



*Photos by Erik Jepsen/UC San Diego Publications*

## **A Tale of Tails Wins Grad SLAM**

**Biological Sciences graduate student wins competition stressing the value of communicating research to public audiences**

Three minutes... three slides... that's it.

In a world increasingly filled with insider acronyms and technical jargon, the ability to explain research in clear, concise language to lay audiences is increasingly becoming a rare skill.

Grad SLAM to the rescue.

Now in its sixth year at UC San Diego, the competition challenges graduate students from across campus in a variety of disciplines to distill their research into short, captivating presentations that anyone from grade schoolers to grandparents can understand.

Fourth-year Biological Sciences graduate student Angela Nicholson did just that on April 11 at the Student Services Center during the [2019 UC San Diego Grad SLAM finals](#). Nicholson earned first place by impressing the judges, a mix of campus leaders, alumni and a news reporter, by taking a technical topic—research on the expression of the ribonucleic acid (RNA) molecule—and turning it into an accessible, captivating presentation that brought home scientific value to a general lay audience.



*Angela Nicholson*

Nicholson now moves onto the [University of California system-wide Grad SLAM finals](#), slated for May 10 in San Francisco.

Other Grad SLAM finalists engaged the lively audience with compelling presentations in fields spanning from chemistry to theater to neuroscience. Their topics ranged from making renewable fuels from solar energy to intersectional approaches of theatrical storytelling. Coming in second place was Joanna Wang of Materials Science and Engineering with “Using Color to Fight Infection,” while third place went to Emily Pierce of Biological Sciences for “The War and Peace of Cheese.” (See [video of the campus finals here](#))

“The UC San Diego Graduate Division is proud of the 10 graduate students who advanced to the final round this year,” said Paul Yu, interim dean of the Graduate Division and emcee of the final round. “It’s inspiring to hear about the potential impact of their research on important questions across diverse disciplines. Events such as Grad SLAM help showcase how our students make an impact on the university, the state of California, the nation and even the world.”

Describing her work in Professor Amy Pasquinelli’s laboratory, Nicholson opened by describing RNA, which serves as a messenger that carries instructions from DNA, and its role in organizing activities within all of our cells. When an RNA first gets made, a main RNA message is created, followed by a tail portion (not coded by DNA), which is the focus of Nicholson’s research. Textbooks have characterized long RNA tails as the standard length. Nicholson’s research reveals that this historical dogma is misleading.

“My lab has recently found that while RNAs might start out their life (with long tails), they wind up with a myriad of tail sizes and that actually short tails are the most common,” said Nicholson. “By following these short-tailed RNAs, I discovered that they play a very specific role in signaling to the cell that *this* particular message should be communicated quickly and effectively. By allowing for long tails on



some RNAs and short tails on others, *tail length* can now be a key part of differentiating each message specific to what the cell needs... This finding turns the scientific dogma on its head.”

Nicholson closed her presentation with the idea that short RNA tails may carry enormous potential for new investigations of human health states, including genetic conditions that cause learning disabilities.

Although she’s participated in Grad SLAM twice before, the 2019 competition was the first time Nicholson advanced to the finals. Nicholson could sense that her presentation, titled “RNA Regulation: The Tail Wagging the Dogma,” had been steadily improving since February, when the competition kicked off. Two preliminary rounds of competition, judges’ feedback and coaching sessions helped refine her talk. Also enhancing her presentation was her extensive experience in theater performance, including time at a performing arts conservatory, which gave her confidence on stage and command of the physical delivery of her presentation.

Also, Nicholson’s participation in a four-day communications training workshop led by Professor Kim Rubinstein of Theatre and Dance further improved her mindfulness of gestures and presence on stage.

“Being able to relate to the lay public is very important to me,” said Nicholson, who hopes to work in the biotechnology sector after completing her Ph.D. “I think it’s really important to be able to communicate what you are doing at the level that other people can understand and continually remind yourself how to make your work explainable.

“I feel like scientists can leave things in kind of a black box for some people. So I think we should work on being able to explain it at a level that the public can make sense of and understand... Why would I be excited about learning about this?”

“Angela’s presentation beautifully conveyed how fundamental biological research can, with an appropriately open mind, overturn scientific dogma and provide new insights that may ultimately help develop better treatments for human diseases,” said Kit Pogliano, dean of UC San Diego’s Division of Biological Sciences. “I applaud her commitment to communicating science to the public and her selection as the 2019 UC San Diego Grad SLAM champion, and look forward to her continued success at the University of California finals in San Francisco next month.”



As she prepares for the new challenges of next month's UC-wide Grad SLAM finals, Nicholson plans to put her \$5,000 first-place money to good use. Keeping in step with the canine undertones of her "Tail Wagging the Dogma" presentation, Nicholson's prize money will be spent on a new golden retriever puppy, which she selected from a litter the weekend after winning Grad SLAM 2019... *Quite a tale!*

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