Science through Cell Transplantation

Ryan Gallo

Ryan Gallo, an M.D. and Ph.D. candidate in the molecular cell and developmental biology program, earned first place and a $3,000 prize for his research on “Ocular regeneration: Improving cell transplantation and promoting self-repair.” Gallo's dissertation examined cell transplantation into the retina as a prospective remedy for vision impairment. Additionally, he is actively exploring avenues for self-repair mechanisms to regenerate the impaired retina, inspired by the regenerative capabilities observed in fish and frogs.

Gallo, who has been passionate about neuroscience since childhood, is collaborating on his research with mentors at Bascom Palmer Eye Institute, including his dissertation supervisor Daniel Pelaez, Ph.D., and clinical mentors Andrew Rong, M.D., and David Tse, M.D. Gallo's tenure in the laboratory has proven to be immensely gratifying, marked by first-author papers, travel awards and a prestigious research fellowship granted by the VitreoRetinal Surgery Foundation.

“This award is a tremendous source of motivation as I pursue
my dream to become a physician-scientist in the field of ophthalmology,” Gallo said. “Receiving this award is not only a great personal achievement but also a testament to the steadfast support I have been fortunate to receive from my colleagues, mentors and loved ones throughout my training.”

**New Therapies for Pediatric Eye Cancer**

Michelle Zhang

Retinoblastoma is the most common pediatric eye cancer and one that Michelle Zhang, an M.D. and Ph.D. candidate in cancer biology, is paying close attention to with her study “Cancer Progression in Retinoblastoma: Chemoresistance and BCOR.”

Zhang, the second-place awardee who received $2,000, studies how retinoblastoma progresses. She hopes that her research will shed light on how the disease responds to current treatments, preventing the need for complete eye removal in affected children. Zhang has published seven papers, received various fellowship and travel awards and completed 16 presentations at national and international meetings.

“When I thought about my future in medicine and science, I knew I wanted to focus on the pediatric population,” Zhang said. “Through my amazing mentors, Dr. Harbour and Dr. Pelaez, I have been able to study chemoresistance and epigenetic changes in retinoblastoma cancer progression. I also had the privilege of meeting retinoblastoma patients and their family members. These interactions remind me of why I pursued this career and keep me motivated.”
Taking on Challenges in DNA Repair

Anna Palovcak

Anna Palovcak, a Ph.D. candidate in biochemistry and molecular biology, was the third-place winner and received $1,000. Her thesis, “Roles of Fanconi Anemia Sub-complex AG20 in Preserving Genome Stability,” focuses on DNA repair, especially within the Fanconi anemia subcomplex AG20, which can cause a rare genetic blood disorder when mutated.

Despite the attempts of several research groups to characterize the repair functions of AG20, none were successful. This is where Palovcak aims to make her mark. In addition to her main project with her mentor, Yanbin Zhang, Ph.D., Palovcak is advancing various independent studies focused on molecular structures, enzyme inhibitors and genome sequencing. She has published six papers and won multiple awards.

“I have learned how many aspects of our health are properly tied to functioning DNA repair,” Palovcak said. “There is much to be gained in understanding disease and potential treatment options by studying this topic.”

Overcoming Breast Cancer Therapy Resistance

Liliana Garcia-Martinez
Although endocrine therapy agents are used to treat breast cancer, some people have developed resistance to these drugs. Liliana Garcia-Martinez, a Ph.D. candidate in cancer biology and fourth-place recipient who won $500, is working on potential new therapies in her research “CoREST coordinates epigenetic reprogramming of breast cancer cells and therapeutic response.”

Under the guidance of her mentor, Lluis Morey, Ph.D., Garcia-Martinez has identified the protein complex CoREST as a key driver of breast cancer plasticity and endocrine therapy resistance. By targeting this protein, Garcia-Martinez hopes to find a new therapeutic opportunity for the treatment of breast cancers that are refractory to the current endocrine therapy agents. Garcia-Martinez has published two papers on the topic and has given three presentations at national meetings.

“We aim to find new epigenetic regulators that we can target to overcome resistance to existing therapies or find new drugs for currently incurable breast cancers,” Garcia-Martinez said. “I am happy to see the work we do in the lab is getting the attention of the scientific community and, in the future, could contribute to the battle of defeating cancer.”