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Message from the Director:

It is my pleasure to welcome you to the first newsletter from the Mary H. Weiser Food Allergy Center at the University of Michigan. This is an exciting time at the Weiser Center and this newsletter will fill you in on a remarkable number of interesting topics.

We've been fortunate to recruit a number of remarkable young faculty members to the Center, and over the coming months additional faculty will be joining the center to perform research. Today we discuss the research of two junior faculty in the Center. One is Dr. Jessica O'Konek who is developing vaccines to prevent food allergies and perfecting animal models of this disease. The second is Dr. Catherine Ptaschinski who is examining factors involved in the development of eosinophilic esophagitis. Their work is very exciting.

We also have a profile of Dr. Gary Huffnagle who is the first recipient of the Nina and Jerry D. Luptak Research Professorship. Gary is examining effects of the bacteria in the gut on the development of food allergy. The Luptak professorship is one of five research professorships that have been gifted to the Center. The others are the Ashken Family Professorship, the Askwith Research Professorship, the Kenneth and Judy Betz Family Research Professorship and the William Chandler Swink Research Professorship. In future newsletters we will tell you about other new faculty being recruited to the Center who will assume these professorships and broaden our research activities.

Finally, this issue has a discussion about the cost of epinephrine auto injectors. This is one of the most vexing problems that young families have to deal with, as these devices cost several hundred dollars a piece and are required as a life-saving measure for people with food allergies. Making sure that these devices remain

affordable and accessible to all children and adults with food allergy is a major advocacy goal of the Center. I hope you find this particular topic interesting enough to get involved in the effort to have pharmaceutical companies understand the need for affordable drugs.

Best wishes,

Jim Baker

Director, Mary H. Weiser Food Allergy Center



Research at MHWFAC: Help is On the Way

A heartbreaking reality for families around the world is that there are no effective treatments for food allergies and its related illnesses including acute allergic reactions (shock) and inflammation of the intestines. Enter the Mary H. Weiser Food Allergy Center (MHWFAC) which focuses its research on what causes food allergies and on developing potential treatments to improve or cure this difficult disease. Several research projects that identify new approaches to managing food allergies are underway. We highlight two research programs that have already shown outstanding progress.

Jessica O'Konek, PhD has been utilizing a nanoemulsion vaccine (developed by James R. Baker, Jr., MD) to suppress the allergic response to food and reduce allergic reactions. The studies have shown that egg or peanut allergic animals vaccinated with the nanoemulsion and food allergens can reduce allergic immune responses that cause life-threatening reactions. The vaccine actually shifts to a protective immune response to the food from the allergic response. Dr. Baker's research has already shown that the nanoemulsion component is safe to use in humans, so Dr. O'Konek's work provides a rapid approach to a vaccine to block food allergy.

A second research program focuses on Eosinophilic Esophagitis (EoE), an inflammation of the tube between the mouth and the stomach that is associated with food allergies. This program is directed by Catherine Ptaschinski, PhD and focuses on a unique approach to alleviate allergic inflammation and reduce damage to the esophagus. Dr. Ptaschinski has shown that specific protein involved in allergic inflammation, Stem Cell Factor (SCF), is highly increased in the esophagus in humans with this disease. She has been able to block SCF in animals with experimental EOE and inhibit allergic inflammation and damage to the esophagus. These findings provide strong evidence the SCF may be important in treating EOE. Future studies will examine whether blocking SCF will inhibit other types food allergies.

By coming at the problem of allergic response from diverse directions, research at

the MHWFAC increases the promise of effective therapy for food allergy patients in the future.



Faculty Profile: Gary B. Huffnagle, PhD

It's the little things that matter to microbiologist, Gary B. Huffnagle, PhD. The biology bug bit him during a high school project on artificial blood, long before he would become the Nina and Jerry D. Luptak Research Professor for the Mary H. Weiser Food Allergy Center (MHWFAC) at Michigan Medicine and Professor of Internal Medicine, Pulmonary and Critical Care Medicine and Microbiology and Immunology.

Raised on the western shore of the Susquehanna River in the Harrisburg, Pennsylvania area, Huffnagle didn't stray far to obtain his B.S. with honors in microbiology from Penn State. To further develop his keen interest in the intersection between microbiology and how the human body works (physiology), he went on to earn a PhD in immunology from the University of Texas Southwestern Medical School.

Because of the increasing prevalence of food allergies, Huffnagle finds his work at the MHWFAC both vital and rewarding. His research group focuses on host and microbiome interaction (that's the various microorganisms living in, or on, the human body) in Cystic Fibrosis, COPD and Food Allergy. When it came to studying foods that cause allergic disease, Huffnagle's group decided to start where many things do – with an egg. They'll use what they learn from egg allergy and move onto peanuts, comparing and contrasting.

He cites the interdisciplinary approach as key to finding a successful allergy treatment by bringing the “how it works” together with bench work, human feedback and experimental models. In that area his team is making progress with robust models for severe food anaphylaxis. They've also been able to demonstrate that changing the microbiome in mice can develop some features of food allergies.

Regard for Huffnagle's work extends outside academia. His 2007 book *The Probiotics Revolution: The Definitive Guide to Safe, Natural Health Solutions Using Probiotic and Prebiotic Foods and Supplements* was on the forefront of describing probiotic therapy, which has been receiving increasing attention from the medical and natural health communities.

Huffnagle loves sharing his enthusiasm for the varied world of bacteria, viruses, archaea, fungi and protozoa and still teaches two undergraduate microbiology courses. “One of my big joys is telling students in Microbiology 207, how broad the

impact is from sceptic systems, to how plants work, to immunology.”

A self-described board game geek, Huffnagle is also a pet lover. Now that his daughter and son are both in college, Huffnagle and his wife, a critical care nurse at U-M Hospital, have pared down their pet inventory to two dogs and two cats. Currently in the throes of a house renovation, Huffnagle looks forward to eventually using his free time to take on a tennis opponent or get a game of golf in.



The Support That Makes Progress Possible:

Tremendous fundraising by the Center’s Advisory Committee members is advancing the goals for the Mary H. Weiser Food Allergy Center which seeks to find new ways to understand, treat and cure the rising incidence of food allergy disease. In May 2015, the Food Allergy Center was named the Mary H. Weiser Food Allergy Center (MHWFAC) through a major gift from Ron and Eileen Weiser. To further accelerate progress, the MHWFAC has commitments for five new professorships:

- Ashken Family Professorship
- Askwith Research Professorship
- Kenneth and Judy Betz Family Research Professorship of Food Allergy Research
- Nina and Jerry D. Luptak Research Professorship
- William Chandler Swink Research Professorship

A professorship, by honoring both a donor and an accomplished recipient, will support either an existing or new world-class faculty member. Professorships celebrate and further the groundbreaking achievements its recipients have made and will facilitate discovery that will change the course of care for individuals with food allergies. Professorships may be established and filled once half the pledge has been received, and currently two professorships have reached this level. This past fall, the MHWFAC celebrated the installation of Gary B. Huffnagle, Ph.D. as the first Nina and Jerry D. Luptak Research Professor. Also this fall, the University Board of Regents approved the Kenneth and Judy Betz Family Research Professorship of Food Allergy. This Professorship will be available to our next faculty recruit, pending approval from the Regents. Thanks to these endowed professorships, the MHWFAC continues to recruit additional expert researchers to build a vibrant food allergy research program.

Finally, a generous grant from the William Davidson Foundation is being used for the MHWFAC’s recruitment efforts and supports its quest to expand the knowledge and understanding of food allergies. In recognition of the Foundation’s generosity the MHWFAC’s laboratories, located on the fourth floor of the A. Alfred Taubman Biomedical Science Research Building, have been named the *Davidson Family Food*

To join these contributors in the important work of funding food allergy research go to our [giving page](#).



Affordable Auto-injector Options Expand:

For millions of allergy patients at risk for anaphylaxis, a potentially fatal allergic reaction, their prescription epinephrine auto-injector is the constant companion they can't afford to be without. If used immediately at the first sign of symptoms, this self-administered shot of adrenaline is highly effective in reversing skin reactions, swollen lips, difficulty breathing, reduced blood pressure or gastrointestinal distress that can be life threatening.

Controversial price increases for EpiPen, the well-known epinephrine auto-injector manufactured by Mylan, was big news last year. In 2009 each EpiPen 2-Pak cost just over \$100 but by 2016 the price had ballooned to around \$609 per 2-Pak, a daunting sum for most families and individuals. Pressure on Mylan, including a congressional hearing, has resulted in the widening of its [patient assistance program](#) to offset up to \$300 of each two-pack as well as an opportunity for patients to purchase EpiPens directly from the company.

However, EpiPens are not the only adrenaline delivery device in town. As of February 2017 the improved Auvi-Q epinephrine auto-injector, with its unique step-by-step voice instruction system and auto-retracting needle, is available via the [Auvi-Q AffordAbility](#) program for little or no cost to many Americans. Commercially insured patients will pay \$0 out of pocket expenses, uninsured patients with an income less than \$100,000 can receive the Auvi-Q for free and the program also offers a direct delivery option.

After pharmacies took some heat for their role in the EpiPen cost increases, drug store giant CVS Health got into the act by offering a [generic](#) version of the Adrenaclick auto-injector that sells for about \$109 per two-pack before any coupons or possible discounts.

If you or your child has severe allergies, preparation is essential. Make a [Food Allergy & Anaphylaxis Emergency Care Plan](#) and discuss the various FDA-approved epinephrine auto-injector options with your doctor. So, if a serious reaction does occur, you'll be ready.





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About US:

The University of Michigan Mary H. Weiser Food Allergy Center (MHWFAC) has been established to investigate novel areas of research to better understand the causes and to help develop new cures for food allergies.

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Our mailing address is:

9220 Medical Sciences Research Building III
1150 W. Medical Center Drive
Ann Arbor, MI 48109-5648
Phone: 734-647-2777

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