

# The MCB Insider

## New Name, Same DNA: Welcome to Molecular and Cellular Biosciences

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The names of academic departments matter: They shape identity and reflect purpose and vision. They invite outsiders to join in our story. For more than 20 years, we have been known as “Molecular and Computational Biology,” a name that originally communicated an innovative union of these two branches of inquiry.

After careful deliberation, the MCB faculty have voted to change our name to “Molecular and Cellular Biosciences,” a more modern, encompassing title that aligns with our current research questions and our graduate and undergraduate training programs. We’ll make this transition over the next few months.

While still known as “MCB,” the actual words now better reflect our collective goals: to understand the rules of life from molecules to cells, and from individuals to populations and species.

With this big news, we’re excited to showcase some of our latest stories...

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Dr. Matt Dean, Chair

## Inside MCB

A warm welcome back to our friends and family. Autumn is here, and so is new research, students, classes, and of course...pumpkin spice and everything nice.

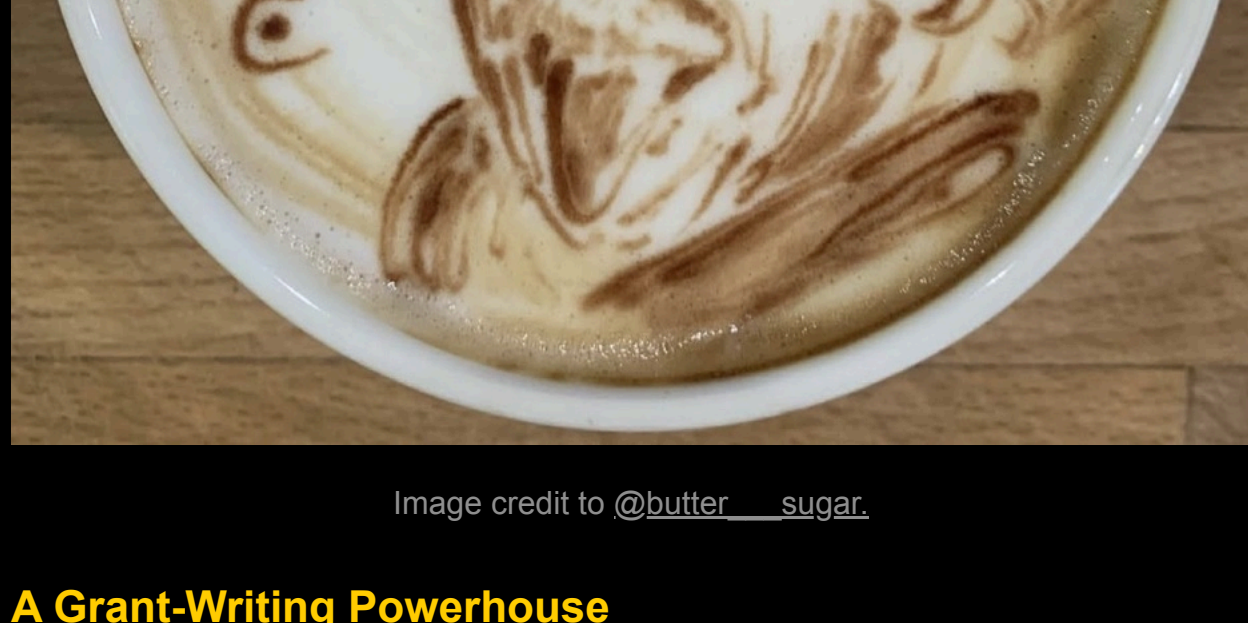


Image credit to @butter\_sugar.

## A Grant-Writing Powerhouse

Three years, six grants: How Dr. Carolyn Phillips and Dr. Derrick Morton help students acquire NIH funding



In just three years, six students in Dr. Phillips and Dr. Morton's grant-writing course have won highly prestigious National Institutes of Health grants, with several more pending.

**BISC 546: Hypothesis Design and Scientific Writing** is a required fall semester writing course for our second-year graduate students, teaching them how to write an NIH NRSA F31 grant.

This course supplies students with the necessary skills to be successful scientists. "They're gonna have to do their qualifying exams, where they actually have to get up and defend what they're doing," said Dr. Phillips. "This is really getting at training them for that, too."

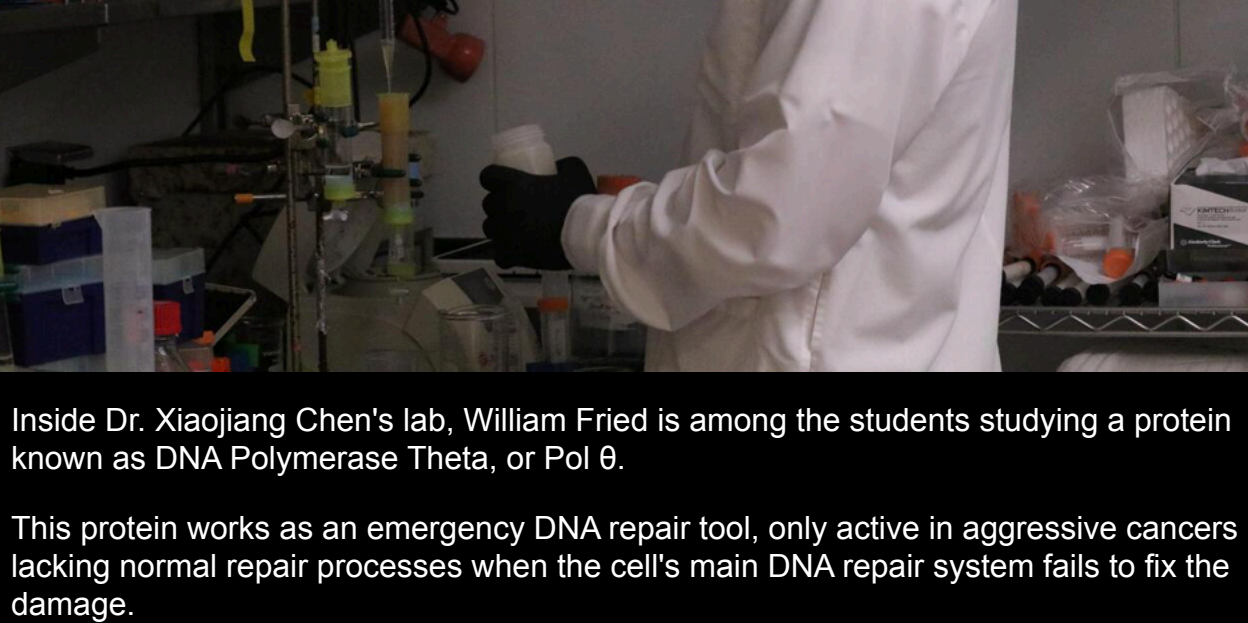
This fall, four students were awarded NIH grants. Nadejda Butova was awarded an F31 from the National Institute for Environmental Health Sciences, Maria Bustos from the National Institute for Child Health and Human Development, and both Emily Arnold and Nina Barr from the National Institute for Neurological Disorders and Stroke.

A big congratulations!

For the faculty, the goal is not just to win grants, but to teach our students how to communicate and market their research effectively.

This course teaches "grant-writing, what goes into it, and how to market your ideas," said Dr. Morton.

## The XJ Chen Lab: Rewiring Cancer to Kill Cancer



Inside Dr. Xiaojiang Chen's lab, William Fried is among the students studying a protein known as DNA Polymerase Theta, or Pol θ.

This protein works as an emergency DNA repair tool, only active in aggressive cancers lacking normal repair processes when the cell's main DNA repair system fails to fix the damage.

"Pol θ tends to be a very error-prone pathway, so healthy cells tend to not utilize it as much as cancerous cells. So," Fried said, "it makes an ideal target precision medicine."

PARP inhibitors, an existing cancer treatment that sought to target cancer's DNA repair pathways, are only successful in about 60% of patients and many of these patients quickly relapse. But the Chen lab is improving upon this by developing a Pol θ inhibitor that can work with PARP inhibitors to prevent this relapse from occurring.

When PARP inhibitors fail, Pol θ inhibitors can finish the job, saving patient lives.

"Inhibiting Pol θ actually makes that PARP inhibitor therapy much more effective for a much longer period of time," Fried said.

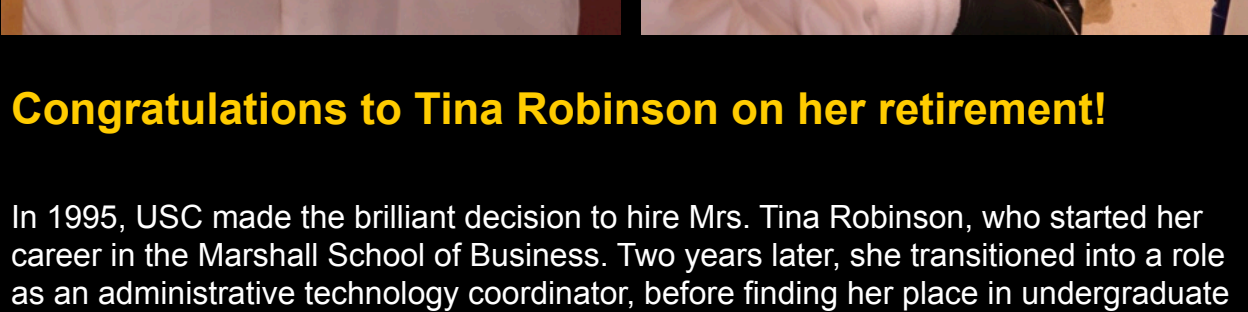
While some cancers become resistant to treatments like chemotherapy or radiation, this drug could directly inhibit the growth of cancer, also leaving healthy cells unaffected.

A doctoral candidate, Fried's work began with purifying the Pol θ protein, binding it to DNA and the inhibitor, then cultivating protein crystals. These crystals allowed him to determine exactly where and how their new drug would bind on the protein.

As part of a multi-institutional collaboration, the Chen lab is characterizing the structure to reveal how the drug interacts with the protein, and working together with their collaborators, performing structure-based drug design to optimize the drug's efficacy.

In a recent animal trial of the drug with PARP inhibitors, the Chen lab saw a near-complete treatment success rate.

"Out of seven of the eight mice," Fried said, "their tumor was completely eliminated, and the last one was significantly reduced."



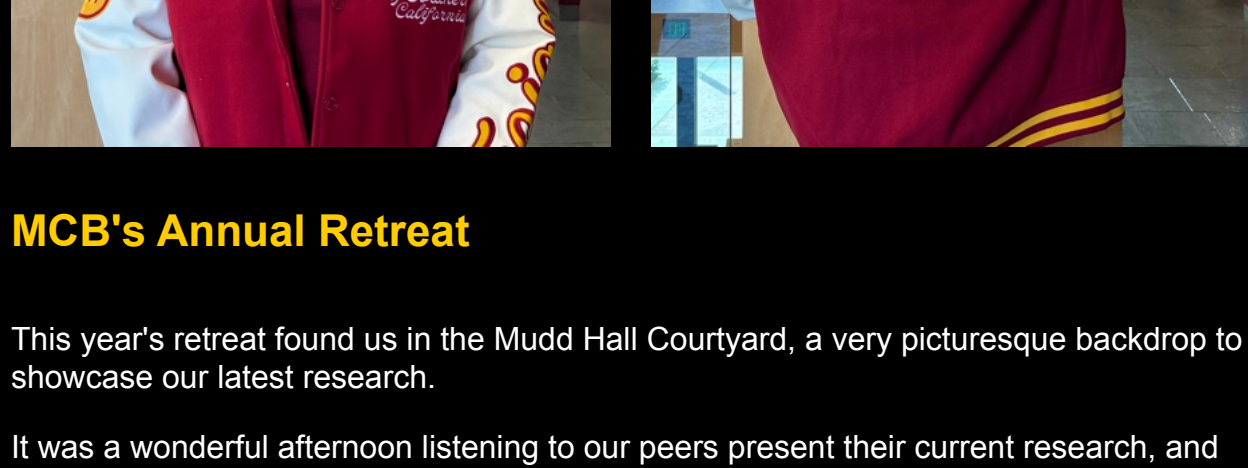
## Congratulations to Tina Robinson on her retirement!

In 1995, USC made the brilliant decision to hire Mrs. Tina Robinson, who started her career in the Marshall School of Business. Two years later, she transitioned into a role as an administrative technology coordinator, before finding her place in undergraduate admissions. There, Tina worked for 17 years.

And in the fall of 2022, she became our (beloved) Office Manager.

It is with both a full and heavy heart that we offer our congratulations to Tina on her retirement.

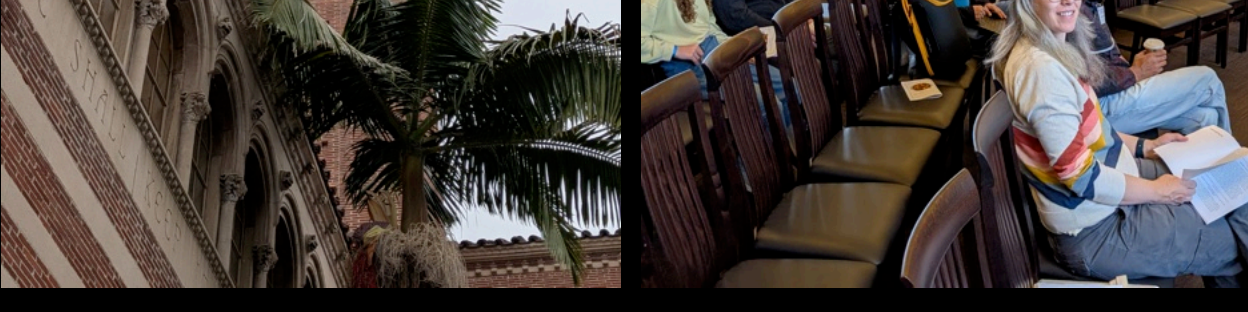
In appreciation for her contributions to MCB, the faculty gifted her a letterman's jacket embroidered with her favorite nickname: T Robbie.



## MCB's Annual Retreat

This year's retreat found us in the Mudd Hall Courtyard, a very picturesque backdrop to showcase our latest research.

It was a wonderful afternoon listening to our peers present their current research, and even more wonderful: the taco truck.



Congrats to graduate student Dean Tessone, of the Kuhn lab, who won the award for our retreat logo this year.



Thank you to everyone who attended!

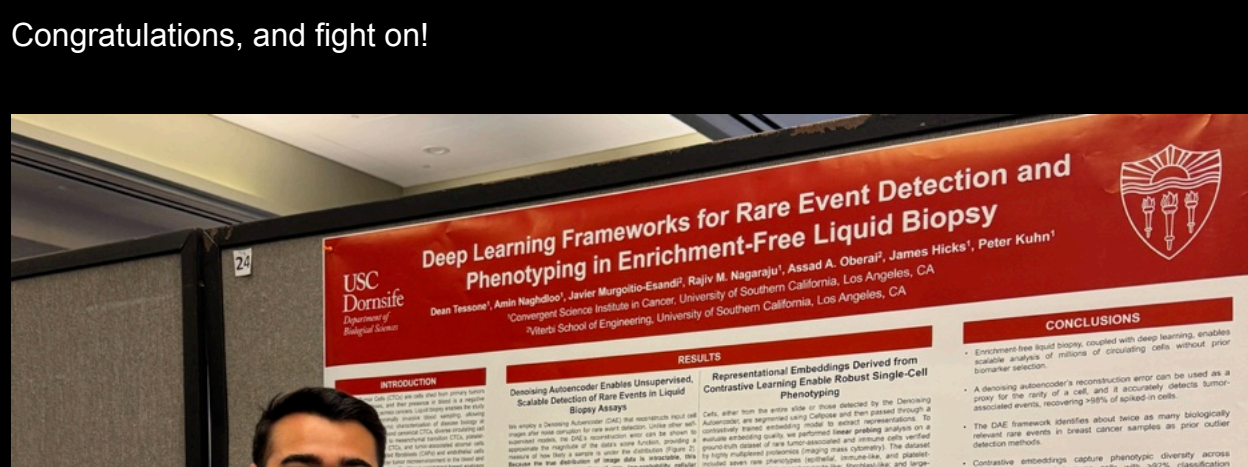
## Double the Spotlight: Faculty and Student Awards

Join us as we honor our section's most recent accomplishments.

In the Kuhn Lab, applause for Dean Tessone for winning first place in the poster session at the 12th Annual Meeting of the Society of Biomolecular Imaging and Informatics.

Compliments to both Anik Mitra and Nadejda Butova in the Chiolo lab for the travel awards they both won to the Gordon Conference.

Congratulations, and fight on!

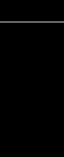


## Publications

[Read More](#)

Keep up with MCB's labs and recent discoveries on our publications page, updated every semester. Since the publication of our last newsletter, we published 61 papers, each one representing a significant advance in knowledge. This is outstanding scientific productivity, averaging more than 10 papers per month. Go MCB!

Follow our Instagram for the latest updates.



The MCB Insider

Curated and written by Hannah Dean.  
Questions, comments, concerns? Please email her [here](#).