

BioCY News

Department of Genetics, Development and Cell Biology

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Tuteja joins Pew Scholars Biomedical Research Program

AMES, Iowa — **Geetu Tuteja**, assistant professor in Iowa State University's Department of Genetics, Development and Cell Biology (GDCB), has been selected to join the [Pew Scholars Program in the Biomedical Sciences](#) in 2019. She is the first ISU researcher to receive this honor.



Geetu Tuteja, assistant professor in genetics, development and cell biology

Tuteja is one of 22 promising scientists nationwide selected by the Philadelphia-based Pew Charitable Trusts to receive a four-year, \$300,000 grant to conduct biomedical research aimed at advancing human health.

As a Pew Scholar, Tuteja will invest her funding into studying genetic networks that help to establish a healthy connection between embryos and their mothers.

The 2019 class of Pew scholars – all assistant professors – was chosen from 178 applicants who were nominated by leading

academic institutions and researchers across the United States. The newly named scholars become part of an active community of nearly 1,000 scientists who have received Pew awards since 1985. Current scholars come together annually to share their research and gain insights from peers working in other fields.

Tuteja joined the GDCB faculty in 2015. Last fall, she received a five-year, \$1.5 million grant from the National Institutes of Health. Tuteja's lab combines experimental genomics, computational biology and molecular biology to investigate the gene-enhancer networks regulating early placental development.

Tuteja received her bachelor of arts in computer science with a minor in chemistry from Boston University in 2004, and her Ph.D. in genomics and computational biology from the University of Pennsylvania in 2009. From 2010 to 2015, she was a postdoctoral research fellow at Stanford University's Beckman Center. (*ISU News Service article.*)

Department welcomes new faculty

Two new faculty recently joined Iowa State University's (ISU) Department of Genetics, Development and Cell Biology (GDCB) as assistant professors. **Kyaw (Joe) Aung** arrived at Iowa State University in August 2018, while **Raquel Espin Palazon** joined the department this past August.

"We are very excited that Joe and Raquel have joined the department," GDCB Chair Yanhai Yin said. "Joe's expertise in plant-microbe interactions will further enhance GDCB research strength in stress biology, and Raquel, on the other hand, uses zebrafish as a model to study blood formation, which has important implications in human health." Both Joe and Raquel are excellent cell biologists and will greatly help the department to carry out our teaching mission in this important area of biology."

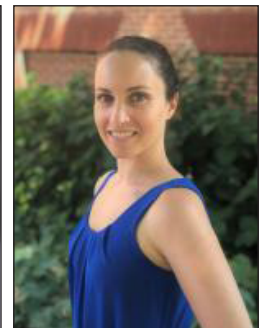
Prior to joining GDCB, **Aung** served as a postdoctoral researcher from 2012-18 at Michigan State University in Professor Sheng Yang's lab where he examined plant-microbe interactions. Aung's area of expertise is cell biology at the plant-microbe interface.

Aung said, "I am very grateful for the tremendous support from the whole community, and I am looking forward to becoming

a contributing member in the years to come. In my laboratory, we will study the dynamic interactions between plant and pathogenic microbes at molecular and cellular level."



Kyaw (Joe) Aung



Raquel Espin Palazon

Aung received his bachelor of science and master of science in horticulture from National Chung Hsing University, Taiwan. He was a research assistant in the Agricultural Biotechnology Research Center at Academia Sinica, Taiwan. He earned his Ph.D. from Michigan State University (MSU) under the guidance of Dr. Jianping Hu. In 2016, Aung received a [National Institutes of Health Pathway to Independence Award](#).

See New faculty on Page 8

Gupta receives NSF CAREER award

Mohan Gupta, genetics, development and cell biology assistant professor, earned a 2019 Faculty Early Career Development (CAREER) award from the National Science Foundation (NSF).

The \$1,115,426 CAREER award was granted through the NSF's competitive Molecular and Cellular Biosciences Division. Its funds will support basic research, as well as the cost of education and outreach efforts that target high school and college students.

"The CAREER award is one of NSF's most prestigious honors, supporting faculty members early in their career who also serve as exemplary researchers and teacher-scholars," said Rita Miller, a program director at the NSF. "Dr. Gupta has been a pioneer in developing new protocols to study microtubules that has allowed a whole set of new discoveries to be made."

"We are honored and grateful that the National Science Foundation, the nation's foremost champion of fundamental research, is supporting our work," said Gupta. "The study of tubulin isotypes is an understudied and emerging research area that has only recently gained steam. This leaves the door wide open for intriguing and exciting breakthroughs."

After studying microtubules for 20 years, Gupta is "thrilled, humbled and excited" that the NSF will fund his research until January 2024.

He's quick to note that Iowa State's commitment to supporting high-level research steered him to Ames four years ago and also played a pivotal role in his team securing the CAREER award.



Mohan Gupta, assistant professor in genetics, development and cell biology

"This NSF grant would not be possible without the solid research-oriented culture that exists at Iowa State and in my department," he said. "This university has all kinds of research happening here and it's all appreciated for its importance. I'm fortunate to work for a university that supports research for the sake of research."

Read the full story about Gupta's research and the NSF CAREER award in the LAS News article, "[LAS scientist receives NSF CAREER award: aims for big discoveries in the small universe of microtubules and protein isotypes.](#)"

Professors receive Regents award, Morrill Professor designation

Two genetics, development and cell biology professors were honored at Iowa State's 2018 annual university awards ceremony. **Tom Peterson** received the Regents Award for Faculty Excellence, and **Don Sakaguchi** received the title of Morrill Professor.

Presented by the Iowa Board of Regents, Peterson's award recognizes commitment to ISU, professional reputation and esteem among peers. A professor of GDCB and agronomy,

Peterson joined ISU in 1993 as an associate professor. He received his bachelor of science in zoology from the University of California-Davis and his Ph.D. in biochemistry and molecular biology from the University of California, Santa Barbara.

Sakaguchi's Morrill Professor designation recognizes long-term and sustained excellence in the teaching mission. Sakaguchi received his bachelor of science in biology and his Ph.D. in



neurobiology from the State University of New York-Albany. He joined ISU as an assistant professor after serving as a postdoctoral scholar and research biologist at the University of California-San Diego. He is an adjunct professor of biomedical science at ISU's College of Veterinary Medicine.

GDCB Professor Tom Peterson (left photo, center) received the Regents Award for Faculty Excellence in 2018, while Don Sakaguchi (right photo, center) received the designation of Morrill Professor. Congratulating the professors are Iowa State University President Wendy Wintersteen (left) and Senior Vice President and Provost Jonathan Wickert (right).

Lawrence-Dill, McGrail move up in the ranks

Genetics, Development and Cell Biology faculty **Carolyn Lawrence-Dill** and **Maura McGrail** received promotions to the rank of professor and associate professor, respectively.

Lawrence-Dill was promoted to professor, effective with the 2019-20 academic year. McGrail was promoted to associate professor during the 2018-19 academic year.

Lawrence-Dill joined Iowa State University in 2014 as an associate professor in both GDCB and the Department of Agronomy. Her area of expertise is in plant biology, bioinformatics, genomics and phenomics. Lawrence-Dill previously served the university as a postdoctoral research associate in bioinformatics from 2003-05. From 2005-13, she served as a lead scientist for the MaizeGDB project with the U.S. Department of Agriculture-ARS in Ames.

She received her bachelor of arts in biology from Hendrix College in Conway, Ark., her master of science in biology from Texas Tech



Carolyn Lawrence-Dill



Maura McGrail

University in Lubbock, Texas, and her Ph.D. in botany from the University of Georgia in Athens.

McGrail joined Iowa State as an adjunct assistant professor in 2005, and she became an assistant professor in 2012. Cancer genetics and genomics in zebrafish is her area of expertise.

McGrail earned her bachelor of science in biochemistry from the University of Massachusetts, Amherst, and her Ph.D. in molecular and cellular biology from the University of Minnesota. She conducted postdoctoral work at the University of California, San Diego, Myriad Genetics in Salt Lake City, and at the Huntsman Cancer Institute at the University of Utah. In addition to being an associate professor for GDCB, McGrail serves as chair of the Molecular, Cellular and Developmental Biology Interdepartmental Graduate Program.

Six GDCB members advance

Six genetics, development and cell biology members recently received job advancements: **Hongqing (Michelle) Guo**, **Karri Haen Whitmer**, **Dior Kelley**, **Jelena Kraft**, **Sayali Kukday** and **Renu Srivastava**.

Guo advanced from assistant scientist to an adjunct assistant professor. She received her Ph.D. in genetics at Iowa State University, and she is studying how plants achieve optimal growth under stress conditions such as drought and bacterial or insect attacks.

Haen Whitmer advanced from senior lecturer to associate teaching professor. Haen Whitmer's teaching specialty is large enrollment introductory human biology lectures; CURE and experiential learning for the human physiology laboratory. She received her master of science in plant sciences from North Dakota State University and her Ph.D. from Iowa State University in the Interdepartmental Genetics Program.

Kelley, who joined GDCB in January 2015, advanced from adjunct assistant professor to assistant professor in early 2019. Her area of expertise is "using systems integration of large-scale omics approaches to explore how auxin signaling modules control diverse developmental processes in Arabidopsis." After receiving her bachelor of science in chemistry from the University of California, Santa Cruz, in 2000, Kelley earned her Ph.D. in plant biology from University of California, Davis, in 2009.

Kraft advanced from teaching lab coordinator to assistant teaching professor. Kraft earned her Ph.D. in biochemistry and bachelor of science in chemistry from Iowa State University. Her area of expertise is "biology education research and plant virus translation mechanisms."

Kukday advanced from lecturer to associate teaching professor. She joined the department in 2013. Her area of expertise is

"biology education research and enzyme activators as therapeutic agents in the treatment of Alzheimer's disease." She earned her Ph.D. in biochemistry and molecular biology from the University of Georgia. She served as an instructor and postdoctoral associate at the University of Georgia. She received her master of science in biochemistry from The Institute of Science in Mumbai, India.

Srivastava advanced from an assistant scientist to an assistant teaching professor. Srivastava received her master of science in botany from the Lucknow University and a Ph.D. in botany from National Botanical Research Institute of the Council of Scientific

See Advance on Page 8



Six GDCB members advance. Top row, from left are Hongqing (Michelle) Guo, Karri Haen-Whitmer and Dior Kelley. Bottom row, from left, are Jelena Kraft, Sayali Kukday and Renu Srivastava.

Abdulghani makes Rhodes Scholar history

AMES, Iowa — **Majd Abdulghani** (M.S. genetics and genomics '18), an Iowa State University Department of Genetics, Development and Cell Biology alumna was selected as the first Rhodes Scholar from Saudi Arabia. She joined the 2019 cohort of 100 scholars.

The international scholarships from the University of Oxford are awarded to outstanding students who demonstrate high potential in learning and leading. Abdulghani will receive at least two years of free tuition and fees, an annual stipend and travel to and from Oxford twice in an academic year.

While pursuing her master's degree at ISU, Abdulghani was a member of the Tuteja Lab. The lab, led by GDCB Assistant Professor **Geetu Tuteja**, focuses on transcriptional regulation and the genetic architecture underlying development and disease. Abdulghani's Rhodes honor comes as no surprise to those at Iowa State who worked with her.

"Majd has a positive energy that is infectious, and her dedication and drive were apparent from our first interaction," said Tuteja. "I'm so thrilled that she is being recognized for all of her accomplishments, and that her dreams are becoming a reality. I can't wait to see what she does next."

In addition to her stellar academics (she finished her graduate degree with a 4.0 GPA), Abdulghani earned honors for her role

Majd Abdulghani, a genetics, development and cell biology alumna (Photo by Christopher Gannon.)



as a global educator and advocate for women – in the form of a podcast. "Majd's Diary: Two Years in the Life of a Saudi Girl" is a podcast she created to help introduce the world to what it is like to be a woman in a country with limited women's rights.

Officials from National Public Radio selected Abdulghani from a pool of 1,000 applicants to publish and air her story. The podcast won the 2017 Best Documentary: Silver Award at the Third Coast International Audio Festival in Chicago.

See Rhodes Scholar on Page 8

Nolan wins 2019 Karas Award, Zaffarano Prize

Trevor Nolan, a 2018 Ph.D. genetics, development and cell biology graduate, is the recipient of two 2019 Iowa State University Graduate College awards: Karas Award for Outstanding Dissertations and the Zaffarano Prize for Graduate Student Research.

The Karas Award recognizes excellence in doctoral research for students in four rotating disciplinary areas: humanities and the fine arts, mathematical and physical sciences and engineering, biological sciences, and social sciences.

The Zaffarano Prize is awarded to ISU graduate students who show superior performance in publishing research in academic journals.

As a graduate student in the genetics and genomics program, Nolan worked as a research assistant in the laboratory of GDCB Chair **Yanhai Yin**. He has been able to collaborate with students and faculty across several disciplines to conduct this research.

"My Ph.D. has been entirely collaborative, so instead of reinventing the wheel hundreds of times, I've worked with experts in robotics, computer science and machinery, and image processing," he said. "You should learn how to do a lot of things yourself, but you should also tap into the resources that are present at a big university like Iowa State. We have so many people working on different and exciting areas, and if you can pull all those things and combine them, you can really accomplish a lot."



Trevor Nolan

While at ISU, Nolan was awarded the Genetics and Genomics Research Excellence Award, a Brown Graduate Fellowship, and a Plant Sciences Institute Fellowship. He has published 10 peer-reviewed research articles in high-profile journals, as well as four review articles and one book chapter.

Nolan came to ISU as an undergraduate studying psychology. While taking an introductory genetics course, he got to know Distinguished Professor **Steven Rodermel** of GDCB. After the course ended, he started working in Rodermel's lab and studying plant biology.

"It was not something that was on my radar at all at that point. I thought I wanted to study some kind of medical research and maybe go on to become a doctor," Nolan said. "But it turned out that working with plants is a really awesome system to address. The things we learn with plants can apply very broadly to humans and animals and other kinds of organisms."

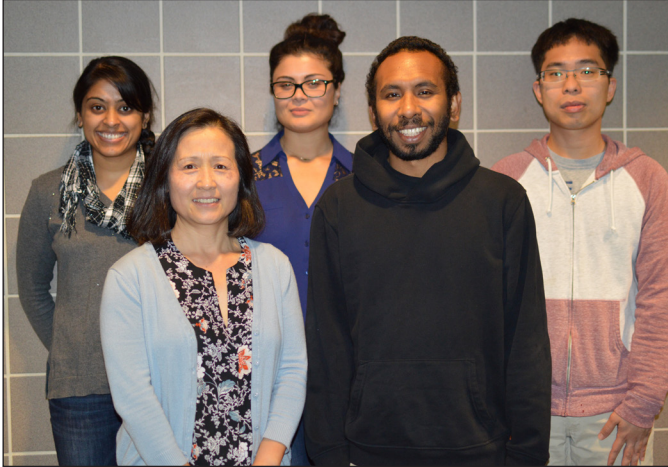
After earning his bachelor of science in genetics and after joining the genetics and genomics program, he began work in Yin's lab.

"Trevor is an exceptional student with unwavering passion for science, extraordinary motivation, high intelligence, unmatched work ethic, and outstanding leadership skills," Yin wrote in his award nomination letter. "He has already made significant contributions, and he has what it takes to become a future leader in plant biology."

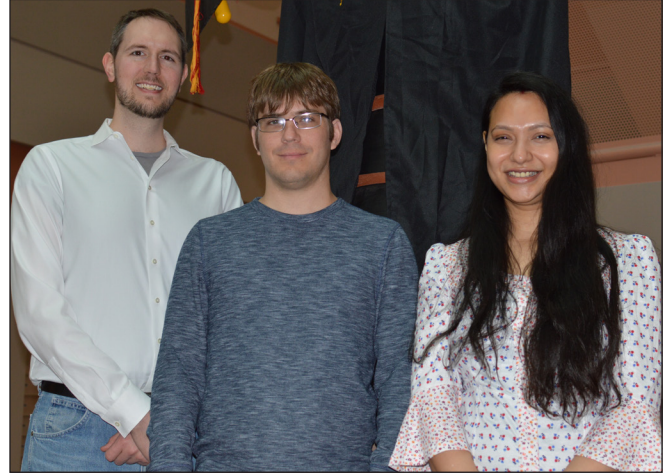
Nolan left ISU in July to work as a postdoctoral researcher at Duke University.

For more, read the entire Graduate College article, "[Postdoctoral scholar Trevor Nolan wins Karas Award, Zaffarano Prize.](#)"

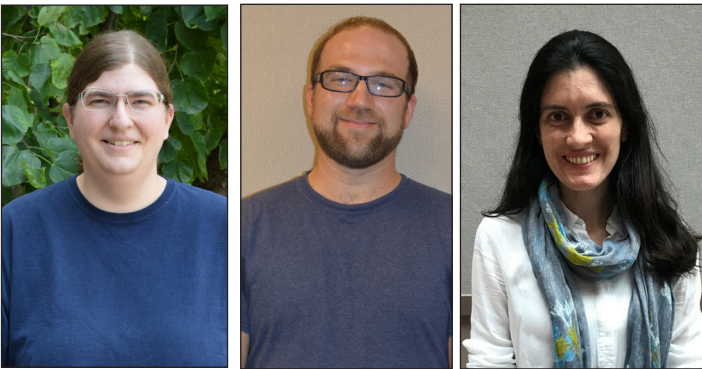
26 students earn doctoral, master's degrees



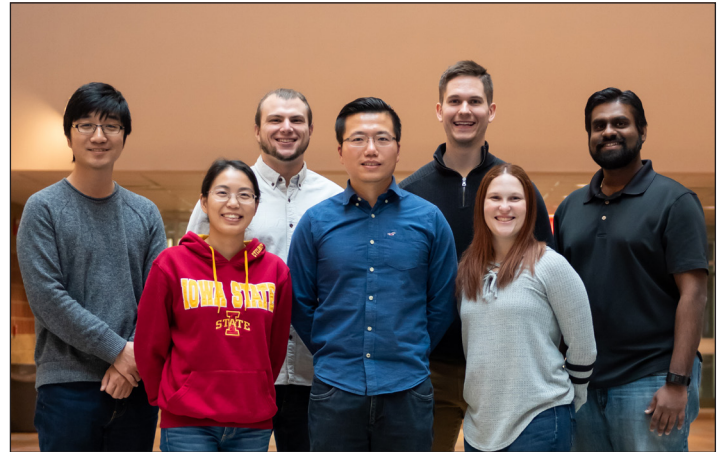
Several genetics, development and cell biology students received their doctoral degrees in spring 2019. From left are Bhavika Patel, Hongqing Guo, Najiba Mammadova, Alfredo Kono and Si Nian Char.



Three of the eight genetics, development and cell biology spring 2019 graduates who received their doctoral degrees are, from left, Jordan Welker, Zebulun Arendsee and Sweta Roy-Carson.



Three students affiliated with genetics, development and cell biology received their graduate degrees in summer 2019. From left are Carla Mann (Ph.D.), Ryan Arndorfer (M.S.), and Natalia Acevedo-Luna (Ph.D.).



Seven genetics, development and cell biology students earned their doctoral degrees in fall 2018. From left are Honghao Bi, Zhouli Xie, Wes Wierson, Mingze He, Trevor Nolan, Junmarie Soto-Burgos and Kokulapalan Wimalanathan. (Photo courtesy of Trevor Nolan.)



Summer 2018 genetics, development and cell biology graduates are, from left, Jeff Haltom (M.S.), Majd Abdulghani (M.S.), Benjamin Bastin (Ph.D.) and Kevin Natukunda (Ph.D.).



Four genetics, development and cell biology students received graduate degrees in spring 2018. From left are Laura Shultz (Ph.D.), Lauren Laboissonniere (Ph.D.), Soujanya Akella (Ph.D.) and Axelle Weeger (M.S.).

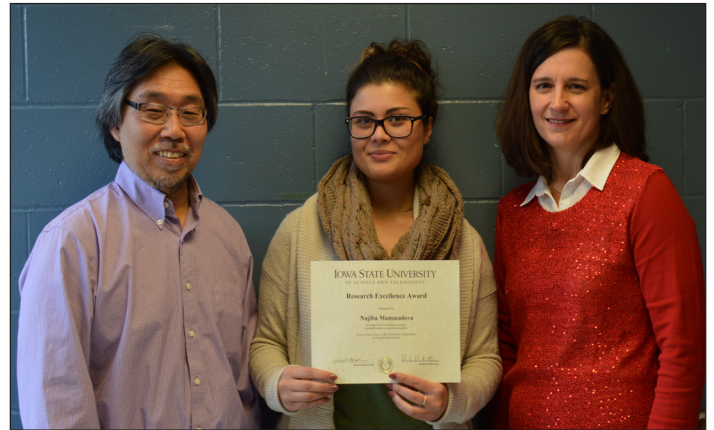
9 students receive TEX and REX awards

Eight Department of Genetics, Development and Cell Biology students and a Department of Statistics student received Graduate College Research Excellence (REX) Awards and Teaching Excellence (TEX) Awards in 2017-18 and 2018-19.

Zebulun Arendsee, Najiba Mammadova, Trevor Nolan and Jordan Welker received REX awards, while Natalia Acevedo-Luna, Ryan Arndorfer, Mark McHugh, Bhavika Patel and Sweta Roy-Carson received TEX awards.

Arendsee is a spring 2019 REX recipient as well as a spring 2019 Ph.D. graduate. Nominated by GDCB Professor Eve Wurtele, his major professor, Arendsee majored in bioinformatics and computational biology. He currently is working with the U.S. Department of Agriculture.

Nominated by Department of Biomedical Sciences Professor **Heather Greenlee** and Morrill Professor **Don Sakaguchi** of GDCB, Mammadova is a fall 2018 REX Award recipient. A spring 2019 graduate, she majored in immunobiology and neuroscience. She is currently working as a postdoctoral research associate with Greenlee.



Morrill Professor Don Sakaguchi (left) and Department of Biomedical Sciences Professor Heather Greenlee (right) congratulate Najiba Mammadova (center) on her fall 2018 Research Excellence Award.

Nolan received a REX award from the Interdepartmental Genetics and Genomics program in fall 2018 after being nominated by GDCB Chair and Professor **Yanhai Yin**, Nolan's major professor. He earned his Ph.D. in genetics in fall 2018, and he currently is working as a postdoctoral research associate at Duke University.

Welker received a REX award in spring 2018 after being nominated by his major professor, **Jeff Essner**. Welker earned his Ph.D. in genetics in spring 2019. Welker is currently a postdoc at the Max Planck Institute for Heart and Lung Research in Frankfurt, Germany.

Acevedo-Luna received a TEX award after being nominated by Senior Teaching Lab Coordinator **Linda Westgate** and Teaching Lab Coordinator **Chris Myers** for her work in Biology 211 Lab. She is a student in the Department of Statistics whose comajor professor is GDCB Assistant Professor **Geetu Tuteja**.

Nominated by **Karri Haen Whitmer** for his work in Biology 256 Lab, Arndorfer received a TEX award in spring 2019. His major professor is GDCB Professor **Erik Vollbrecht**. He majored in genetics and genomics.

Nominated by Westgate, McHugh received a TEX award in spring 2018 for his work in Biology 211 Lab. His major professors are GDCB Professor **Jo Anne Powell-Coffman** and Department of Biomedical Sciences Professor **Richard Martin**, and his major is genetics.

After being nominated by Westgate and Myers, Patel received a TEX award for her work in Biology 211 Lab. Her major professor is Sakaguchi, and she graduated in spring 2019.

Roy-Carson received her TEX award in fall 2017 after being nominated by Westgate. Roy-Carson graduated in spring 2019 with a major in bioinformatics and computational biology.

TEX/REX award nominations are accepted by the Graduate College during the spring, summer and fall.

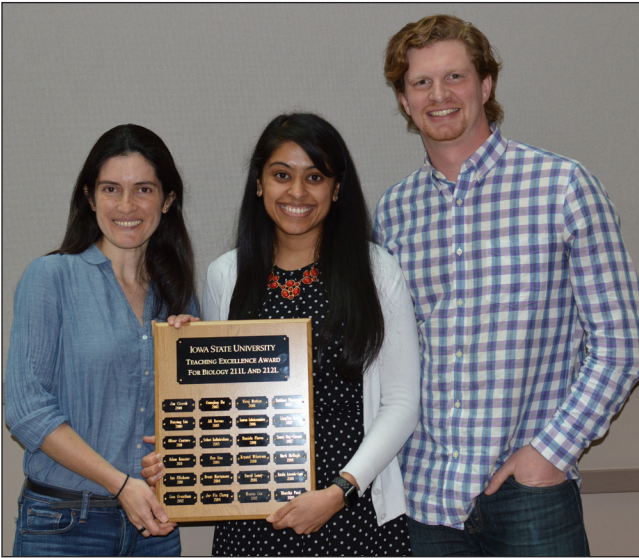
See additional photos of TEX/REX recipients on Page 7.



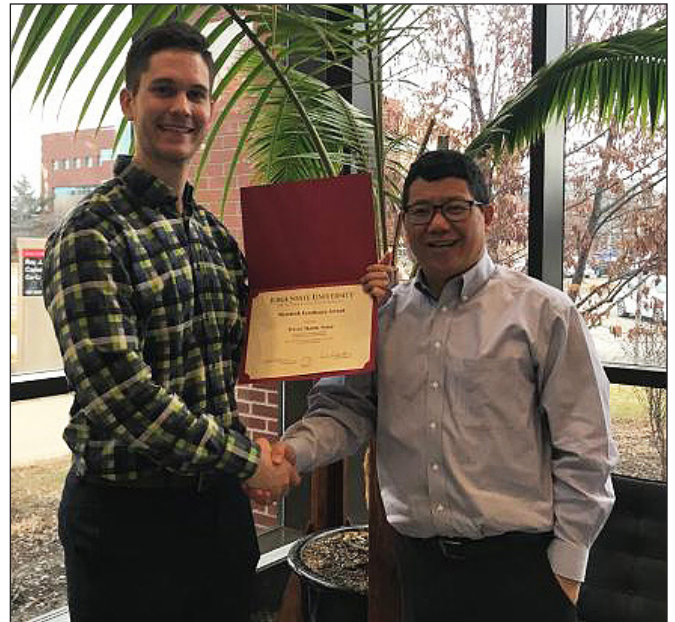
GDCB Professor Eve Wurtele (right) congratulates Zebulun Arendsee (left) on his spring 2019 Research Excellence Award.



Teaching Excellence Award recipients are congratulated by their nominator, Senior Teaching Lab Coordinator Linda Westgate. From left are Sweta Roy-Carson (fall 2017 TEX recipient); Mark McHugh (a spring 2018 TEX recipient); and Westgate.



Teaching Lab Coordinator Chris Myers (right) congratulates Natalia Acevedo-Luna (left) and Bhavika Patel (center) as recipients of Teaching Excellence Awards. Patel received her award in spring 2019, while Acevedo-Luna received hers in fall 2018.



GDCB Chair and Professor Yanhai Yin (right) congratulates Trevor Nolan (left) on his fall 2018 Research Excellence Award.



GDCB Associate Teaching Professor Karri Haen-Whitmer (left) congratulates Ryan Arndorfer (right) on his spring 2019 Teaching Excellence Award.



GDCB Associate Professor Maura McGrail (right) presents Jordan Welker, a GDCB student, with his Teaching Excellence Award in spring 2018.



Iowa State University Associate Provost for Academic Programs Ann Marie VanDerZanden (right) congratulates Diane Jepsen (left).

Jepsen: 2018 CYtation Award recipient

Diane Jepsen, who served as the accountant in genetics, development and cell biology from 2008-19, received an Iowa State University Professional and Scientific Council 2018 CYtation Award.

Jepsen is described in the award information on the P&S Council website as “one of the linchpins that holds the department together. Diane exemplifies an ideal staff member because of her strong work ethic that few can match in addition to being skillful and efficient in what she does. Diane often steps up and offers to help above and beyond her assigned duties.”

Jepsen continues to work with GDCB as a procurement expense specialist in the Improved Service Delivery (ISD) financial team.

Happy holidays from GDCB!

New faculty

Continued from Page 1

Aung's wife, **Yani Chen**, also joined the department as an assistant scientist. She will be focusing on studying the dynamic cellular interactions between rice and a fungal pathogen.

Before she joined GDCB, [Espin Palazon](#) served as a postdoctoral fellow (2013-18) and an assistant project scientist (2018-19) at the University of California at San Diego where she worked in the Section of Cellular and Molecular Medicine in Dr. David Traver's lab. Her area of expertise is normal and diseased hematopoiesis.

"As a Research I Institution, ISU has the highest levels of research activity, which gives access to my group to state-of-the-art technology and interdisciplinary expertise among my colleagues, both key for the advancement of scientific discovery," she said. "I am thrilled to also join the astounding zebrafish community here at ISU. **Dr. Jeff Essner** and **Dr. Maura McGrail** from GDCB are internationally recognized leaders using zebrafish as an animal model for genetics and developmental studies, and I feel honored to be able to work closely with them. The collegiality among the members of the GDCB department is one of its strengths. I am excited to see what the future will bring in terms of new research avenues that will be developed as the result of our collaborations, leading to exciting and important scientific discoveries."

Espin Palazon's husband, **Clyde Campbell**, joined the department as an adjunct assistant professor. His research focuses on identifying lineage differentiation factors that are essential for Hematopoietic Stem Cell formation. His findings will ultimately improve Hematopoietic Stem Cell transplantation to help patients suffering from blood malignancies.

The GDCB family welcomes Aung, Espin Palazon, Chen and Campbell to the department.

Advance

Continued from Page 3

and Industrial Research, India. She completed her postdoctoral appointments on a collaborative project between the University of Stockholm and University of Turku and then at Iowa State University.

Rhodes Scholar

Continued from Page 4

She built a strong network of support at Iowa State throughout GDCB, the College of Liberal Arts and Sciences and the university.

"I have never seen such dedication to students' best interests as I have seen at ISU," said Abdulghani. "The university is truly invested in its students and my winning the scholarship is the strongest demonstration of that."

For more information, see the complete ISU News Service article (["Abdulghani makes Rhodes Scholar history"](#)).

Thank you

The Department of Genetics, Development and Cell Biology appreciates the continued gifts from its alumni, family and friends. Your contributions help the department continue its tradition of academic excellence. Your support helps our students thrive.

If you plan to make a contribution to Iowa State University, please consider making a direct donation to the department by visiting the [ISU Foundation GDCB donation page](#).

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The GDCB Department:

- **Supports undergraduate majors in —**
 - biology
 - genetics
 - bioinformatics and computational biology
- **Supports graduate majors in —**
 - genetics and genomics
 - molecular, cellular and developmental biology
 - bioinformatics and computational biology
 - microbiology
 - neuroscience
 - plant biology
 - toxicology
- **Supports faculty research in —**
 - genetics
 - development
 - cell biology

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