

Press Release from Microbiology's Lay Writing Workshop

The microbiology department held a three day writing seminar for UAB students and post-doctoral employees on April 13-15, 2016. The purpose of which was to teach graduate students and post-docs how to effectively communicate science to a lay audience. The department invited Dr. Nicki LeBrasseur, the senior director of scientific communications at DNA Communications to instruct the on and off campus portions of the course. The students were tasked with writing a press release on an assigned paper and were given feedback. Ashley Connelly (Hel's lab) participated in the workshop and her article featured below reviews "[Loss of NOX-Derived Superoxide Exacerbates Diabetogenic CD4 T-Cell Effector Responses in Type 1 Diabetes.](#)" by Padgett LE et al.

Written by Ashley N. Connelly



Molecules that cause inflammation, such as oxidants, can damage tissues in our bodies, often exacerbating diseases. But now, a recent study published in *Diabetes* by Padgett *et al.* at the University of Alabama at Birmingham,

reveals that these oxidants may also help to protect us from Type I diabetes.

Type I diabetes develops when a person's immune cells attack and kill the beta cells located within the pancreas. Beta cells produce insulin, allowing the body to use its primary source of energy, glucose (a type of sugar). Without insulin, the body will starve even with enough food. Although both genetic and environmental risk factors are involved in Type I diabetes susceptibility, the reason some people's immune systems attack their beta cells remains a mystery.

Padgett *et al.* adds an important piece to this puzzle. They and others have previously shown that high

levels of oxidants, produced by many types of immune cells, contribute to Type I diabetes development. Now they demonstrate that T cells that attack beta cells and lack the ability to produce oxidants, can also worsen Type I diabetes development.

The findings in this study show that low levels of oxidants are necessary for the immune system to function properly, and protect against Type I diabetes. Oxidants not only help T cells attack infections, but also tell T cells when to stop attacking in order to prevent killing healthy cells, such as beta cells. This research provides a paradoxical view of oxidants as protective in small doses, but damaging when absent or present in too large a quantity.

This study also found that adding oxidants to T cells unable to produce them reduced Type I diabetes development in mice. This finding suggests that, with additional testing, oxidants may provide a way to prevent Type I diabetes in at-risk children by preventing their beta cells from being destroyed.



Gail Cassell Microbiology Research Retreat

The Department of Microbiology had their 25th retreat last month in Banning, GA, thanks in part to the generous support of Dr. Cassell through her endowment. The Lodges at Historic Banning Mills provided a great platform for learning and fun. The 2016 Gail Cassell Scholars are listed below:

2016 Microbiology Research Retreat Award Winners

Oral Presentations

Graduate Students (4 years and up)

1. Stew New
2. Tyler Stewart and Ashley Burg (tie)

New Investigator (0-3 years)

1. James Kizziah
2. Jyoti Jyoti

PostDoc

Shannon Kahan & Avishek Mitra

Poster Presentations

Graduate Students (4 years and up)

Joshua Justice

New Investigator (0-3 years)

1. Anukul Shenoy
2. Jessie Barra

PostDoc

David Pajuelo-Gamez

Other Category

Krishna Chinta

David Briles selected as American Association for the Advancement of Science (AAAS) Fellow

The AAAS is the world's largest multidisciplinary scientific society and a leading publisher of cutting-edge research through its Science family of journals.



Dr. Vikram Saini, Instructor, delivered an invited oral presentation entitled, "Hydrogen sulfide regulates *Mycobacterium tuberculosis* bioenergetics and progression of tuberculosis disease" at the 4th International Conference

on the Biology of Hydrogen Sulfide held in Naples, Italy on June 3-5, 2016.

Max D. Cooper Endowed Immunology Travel Award helping further the education and training of students focused in the field of immunology

Dr. Preeyam Patel, a recipient of the 2015 *Max D. Cooper Endowed Immunology Travel Award*, traveled to the International Congress of Immunology in Melbourne Australia last month to present on how antibodies to phospholipid epitopes can inhibit the interaction of house dust mite with phosphorylcholine-specific receptors on antigen-presenting cells in the lung. Dr. Patel is a recent graduate of the UAB Graduate Biomedical Sciences Program and works in the lab of Dr. John Kearney. Other students from UAB to present included Sarah Dulson (Laurie Harrington Lab), Stacey Harbour (Casey Weaver Lab) and Mohamed Khass (Schroeder Lab).
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The *Max D. Cooper Endowed Immunology Travel Award* was established by the family of Max D. Cooper, M.D. to recognize his extraordinary accomplishments as professor of medicine, pediatrics, microbiology, and pathology and as Director of the Division of Developmental and Clinical Immunology at UAB.



Carson Moseley was recently awarded the *Max D. Cooper Endowed Immunology Travel Award* for 2016. He will be attending the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS) Conference in Paris in October 2017.

Murphy and Tak Receive Hiramoto Travel Awards

Congratulations to Hiramoto Travel Award recipients: Richard Murphy (Saad lab) who will travel to Colorado next March to attend the Keystone Symposia on Molecular and Cellular Biology and Uday Tak (Niederweis lab) who will travel to Vancouver BC next month to attend the Keystone Symposium: New Developments in our Basic Understanding of Tuberculosis.

[The Hiramoto Travel Award](#) honors the memory of Dr. Ray Hiramoto and provides travel assistance for graduate students to attend meetings, workshops and advanced courses offered by scientific societies and other organizations.

All Microbiology graduate students (defined as Ph.D. students with a *primary* Microbiology faculty member as a dissertation mentor) in good standing are eligible to apply for a Hiramoto Travel Award. The waiting period for or prior recipients to apply has been lifted.

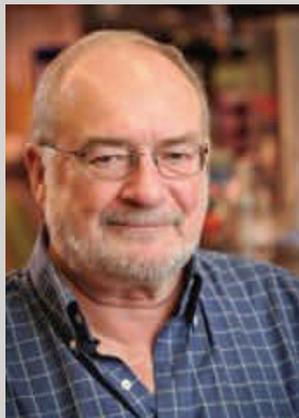


Congratulations to Tse on Weinmann on their October 1 Promotions

Two Micro faculty were promoted on 10/1. Hubert Tse has been promoted to Associate Professor with Tenure and Amy Weinmann has been promoted to Full Professor. Congratulations to them both.



Kearney Article Featured in the October 15, 2016 "In This Issue" Section of The Journal of Immunology



The JI publishes novel, peer-reviewed findings in all areas of experimental immunology, including innate and adaptive immunity, inflammation, host defense, clinical immunology, autoimmunity and more. Articles highlighted "In This Issue" are considered to be among the top 10% of articles published in the journal.

Orihuela's Lab Celebrates the End of November by Shaving.



BEFORE (Shown left to right: C. Orihuela, E. Swords, U. Tak, B. Spencer, D. Briles, A. Shenoy, T. Brissac, J. Lingo, B. Hunt)

Carlos and his team grow facial hair and shave it off at the end of the November to help raise awareness and funds for the Movember Foundation, the only charity tackling men's health on a global scale. Visit <https://us.movember.com/programs/cause> to learn more about this important cause.



AFTER

Attention Biology Freshmen and Sophomores: New Major Available!

Microbiology is pleased to announce a new undergraduate major – Immunology – a collaboration with the UAB College of Arts and Sciences' Department of Biology. In addition to the broad biological training that all Biology majors receive, this new major will provide state-of-the-art research experiences and one-on-one training in mentors' laboratories using the latest experimental techniques. Immunology is one of the hottest fields in the biomedical sciences. Combatting infectious diseases like HIV/AIDS, Ebola and Zika that threaten global health, using

the immune system to defeat cancer, or understanding how the immune system gone awry contributes to many human diseases, these are all part of the opportunities provided by this new major. It provides outstanding preparation for medically-oriented professional schools, graduate school or employment in the biotechnology and pharmaceutical fields.



For more information contact: [Lou Justement, Ph.D.](#) or [Vithal Ghanta, Ph.D.](#)

Welcome

Kamal Kaur - Postdoc (Leon)
 Robert van de Weerd - Postdoc (Niederweis)
 John Hixson - Volunteer (Lefkowitz)
 Shelby Colburn - Researcher I (Weinmann)
 Kevin Macon - Researcher V (Kearney)
 Dominik Herrmann - Student Assistant (Niederweis)
 Jonah Sharkins - Student Assistant (Zajac)
 Miranda Burnette - Postdoc (Klug)
 Eric Stokes - Volunteer (Novak)
 Katie Heath - Researcher III (Tse)
 Shuang Lyu - Postdoc (Luo)
 Lizhou Zhang - Postdoc (Luo)
 LaDonna Patterson - Researcher I (Orihuela)
 Bjorn Sunde - Consultant (Niederweis)
 Luis Sanchez Vargas - Postdoc (Zajac)

Farewell

Michael Zeiger - Researcher I (Tse)
 Dal Young Kim - Researcher V (Frolov/Frolova)
 Praphulla Shrestha - Research Tech (Turnbough)
 George Rebmann - MICRO Grad Student
 Lauren Dison - Student Assistant (Zajac)

We're on the web:

<http://www.uab.edu/microbiology>



Follow us on Twitter — [@UABMicrobiology](#)

Our Twitter account is an easy way for faculty, trainees, and staff to keep up with department activities. If you have information to share via Twitter, send it to gunnin@uab.edu.

Publications | July 1 - September 30, 2016

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Publications

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Thomas KA, **King RG**, Sestero CM, **Justement LB**. TREM-like transcript 2 is stored in human neutrophil primary granules and is up-regulated in response to inflammatory mediators. *J Leukoc Biol.* 2016;100(1):177-84. PubMed PMID: 26753760

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Grants and Contracts

July 1 – September 30, 2016

Lund, Fran

National Institute of Health—Emory University
Plasma Cells in Health and Disease-Project 2

Niederweis, Michael

Tres Cantos Open Lab Foundation
Self-Poisoning of Mycobacterium Tuberculosis by Inhibiting Siderophore Secretion

Novak, Jan

National Institute of Health—Columbia University
Aptamers-Based Arrays for Detec-

tion of Pathogenic IgA 1 O-Glycoforms in IgA Nephropathy

Orihuela, Carlos

American Heart Association
Caspase-Associated Necroptosis of Cardiomyocytes

Orihuela, Carlos

National Institute on Aging/NIH/DHHS
Inhibition of Necroptosis During Inflamm-Aging and Pneumonia

Tse, Hubert

Juvenile Diabetes Research Founda-

tion International
Islet Encapsulation with Immunomodulatory Nanothin Coatings

Mark Walter

National Institute of Health—Oregon Health & Science University
Impact of Mutant IL-20RB on Glaucoma

Zajac, Allan J

American Cancer Society, Inc.
Customizing Optimal CD8 T Cell Responses

Around Campus and About Town



The Market at Pepper Place

Presented by Pepper Place Farmer's Market at Pepper Place
 April 9 - December 17, 2016



Holiday Spectacular 2016

Presented by Red Mountain Theatre Company at RMT Cabaret Theatre
 December 2 - December 18



Birmingham's Winter Wonderland

Presented by Railroad Park at Railroad Park
 November 25 - January 15



Birmingham Ballet: The Nutcracker

Presented by Birmingham Ballet at BJCC
 December 10-11



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