

Division of Allergy and Immunology

DIVISION PROFILE	
Number of Faculty	14
Number of Joint Appointment Faculty	1
Number of Staff Physicians	1
Number of Fellows	
Clinical Fellows	7
Research Fellows	9
Number of Graduate Students	11
Number of Support Personnel	27
Annual Total Grant Support (direct)	\$3,024,765
Annual Total Industry Contracts (direct)	\$52,068
Number of Peer Reviewed Publications	30
Patient Encounters	
Outpatient	4,691
Inpatient	619

FACULTY LISTING

Marc E. Rothenberg, MD, PhD, Professor of Pediatrics, Endowed Chair, Director, Division of Allergy and Immunology

J. Pablo Abonia, MD, Assistant Professor of Pediatrics

Amal H. Assa'ad, MD, Professor of Pediatrics, Associate Director, Division of Allergy and Immunology

Robert W. Ausdenmoore, MD, Adjunct Professor of Pediatrics

Michael O. Daines, MD, Assistant Professor of Pediatrics, Director, Immunodeficiency Program

Thomas J. Fischer, MD, Adjunct Professor of Pediatrics

Gurjit K. Khurana Hershey, MD, PhD, Associate Professor of Pediatrics, Director, Translational Research Program in Asthma and Allergy

Simon P. Hogan, PhD, Assistant Professor of Pediatrics

Michelle B. Lierl, MD, Associate Professor of Pediatrics

Anil Mishra, PhD, Assistant Professor of Pediatrics

Kimberly A. Risma, MD, PhD, Assistant Professor of Pediatrics

Ning Wang, PhD, Assistant Professor of Pediatrics

Manoj Warriar, MD, Instructor of Pediatrics

Nives Zimmermann, MD, Assistant Professor of Pediatrics

FACULTY JOINT APPOINTMENT LISTING

Alexandra Filipovich, MD, Professor of Pediatrics, Hematology/Oncology

STAFF PHYSICIAN LISTING

Harpinder Kalra, MD, Staff Allergist/Immunologist

OVERVIEW

The Division of Allergy and Immunology at Cincinnati Children's Hospital Medical Center conducts outstanding clinical services and medical research. The division faculty is composed of 14 members, four of whom are primarily engaged in clinical work and ten of whom are primarily involved in research. The Division of Allergy and Immunology has strong associations with allergy/immunology counterparts at the University of Cincinnati College of Medicine (including Dr. Fred Finkelman, Drs. I. Leonard Bernstein, David Bernstein and Jonathan Bernstein). Excellent clinical services are provided in both the inpatient and outpatient settings, which encompass diverse areas including treatment and evaluation of allergic rhinoconjunctivitis, asthma,

atopic dermatitis, drug hypersensitivity, food allergy, venom allergy, urticaria, anaphylaxis and hypereosinophilic disorders. The division has several areas of clinical expertise including eosinophilic disorders (the division is the home of the Cincinnati Center for Eosinophilic Disorders), food allergy and asthma. The research program is conducted in parallel with several outstanding basic science departments at the Cincinnati Children's Hospital including the Divisions of Immunobiology, Molecular Immunology, and Molecular and Developmental Biology. The Division of Allergy and Immunology offers a rich environment for clinical and research trainees.



Left to Right: (1st row) M. Mingler, C. Blanchard, M. Wang, K. Groschwitz, A. Collier, L. Zuo, A. Mishra, M. Rothenberg, A. Lippelman (2nd row) R. Ahrens, A. Munitz, L. Roberts, H. Zhu, E. Forbes (3rd row) M. Vicario, E. Kopras, L. Nesbitt, Z. Shan (4th row) M. Stein, J. Schaffeld, Y. Yamada, K. Niese, F. Rainey, E. Brandt, N. Nikolaidis, S. Hogan

HIGHLIGHTS

This was an eventful year for the Division of Allergy and Immunology because we were subject to review by the Scientific Advisory Committee (SAC). We are proud to have received a laudatory review, a tribute to the outstanding clinical, research, and teaching programs of the division. In addition, the division is pleased to announce that we obtained an NIH-sponsored Asthma and Allergic Disease Cooperative Research Center (AADCRC) grant ("Epithelial genes in allergic inflammation") with Dr. Hershey as principle investigator and Dr. Rothenberg as co-investigator. In addition, Dr. Kimberly Risma was awarded the Doris Duke Clinical Scientist Development Award ("Mechanisms of altered lymphocyte cytotoxicity"), and Dr. Ning Wang was awarded an NIH R 21 grant called "Genetics of eosinophilic esophagitis". On the clinical side, new programs in the area of translational asthma research as well as a variety of hypereosinophilic disorders ("A phase I/II study of the effect of intravenous anti-IL-5 [mepolizumab] SB240563 on the outcome and management of hypereosinophilic syndromes") were carried out. The initial results of the later trial have generated a great deal of interest in the medical community. The division's clinical service, under the directorship of Dr. Amal Assa'ad, expanded to include additional satellite clinics now including Dr. Harpinder Kalra as a staff physician.

TRAINING

Maziar Rezviani, MD
 Hetel Amin, MD
 Andrew Smith, MD
 Ann Collier, MD

PGY4	The Jewish Hospital of Cincinnati
PGY5	University of Illinois at Chicago
PGY5	University Hospital, Cincinnati, Ohio
PLV	Ronald McDonald Children's Hosp, Loyola University, Chicago

Lugman Seidu, MD
 Li Zuo, MD
 Jennifer Bullock, MD
 Carine Blanchard, PhD
 Eric Brandt, PhD
 Weiguo Chen, MD
 Jayanta Gupta, MBBS, DA
 Miguel Stein, MD
 Yasuhito Tabata, MD, PhD

 Zeenath Unnisa, PhD
 Meiqin Wang, MD, PhD
 Yoshiyuki Yamada, MD, PhD

PLV Tod Children's Hospital, Youngstown, Ohio
 PLV Medical College of Toledo, OH
 PLVI Cincinnati Children's Hospital Medical Center
 University of Claude Bernard, Lyon France
 University of Lille, France
 University of Cincinnati
 University of Cincinnati
 University of Chile Medical School
 Kyoto Prefectural Univ of Medicine, Kyoto,
 Japan
 Osmania University, Hyderabad, India
 Fudan University School of Medicine, China
 Kansai University, Osaka, Japan

GRANTS, CONTRACTS AND INDUSTRY AGREEMENTS

Grant and Contract Awards	Annual Direct/Project Period	Direct
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Abonia, J Recruitment of Murine Mast Cell Progenitors National Institutes of Health K08 AI 057991	07/01/04 – 01/31/08	\$111,500/\$403,125
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Assa'ad, A Schering/AAAAI Clinical Fellowship Award American Academy of Allergy, Asthma, and Immunology	07/01/04 – 05/30/06	\$ 50,000/\$100,000
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Boat, T – Principal Investigator Rothenberg, M – Program Director Pediatric Center for Gene Expression and Development National Institutes of Health K12 HD 028827	02/20/02 – 11/30/06	\$400,000/\$2,000,000
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Daines, M Biology and Regulation of IL-3 Receptor Alpha 2 National Institutes of Health K08 AI 053150	06/01/03 – 05/31/07	\$110,750/\$403,000
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Hershey, G Interleukin-13 in Experimental Asthma – Component 4 National Institutes of Health P01 HL 076383	07/01/04 – 06/30/09	\$257,500/\$1,327,283
Childhood Atopy: Gene and Environment Interaction National Institutes of Health (University of Cincinnati subcontract) R01 ES 011170	09/30/01 – 06/30/06	\$213,296/\$653,455
Biology of IL-13 Receptor Alpha 2 National Institutes of Health R01 AI 058157	01/01/04 – 12/31/08	\$170,888/\$1,250,000
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Mishra, A Mechanistic Analysis of Eosinophilic Esophagitis National Institutes of Health R01 DK 067255	04/01/05 – 03/31/10	\$160,146/\$820,000

Rothenberg, M		
Interleukin-13 in Experimental Asthma – Component 3		
National Institutes of Health		
P01 HL 076383	07/01/04 – 06/30/09	\$257,507/\$1,327,285
Interleukin-13 in Experimental Asthma – Scientific Core 2		
National Institutes of Health		
P01 HL 076383	07/01/04 – 06/30/09	\$145,714/\$793,082
The Hypereosinophilic Syndromes and Mepolizumab		
National Institutes of Health (University of Utah subcontract)		
R01 AI 061097	06/15/04 – 05/31/08	\$14,765/\$91,456
Eosinophil, Chemokine and IL-13 Cooperativity in Asthma		
National Institutes of Health		
R01 AI 057803	04/01/04 – 03/31/08	\$122,063/\$500,000
Anti-IL-5 for Hypereosinophilia		
Food and Drug Administration		
FD-R-002396	09/30/03 – 09/29/06	\$162,060/\$468,240
Regulation of Gastrointestinal Eosinophils		
National Institutes of Health		
R01 AI 045898	01/15/04 – 12/31/08	\$160,000/\$960,000
Experimental Analysis of Eosinophil Associated GI Inflammation		
Burroughs Wellcome Fund		
CSA 1002171	07/01/01 – 06/30/06	\$150,000/\$750,000
Role of Arginase in Allergic Airway Inflammation		
National Institutes of Health		
R01 AI 053479	12/15/02 – 11/30/07	\$244,125/\$1,250,000
Epidemiology, Etiology, Treatment and Prevention of Ee		
Food Allergy and Anaphylaxis Network		
	02/01/05 – 01/31/07	\$45,456/\$90,910
Wang, B		
Genetics of Eosinophilic Esophagitis		
National Institutes of Health		
R21 DK 074626	05/15/06 – 04/30/08	\$125,000/\$275,000
Yamada, Y		
The Importance of FIPL1-PDGFR α Fusion Gene Hypereosinophilic Syndromes		
American Heart Association – Ohio Valley Affiliate		
	07/01/04 – 06/30/06	\$43,000/\$84,000
Zimmermann, N		
The Role of Arginine Transport in the Development of Inflammatory Homeostasis in the Lung		
March of Dimes – National		
6-FY06-345	06/01/06 - 05/31/09	\$80,995/\$248,503
	Current Year Direct	\$3,024,765
Industry Contracts		
Assa'ad, A		
Genentech, Inc.		\$3,508
Rothenberg, M		
GlaxoSmithKline		\$48,560
	Current Year Direct Receipts	\$52,068
	TOTAL	\$3,076,833

PUBLICATIONS

1. Boesch RP, Daines M, Kaul A, Cotton R, Amin R. Lymphoproliferative disorder of the airway of an adolescent without immunodeficiency. *Int J Pediatr Otorhinolaryngol* 2005;69(11):1591-4.
2. Daines MO, Tabata Y, Walker BA, Chen W, Warriar MR, Basu S, Hershey GK. Level of expression of IL-13R alpha 2 impacts receptor distribution and IL-13 signaling. *J Immunol* 2006;176(12):7495-501.
3. Filipovich AH. Life-threatening hemophagocytic syndromes: current outcomes with hematopoietic stem cell transplantation. *Pediatr Transplant* 2005;9 Suppl 7:87-91.
4. Filipovich AH, Imashuku S, Henter JI, Sullivan KE. Healing hemophagocytosis. *Clin Immunol* 2005;117(2):121-4.
5. Szigligeti P, Neumeier L, Duke E, Chougnet C, Takimoto K, Lee SM, Filipovich AH, Conforti L. Signalling during hypoxia in human T lymphocytes--critical role of the src protein tyrosine kinase p56Lck in the O2 sensitivity of Kv1.3 channels. *J Physiol* 2006;573(Pt 2):357-70.
6. Filipovich A, Conley ME, Nichols KE, Sullivan KE. X-linked lymphoproliferative syndrome: an X-cellent question. *Clin Immunol* 2006;119(3):241-4.
7. Mehta P, Vinks A, Filipovich A, Vaughn G, Fearing D, Sper C, Davies S. High-dose weekly AmBisome antifungal prophylaxis in pediatric patients undergoing hematopoietic stem cell transplantation: a pharmacokinetic study. *Biol Blood Marrow Transplant* 2006;12(2):235-40.
8. Hogan SP, Rothenberg ME. Eosinophil Function in Eosinophil-associated Gastrointestinal Disorders. *Curr Allergy Asthma Rep* 2006;6(1):65-71.
9. Prescott VE, Hogan SP. Genetically modified plants and food hypersensitivity diseases: Usage and implications of experimental models for risk assessment. *Pharmacol Ther* 2006;111(2):374-83.
10. Prescott VE, Forbes E, Foster PS, Matthaei K, Hogan SP. Mechanistic analysis of experimental food allergen-induced cutaneous reactions. *J Leukoc Biol* 2006;80(2):258-266.
11. Blanchard C, Mishra A, Saito-Akei H, Monk P, Anderson I, Rothenberg ME. Inhibition of human interleukin-13-induced respiratory and oesophageal inflammation by anti-human-interleukin-13 antibody (CAT-354). *Clin Exp Allergy* 2005;35(8):1096-103.
12. Akei HS, Mishra A, Blanchard C, Rothenberg ME. Epicutaneous antigen exposure primes for experimental eosinophilic esophagitis in mice. *Gastroenterology* 2005;129(3):985-94.
13. Risma KA, Frayer RW, Filipovich AH, Sumegi J. Aberrant maturation of mutant perforin underlies the clinical diversity of hemophagocytic lymphohistiocytosis. *J Clin Invest* 2006;116(1):182-92.
14. Prescott VE, Campbell PM, Moore A, Mattes J, Rothenberg ME, Foster PS, Higgins TJ, Hogan SP. Transgenic expression of bean alpha-amylase inhibitor in peas results in altered structure and immunogenicity. *J Agric Food Chem* 2005;53(23):9023-30.
15. Fulkerson PC, Rothenberg ME, Hogan SP. Building a better mouse model: experimental models of chronic asthma. *Clin Exp Allergy* 2005;35(10):1251-3.
16. Xanthakos SA, Schwimmer JB, Melin-Aldana H, Rothenberg ME, Witte DP, Cohen MB. Prevalence and outcome of allergic colitis in healthy infants with rectal bleeding: a prospective cohort study. *J Pediatr Gastroenterol Nutr* 2005;41(1):16-22.
17. Noel RJ, Rothenberg ME. Eosinophilic esophagitis. *Curr Opin Pediatr* 2005;17(6):690-4.
18. Rothenberg ME. Eosinophils. In: Mestecky J, Bienenstock J, Lamm ME, Mayer L, McGhee JR, Strober W, editors. *Mucosal Immunology*. Boston: Elsevier Academic Press; 2005. p. 717-735.
19. Rothenberg ME, Hogan SP. The eosinophil. *Annu Rev Immunol* 2006;24:147-74.
20. Munitz A, Bachelet I, Eliashar R, Khodoun M, Finkelman FD, Rothenberg ME, Levi-Schaffer F. CD48 is an allergen and IL-3-induced activation molecule on eosinophils. *J Immunol* 2006;177(1):77-83.
21. Yamada Y, Rothenberg ME, Lee AW, Akei HS, Brandt EB, Williams DA, Cancelas JA. The FIP1L1-PDGFR α fusion gene cooperates with IL-5 to induce murine hypereosinophilic syndrome (HES)/chronic eosinophilic leukemia (CEL)-like disease. *Blood* 2006;107(10):4071-9.

22. Sanna B, Brandt EB, Kaiser RA, Pfluger P, Witt SA, Kimball TR, van Rooij E, De Windt LJ, Rothenberg ME, Tschop MH, Benoit SC, Molkentin JD. Modulatory calcineurin-interacting proteins 1 and 2 function as calcineurin facilitators in vivo. *Proc Natl Acad Sci U S A* 2006;103(19):7327-32.
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24. Klion AD, Bochner BS, Gleich GJ, Nutman TB, Rothenberg ME, Simon HU, Wechsler ME, Weller PF, The Hypereosinophilic Syndromes Working G. Approaches to the treatment of hypereosinophilic syndromes: a workshop summary report. *J Allergy Clin Immunol* 2006;117(6):1292-302.
25. Fulkerson PC, Rothenberg ME. Chemokins CHC:CHCL9 (mig). In: Laurent GJ, Shapiro SD, editors. *Encyclopedia of Respiratory Medicine*. Boston: Elsevier Academic Press; 2006. p. 398-401.
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27. Zimmermann N, Colyer JL, Koch LE, Rothenberg ME. Analysis of the CCR3 promoter reveals a regulatory region in exon 1 that binds GATA-1. *BMC Immunol* 2005;6(1):7.
28. Pope SM, Zimmermann N, Stringer KF, Karow ML, Rothenberg ME. The eotaxin chemokines and CCR3 are fundamental regulators of allergen-induced pulmonary eosinophilia. *J Immunol* 2005;175(8):5341-50.
29. Brandt EB, Zimmermann N, Muntel EE, Yamada Y, Pope SM, Mishra A, Hogan SP, Rothenberg ME. The alpha4bbeta7-integrin is dynamically expressed on murine eosinophils and involved in eosinophil trafficking to the intestine. *Clin Exp Allergy* 2006;36(4):543-53.
30. Zimmermann N, Rothenberg ME. The arginine-arginase balance in asthma and lung inflammation. *Eur J Pharmacol* 2006;533(1-3):253-62.