Drina Avram, Ph.D., Professor in the Center for Immunology and Microbial Disease has identified a potential path to providing relief of symptoms of multiple sclerosis (MS), a disease with few treatments that affects 350,000 Americans. To support her work in this area, Dr. Avram has just been awarded a five-year, $632,000 grant from the National Multiple Sclerosis Society.

Writing in the Journal of Clinical Investigation, Dr. Avram said she was able to eliminate symptoms in mice which have an MS-like disease by removing a single molecule to alter the immune system's T-cells. She also stated the work could highlight a new therapeutic strategy for MS, an autoimmune disorder that is more common in northern regions, including upstate New York.

“My team is thrilled that this work is showing such promise as a new approach toward treating this devastating disease that we see a lot of at Albany Med,” said Dr. Avram. She said while her current research involves animal studies, she has been meeting with neurologists at Albany Medical Center to discuss research strategies.

“Dr. Avram’s research is very exciting. Her results suggest that there may be new and very effective treatment options for people with MS,” said Michael Gruenthal, M.D., Ph.D., chair of neurology at Albany Medical Center. “More laboratory research is needed before we can consider research studies in people with MS. When there’s an opportunity to begin research in people with MS, we’ll be ready.”

In multiple sclerosis, the immune system mistakenly attacks normal cells and tissues in the central nervous system. The result is severe inflammation creating symptoms such as weakness, numbness, and loss of vision in one eye.

In the studies, Dr. Avram removed an immune system-controlling molecule called BCL11B from immune system T-cells, which weakened the immune reaction. As part of a cascade of effects, removal of this molecule from the T-cells resulted in an increase in Interleukin 4 (IL-4), and consequently of retinoic acid, a metabolite of vitamin A critical for rerouting immune system cells from the central nervous system to the small intestine. Diminished T-cell infiltration into the central nervous system resulted in reduced severity and delayed onset of disease symptoms.

“We expected the T-cells to be less activated. What we did not expect was their diversion to the small intestine where they were rendered harmless,” Dr. Avram said.

In another study, Dr. Avram vaccinated diseased mice in a manner to boost IL-4 and found the same effect.

“If this method works in people, we don’t expect it would provide a cure but rather an extended remission. Of course, we are still in the early phases of research but this is an important development that opens up new possibilities,” said Dr. Avram.
Dr. Drake Appointed to Journal of Biological Chemistry Editorial Board

James R. Drake, Ph.D., was invited to join the Editorial Board of the Journal of Biological Chemistry (JBC) for a five-year term from July 1, 2014 through September 30, 2019. Dr. Drake was asked to participate due to his expertise in cell biology and molecular mechanisms of antigen processing and presentation, as well as other related fields.

Dr. Metzger Re-appointed as Journal of Immunology Section Editor

Dennis W. Metzger, Ph.D., was recently re-appointed as a Section Editor for The Journal of Immunology for an additional two year term from July 1, 2014 to June 30, 2016. Dr. Metzger was asked to consider the extension due to his significant contributions to the Editorial Board of the American Association of Immunologists. His current term runs through June 30, 2014.

Grant Awards

- Dorina Avram, Ph.D., received a five-year, $632,000 grant from the National Multiple Sclerosis Society for her work entitled, "A Novel Ubiquitin Ligase with Role in EAE Severity.

Recent Grant Submissions

- Dana R. Crawford, Ph.D., Dietary targeting of specific chromosome 21 genes to treat Down Syndrome. NIH. November 2013.
- Carlos de Noronha, Sc.D., Sulforaphane as an inhibitor of HIV infection. NIH. January 2014.
- Guangchun Bai, Ph.D., Cyclic di-AMP in TB pathogenesis. NIH. February 2014.
- Dorina Avram, Ph.D., Mechanism of Malt1 regulation by a novel ubiquitin ligase. NIH. March 2014.

Important Points to Remember

- Give your “pink pages” for all grant applications to Bob Lord two weeks prior to the official submission deadline.
- Administrative Leave forms need to be submitted, along with documentation (title of presentation/conference/workshop and location), at least 24 hours before the actual date(s).
- Keep all original, itemized receipts for reimbursement of work-related travel; Work-related foreign travel must be prior approved by the Center Director.
Conferences, Meetings, and Study Sections

James R. Drake, Ph.D., was invited to give a seminar entitled, “B Cell Antigen Processing: From BCR Endocytosis to Antigen Processing and Beyond,” at Pennsylvania State University in University Park, PA, October 30, 2013.

Dennis W. Metzger, Ph.D., served on the National Institutes of Health Immunity and Host Defense Study Section in Bethesda, MD, November 6-7, 2013.

James R. Drake, Ph.D., was invited to give a seminar entitled, “Lipid Rafts, Ubiquitin and Clathrin Coated Pits - Three Key Elements of the Immunobiology of B Lymphocyte Function” for the Department of Biological Sciences at Union College, Schenectady, NY, November 7, 2013.

Kirsi Jarvinen-Seppo, M.D., Ph.D., was invited to give a talk entitled, “Preventing Allergy: What Can Be Done During Pregnancy and Breastfeeding?” at the American College of Allergy, Asthma, and Immunology in Baltimore, MD, November 11, 2013.

Dennis W. Metzger, Ph.D., served on the National Institutes of Health, National Institute of Allergy and Infectious Diseases Computational Immunology Working Group which evaluates consortia funded entities who perform computational immunology studies. The meeting took place in Bethesda, MD, February 3-4, 2014.

Dennis W. Metzger, Ph.D., was recently reappointed as a member of the External Advisory Board for NIH’s Center of Biomedical Research Excellence (COBRE) at Dartmouth Medical School to review the school’s research programs on February 6-7, 2014.

James R. Drake, Ph.D., was invited to be a Co-chair for the National Institutes of Health/ National Institute of Allergy and Infectious Diseases Human Immunology Project Consortium (HIPC) and participated in the review of progress on >$100M NIH grants previously awarded to study immune responses in humans. The meeting was held in Bethesda, MD, February 19-20, 2014.

Peer-reviewed Publications


Staff in the Center for Immunology and Microbial Disease celebrated the season with a **Holiday Luncheon** on Tuesday, December 10, 2013. It was the first time for many to see the new lounge and conference room located in the MR building. Members of CIMD contributed to the celebration by providing a huge variety of appetizers and desserts to share. The entrees were catered by Old Daley Inn and included something for everyone!

Graduate Students

- Reminder for First Year Graduate Students: Your Winter Laboratory Rotation Reports are due Friday, March 14, 2014. Submit your report via email to both Dr. Friedrich and your Rotation Advisor, as well as completing the Lab Rotation Form (page 2) prior to the start of your next rotation. The Spring Rotation begins Monday, March 17, 2014.

- All second year and beyond Graduate Students are required to participate in the Graduate Studies Program Poster and Awards Days. Poster Day is March 12, 2014. If you have not already done so, please contact Wendy Cragan to schedule a time for your poster printing.

CIMD Seminars

**January 30, 2014**

11:00 a.m., Huyck Auditorium  
Dennis Metzger, Host  
(Faculty Candidate)

**Nicholas J. Mantis, Ph.D.**  
Chair, Department of Biomedical Sciences  
Research Scientist V  
Division of Infectious Disease  
University at Albany School of Public Health  

“Deconvolution of the Antibody Response to Ricin Toxin”

**February 27, 2014**

11:00 a.m., Huyck Auditorium  
Guangchun Bai, Host

**George A. O’Toole, Ph.D.**  
Professor and Vice Chair  
Department of Microbiology & Physiological Systems  
Geisel School of Medicine at Dartmouth

“To Build a Biofilm: Polymicrobial Communities in CF”