

Molecular Matters

Purdue Department of Biochemistry
December 2017



Dear students, faculty, staff, alumni and friends,

Happy Holidays from Purdue's Department of Biochemistry! I would like to take this opportunity to thank all of you for your continued efforts to make the Department of Biochemistry one of the best departments at Purdue. Your time and energy is much appreciated. As we conclude 2017, we can reflect back on another exciting year in the department. Here are just a few of the many exciting news stories from this past year.

In faculty news, this spring our faculty were awarded three of the five available major Purdue College of Agriculture Teaching and Service Awards. Prof. Orla Hart won the Outstanding Service to Students award, Prof. Joe Ogas won the David C. Pfendler Outstanding Counselor award, and Prof. Clint Chapple won the Outstanding Graduate Student Mentor and Teacher award. We are very proud that we have such outstanding faculty who are dedicated to the teaching and mentoring of our undergraduate and graduate students! On the research horizon, we are very excited for Prof. Andy Tao who was recently named the 2017 recipient of the Outstanding Commercialization Award for Purdue University faculty. We also added two new Assistant Professors to the department this year. Dr. Majid Kazemian joined us in January from the National Institutes of Health, and Dr. Jennifer Wisecaver joined us in August from Vanderbilt University. Look for more about these two wonderful new faculty members in our upcoming issue of the *Catalyst* and for news about their research in upcoming issues of *Molecular Matters*.

This fall, we had 38 new students join our undergraduate program, and it is one of our most diverse classes ever. In addition, we set a record for the largest total number of undergraduates enrolled in our Biochemistry major– 172 students! This is about twice the number of students enrolled 10 years ago (about 85 in 2007/08), and is notably higher than the number of students enrolled just two years ago (115 in 2015). The word continues to spread about the quality of our undergraduate program, and we are grateful to continually receive such excellent students.

There are many more noteworthy news stories from this past year but to bring them all to you in this simple Holiday Greetings letter would fill a dissertation. So, for the coming year and moving forward, we are going to change things up a bit and send you our “*Molecular Matters*”. What is/are “*Molecular Matters*” you ask? Well, for a number of years now, *Molecular Matters* has been a monthly, internal communication about news happening within the Department of Biochemistry. It was narrowly distributed to just faculty, staff and graduate students. Because there is a lot of exciting news happening in the department on a regular basis, we decided that it is time to share our news and events with you on a monthly basis. Even our annual *Catalyst* magazine cannot accommodate all that is happening. *Molecular Matters* has traditionally reported on items such as new publications from the department, grants and awards of faculty and students, new people joining the department (or departures), graduate student news, upcoming events, etc. We wish to bring our news and events to you on a regular basis as well as provide you with some feature stories of our undergraduate and graduate students. The Department of Biochemistry is a very dynamic place and we wish to share this energy with you, so we hope you will enjoy receiving regular editions of *Molecular Matters*.

I wish you all a joyous Holiday Season and a very Happy New Year!

A handwritten signature in blue ink that reads "Andrew Mesecar". The signature is written in a cursive, flowing style.

RECENT PUBLICATIONS

Lynch, J.H., I. Orlova, C. Zhao, L. Guo, R. Jaini, H. Maeda, T. Akhtar, J. Cruz-Lebron, D. Rhodes, **J. Morgan**, G. Pilot, E. Pichersky and **N. Dudareva**. 2017. Multifaceted plant responses to circumvent Phe hyperaccumulation by downregulation of flux through the shikimate pathway and by vacuolar Phe sequestration. *Plant J.*, **92**: 939-950

Tissier, A., **J.A. Morgan** and **N. Dudareva**. 2017. Plant Volatiles: Going 'in' but not 'out' of trichome cavities. *Trends Plant Sci.*, **22**: 930-938

Lin, J.-X., N. Du, P. Li, **M. Kazemian**, T. Gebregiorgis, R. Spolski and W.J. Leonard. 2017. Critical functions for STAT5 tetramers in the maturation and survival of natural killer cells. *Nat. Commun.* **8**: 1320

Li, Z., J. Liu, J. Li, Y. Kong, G. Sandusky, X. Rao, Y. Liu, J. Wan and **X. Liu**. 2017. Polo-like kinase 1 (Plk1) overexpression enhances ionizing radiation-induced cancer formation in mice. *J. Biol. Chem.* **292**: 17461-17472

Kanwal, R., A.R. Plaga, **X. Liu**, G.C. Shukla and S. Gupta. 2017. MicroRNAs in prostate cancer: Functional role as biomarkers. *Cancer Lett.* **407**: 9-20

Zeng, L., W.-H. Wang, J. Arrington, G. Shao, R.L. Geahlen, C.-D. Hu and **W.A. Tao**. 2017. Identification of upstream kinases by fluorescence complementation mass spectrometry. *ACS. Cent. Sci.*, **3**: 1078-1085

Hall, H., P. Medina, D.A. Cooper, S.E. Escobedo, J. Rounds, K.J. Brennan, C. Vincent, P. Miura, R. Doerge and **V.M. Weake**. 2017. Transcriptome profiling of aging *Drosophila* photoreceptors reveals gene expression trends that correlate with visual senescence. *BMC Genomics.* **18**: 894

AWARDS & RECOGNITION

Scott Briggs received an award in the amount of \$15,000 from the Faculty Cluster Hire Community-Building Grant, Office of the Provost, for his proposal entitled "2018 Midwest Chromatin and Epigenetics Meeting (MCEM)". The

meeting scheduled for June 2018 will bring scientists from the Midwest together at Purdue to share recent discoveries in transcription, chromatin and epigenetics.

Andy Tao was named the 2017 recipient of the Outstanding Commercialization Award for Purdue University faculty. The award is given annually to a faculty member in recognition of outstanding contributions to, and success with, commercializing Purdue research discoveries. The award was established with an endowment gift from the Central Indiana Corporate Partnership Foundation. Andy was recognized for discovering a method to detect and monitor breast cancer using a simple blood test and bladder cancer using a urine test. Also recognized for having inventions patented during the 2016-2017 fiscal year were Brian Dilkes and Professor Emeritus Victor Rodwell. For more information, click on the following link. <http://bit.ly/AndyTaoCommercializationAward>

As part of the Ralph W. and Grace M. Showalter Research Trust, 11 early-career faculty members received up to \$75,000 each in Showalter Trust funding. Two of the 11 were from the Department of Biochemistry. Jeremy Lohman received funding for "Catching Fatty Acid Biosynthetic Enzymes in the Act with a Non-natural Amino Acid," and Sujith Puthiyaveetil received funding for his project "The Structural Basis of a Serine/Threonine-type Kinase Activity in the Chloroplast Sensor Kinase."

DEPARTMENT NEWS

On November 17, some of the nation's top scientists shared their latest research insights as part of the inaugural Biochemical Horizons Symposium. The day-long event provided more than 100 students, faculty and staff an opportunity to hear about new developments that are challenging paradigms in the areas of systems biology, genomics and genetic engineering. J. Michael Cherry, a Purdue Biochemistry alumnus and professor at Stanford University was the keynote Beach lecturer. His talk was entitled "Integrating Scientific Results and Knowledge for the Common Good."

Other speakers included:

- Brenda J. Andrews, University of Toronto: “Genetic Networks Map a Functional Wiring Diagram of the Cell”
- Margaret (Peggy) Goodell, Baylor College of Medicine: “Epigenetic Regulation of Normal and Malignant Hematopoiesis”
- Gregory Stephanopoulos, Massachusetts Institute of Technology: “Engineering microbes for industrial applications”

NEW FACES

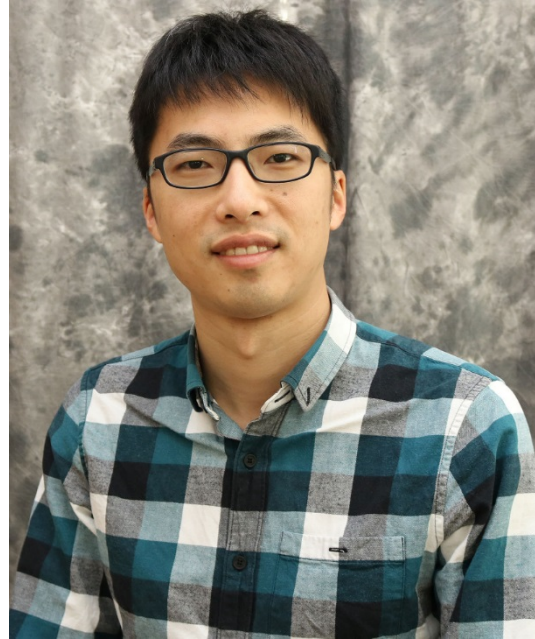


Debapriya Saha

Debapriya Saha recently joined the Gowher lab as a postdoctoral research assistant. Originally from the “City of Joy” Kolkata, India, Debapriya earned a B.Sc. in Biochemistry, Biotechnology and Genetics followed by a M.Sc. in Biotechnology at Bangalore University (India). She has a PhD in Regenerative Sciences from Hannover Medical School (Germany). In her spare time, she enjoys travelling to new places and painting.

Chuan-Chih Hsu

Recent graduate Chuan-Chih Hsu has joined the Tao lab as a postdoctoral scholar. Originally from Taichung, Taiwan, Chuan-Chih enjoys jogging, listening to classical music, and watching movies in his spare time.



GOING THE EXTRA MILE

Natalia Dudareva travelled to Cologne, Germany from October 18 – 21 for the Scientific Advisory Board for a Center of Excellence on Plant Sciences (CEPLAS). Natalia served as a chair of the advisory board.

UPCOMING EVENTS

December 25, 2017 – January 2, 2018 – University Holiday/Winter Recess
(University will be closed)

January 8, 2018 – Classes resume

January 15, 2018 - University Holiday - Martin Luther King, Jr. Day

Biochemistry Seminar Series

(3:30 pm, WSLR 116)

January 9 – Vikki Weake, Purdue University, Assistant Professor, Biochemistry

January 16 – Daisuke Kihara, Purdue University, Professor, Biological Sciences

January 23 – Jeremy Wilusz, University of Pennsylvania Perelman School of Medicine, Assistant Professor