

Pulmonary Medicine

Division Photo



First Row(seated): T.Boat, R. Amin, C. Kercsmar 2nd Row: N. Simakajornboon, H. Sawnani, J. Acton, K. McDowell, B. Trapnell, B. Chini, 3rd Row: L. Young, P. Joseph, J. Wooldridge, W. Hardie, D. Groessoehme, M. Seid, R. Bokulic, G. McPhail, R. VanDyke.

Division Data Summary

Research and Training Details

Outpatient Encounters

Number of Faculty	17
Number of Joint Appointment Faculty	6
Number of Research Fellows	1
Number of Research Students	1
Number of Support Personnel	43
Direct Annual Grant Support	\$2,447,091
Direct Annual Industry Support	\$311,240
Peer Reviewed Publications	24
Clinical Activities and Training	
Number of Clinical Staff	33
Number of Clinical Fellows	7
Inpatient Encounters	928
·	

7279

Significant Publications

McConnell K, Somers VK, Kimball T, Daniels S, VanDyke R, Fenchel M, Cohen A, Willging P, Shamsuzzaman A, Amin R. Baroreflex gain in children with obstructive sleep apnea. Am J Respir Crit Care Med. 2009 Jul 1;180(1):42-8.

The manuscript describes a mechanism of blood pressure dysregulation in children with sleep disordered breathing.

Korfhagen TR, Le Cras TD, Davidson CR, Schmidt SM, Ikegami M, Whitsett JA, Hardie WD. Rapamycin Prevents Transforming Growth Factor-alpha Induced Pulmonary Fibrosis. Am J Respir Cell Mol Biol. 2009

Feb 24

This paper demonstrates the mTOR inhibitor rapamycin was not only effective in preventing lung fibrosis, but also was effective in inhibiting progression of established fibrosis.

Seid M. Barriers to care and primary care for vulnerable children with asthma. Pediatrics. 2008 Nov;122(5): 994-1002.

Primary care is important for children with asthma. We know which groups of children are likely to experience poorer primary care but not why and how this occurs. Such knowledge is necessary for reducing disparities. This study measures barriers to care and shows that they predict primary care experiences, beyond sociodemographic and access variables, in a highly vulnerable sample. Because barriers are modifiable, there are implications for intervention.

Gu Y, Harley IT, Henderson LB, Aronow BJ, Vietor, I, Huber LA, Harley JB, Kilpatrick JR, Langefeld CD, Williams AH, Jegga AG, Chen J, Wills-Karp M, Arshad SH, Ewart SL, Thio CL, Flick LM, Filippi MD, Grimes HL, Drumm ML, Cutting GR, Knowles MR, Karp CL. Identification of IFRD1 as a modifier gene for cystic fibrosis lung disease. Nature. 2009 Apr 23; 458(7241): 1039-42.

This important paper reports the results of the first genome-wide single nucleotide polymorphism scan to identify genes that modify the severity of cystic fibrosis lung disease. Polymorphisms in *IFRD1*, which encodes a histone deacetylase-dependent transcriptional co-regulator, were found (and validated in a second cohort) to contribute to lung disease severity in cystic fibrosis, independent of *CFTR* genotype. Immunobiological investigation strongly suggests that IFRD1 modulates the pathogenesis of CF lung disease by regulating neutrophil effector function. These data suggest therapeutic utility for targeting neutrophils in cystic fibrosis, and suggest that IFRD1 may provide a useful therapeutic target in this and other diseases in which neutrophilic inflammation plays an important pathogenetic role.

Szefler SJ, Mitchell H, Sorkness CA, Gergen PJ, O'Connor GT, Morgan WJ, Kattan M, Pongracic JA, Teach SJ, Bloomberg GR, Eggleston PA, Gruchalla RS, Kercsmar CM, Liu AH, Wildfire JJ, Curry MD, Busse WW. Management of asthma based on exhaled nitric oxide in addition to guideline-based treatment for inner city adolescents and young adults: a randomized controlled trial. Lancet. 2008 Sept 20:372(9643):1065-72.

This manuscript describes the measurements of fraction of exhaled NO add little benefit to a carefully applied guidelines approach to asthma management.

Division Highlights

Raouf Amin, MD

Research on mechanisms of cardiovascular morbidity secondary to obstructive sleep apnea in children and the neurocognive outcome of the disease is funded by the National Institute of Health. This research which is conducted in collaboration with Otolaryngology examines the efficacy of adenotonsillectomy in children with sleep apnea. This is the first randomized controlled trial that is conducted in this patient population.

William Hardie, MD

Research on Pulmonary Fibrosis examines specific pathways leading to pulmonary fibrosis. This research is funded by the National Institute of Health. A strong translational research to reverse pulmonary fibrosis is in progress.

Christopher Karp, MD

Identification of *IFRD1* as a novel modifier gene for CF lung disease, along with delineation of the relevant biology thereof (*Nature* 2009. 458:1039)

Identification of IL-10 production by antigen-specific effector CD8+ T cells as critical for the control of lung inflammation during acute influenza (*Nature Medicine*. 2009. 15:27

Michael Seid, PhD

Research on Pulmonary Outcomes which is funded the National Institute of Health examines the modifiable factors with influence the outcomes of Cystic Fibrosis and asthma.

Bruce Trapnell, MD

The Cystic Fibrosis Clinical Research Program succeeded in becoming the best performing center in the country in conduction clinical trials in CF.

Jamie Wooldridge, MD

Developed a new investigator initiated research focus on CF metabolism. Collaboration between Pulmonary Medicine,

Endocrinology and Molecular Immunology set the stage for the initiation of several projects which are now funded through the Cystic Fibrosis Foundation.

Lisa Young, MD

Research on a mouse model of Interstitial Lung Disease examines mechanisms of Pulmonary inflammation is funded by the National Institutes of Health.

Division Collaboration

Collaboration with Pediatric Otolaryngology/Head and Neck Surgery; Pediatric Surgery; Gastroenterology, Hepatology and Nutrition; Interdisciplinary Feeding Clinic

Collaborating Faculty: Richard Azizkhan, MD; Robin Cotton, MD; Alessandro de Alarcon, MD; Victor Garcia, MD; Thomas Inge, MD; Ajay Kaul, MD; Charles Myer III, MD; Philip Putnam, MD; Michael Rutter, MD; Sally Shott, MD; Paul J Willging, MD

Aerodigestive and Sleep Center - Treatment of chronically ill children with complex airway, pulmonary, upper digestive tract, sleep and feeding disorders.

Collaboration with Anesthesia; Cardiology; Endocrinology; Developmental and Behavioral Pediatrics; Gastroenterology; Genetic Counseling; International Health; Neurology; Nutrition Therapy; Orthopaedics; Palliative Care; Pediatric Surgery; Physical Therapy; Rehabilitative Medicine; Social Work

Collaborating Faculty: Raouf Amin, MD; Rebecca Brown, MD; Jim Collins, MD; Linda Cripe, MD; Thomas Inge MD; Viral Jain, MD; Ajay Kaul, MD; Mary McMahon, MD; Mark Meyer, MD; Susan Rose, MD; Meilan Rutter, MD; Irena Rybalsky, MD; David Schonfeld, MD; Robert Spicer, MD; Jeffrey Towbin, MD; Martha Walker, MS; Norbert Weidner, MD; Brenda Wong, MD

Comprehensive Neuromuscular Center. Treatment of children with neuromuscular disorders

Collaboration with Allergy and Immunology; General Pediatrics

Collaborating Faculty: Amal Assa'ad, MD; Gurjit Hershey, MD; Maria Britto, MD; Thomas DeWitt, MD; Keith Mandel, MD; Mona Mansour, MD; Marc Rothenberg, MD; Jeffrey Simmons, MD

Asthma Center - Treatment of children and adolescents with asthma; development of an asthma repository

Collaboration with Molecular Immunology; Pulmonary Biology; ; ;

Collaborating Faculty: Julio Aliberti, PhD; Christopher Karp, MD; Bruce Trapnell, MD; Jeff Whitsett, MD Cystic Fibrosis Research

Collaboration with Pulmonary Biology

Collaborating Faculty: Thomas Korfhagen, MD; Jeffrey Whitsett, MD Pulmonary Fibrosis Research

Collaboration with Pulmonary Biology; Radiology; Orthopaedics; University of Cincinnati

Collaborating Faculty: Alan Brody, MD; Alvin Crawford, MD; Gail Deutsch, MD; Thomas Inge, MD; Bruce Trapnell, MD

Diagnosis and management of children with rare lung diseases, including interstitial lung disease, surfactant mutations, lung development disorders, lymphatic disorders and chronic lung disease associated with immunodeficiency/immune dysfunction, rheumatologic disorders and other systemic disorders.

Collaboration with Cardiology; Endocrinology; Neurology; Otolaryngology; Pediatric Surgery; Psychology; Radiology

Collaborating Faculty: Dean Beebe, PhD; Alan Brody, MD; Robin Cotton, MD; Larry Dolan, MD; Lane Donnelly, MD; Chuck Dumoulin, MD; Robert Fleck, MD; Thomas Inge, MD; Thomas Kimball, MD; Timothy Knilans, MD; Sally Shott, MD; Janaka Wansapura, MD; J. Paul Willging, MD

Sleep Research: Cardiovascular morbidity secondary to obstructive sleep apnea in children and the neurocognitive outcome of the disease

Collaboration with Audiology; Human Genetics; Neurosurgery; Otolaryngology; Pediatric Dentistry and Orthodontics; Plastic Surgery; Psychology; Speech Pathology; ;

Collaborating Faculty: David Billmire, MD; Richard Campbell, DMD; Kerry Crone, MD; Christopher Gordon, MD; William Greenhill, DMD; Ann Kummer, PhD; Francesco Mangano, DO; Janet Middendorf, MA; Cynthia Prows, MSN; Gayle Riemer, MD; Howard Saal, MD; Iris Sageser, RDH; J Paull Willging, MD

Craniofacial Team

Collaborating Faculty: Alvin Crawford, MD; Viral Jain, MD; Gary McPhail, MD; Eric Wall, MD Spine Center

Faculty Members

Raouf Amin, MD, Professor; Director, Division of Pulmonary Medicine

Research Interests: Cardiovascular morbidity of sleep apnea in children

James Acton, MD, Assistant Professor; Director, Cystic Fibrosis Center

Research Interests: Cystic Fibrosis (CF), quality improvement, clinical outcomes and pulmonary function testing in infants

Thomas Boat, MD, Professor; Executive Associate Dean, University of Cincinnati College of Medicine

R. Paul Boesch, DO, Assistant Professor Clinical; Director, Transitional Care Center

Ronald Bokulic, DO, Associate Professor Clinical

Barbara Chini, MD, Associate Professor Clinical; Director, Pulmonary Fellowship Program

Research Interests: Sleep Disordered Breathing, Outcomes Research, Self-Management of Chronic diseases

William Hardie, MD, Associate Professor Clinical; Director, Pulmonary Function Laboratory

Research Interests: Molecular mechanism of pulmonary fibrosis, pediatric pulmonary function tests, pediatric pneumonia complications

Patricia Joseph , MD, Associate Professor

Research Interests: Cystic fibrosis infections and quality improvement

Carolyn Kercsmar, MD, Professor; Director, Asthma Center; C-Director Pulmonary Medicine

Research Interests: Asthma, inner city asthma, clinical outcomes and clinical trials, airway inflammation

Karen McDowell, MD, Associate Professor

Research Interests: Asthma self managment, utilization of technology for chronic disease management, bronchoscopy and wheezing/asthma, health care effectiveness, outcomes.

Gary McPhail, MD, Assistant Professor; Associate Director, Fellowship Training Program

Research Interests: Cystic fibrosis, quality improvement, clinical outcomes, pulmonary vascular disease

Michael Seid, PhD, Professor; Director, Health Care Quality and Outcomes Research

Research Interests: Health outcomes for children with chronic health conditions, interventions to overcome barriers to care and adherence, clinical behavior and effects on self-management, quality improvement research

Abu Shamsuzzaman, MD, Research Assistant Professor

Research Interests: Sleep and Cardiovascular Diseases

Narong Simakajornboon, MD, Associate Professor; Director, Sleep Disorders Center; Program Director, Sleep Medicine Fellowship

Research Interests: Sleep-disordered breathing in children, sleep apnea, restless legs syndrome, periodic limb

movement disorders

Robert Wood, PhD, MD, Professor; Director, Pulmonary Bronchology Program

Research Interests: Airway abnormalities; pulmonary alveolar proteinosis

Jamie Wooldridge, MD, Assistant Professor

Research Interests: Metabolic and nutritional outcomes in patients with Cystic Fibrosis

Lisa Young, MD, Assistant Professor; Director, Pediatric Rare Lung Diseases Clinical Program

Research Interests: Interstitial lung diseases, rare lung diseases, lymphangioleiomyomatosis

Joint Appointment Faculty Members

Julio Aliberti, PhD, Assistant Professor

Molecular Immunology

Kelly Byars, PsyD, Assistant Professor

Psvchology

Current research focuses on improving the assessment and treatment of pediatric insomnia and pediatric obstructive sleep apnea

Daniel Grossoehme, DMin, BCC, Research Assistant Professor

Pastoral Care

Religion/spirtuality, adherence, coping, cystic fibrosis

Christopher Karp, MD, Professor

Molecular Immunology

Molecular mechanisms, underlying regulation and dysregulation of inflammatory responses in infectious, allergic, autoimmune, metabolic and genetic diseases

Bruce Trapnell, MD, Professor

Neonatology and Pulmonary Biology

Rhonda VanDyke, PhD, Assistant Professor

Biostatistics & Epidemiology

Current areas of interest are Mixture Models and Functional Data Analysis with focus on Bayesian statistics, primarily using Markov Chain Monte Carlo. Content-specific areas include integration of fMRI and MEG modalities; developing statistical models to assess impact of OSA; CF outcomes research

Clinical Staff Members

- Denetra Bamonte,
- Sallie Bauer,
- Diana Betancur,
- Walter Blower,
- · Johnny Bryant,
- · Rachelle Chitkara,
- Amanda Coffey,
- o Amy Cole,
- Janet Cox,
- Melodie Dixon,
- Julie Feldstein,
- · Connie Guyor,
- Joann Harmeyer,
- Marion Johnson,
- · Robin Johnson,
- · Beth Koch,
- Margaret Landers,
- Alison Lowry,
- Susan McCarthy,
- · Rachel McGill.
- · Karen Montag-Leifling,
- Steven Moore,
- Sharelle Morton,
- Asia Munlin,
- Laura Ogilby,
- John Pack,
- Hemant Sawnani, MD
- Jackie Taylor,
- o Debbie Webster,
- Tonya Weddle,
- · Allison Whisenhunt,
- · Michelle Williams,
- Kathy Witschger,

Trainees

- Elizabeth Bacon, MD, PL-5, Blank Children's Hospital
- Lisa Burns, MD, St Louis University
- Joseph Crisalli, MD, PL-6, Cincinnati Children's Hospital Medical Center-Pediatrics

- o Mathew Ednick, DO, PL-6, Maimonides Medical Center Brooklyn
- Sejal Jain, MD, PL-7, Virginia Commonwealth University/Medical College of Virgina
- o Charles Kim, MD, University of Illinois at St. Francis MC
- o Joseph Piccione, MD, PL-4, Winthrop University Hospital

Significant Accomplishments

Cystic Fibrosis Center

The CF center is strongly committed to its mission of achieving excellence in CF care, research and education. Evidence-based, family-centered care is provided by a highly experienced multi-disciplinary team of healthcare professionals. The center has been recognized for remarkable improvement in significant outcomes related to lung function, nutritional status and partnering collaboratively with patients and families in quality improvement (QI). As a result, the center's lung function and nutrition outcomes have improved from below average to being among the best outcomes across the country. Local investigators currently participate in many multi-center trials of new therapies; have CF-related protocols investigating mechanisms of immune dysfunction associated with CF, inherent metabolic abnormalities and potential corrective interventions, and the effects of variations in care practices on clinical outcomes. The center's expertise and success in research is reflected in its selection as a participating center for the CFF Research Development Program and as a Translational Center within the CFF Therapeutics Development Network. The CF research conducted at Cincinnati Children's Hospital Medical Center by Dr. Christopher Karp received the highest attention through the recent publication *Identification of IFRD1* as a modifier gene for cystic fibrosis lung disease published in Nature.

Pulmonary Medicine Outcomes Research

The mission of the outcomes research program in the Division is to advance research that improves pulmonary healthcare delivery and pulmonary patient health outcomes. This mission is pursued through research in the following areas: 1) Prospective investigation of factors contributing to clinical and patient-reported outcomes; 2) Developing and testing interventions that enhance patient health care experiences, self-management, or health-related quality of life; and 3) Speeding the translation of basic and clinical research to improve patient outcomes. Pulmonary faculty are engaged in all 3 areas. Regarding 1st area, Dr. Gary McPhail has lead a study, published in the Journal of Pediatrics, examining the role of better nutrition, fewer chronic pseudomonas infections and dornase alfa use in lung function outcomes. Dr. Jamie Wooldridge co-lead a study, published in the Journal of Pediatric Psychology, of a QI intervention to improve inpatient airway clearance. Drs. Michael Seid and Rhonda Van Dyke are co-leading a study to develop robust analytic approaches for using the CF Foundation national registry data to examine the links between processes of care and outcomes. Regarding the 2nd area, Dr. Seid is leading an NIH-funded study to pilot test a cell phone-based adherence intervention for adolescents with asthma. Dr. Seid also leads a research initiative using video recordings of clinical encounters to understand the link between clinical interactions and adherence in CF. This 'CF Video Lab' includes Pulmonary faculty Drs. James Acton, Gary McPhail, Rhonda Van Dyke, and Daniel Grossoehme. Dr. Grossoehme has completed his internally-funded pilot research to develop a phenomenological framework of parents' responses to a diagnosis of CF in the first year after their child is diagnosed. Regarding the 3rd area, Dr. Seid is working with Dr. Carolyn Kercsmar and other key members of the Asthma Center to integrate 'T2' and 'T3' research within the Asthma Center.

Asthma Center

The Asthma Center is fast becoming a premier site for the diagnosis and treatment of asthma. Our comprehensive asthma program is striving to network the region and span care at the medical center and the community. We now offer multidisciplinary clinics staffed with pulmonologists, allergists, and specialty nurses that provide complete diagnostic testing and clinical care. Key outcome measures permit tracking effectiveness and outcomes; a unified patient registry encompassing Asthma Center, Allergy, General Pediatrics, Adolescent Medicine, Pulmonary, is nearing completion. In partnership with General Pediatrics we will provide a weekend experience at Camp Joy for 40 asthmatic children. The Asthma Center and Division of Asthma Research, are close partners with the goal of further enhancement of the clinical programs to create a multifaceted initiative that will be a model for excellence in asthma health care. We developed a research clinical testing and diagnostic core equipped with state of the art testing equipment for lung diseases, including exhaled nitric oxide analyzer, exhaled breath condensate, induced sputum, and specialized pulmonary function testing. We re-cataloged the bronchoalveolar lavage bank and investigators may request samples online at a new website. The facilities are supported by grants from the Translational Research Initiative and the Cystic Fibrosis Foundation. The Asthma Center participates in many diverse research projects. Dr. Kercsmar is an investigator in the NIH funded Inner City Asthma Consortium. She also collaborates with Dr. Michael Seid in an NIH funded project using text messages to support a tailored problem solving asthma intervention for teens. Dr. Kercsmar is also a co-investigator on a project

examining the molecular phenotype of asthmatic children with acute exacerbations. Several other studies are also underway and/or planned.

Division Publications

- Schmithorst VJ, Altes TA, Young LR, Franz DN, Bissler JJ, McCormack FX, Dardzinski BJ, Brody AS. <u>Automated algorithm for quantifying the extent of cystic change on volumetric chest CT: initial results in Lymphangioleiomyomatosis</u>. *AJR Am J Roentgenol*. 2009; 192: 1037-44.
- 2. Simakajornboon N, Kheirandish-Gozal L, Gozal D. <u>Diagnosis and management of restless legs syndrome in children</u>. *Sleep Med Rev.* 2009; 13: 149-56.
- Gu Y, Harley IT, Henderson LB, Aronow BJ, Vietor I, Huber LA, Harley JB, Kilpatrick JR, Langefeld CD, Williams AH, Jegga AG, Chen J, Wills-Karp M, Arshad SH, Ewart SL, Thio CL, Flick LM, Filippi MD, Grimes HL, Drumm ML, Cutting GR, Knowles MR, Karp CL. <u>Identification of IFRD1 as a modifier gene for cystic fibrosis lung</u> disease. *Nature*. 2009; 458: 1039-42.
- 4. Abman S, Jobe A, Chernick V, Blaisdell C, Castro M, Ramirez MI, Gern JE, Cutting G, Redding G, Hagood JS, Whitsett J, Raj JU, Barst R, Kato GJ, Gozal D, Haddad GG, Prabhakar NR, Gauda E, Martinez FD, Tepper R, Wood RE, Accurso F, Teague WG, Venegas J, Cole FS, Wright RJ, Gail D, Hamvas A, Kercsmar C, Kiley J, Weinmann G. <u>Strategic plan for pediatric respiratory diseases research: an NHLBI working group report</u>. *Pediatr Pulmonol.* 2009; 44: 2-13.
- Alexander D, Boat T, Britto M, Burke A, Homes A, Sectish T, Stanton B, Stevenson D. <u>Federation of Pediatric</u> <u>Organizations Task Force on Women in Pediatrics: considerations for part-time training and employment for research-intensive fellows and faculty</u>. *J Pediatr.* 2009; 154: 1-3 e2.
- Castro M, Ramirez MI, Gern JE, Cutting G, Redding G, Hagood JS, Whitsett J, Abman S, Raj JU, Barst R, Kato GJ, Gozal D, Haddad GG, Prabhakar NR, Gauda E, Martinez FD, Tepper R, Wood RE, Accurso F, Teague WG, Venegas J, Cole FS, Wright RJ. <u>Strategic plan for pediatric respiratory diseases research: an NHLBI working group report</u>. *Proc Am Thorac Soc.* 2009; 6: 1-10.
- 7. Mannaa MM, Kalra M, Wong B, Cohen AP, Amin RS. <u>Survival probabilities of patients with childhood spinal muscle atrophy</u>. *J Clin Neuromuscul Dis.* 2009; 10: 85-9.
- 8. Seid M, Opipari L, Huang B, Brunner HI, Lovell DJ. <u>Disease control and health-related quality of life in juvenile idiopathic arthritis</u>. *Arthritis Rheum.* 2009; 61: 393-9.
- 9. Seid M, Opipari-Arrigan L, Gelhard LR, Varni JW, Driscoll K. <u>Barriers to care questionnaire: reliability, validity, and responsiveness to change among parents of children with asthma</u>. *Acad Pediatr.* 2009; 9: 106-13.
- Cotton S, Grossoehme D, Rosenthal SL, McGrady ME, Roberts YH, Hines J, Yi MS, Tsevat J. <u>Religious/Spiritual coping in adolescents with sickle cell disease: a pilot study</u>. J Pediatr Hematol Oncol. 2009; 31: 313-8.
- 11. Gavotte L, Mercer DR, Vandyke R, Mains JW, Dobson SL. <u>Wolbachia infection and resource competition effects on immature Aedes albopictus (Diptera: Culicidae)</u>. *J Med Entomol.* 2009; 46: 451-9.
- McPhail GL, Acton JD, Fenchel MC, Amin RS, Seid M. <u>Improvements in lung function outcomes in children with cystic fibrosis are associated with better nutrition, fewer chronic pseudomonas aeruginosa infections, and dornase alfa use.</u> J Pediatr. 2008; 153: 752-7.
- 13. Reeves SR, Simakajornboon N, Gozal D. <u>The role of nitric oxide in the neural control of breathing</u>. *Respir Physiol Neurobiol.* 2008; 164: 143-50.
- 14. McPhail GL, Hardie WD. Cavitary lung lesions in a 2-year-old child. Respiration. 2008; 76: 117-8.
- 15. Young LR, Nogee LM, Barnett B, Panos RJ, Colby TV, Deutsch GH. <u>Usual interstitial pneumonia in an adolescent with ABCA3 mutations</u>. *Chest.* 2008; 134: 192-5.
- 16. Byars AW, Byars KC, Johnson CS, DeGrauw TJ, Fastenau PS, Perkins S, Austin JK, Dunn DW. <u>The relationship between sleep problems and neuropsychological functioning in children with first recognized seizures</u>. *Epilepsy Behav.* 2008; 13: 607-13.
- 17. Seid M. Barriers to care and primary care for vulnerable children with asthma. Pediatrics. 2008; 122: 994-1002.
- Varni JW, Limbers CA, Newman DA, Seid M. <u>Longitudinal factorial invariance of the PedsQL 4.0 Generic Core Scales child self-report Version: one year prospective evidence from the California State Children's Health Insurance Program (SCHIP)</u>. *Qual Life Res.* 2008; 17: 1153-62.
- 19. Suzuki T, Sakagami T, Rubin BK, Nogee LM, Wood RE, Zimmerman SL, Smolarek T, Dishop MK, Wert SE, Whitsett JA, Grabowski G, Carey BC, Stevens C, van der Loo JC, Trapnell BC. <u>Familial pulmonary alveolar proteinosis</u> caused by mutations in CSF2RA. *J Exp Med.* 2008; 205: 2703-10.
- 20. Guimaraes CV, Donnelly LF, Shott SR, Amin RS, Kalra M. Relative rather than absolute macroglossia in patients with Down syndrome; implications for treatment of obstructive sleep apnea. Pediatr Radiol. 2008; 38: 1062-7.

- 21. Loeb JS, Blower WC, Feldstein JF, Koch BA, Munlin AL, Hardie WD. <u>Acceptability and repeatability of spirometry in children using updated ATS/ERS criteria</u>. *Pediatr Pulmonol*. 2008; 43: 1020-4.
- 22. Khadra MA, McConnell K, VanDyke R, Somers V, Fenchel M, Quadri S, Jefferies J, Cohen AP, Rutter M, Amin R. <u>Determinants of regional cerebral oxygenation in children with sleep-disordered breathing</u>. *Am J Respir Crit Care Med.* 2008; 178: 870-5.
- 23. Szefler SJ, Mitchell H, Sorkness CA, Gergen PJ, O'Connor GT, Morgan WJ, Kattan M, Pongracic JA, Teach SJ, Bloomberg GR, Eggleston PA, Gruchalla RS, Kercsmar CM, Liu AH, Wildfire JJ, Curry MD, Busse WW.

 <u>Management of asthma based on exhaled nitric oxide in addition to guideline-based treatment for inner-city adolescents and young adults: a randomised controlled trial. Lancet.</u> 2008; 372: 1065-72.
- 24. Lotstein D, Seid M, Ricci K, Leuschner K, Margolis P, Lurie N. <u>Using quality improvement methods to improve public health emergency preparedness: PREPARE for Pandemic Influenza</u>. *Health Aff (Millwood)*. 2008; 27: w328-39.

rant and Contract Awards		Annual Direct / Project Period Direct
ACTON, J		
Cystic Fibrosis Center Program Accredita Cystic Fibrosis Foundation	tion and Funding	
C090-06	07/01/94 - 06/30/09	\$110,410 / \$1,093,653
Clinical Trial of ISIS002 Cystic Fibrosis Foundation (University of Nor	th Carolina)	
ISIS002	01/01/08 - 09/30/09	\$80,756 / \$80,756
AMIN, R		
Pediatric Sleep Research Training Program National Institutes of Health	n	
K24 HL 078989	08/01/05 - 05/31/10	\$137,563 / \$685,113
Vascular Functions in Children with Sleep National Institutes of Health		
R01 HL 080670	08/15/06 - 06/30/11	\$380,854 / \$2,000,673
Therapeutic Development Center Network Cystic Fibrosis Foundation Therapeutics, Inc.		
AMIN09Y0	01/01/09 - 12/31/09	\$100,000 / \$100,000
Electronic Data Capture Equipment for NF Cystic Fibrosis Foundation Therapeutics, Inc.		
AMIN08-A0-EQP	08/01/08 - 04/30/09	\$7,765 / \$7,765
Randomized Control Study of Adenotonsi National Institutes of Health (Case Western U		d Sleep Apnea
U01 HL 083075	09/15/06 - 07/31/11	\$276,923 / \$955,951
BACON, E		
Cystic Fibrosis Foundation Clinical Fellow Cystic Fibrosis Foundation	ship Training Grant	
BACON07B0	07/01/07 - 06/30/09	\$49,750 / \$115,218

HARDIE, W

F-08-024

CRISALLI. J

Epidermal Growth Factor Receptor Activation in Pulmonary Fibrosis

Determinants of Blood Pressure Dysregulation in Sleep-Disordered Breathing

National Institutes of Health

American Thoracic Society

R01 HL 086598 04/01/07 - 03/31/12 \$250,000 / \$1,250,000

\$50,000 / \$50,000

07/01/08 - 06/30/09

Functional Genomics of Chemical Induced Acute Lung Injury

National Institutes of Health (Univers U01 ES 015675	sity of Pittsburgh) 09/29/06 - 05/31/11	\$26,932 / \$175,000
Growth Factor Protection in Acute National Institutes of Health (University)		
R01 HL 077763	12/15/05 - 11/30/09	\$51,514 / \$256,536
National Institutes of Health	r Activation in Pulmonary Fibrosis	\$10,000 / \$10,000
R01 HL 086598	06/01/09 - 08/31/10	\$10,000 / \$10,000
KERCSMAR, C Cystic Fibrosis Foundation Resea Cystic Fibrosis Foundation	rch Development Program	
	07/01/08 - 06/30/09	\$30,000 / \$30,000
MCPHAIL, G Evaluation of Pulmonary Perfusion Thrasher Research Fund	n by Cardiac MRI in Patients with CF	
	10/01/08 - 09/30/09	\$25,000 / \$25,000
PICCIONE, J		
Cystic Fibrosis Clinical Fellowship Cystic Fibrosis Foundation	o Training Grant	
PICCIO08B0	07/01/08 - 06/30/09	\$48,000 / \$48,000
SEID, M		
Developing an In Vivo Adherence National Institutes of Health	Intervention	
R21 HL089524	07/01/08 - 04/30/10	\$163,225 / \$325,000
Cincinnati Multidisciplinary Clinica National Institutes of Health		
P60 AR 047784	09/01/06 - 07/31/13	\$143,935 / \$143,935
Pursuing Perfection in Pediatric T National Institutes of Health		
U18 HS 016957	09/01/07 - 08/31/11	\$143,623 / \$143,623
SHAMSUZZAMAN, A Mechanisms Linking Congenital L	ong QT Syndrome to Sleep	
American Heart Association - Nation		
0730129N	07/01/07 - 12/31/10	\$59,091 / \$196,364
TAYLOR, J Midwest CF Nutritionist and Socia	al Work Consortium	
Solvay Pharmaceuticals, Inc 2847938	04/23/09 - 04/22/10	\$10,000 / \$10,000
WOOD, R		
2007-08 Pediatric Flexible Bronche Olympus America, Inc	oscopy Course	
657	08/17/08 - 08/16/09	\$50,000 / \$100,000
WOOLDRIGE, J Cystic Fibrosis Foundation Resea Cystic Fibrosis Foundation	rch Development Program	
,	07/01/08 - 06/30/09	\$50,000 / \$50,000
YOUNG, L		
Alveolar Cell Dysfunction and Pul National Institutes of Health	monary Fibrosis	
K08 HL 082757	04/01/07 - 03/31/12	\$118,750 / \$592,381

Alveolar Cell Dysfunction and Pulmonary Fibrosis Parker B Francis Fellowship Program

07/01/07 - 06/30/10

\$48,000 / \$144,000

Utility of VEGF-D Levels as a Biomarker in Lymphagioleiomyomatosis The LAM Foundation

01/15/08 - 07/14/09

\$25,000 / \$25,000

	Current Year Direct	\$2,447,091
ndustry Contracts		
Acton		
Chiron Corporation		\$ 819
Kalobios Pharmaceuticals Inc.		\$ 22,108
Mpex Pharmaceuticals, Inc.		\$ 31,691
PPD Development		\$ 23,218
Quintiles, Inc.		\$ 14,524
Transave, Inc.		\$ 8,830
Amin		
Corus Pharma Inc.		\$ 9,045
Inspire Pharmaceuticals, Inc.		\$ 1,663
Quintiles, Inc.		\$ 11,801
Trapnell		
Gilead Sciences		\$ 15,072
Johnson & Johnson Res & Dev		\$ 42,673
Wooldridge		
Boehringer Ingelheim Pharmaceuticals		\$ 770
Gilead Sciences		\$ 36,650
Inspire Pharmaceuticals, Inc.		\$ 41,133
PPD Development		\$ 51,243
	Current Year Direct Receipts	\$ 311,240
	То	tal \$ 2,758,331