**Division Data Summary**

### Research and Training Details

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<td>Number of Support Personnel</td>
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<tr>
<td>Direct Annual Industry Support</td>
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<td>Peer Reviewed Publications</td>
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</tbody>
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### Clinical Activities and Training

<p>| | |</p>
<table>
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<th></th>
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<tr>
<td>Number of Clinical Fellows</td>
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</table>

**Significant Publications**


In this manuscript, Drs. Herbert and Finkelman have identified a novel mechanism by which the mammalian host protects itself against intestinal parasitic infections. They have shown that T helper 2 cytokines (IL-4, IL-13) mediate...
protection against parasitic infections by inducing the differentiation of normal gut epithelium into goblet cells, which then secrete RELM-b. Once produced, RELM-b prevents hookworms from obtaining nutrients from the host gut epithelium. As a result, they starve and are expelled by the host (Journal of Experimental Medicine, 2009). These insights may lead to the development of therapeutic approaches to inhibit the morbidity associated with widespread parasitic infection.


Dr. Jordan and colleagues have reported that direct effects of the T cell cytokine, interferon-gamma, on macrophages is important in the control of multiple protozoan parasites. Specifically, they generated mice called the "macrophages insensitive to IFN-gamma" (MIIG) mice, which express a dominant negative mutant IFN-gamma receptor in CD68+ cells (monocytes, macrophages, dendritic cells, mast cells). Utilizing this unique tool they showed the specific importance of direct, IFN-gamma mediated activation of macrophages in vivo for controlling infection with protozoan parasites (Trypanosoma cruzi, Leishmania major). This finding may have implications for a broad range of intracellular infections.


In this manuscript, Dr. Hildeman and colleagues investigated the role of sex hormones of the immunopathologic sequelae of CNS viral infection. They found that androgens suppress T cell responses and also affect the quality and quantity of antigen-presenting cells in the CNS. Combined these results provide an explanation for the well known, but poorly understood, sex differences in immunity and autoimmunity.


In this paper, Dr. Hildeman and his collaborators showed that administration of IL-7 prevents morbidity and mortality in a mouse model of sepsis. Further, they showed that IL-7 reverses fundamental immunologic defects in sepsis, i.e., the loss of critical immune effector cells and the subsequent compromised host defenses. These findings suggest that delivery of IL-7 may be beneficial for the treatment of septic patients as well as patients with other conditions where lymphopenia is a problem (e.g. HIV, cancer, bone marrow transplantation).


Exposure to airborne particulate matter (PM), a major component of air pollution, has been associated with increases in both exacerbations of and hospitalizations for asthma. Dr. Wills-Karp and her group explored the mechanisms by which PM may induce the symptoms of asthma. They demonstrate for the first time that particulate matter exposure increases the pathophysiological features of asthma via activation of lymphocyte-dependent pathways. These results provide a plausible biological mechanism for the strong association between PM exposure and the increased severity of asthma.

**Division Highlights**

**Immunobiology Graduate Program**

The Immunobiology Graduate Program has initiated an International Graduate Student Exchange Program with Dr. Koehl at the University of Lubeck in Germany. This program would allow students enrolled at UC to spend up to 2 years at the University of Lubeck conducting their thesis research, and vice versa. Several members of the Immunology Graduate Program (Wills-Karp, Hildeman, Finkelman, Hogan, Alberti, Chougnet) visited Lubeck in June to launch this effort. We anticipate that we may enroll students into this exchange program in the Fall term of 2011.

Fred Finkelman, M.D.

Dr. Finkelman and his laboratory study the immunology of T cell mediated disorders including asthma/allergies and parasitic infections. In collaboration with Dr. Herbert, they have recently elucidated the mechanisms by which alternatively activated macrophages prevent the cachexia, neutrophilia, and endotoxemia associated with acute schistosomiasis. Specifically, they showed that a product of alternatively activated macrophages, arginase I protects the host against excessive intestinal injury caused by worm eggs by shifting the immune response from an inflammatory response (IL-12p40) towards an anti-inflammatory response (TGF-B) in the gut (Journal of Immunology, 2009). As *Schistosoma mansoni* currently infects 207 million people worldwide, identification of arginase 1, as a factor that may prevent the...
extensive tissue damage associated with this parasitic infection, is an important step in prevention of the morbidity associated with this widespread parasitic infection. Dr. Finkelman received a great honor this year by being named as Treasurer of the Federation of American Societies for Experimental Biology (FASEB).

Lee Grimes, Ph.D.

Dr. Lee Grimes studies the regulation of transcriptional circuits whose dysregulation leads to autoimmunity, neutropenia and leukemia. He and his collaborators have elucidated the mechanistic links between the most frequently mutated gene in severe congenital neutropenia patients (neutrophil elastase) and the Growth factor independent-1 transcription factor (Gfi1). They found that these proteins physically interact through a novel bridging molecule, PFAA55. Interestingly, inhibition of the bridging molecule results in the impairment of the interaction between neutrophil elastase and Gfi1 and disrupts the transcriptional program under Gfi1’s control resulting in impaired neutrophil differentiation and proliferation (Mol. Cell Biol, 2009). In collaboration with colleagues in Canada, he has also identified a novel role for Gfi1 in suppressing endotoxin-induced septic shock. Specifically, Gfi1 null mice display abnormal macrophage activation leading to the over production of the pro-inflammatory cytokine TNF-a. The mechanism by which Gfi1 suppresses endotoxin-induced inflammation is by binding to the LPS-induced transcription factor, NF-kB, and preventing it from upregulating TNF-a gene expression. Thus, without Gfi1, macrophages have abnormal NF-kB activity, resulting in TNF-a mediated inflammation (Mol. Cell Biol., 2010). Future work will focus on how to harness Gfi1’s ability to control the inflammatory process more broadly.

Jochen Mattner, M.D.

Jochen Mattner, M.D., studies the molecular mechanisms of primary biliary cirrhosis. He has recently illustrated how the common gut bacterium Novosphingobium triggers autoimmune liver disease in mice. Specifically, they showed how the bacterium, due to its unique cell wall antigens, activates NKT cells that provide help for autoreactive B cells. When extended to humans, these findings imply that straightforward antibiotic treatment might prevent or halt the autoimmune process in genetically susceptible individuals. Currently, the laboratory is studying the role of genetic susceptibility factors that may lead to susceptibility to the induction and progression of autoimmune liver disease in response to this bacterial infection.

Marsha Wills-Karp, Ph.D.

Dr. Wills-Karp and her laboratory study the immunopathogenesis of asthma. They have recently identified a novel link between the ancient innate immune mediator, C5a, and a newly identified subset of CD4+ T cells referred to as Th17 cells. Specifically, they demonstrated that the anaphylotoxin, C5a, suppresses the activation of the IL-23/Th17 axis and that dysregulation of this factor leads to the development of a severe form of asthma. This work represents a paradigm shift in our understanding of the role of this innate immune mediator in disease states. As such this work has been accepted for publication in *Nature Immunology*. The identification of this link between the anaphylatoxins and the Th17 arm of the immune response has implications beyond asthma in that several autoimmune diseases such as arthritis, and lupus have previously been shown to be associated with both complement deficiencies and overzealous Th17-mediated immune responses. These results support the development of therapies aimed at modulating complement activation factors in immune diseases. *J Immunol*. 2009 Aug 15;183(4):2312-20.

### Division Collaboration

**Collaboration with Allergy/Immunology**

**Collaborating Faculty: Simon Hogan, Ph.D.**

Dr. Finkelman, in collaboration with Dr. Hogan in the Allergy and Immunology Division, demonstrated that mast cells regulate homeostatic intestinal epithelial migration and barrier function by a chymase/Mcpt4-dependent mechanism. (Proc Natl Acad Sci U S A., 2009).

**Collaboration with University of Cincinnati College of Medicine**

**Collaborating Faculty: Charles Caldwell, Ph.D.**

Dr. Hildeman collaborated with Drs. Caldwell and Hotchkiss at the University of Cincinnati College of Medicine to demonstrate that a particular T cell-derived cytokines, IL-7, can improve the survival in models of sepsis. This finding may lead to the development of therapeutic strategies to greatly improve survival of septic patients.

**Collaboration with National Institutes of Health**

**Collaborating Faculty: Eirini Manoli, M.D., Ph.D.**

Dr. Jordan has collaborated with Dr. Manoli from the National Institute of Health to show that Chediak-Higashi syndrome associated with early developmental delay, results from paternal heterodisomy of chromosome 1. Unmasking of a separate autosomal recessive cause of developmental delay, or an additive effect of the paternal heterodisomy, may explain severe forms of the disease (*Am J Med Genet A.*, 2010).

**Collaboration with Hematology/Oncology**

**Collaborating Faculty: Lisa Filipovich, M.D. and Rebecca Marsh, M.D.**

In collaboration with Drs. Filipovich and Marsh in the Division of Hematology/Oncology, Dr. Jordan demonstrated that although XIAP deficiency caused by BIRC4 mutations, has been thought to cause X-linked lymphoproliferative disease (XLP) phenotypes, it is more appropriately classified as X-linked familial hemophagocytic lymphohistiocytosis (*Blood*, 2010).

**Collaboration with Experimental Hematology**

**Collaborating Faculty: Yi Zheng, Ph.D.**

Dr. Grimes, in collaboration with Dr. Zheng in the Division of Experimental Hematology showed that Rho GTPase Cdc42 is
Dr. Grimes, in collaboration with Dr. Zheng in the Division of Experimental Hematology, showed that Rho GTPase Cdc42 is essential for B-lymphocyte development and activation. (Blood, 2009).

Collaboration with Critical Care Medicine

Collaborating Faculty: Kristen Page, M.D.
Dr. Wills-Karp, in collaboration with Dr. Page in the Division of Critical Care Medicine, determined that cockroach antigens initiate immune responses in the lung via activation of the protease-activated receptor 2 in the airway epithelium. This observation suggests that targeting the PAR-2 may be an effective approach to preventing sensitization to these common household allergens (Resp. Res, 2010).

Collaboration with Johns Hopkins University

Collaborating Faculty: Estelle Gauda, M.D. and Gregorio Valdez, Ph.D.
Dr. Wills-Karp in collaboration with colleagues at Johns Hopkins University, Dr. Gauda and Valdez, have shown that caffeine treatment for apnea of prematurity is associated with enhanced production of proinflammatory cytokines in a cohort of preterm infants. These findings may explain the susceptibility of premature infants to inflammation-mediated tissue damage and suggests that other means of ventilatory stimulation should be utilized instead of caffeine. (J Pediatrics, 2010).

Collaboration with Neonatology

Collaborating Faculty: Jeffrey Whitsett, M.D.
Dr. Wills-Karp collaborated with Dr. Whitsett in the Division of Neonatology to demonstrate that the expression of the transcription factor, Foxa2, in the airway epithelium programs Th2 cell-mediated innate immunity in the developing lung through regulating the recruitment and activation of myeloid dendritic cells and Th2 cells in the lung (J Immunol., 2010). This study represents a major advance in our understanding of the origin of a number of respiratory inflammatory diseases (CF, asthma, pulmonary fibrosis).

Collaboration with

The Mediator and Cytokine Measurement Core run by the Division of Immunobiology has provided measurements of various biological mediators for numerous investigators at CCHMC (Gastroenterology, Experimental Hematology, Asthma Research, Infectious Disease, Developmental Biology, Molecular Cardiovascular Biology, Molecular Immunology, Allergy/Immunology, Psychiatry, Healthworks, Neonatology and Pulmonary Biology, Adolescent Gynecology) and other institutions (Johns Hopkins University), UCCOM (Internal Medicine, Infectious Diseases, Neurology, Environmental Health Sciences, Physiology, Surgery, Rheumatology, Pathology, Psychiatry), and Wright State University. We have recently partnered with the Center for Digestive Diseases to offer cytokine/mediator measurements to their members at a reduced cost.

Faculty Members

Marsha Wills-Karp, PhD, Professor; Division Director; Director of Immunobiology Graduate Program; Associate Dean for Basic Science and Special Projects - UCCOM; Rieveichl Professor of Pediatrics
Research Interests: Immunopathogenesis of asthma

Fred Finkelman, MD, Professor; McDonald Professor, UC Department of Internal Medicine, Division of Rheumatology and Immunology
Research Interests: Allergy/Asthma, Intestinal Parasites

H. Leighton Grimes, PhD, Associate Professor; Scholar, Leukemia and Lymphoma Society; Director Cancer Pathology Program
Research Interests: Leukemia/Lymphoma

David A. Hildeman, PhD, Associate Professor; Associate Director, Immunobiology Graduate Program
Research Interests: T-cell Biology

Michael B. Jordan, MD, Assistant Professor
Research Interests: Childhood Immunodeficiency Diseases

Jochen Mattner, MD, Assistant Professor
Research Interests: Autoimmune Liver Diseases

De'Broski Herbert, PhD, Assistant Professor
Research Interests: Inflammatory Bowel Diseases/Intestinal Parasitic Infections

Joint Appointment Faculty Members

Eman Al-Khadra, MD, Assistant Professor
Critical Care Medicine

Kristen Page, PhD, Associate Professor
Critical Care Medicine
Trainees

- Pulak Tripathi, PhD, PGY-7, Markey Cancer Center, University of Kentucky, Lexington, Kentucky
- Vanessa Saunders, BS, GS-7, Fisk University, Nashville, Tennessee
- Marat Khodoun, PhD, PGY-6, National Research Institute of Biotechnology, Moscow, Russia
- Ian Lewkowich, PhD, PGY-6, University of Manitoba, Winnipeg Manitoba, Canada
- Erin Zoller, BS, GS-6, University of Virginia, Charlottesville, Virginia
- Chinavenmeni Velu, PhD, PGY-5, Texas Tech University Medical Center, Amarillo, Texas
- James Phelan, BS, GS-5, The Ohio State University, Columbus, Ohio
- Stephane Lajoie, PhD, PGY-2, McGill University, Canada
- Sema Kurtulus, BS, GS-4, Sabanci University, Istanbul, Turkey
- Aditya Chaubey, PhD, PGY-3, Clemson University, Clemson, South Carolina
- Yuzaburo Inoue, MD/PhD, PGY-3, Chiba University, Chiba, Japan
- Theodore Johnson, MD, PGY-3, Medical College of Georgia, Augusta, Georgia
- Yusuke Suzuki, PhD, PGY-3, Kelo University, Tokyo, Japan
- Robert Thacker, PhD, PGY-3, The University of Cincinnati, Cincinnati, Ohio
- Mark Webb, BS, GS-3, Brigham Young University, Provo, Utah
- Catherine Hair, BS, GS-2, Asbury College, Wilmore, Kentucky
- Stacey Burgess, BS, GS-2, Marietta College, Marietta, Ohio
- Jana Raynor, BS, GS-2, North Georgia College and State University, Dahlonega, Georgia
- Naina Gour, BS, GS-2, University of Delhi, Delhi, India
- Sara Stoffers, BS, GS-3, University Central Florida, Orlando, Florida
- Andrew Lindsley, MD/PhD, PGY-4, Indiana University, Indianapolis, Indiana
- Brian Ladle, MD/PhD, PGY-4, Johns Hopkins University
- Supriya Pokkali, PhD, PGY-2, Tuberculosis Research Center, Chennai, India

Significant Accomplishments

**Doing battle against hookworms**

Intestinal parasites known as hookworms infect an estimated 1.3 billion people worldwide. The parasites can affect growth and mental development and can cause congestive heart disease. Debroski Herbert, PhD, and Fred Finkelman, MD, are studying a novel method for preventing these infections.

Herbert's lab focuses on the role of macrophages in the pathogenesis of inflammatory gut disorders such as colitis and parasitic helminth infection. Herbert and Finkelman have identified a novel mechanism, published in 2009 in the *Journal of Experimental Medicine*, by which T helper 2 cytokines protect against intestinal worm infections. In particular, the cytokines IL-13 and IL-4 induce the differentiation of normal gut epithelium into goblet cells, which then secrete RELM-b. Once produced, RELM-b prevents hookworms from obtaining nutrients from the host gut epithelium. As a result, they starve and are expelled by the host. These insights may lead to new therapies with potential major impact on global health.

**Exploring a new weapon against sepsis**

David Hildeman, PhD, studies the molecular mechanisms regulating the development and maintenance of T cell memory. He has recently discovered that the transcription factor STAT5 is critical for cytokine-driven survival in T cells by elevating the pro-survival molecule Bcl-2. Further, he and his collaborators have recently reported in the Journal of Immunology that a T cell survival cytokine, IL-7, could prevent mortality in a mouse model of sepsis. The research team is exploring the potential utility of IL-7 delivery in the treatment of sepsis.

**Novel HLH clinical trial begins**

Michael Jordan, MD, has been studying how the immune response regulates itself and how things go wrong when this mechanism is broken, as it is in children with certain types on immune deficiencies. As part of this endeavor, the Jordan lab has translated some of their laboratory findings into a unique clinical trial for children with Hemophagocytic Lymphohistiocytosis (HLH). This trial, now open at Cincinnati Children's, is the first ever initiated by a U.S. investigator to treat HLH. It seeks to test a novel hybrid approach for treating HLH, combining specific immunosuppression and chemotherapy. Results are expected within two to three years.
Division Publications


### Grants, Contracts, and Industry Agreements

#### Grant and Contract Awards

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<td>Direct IL-4 and IL-13 Effects on Pulmonary Smooth Muscle in Allergic Airway Disease&lt;br&gt;National Institutes of Health&lt;br&gt;R01 HL 097360</td>
<td>09/01/09 - 08/31/11&lt;br&gt;$312,500 / $625,000</td>
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<td><strong>Grimes, H</strong></td>
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<td>The Molecular Basis of Acute Myeloid Leukemia&lt;br&gt;The Leukemia and Lymphoma Society</td>
<td>10/01/2005 - 06/30/2010&lt;br&gt;$105,000 / $498,750</td>
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<td>Epigenetic Manipulation of Leukemia&lt;br&gt;Alex's Lemonade Stand Foundation</td>
<td>07/01/2009 - 06/30/2011&lt;br&gt;$99,853 / $200,000</td>
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<td>Epigenetic Manipulation of Leukemia&lt;br&gt;National Institutes of Health&lt;br&gt;R21 CA 142601</td>
<td>07/01/2009 - 06/30/2011&lt;br&gt;$139,714 / $249,714</td>
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<tr>
<td>Molecular Mechanism of Severe Congenital Neutropenia&lt;br&gt;National Institute of Health&lt;br&gt;R01 HL 079574</td>
<td>07/01/2009 - 06/30/2011&lt;br&gt;$79,314 / $158,628</td>
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<tr>
<td><strong>Hildeman, D</strong></td>
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<tr>
<td>Homeostasis and Function of Regulatory T Cells In Aging&lt;br&gt;National Institutes of Health&lt;br&gt;R01 AG033057</td>
<td>09/15/2009 - 08/31/2011&lt;br&gt;$138,584 / $277,168</td>
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### Transforming Growth Factor Beta in T-Cell Homeostasis and Tolerance
Arizona Board of Regents (National Institutes of Health)  
R01 AI 067903  
03/01/2007 - 02/28/2011  
$21,733 / $83,449

### Regulation of Apoptosis in Activated Primary T Cells
National Institutes of Health  
R01 AI 057753  
12/01/2008 - 11/30/2013  
$250,351 / $1,099,212

### Mechanisms Underlying IL-7 Driven Protection from Polymicrobial Sepsis
University of Cincinnati  
09/16/2009 - 09/15/2010  
$7,500 / $7,500

#### Jordan, M

- **An Animal Model of Hemophagocytic Lymphohistiocytosis**  
  National Institutes of Health  
  R01 HL 091769  
  08/10/2007 - 06/30/2012  
  $260,000 / $1,250,000

- **CD 8 T Cell Mediated Disruption of Blood Brain Tight Junction**  
  University of Cincinnati (National Institutes of Health)  
  R01 NS 060881  
  08/01/2009 - 07/31/2014  
  $14,820 / $14,820

- **An Animal Model of Hemophagocytic Lymphohistiocytosis**  
  National Institutes of Health  
  R01 HL 091769  
  07/01/2009 - 06/30/2011  
  $81,864 / $163,728

#### Mattner, J

- **Primary Biliary Cirrhosis: Molecular Genetics and Microbe**  
  National Institutes of Health  
  R01 DK 084054  
  06/01/2009 - 05/31/2014  
  $250,000 / $1,025,000

#### Wills-Karp, M

- **Asthma Positional Candidate Genes in Mice and Humans**  
  National Institutes of Health  
  R01 HL 067736  
  12/01/2005 - 11/30/2010  
  $485,500 / $1,221,000

- **Mechanism of PM Induced Dendrite Cell Activation**  
  The Johns Hopkins University (National Institutes of Health)  
  P50 ES 015903  
  09/29/2007 - 06/30/2012  
  $218,394 / $660,250

- **Epithelial Regulation of Th2 Immune Responses in the Lung**  
  National Institutes of Health  
  R01 AI 083315  
  08/20/2009 - 07/31/2014  
  $250,000 / $1,247,500

- **Epithelial Genes in Allergic Inflammation - Project #3**  
  National Institute of Health  
  U19 AI 070235  
  09/09/2001 - 08/31/11  
  $196,078 / $975,424

- **Epithelial Genes in Allergic Inflammation - Project #3**  
  National Institute of Health  
  U19 AI 070235  
  08/13/09 - 08/31/11  
  $100,000 / $100,000

- **Digestive Health Center: Bench to Bedside Research in Pediatric Digestive Disease**  
  National Institute of Health  
  P30 DK 078392  
  06/01/2010 - 05/31/2011  
  $50,000 / $50,000

| Current Year Direct | $3,061,205 |

### Industry Contracts

- **Wills-Karp**  
  Allertein Therapeutics  
  $47,355
Funded Collaborative Efforts

Finkelman, F

**Intestinal IL-9 Ans Mast Cells in Food-Induced Anaphylaxis**
Food Allergy and Anaphylaxis Network
Hogan, S 02/02/09 - 01/31/11 3%

**IL-13 Associated Eosinophil Lung Responses**
National Institutes of Health
Rothenberg, M 08/20/09 - 07/31/14 5%

Grimes, H

**IL-13 Associated Eosinophil Lung Responses**
National Institutes of Health
Rothenberg, M 08/20/09 - 07/31/14 5%

Total $3,108,560

Immunobiology Graduate Program

The Immunobiology Graduate Program is an inter-departmental program within the University of Cincinnati that offers PhD and MS degrees in Immunology. The Division of Immunobiology serves as the administrative home of the Graduate Program. The program is governed by the director Dr. Wills-Karp and Associate Director Dr. David Hildeman and a Steering Committee composed of members of several departments/divisions at CCHMC and UC. Dr. Jonathan Katz is the coordinator of the Foundations in Immunology Courses.

The Immunobiology Program provides broadly based instruction in immunology, along with rigorous research training that emphasizes modern approaches to understanding the function of the immune system in health and disease. To this end, the program currently has 45 faculty members from 4 departments and 12 divisions within the College of Medicine and CCHMC. We currently have 34 outstanding students from around the country and abroad. A major milestone achieved this year is the graduation of 5 Ph.D. students and 2 M.S. students. Our students have distinguished themselves already by receiving several travel and research awards (AAAI, Yates Scholarship Award and an NIH F30 Award).

The Program is supported financially by a variety of sources. This year, tuition support was provided through University Graduate Scholarships awarded by the University of Cincinnati. Student stipends were supported through a variety of sources including funds from the University of Cincinnati (UGA), NIH training grants, external grants to their advisors, and funds from Cincinnati Children's Research Foundation. The program anticipates sustained growth over the next few years with a target class size of 10 new students per year.

Immunobiology Graduate Program Students, 2009-2010

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<tr>
<th>Student</th>
<th>Faculty Mentor</th>
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<tr>
<td>Jessica Allen</td>
<td>Christopher Karp</td>
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<tr>
<td>Adora Lin</td>
<td>David Hildeman</td>
<td>2004</td>
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<tr>
<td>Vanessa Saunders</td>
<td>Marsha Wills-Karp</td>
<td>2004</td>
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<tr>
<td>Leah Kottyan</td>
<td>Nives Zimmermann</td>
<td>2005</td>
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<tr>
<td>Xun Zhang</td>
<td>Joerg Koehl</td>
<td>2005</td>
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<tr>
<td>Erin Zoller</td>
<td>Michael Jordan</td>
<td>2005</td>
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<tr>
<td>Katherine Groschwitz</td>
<td>Simon Hogan</td>
<td>2005</td>
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<tr>
<td>Erin Klenk</td>
<td>Robert Colbert</td>
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<tr>
<td>James Phelan</td>
<td>H. Leighton Grimes</td>
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<tr>
<td>Manuel Alvarez</td>
<td>Sherry Thornton</td>
<td>2006</td>
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<tr>
<td>Jill Fritz</td>
<td>Timothy Weaver</td>
<td>2006</td>
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<td>Joni Prasad</td>
<td>Jay Degen</td>
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<tr>
<td>Amanda Beichler</td>
<td>Simon Hogan</td>
<td>2007</td>
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<tr>
<td>Cortez McBerry</td>
<td>Julio Aliberti</td>
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<tr>
<td>Rachael Mintz</td>
<td>Gurjit Hershey</td>
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<td>Sema Kurtulus</td>
<td>David Hildeman</td>
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<tr>
<td>Ibrahim Aksoylar</td>
<td>Kasper Hoebe</td>
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<td>Stacey Burgess</td>
<td>Marsha Wills-Karp</td>
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<td>Samuel Vaughn</td>
<td>Thomas Griffin</td>
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<td>Isaac Harley</td>
<td>Christopher Karp</td>
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<td>Catherine Hair</td>
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<td>Jana Raynor</td>
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<td>Stephanie Walters</td>
<td>Christopher Karp</td>
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<tr>
<td>Sara Stoffers</td>
<td>H. Leighton Grimes</td>
<td>2008</td>
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</table>
Immunobiology, Cincinnati Children's Hospital Medical Center

Student Honors

Jessica L. Allen 2009 - Society of Leukocyte Biology Travel Award Winner Tri-Society Annual Conference (SLB, ICS, ISICR), Lisbon, Portugal

Maria E. Moreno-Fernandez 2010 - Underrepresented Minority Scholarship. NIH, Office of AIDS Research. Keystone Symposia, Viral Immunity

Jill M. Fritz 2007 - 2009 NIH Cardiovascular and Pulmonary Training Grant


Isaac T. W. Harley 2008 - 2010 NIH Developmental and Perinatal Endocrinology Training Grant

Leah C. (Nesbitt) Kottyan 2009 - Fellow in Training Travel Scholarship, American Academy of Allergy, Asthma and Immunology Annual Meeting

2009 - Graduate Student Research Fellowship, University of Cincinnati

Cortez C. McBerry 2008 - 2012 Albert C. Yates Fellowship

Rachael A. Mintz-Cole 2009 - Graduate Student Governance Association Competitive Research Award

2010 - Ruth L. Kirchstein National Research Service Award Individual Fellowship

James D. Phelan 2010 - Outstanding Poster Award. Midwest Blood Club Symposium

Vanessa C. Saunders 2009 – ST’AR (Strategic Training in Allergy Research) Program Recipient. American Academy of Allergy, Asthma and Immunology Annual Meeting

Amanda B. Waddell 2009 - 2011 American Gastroenterological Association Foundation Graduate Student Award


Student Publications


http://www.cincinnatichildrens.org/research/about/ann-report/2010/immunobiology/default.htm
**Immunobiology, Cincinnati Children's Hospital Medical Center**


**Student Presentations**

**Oral Presentations**

Catherine M. Buckingham (2008)

Buckingham, C., Lewkowich, I., Dienger, K., Gerwin, A., Wills-Karp, M. PD-1 independent co-stimulatory role for B7-DC in experimental asthma. American Immunology Conference, Chicago, IL 2009

Katherine R. Groschwitz (2005)


Sema Kurtulus (2007)

Kurtulus, S. ‘Bcl-2 maintains KLRG1low CD127high effector and central memory CD8+ T cells by distinct mechanisms’. The American Association of Immunologists, Baltimore, MD 2010

Rachael A. Mintz-Cole (2007)

Mintz-Cole, R., Gibson, A., Reponen, T., Hershey, G. Different mold species induce distinct inflammatory responses in the lungs. Autumn Immunology Conference, Chicago, IL 2009

Mark L. Webb (2008)


Erin E. Zoller (2005)


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**Poster Présentations**


Isaac T. W. Harley (2008)
Harley, I., Walters, S., Divanovic, S., Karp, C.  The role of Segmented Filamentous Bacteria in the development of diet-induced obesity. University of Cincinnati MD/PhD 25th Anniversary Celebration, Cincinnati, OH 2010

Harley, I., Walters, S., Divanovic, S., Karp, C.  The role of segmented filamentous bacteria in the development of diet-induced obesity. University of Cincinnati MD/PhD Spring Retreat, Oxford, OH 2010

Leah C. (Nesbitt) Kottyan (2005)
Kottyan, L., Hedgebeth, M., Niese, K., Cao, K., Hildeman, D., Montrose, M., Rothenberg, M., Zimmermann, N.  Eosinophils respond to acidic environments with cAMP production, decreased apoptosis, and a decrease in the expression of pro-apoptotic Bcl-2 family members.  American Academy of Allergy, Asthma and Immunology, Washington, DC 2009

Cortez C. McBerry (2007)
McBerry, C., Dias, A., Aliberti, J.  PD-1 drives IL-12 dependent immunity against toxoplasma gondii.  14th Annual Woods Hole Immunoparasitology Conference, Woods Hole, MA 2010

Rachael A. Mintz-Cole (2007)
Mintz-Cole, R., Gibson, A., Reponen, T., Hershey, G.  Developing a model of mold-induced allergic airway disease.  Environmental Health Sciences Fellows Showcase, University of Cincinnati College of Medicine, Cincinnati, OH 2009

Mintz-Cole, R., Gibson, A., Reponen, T., Hershey, G.  Different mold species induce distinct inflammatory responses in the lungs.  American Academy of Asthma, Allergy, and Immunology, New Orleans, LA 2010

Maria E. Moreno-Fernandez (2009)
Moreno-Fernandez, M., Rueda, C., Chougnet, C.  Regulatory T cells control HIV replication in activated T cells through contact-dependent and independent pathways.  Keystone Symposia on Molecular and Cellular Biology. Viral Immunity, Banff, Canada 2010


Jana L. Raynor (2008)

Saunders, V., Dienger, K., Breysse, P., Wills-Karp, M.  Ambient particulate matter-induced CCL20 production in airway epithelial cells is NADPH oxidase-dependent.  American Academy of Allergy, Asthma and Immunology, Washington DC, 2009

Amanda B. Waddell (2007)

Mark L. Webb (2008)