Section of Neonatology, Perinatal and Pulmonary Biology

Division Details

Division Data Summary

Research and Training Details

Number of Faculty	**51**
Number of Joint Appointment Faculty	**1**
Number of Research Fellows	**8**
Number of Research Students	**16**
Number of Support Personnel	**114**
Direct Annual Grant Support	**$9,428,773**
Direct Annual Industry Support	**$659,536**
Peer Reviewed Publications	**110**

Clinical Activities and Training

Number of Clinical Staff	**22**
Number of Clinical Fellows	**12**

Division Photo

Row 1: C Hill, J Dritz, Y Xu, L Nommsen-Rivers, B Kamath-Rayne, B Haberman, S Bhattacharrya, A Perl, S Wert, J Greenberg, L Muglia, J Whitsett, V Narendran, A Nathan, T Weaver, N Goyal, C Valentine, K Melton
Row 2: T Cahill, D Premer, K Sparling, L Bookman, B Johnson, K Schibler, K Wikenheiser-Brokamp, S Glasser, M Ikegami, T Korfhagen, P Kingma, N Hillman, D Sinner, J Rone
Row 3: A Morrow, S Wexelblatt, T Suzuki, E Hall, J Shannon, B Trapnell, J Bridges, W Rice

Significant Accomplishments

The Center for Prevention of Preterm Birth

This endeavor is unique among children's hospitals in developing a platform to circumvent the leading causing of infant mortality, preterm birth. To accomplish this goal, Cincinnati Children's has dedicated substantial institutional resources to maintaining the current areas of accomplishment in lung development and complications of prematurity. Additionally, this year we recruited Louis Muglia, MD.

Number One Neonatology Program

Our work in helping prevent prematurity and improving outcomes for infants born prematurely has made us a leader in the field. Our efforts were recognized this year by US News and World Report, who named us the number one neonatology program in the nation in their 2012 issue of "Best Children's Hospitals."

First MRI in a neonatal intensive care unit.

We were first in the world to establish an MRI scanner in a newborn intensive care unit, which we did this year. Previously, infants most in need of this imaging modality were prevented from study because of the risks of transporting them out of the NICU. The novel, safe implementation of this imaging system within the Cincinnati Children's NICU will be transformative in newborn care.

Expansion of Cincinnati Children's newborn care services to Dayton

In October of 2012, the Perinatal Institute will offer clinical services for newborns in the Kettering Health

Network hospitals in Dayton, Ohio. This will add 5,000 deliveries per year to our service area and enhance opportunities for patient-focused research and quality improvement.

Leading pulmonary research

Jeffrey Whitsett, MD, and colleagues received a National Institutes of Health award to study “Airway Progenitor Cell Proliferation and Differentiation During Lung Repair” as part of a consortium for the study of lung repair and regeneration. This effort focuses on transcriptional mechanisms controlling proliferation and differentiation of airway epithelial cell progenitors. The investigative team plans to generate new antibodies, gene expression data and transgenic models with broad application to the field of pulmonary biology and medicine.

Division Highlights

Airway Progenitor Cell Proliferation and Differentiation during Lung Repair

Dr. Jeffrey Whitsett and colleagues were award a NIH U01 entitled “Airway Progenitor Cell Proliferation and Differentiation during Lung Repair” as part of a Consortium for the study of "Lung Repair and Regeneration." The goal of this effort focuses on transcriptional mechanisms controlling proliferation and differentiation of Airway Epithelial Cell progenitors. The investigative team plans to also generate and provide new antibodies, gene expression data and transgenic models of broad application to the field of Pulmonary Biology and Medicine.

Preterm Respiratory Outcomes Program (PROP)

We initiated patient enrollment in the Preterm Respiratory Outcomes Program (PROP) this year. This NHLBI-sponsored program supports a novel multicenter initiative to enhance understanding and predict one year respiratory outcomes in extremely preterm infants; those born 12 or more weeks before term. The PROP includes multicenter and CCHMC-specific projects. Dr. Alan Jobe is the Principal Investigator for the PROP, with Dr. Jim Greenberg serving as Co-Investigator. When enrollment is completed in 2014, the PROP cohort will include high-resolution data from over 750 subjects and promises to offer new insight and strategies for the treatment of neonatal chronic lung disease.

Chorioamnionitis in late preterm infants study

Drs. Alan Jobe, Suhas Kallapur are completing enrollment for their study of chorioamnionitis in late preterm infants. Many births between 32-36 weeks gestation occur in association with maternal chorioamnionitis. Often this infection is mild or asymptomatic, and the infants seem to do well after delivery. However, there are important questions about how this complication affects longer-term outcomes during infancy and beyond. This study will add important new information regarding the relationship between infection, inflammation and respiratory outcomes in this patient population.

Eunice Kennedy Shriver NICHD Neonatal Research Network

Dr. Kurt Schibler serves as Cincinnati Children’s Principal Investigator for the *Eunice Kennedy Shriver* NICHD Neonatal Research Network The 18 centers comprising the network are charged with conducting multicenter clinical trials to inform clinical practice and improve the outcome of newborn infants. Two recent high profile manuscripts, listed below, have prompted a change in practice among Maternal Fetal Medicine specialists regarding administration of antenatal steroid to mothers at high risk for delivery at the limits of viability and have confirmed long-term benefit, at school age, of hypothermia for treatment of neonatal hypoxic ischemic

encephalopathy. Ongoing Network trials focus on optimizing neuroprotection strategies and improving survival of premature infants and reducing complications associated with prematurity. Postdoctoral fellows in the Perinatal Institute have used the Cincinnati-specific NICHD Neonatal Research Network Database for outcomes research.

Nation-leading program in prevention of prematurity

The Perinatal Institute has developed a nation-leading program in prevention of prematurity. This endeavor has resulted in the genesis of a unique transdisciplinary research endeavor that encompasses faculty for Cincinnati Children's, UC College of Medicine, the McMicken College of Arts and Sciences and partner institutions around the state of Ohio and Midwest. This unique collaborative environment brings together basic biological, social and medical sciences to improve health outcomes for mothers and infants in the region and nation.

A new approach to investigation newborn brain insults

The greatest morbidity of children born prematurely stems from complications in brain development. To better understand and treat complications from neurological injury form being born early, the Perinatal Institute has implemented a new approach to investigation newborn brain insults – building a novel, prematurity compatible brain MRI imaging system in our NICU. This advance has already led to better care of preterm infants and holds the promise for new discoveries to prevent the greatest complications of early birth.

Expansion of newborn care in the Dayton region

Cincinnati Children's neonatologists have long been recognized as the leaders in newborn care in the greater Cincinnati/Northern Kentucky region. To expand our sphere of influence in improving pregnancy outcomes, Cincinnati Children's faculty will now deliver exceptional newborn care in the nurseries in the Dayton region. This expansion not only enhances infant outcomes, but provides an unparalleled opportunity for population-based research to further improve outcomes for preterm birth.

Significant Publications

Besnard V, Wert SE, Ikegami M, Xu Y, Murray SA, Donahue LR, **Whitsett JA. Maternal synchronization of gestation length and lung maturation**. *PLoS ONE.* 6: e26682. 2011.

This important study found that fetal lung maturation is determined by both fetal and maternal genomic information in mice. Further, experiments demonstrated that maternal genotype determines the timing of birth and can influence fetal lung growth and maturation to ensure perinatal survival.

Kallapur SG, Kramer BW, Knox CL, Berry CA, Collins JJ, Kemp MW, Nitsos I, Polglase GR, Robinson J, **Hillman NH,** Newnham JP, Chougnet C, Jobe AH**. Chronic fetal exposure to Ureaplasma parvum suppresses innate immune responses in sheep**. *J Immunol*. 187(5):2688-95. Sep 2011.

Chorioamnionitis associated with preterm delivery is often polymicrobial with ureaplasma being the most common isolate. In this paper, Kallapur et al. find that ureaplasma reprogram innate immune responses in a manner that depends upon the duration of exposure during pregnancy.

Kamath-Rayne BD, DeFranco EA, Marcotte MP.**Antenatal steroids for treatment of fetal lung immaturity after 34 weeks of gestation: an evaluation of neonatal outcomes**. *Obstet Gynecol*. 119(5):909-16. May 2012.

Kamath-Rayne et al. evaluate whether antenatal corticosteroids given after fetal lung immaturity in pregnancies at 34 weeks of gestation or more would improve neonatal outcomes and, in particular, respiratory outcomes. They found that administration of antenatal corticosteroids after immature fetal lung indices did not reduce

respiratory morbidity in neonates born at 34 weeks of gestation or more, a result that will influence significantly influence future therapy.

South AP, Jones DE, **Hall ES**, Huo S, Meinzen-Derr J, Liu L, Greenberg JM**. Spatial analysis of preterm birth demonstrates opportunities for targeted intervention**. *Matern Child Health J*. 16(2):470-8. Feb 2012.

This study targeted intervention strategies for reducing preterm birth through use of geographic analysis of Hamilton County vital records. It demonstrated that the heterogeneous distribution of preterm birth proportion within an urban county is complex and requires location specific analysis to develop appropriate interventions.

Kuppala VS, Meinzen-Derr J, **Morrow AL,Schibler KR. Prolonged initial empirical antibiotic treatment is associated with adverse outcomes in premature infants**. *J Pediatr*. 159(5):720-5. Nov 2011.

This study found that prolonged administration of empirical antibiotics to premature infants with sterile cultures in the first week of life was associated with subsequent severe outcomes. These results suggest that judicious restriction of antibiotic use should be investigated as a strategy to reduce severe outcomes for premature infants.

Division Publications

1. Becker PM, Tran TS, Delannoy MJ, He C, Shannon JM, McGrath-Morrow S. **Semaphorin 3A contributes to distal pulmonary epithelial cell differentiation and lung morphogenesis**. *PLoS One*. 2011; 6:e27449.
2. Bell SM, Zhang L, Mendell A, Xu Y, Haitchi HM, Lessard JL, Whitsett JA. **Kruppel-like factor 5 is required for formation and differentiation of the bladder urothelium**. *Dev Biol*. 2011; 358:79-90.
3. Berry CA, Nitsos I, Hillman NH, Pillow JJ, Polglase GR, Kramer BW, Kemp MW, Newnham JP, Jobe AH, Kallapur SG. **Interleukin-1 in lipopolysaccharide induced chorioamnionitis in the fetal sheep**. *Reprod Sci*. 2011; 18:1092-102.
4. Besnard V, Wert SE, Ikegami M, Xu Y, Heffner C, Murray SA, Donahue LR, Whitsett JA. **Maternal synchronization of gestational length and lung maturation**. *PLoS One*. 2011; 6:e26682.
5. Bolte C, Zhang Y, Wang IC, Kalin TV, Molkentin JD, Kalinichenko VV. **Expression of Foxm1 transcription factor in cardiomyocytes is required for myocardial development**. *PLoS One*. 2011; 6:e22217.
6. Bookman LB, Melton KR, Pan BS, Bender PL, Chini BA, Greenberg JM, Saal HM, Taylor JA, Elluru RG. **Neonates with tongue-based airway obstruction: a systematic review**. *Otolaryngol Head Neck Surg*. 2012; 146:8-18.
7. Bridges JP, Lin S, Ikegami M, Shannon JM. **Conditional hypoxia inducible factor-1alpha induction in embryonic pulmonary epithelium impairs maturation and augments lymphangiogenesis**. *Dev Biol*. 2012; 362:24-41.
8. Carlo WA, McDonald SA, Fanaroff AA, Vohr BR, Stoll BJ, Ehrenkranz RA, Andrews WW, Wallace D, Das A, Bell EF, Walsh MC, Laptook AR, Shankaran S, Poindexter BB, Hale EC, Newman NS, Davis AS, Schibler K, Kennedy KA, Sanchez PJ, Van Meurs KP, Goldberg RN, Watterberg KL, Faix RG, Frantz ID, 3rd, Higgins RD, Eunice Kennedy Shriver National Institute of Child H, Human Development Neonatal Research N. **Association of antenatal corticosteroids with mortality and neurodevelopmental outcomes among infants born at 22 to 25 weeks' gestation**. *JAMA*. 2011; 306:2348-58.
9. Carlo WA, McDonald SA, Tyson JE, Stoll BJ, Ehrenkranz RA, Shankaran S, Goldberg RN, Das A, Schendel D, Thorsen P, Skogstrand K, Hougaard DM, Oh W, Laptook AR, Duara S, Fanaroff AA, Donovan EF, Korones SB, Stevenson DK, Papile LA, Finer NN, O'Shea TM, Poindexter BB, Wright LL, Ambalavanan N, Higgins RD, Eunice Kennedy Shriver National Institute of Child H, Human Development Neonatal Research N, Collaborators:, Jobe AH, Narendran V. **Cytokines and neurodevelopmental outcomes in extremely low birth weight infants**. *J Pediatr*. 2011; 159:919-25 e3.

10. Chapman DJ, Nommsen-Rivers L. **Impact of maternal nutritional status on human milk quality and infant outcomes: an update on key nutrients**. *Adv Nutr*. 2012; 3:351-2.
11. Cole CR, Hansen NI, Higgins RD, Bell EF, Shankaran S, Laptook AR, Walsh MC, Hale EC, Newman NS, Das A, Stoll BJ, Eunice Kennedy Shriver National Institute of Child H, Human Development's Neonatal Research N, Collaborator: Schibler K. **Bloodstream infections in very low birth weight infants with intestinal failure**. *J Pediatr*. 2012; 160:54-9 e2.
12. Cummings KJ, Nakano M, Omae K, Takeuchi K, Chonan T, Xiao YL, Harley RA, Roggli VL, Hebisawa A, Tallaksen RJ, Trapnell BC, Day GA, Saito R, Stanton ML, Suarthana E, Kreiss K. **Indium lung disease**. *Chest*. 2012; 141:1512-21.
13. Daikoku T, Jackson L, Besnard V, Whitsett J, Ellenson LH, Dey SK. **Cell-specific conditional deletion of Pten in the uterus results in differential phenotypes**. *Gynecol Oncol*. 2011; 122:424-429.
14. Dando SJ, Nitsos I, Kallapur SG, Newnham JP, Polglase GR, Pillow JJ, Jobe AH, Timms P, Knox CL. **The role of the multiple banded antigen of Ureaplasma parvum in intra-amniotic infection: major virulence factor or decoy?**. *PLoS One*. 2012; 7:e29856.
15. D'Mello S, Trauernicht A, Ryan A, Bonkowski E, Willson T, Trapnell BC, Frank SJ, Kugasathan S, Denson LA. **Innate dysfunction promotes linear growth failure in pediatric Crohn's disease and growth hormone resistance in murine ileitis**. *Inflamm Bowel Dis*. 2012; 18:236-245.
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17. Flotte TR, Trapnell BC, Humphries M, Carey B, Calcedo R, Rouhani F, Campbell-Thompson M, Yachnis AT, Sandhaus RA, McElvaney NG, Mueller C, Messina LM, Wilson JM, Brantly M, Knop DR, Ye GJ, Chulay JD. **Phase 2 clinical trial of a recombinant adeno-associated viral vector expressing alpha1-antitrypsin: interim results**. *Hum Gene Ther*. 2011; 22:1239-47.
18. Geraghty S, Davidson B, Tabangin M, Morrow A. **Predictors of breastmilk expression by 1 month postpartum and influence on breastmilk feeding duration**. *Breastfeed Med*. 2012; 7:112-7.
19. Glasser SW, Senft AP. **Use of transgenic mouse models to understand the origins of familial pulmonary fibrosis**. *Curr Pharm Biotechnol*. 2011; 12:1447-54.
20. Goldenberg RL, McClure EM, Kamath BD. **Intrapartum perinatal mortality**. *Indian Pediatr*. 2012; 49:187-8.
21. Goyal NK, Fager C, Lorch SA. **Adherence to discharge guidelines for late-preterm newborns**. *Pediatrics*. 2011; 128:62-71.
22. Goyal NK, Fiks AG, Lorch SA. **Persistence of underweight status among late preterm infants**. *Arch Pediatr Adolesc Med*. 2012; 166:424-30.
23. Goyal NK, Fiks AG, Lorch SA. **Association of late-preterm birth with asthma in young children: practice-based study**. *Pediatrics*. 2011; 128:e830-8.
24. Hillman NH, Nitsos I, Berry C, Pillow JJ, Kallapur SG, Jobe AH. **Positive end-expiratory pressure and surfactant decrease lung injury during initiation of ventilation in fetal sheep**. *Am J Physiol Lung Cell Mol Physiol*. 2011; 301:L712-20.
25. Huang F-F, Barnes PF, Feng Y, Donis R, Chroneos ZC, Idell S, Allen T, Perez DR, Whitsett JA, Dunussi-Joannopoulos K, Shams H. **GM-CSF in the Lung Protects Against Lethal Influenza Infection**. *Am J Respir Crit Care Med*. 2011; 184:259-268.
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28. Jobe AH. **What is RDS in 2012?**. *Early Hum Dev*. 2012; 88 Suppl 2:S42-4.
29. Jobe AH, Kallapur SG, Kramer BW. **Perinatal events and their influence on lung development and function.**. *The Newborn Lung: Neonatology questions and controversies series*. Philadelphia: Elsevier/Saunders; 2012:57-90.
30. Kallapur SG, Kramer BW, Knox CL, Berry CA, Collins JJ, Kemp MW, Nitsos I, Polglase GR, Robinson J, Hillman NH, Newnham JP, Chougnet C, Jobe AH. **Chronic fetal exposure to Ureaplasma parvum suppresses innate immune responses in sheep**. *J Immunol*. 2011; 187:2688-95.
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33. Kamath BD, Donovan EF, Christopher R, Brodbeck J, Slone C, Marcotte MP. **Using improvement science to increase accuracy and reliability of gestational age documentation**. *Am J Perinatol*. 2012; 29:217-24.
34. Kamath-Rayne BD, DeFranco EA, Marcotte MP. **Antenatal steroids for treatment of fetal lung immaturity after 34 weeks of gestation: an evaluation of neonatal outcomes**. *Obstet Gynecol*. 2012; 119:909-16.
35. Kamath-Rayne BD, MacGuire ER, McClure EM, Goldenberg RL, Jobe AH. **Clinical algorithms for the identification of sick newborns in community-based settings**. *Acta Paediatr*. 2012; 101:344-51.
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Auten KJ, Miller NA, Sanchez PJ, Higgins RD, Cotten CM, Smith PB, Benjamin DK, Jr., Network NNR, Collaborator: Schibler K. **Outcomes following candiduria in extremely low birth weight infants**. *Clin Infect Dis*. 2012; 54:331-9.

Faculty, Staff, and Trainees

Faculty Members

Jeffrey A. Whitsett, MD, Professor

Leadership Co-Director, Perinatal Institute; Chief, Section of Neonatology, Perinatal and Pulmonary Biology

Research Interests Lung Development; Surfactant

Henry T. Akinbi, MD, Associate Professor

Research Interests Neonatal Infections and Blood Transfusions

Sandip Bhattacharyya, MSc, PhD, Assistant Professor

Research Interests Inflammation Immunology, Signal Transduction

Laurel Bookman, MD, Assistant Professor

Research Interests Implementation Science, International Health

James Bridges, PhD, Instructor

Research Interests Hypoxia Inducible Factors and Downstream Target Genes in Chronic Lung Disease

Tanya E. Cahill, MD, Assistant Professor

Leadership Director, High Risk Infant Follow-Up Program

Research Interests Neonatal Abstinence Syndrome and High Risk Infant Follow-Up

Michael W. Crossman, MD, PhD, Assistant Professor

Research Interests Bioethics

Jay Dritz, MD, Assistant Professor

Research Interests Neonatal resuscitation, quality improvement

Stephan W. Glasser, PhD, Associate Professor

Research Interests Gene Regulation in the Lung

Neera Goyal, MD, MSHP, Assistant Professor

James M. Greenberg, MD, Professor

Leadership Co-Director, Perinatal Institute; Director, Division of Neonatology

Research Interests Preterm Birth, Community Health, Pulmonary Vascular Development

Beth E. Haberman, MD, Assistant Professor

Leadership Medical Director, Cincinnati Children's NICU & Co-Medical Director, Mercy Anderson Hospital Nurseries

Research Interests Infant Follow-up

Eric Hall, PhD, Assistant Professor

Research Interests Biomedical Informatics

Noah H. Hillman, MD, Assistant Professor

Research Interests Pulmonary Physiology, Neonatal Resustitation, Lung Injury/Repair

Steven B. Hoath, MD, Professor

Leadership Medical Director, Skin Sciences Program

Research Interests Skin Development & Environmental Interactions

Machiko Ikegami, MD, PhD, Professor

Leadership Director, Surfactant and Metabolic Function Core

Research Interests Surfactant Metabolism; Lung Injury

Alan H. Jobe, MD, PhD, Professor

Leadership Director, Division of Perinatal Biology

Research Interests Injury and Repair of the Preterm Lung

Beth Ann Johnson, MD, Assistant Professor

Tanya V. Kalin, MD, PhD, Assistant Professor

Research Interests Transcriptional Regulation of Carcinogenesis and Radiation-Induced Lung Fibrosis

Vladimir V. Kalinichenko, MD, PhD, Associate Professor

Research Interests Fox Proteins in Lung Development

Suhas G. Kallapur, MD, Associate Professor

Leadership Director, Neonatology CME

Research Interests Fetal Inflammation/Physiology, Lung Development/Inflammation, BPD, Developmental Immunology

Beena Kamath, MD, MPH, Assistant Professor

Research Interests Neonatal Outcomes and Public Health; Fetal Lung Maturity; Global Health

Heather Kaplan, MD, MSCE, Assistant Professor

Research Interests Health Services Research; Improvement Science

Alan P. Kenny, MD, PhD, Instructor

Research Interests Molecular Development of the Foregut Organs

Paul S. Kingma, MD, PhD, Assistant Professor

Research Interests Innate Immune Systems; Cystic Fibrosis; Neonatal Infection

Thomas R. Korfhagen, MD, PhD, Professor

Research Interests Lung Defense

Timothy Le Cras, PhD, Associate Professor

Leadership Director of Admissions, Molecular & Developmental Biology Graduate Program

Research Interests Chronic Lung Diseases; Lung Development, Pulmonary Hypertension

Kristin R. Melton, MD, Associate Professor

Leadership Associate Director, Neonatal Fellowship Training Program

Research Interests Developmental Biology, Neural Crest Biology

Stephanie Merhar, MD, MS, Assistant Professor

Research Interests Neonatal neuroimaging, infant follow up

Ardythe L. Morrow, PhD, Professor

Leadership Director, Center for Interdisciplinary Research in Human Milk and Lactation

Research Interests Molecular Epidemiology of Human Milk, Epidemiologic Methods, Prevention of Infectious Disease, Predictive Biomarkers of Neonatal Outcomes

Louis Muglia, MD, PhD, Professor

Leadership Co-Director, Perinatal Institute; Chief, Section of Neonatology, Perinatal and Pulmonary Biology

Research Interests Genetics of Birth Timing; Neurobiology of the Stress Response

Vivek Narendran, MD, MBA, Associate Professor

Leadership Medical Director, Univ. Hosp. NICU & Newborn Nursery; Medical Director, The Christ Hospital Nursery; Chair, Department of Pediatrics, the University Hospital

Research Interests C-PAP; Business Case for Quality Improvements; Preterm Infant Skin

Amy T. Nathan, MD, Assistant Professor

Leadership Medical Director, TriHealth Nurseries

Research Interests Immunobiology

Laurie A. Nommsen-Rivers, PhD, RD, IBCLC, Assistant Professor

Leadership Co-Chair, Seminar Series in Human Milk and Lactation

Research Interests Human Lactation and Breastfeeding

Anne-Karina Perl, PhD, Assistant Professor

Research Interests Alveolar Regneration and Bronchiolar Injury/Repair

John H. Reuter, MD, PhD, Associate Professor

Leadership Co-Medical Director, Bethesda North Hospital Nurseries

Ward R. Rice, MD, PhD, Professor

Leadership Director, Neonatal Fellowship Training Program; Director, Newborn Services, St. Elizabeth Medical Center

Research Interests Lung Development, Surfactant Biology

Jerod Rone, MD, Associate Professor

Kurt R. Schibler, MD, Associate Professor

Leadership Principal Investigator, NICHD Neonatal Research Network

Research Interests Neonatal Immunology, Necrotizing Enterocolitis

John M. Shannon, PhD, Professor

Leadership Director of Graduate Studies, Program in Molecular and Developmental Biology

Research Interests Lung Development, Foregut Embryology

Debora I. Sinner, PhD, Instructor

Research Interests Wnt Signaling and Sox Transcription Factors in Lung Development and Disease

Andrew P. South, MD, MPH, Assistant Professor

Research Interests Outcomes and Etiology of Gastroschisis, Epidemiology of Late-Preterm Birth

Jean J. Steichen, MD, Professor Emeritus

Research Interests Infant Follow-up

Takuji Suzuki, MD, PhD., Instructor

Research Interests Lung Immunology

Bruce C. Trapnell, MD, MS, Professor

Leadership Director, Rare Lung Diseases Network; Scientific Director, PAP Foundation; Co-Director, Cystic Fibrosis TDN Center

Research Interests Rare Lung Diseases; GM-CSF, Gene Therapy

Christina Valentine, MD, Assistant Professor

Research Interests Maternal and Infant Nutrition to improve perinatal health

Laura Ward, MD, Assistant Professor

Leadership Co-Medical Director, Mercy Anderson Hospital Nurseries

Research Interests Use of Human Milk in the NICU

Timothy E. Weaver, MS, PhD, Professor

Leadership Associate Director, Division of Pulmonary Biology; Co-Director, Molecular and Developmental Biology Program

Research Interests Pathogenesis of Interstitial Lung Diseases

Kathryn E. Wedig, MD, Associate Professor

Leadership Director, High Risk Clinic @ GSH; Medical Director, Mercy Hospital Fairfield

Research Interests Infant Follow-up, Neonatal Abstinence Syndrome

Susan E. Wert, PhD, Associate Professor

Leadership Director, Molecular Morphology Core, Division of Pulmonary Biology

Research Interests Lung Development, Molecular Morphology of the Lung, Ultrastructural Analysis of the Lung, Genetic Surfactant Disorders

Scott Wexelblatt, MD, Assistant Professor

Leadership Medical Director Regional Newborn Services; Co-Medical Director Bethesda North Hospital Nurseries

Research Interests Late Preterm Infant, Quality Improvement

Yan Xu, PhD, Associate Professor

Leadership Director, Microarray-Bioinformatics Core, Division of Pulmonary Biology

Research Interests Bioinformatics, Systems Biology, Transcriptional Network

Joint Appointment Faculty Members

Kathryn Wikenheiser-Brokamp, MD/PhD, Associate Professor (Pathology)

Research Interests Pulmonary Pathology, Pediatric and Adult Lung Diseases

Clinical Staff Members

- **Stephen Bird, MD**
- **Mary Burwinkel, MD**
- **Thomas Catalanotto, MD**
- **Christine Chappell, MD**
- **Diane Donley, MD**
- **Dena Elkeeb, MD**
- **Horacio Falciglia, MD**
- **Michelle French, MD**
- **Angelique Gloster, MD**
- **Pamela Holmes, MD**
- **Clinton Joiner, MD**
- **Jill Klein, MD**
- **Katie Loudermilk, MD**

- **Alisa McGill, MD**
- **Miriam Peri, MD**
- **Ajay Ponkshe, MD**
- **Danna Premer, MD**
- **John Robinson, MD**
- **Deborah Rufner, MD**
- **Kelley Shultz,**
- **Jean Steichen,**
- **Kira Zimmerly, MD**

Trainees

- **Thomas Acciani, BS**, University of Illinois Urbana
- **Ceyda Acun, MD**, PL7, George Washington University Hospital, Washington, DC
- **Melinda Arnett, PhD**, University of Kansas Medical Center, Kansas City, Kansas
- **Aria Attia, MS**, Georgetown University, Washington, DC
- **David Balli, BA**, DePauw University, Greencastle, IN
- **Craig Bolte, PhD**, University of Cincinnati, Cincinnati, OH
- **Katherine Brown,** , University of the West of England, Bristol, England
- **Yuqi Cai, PhD**, Zhejiang University School of Medicine, Hangzhou, China
- **Gang Chen, MS , PhD**, Yangzhou University, China
- **Rebecca Currier, BS**, Louisiana Tech University, Ruston, LA
- **David Dewar, MD**, PL5, Michigan State University, East Lansing, MI
- **Jill Fritz, BS**, Miami University, Oxford, OH
- **Chen Gao, BS**, Beijing Normal University, Beijing, China
- **Tate Gisslen, MD**, PL5, University of Minnesota Medical School, Minneapolis, MN
- **Jennifer Goetz, MD**, PL5, University of Louisville School of Medicine, Louisville, KY
- **Corryn Greenwood, MD**, PL6, Mayo Clinic School of Graduate Medical Education, Rochester, NY
- **David Hahn, BS**, Northern Kentucky University
- **Hans Michael Haitchi, MD, PhD**, University of Southampton, UK
- **Jamie Havrilak, BS**, Susquehanna University, Selinsgrove, PA
- **Sandra Hernandez,** , Univeristy of Cincinnati
- **Audrone LaForgia, MD**, PL6, EVMS/Children's Hospital of the King's Daughters, Norfolk, VA
- **Melissa Landis, MD**, PL4, Columbia University School of Medicine, New York, New York
- **Gloria Laryea, BS**, University of Maryland Eastern Shore, Princess Anne, Maryland
- **Anne Minter, BA**, Miami University, Oxford, OH
- **Nagendra Monangi, MD**, PL6, Osmania Medical College, Hyderabad, India; University of South Alabama, Mobile, AL
- **Elizabeth Mushaben, BS**, College of Mount St. Joseph
- **Gaston Ofman, MD**, Favaloro University School of Medicine, Buenos Aires, Argentina
- **Kriti Puri, MBBS**, All India Institute of Medical Sciences, New Delhi, India
- **Malia Ray, MD**, University of Louisville, Kentucky
- **Melissa Rice, MD**, PL4, Indiana University School of Medicine, Indianapolis, Indiana
- **Tony Sallese, BS**, University of St. Francis, Joliet, IL
- **Atsuyasu Sato, MD, PhD**, Kyoto University, Japan
- **Heather Smith, MD**, PL4, Miller School of Medicine, Miami, Florida
- **Kevin Stutey, MD**, PL5, Eastern Virginia Medical School, Norfolk, VA

- **Diana Taft, BA**, Cornell University, Ithaca, NY
- **Chelsea Tolentino, BS**, Grambling State University
- **Jason Wiles, MD**, PL4, University of Louisville School of Medicine, Louisville, Kentucky
- **Tim Wolfs, PhD**, Royal Netherlands Academy of Arts and Sciences, The Netherlands
- **Qing Yan Xie, BA, MS**, Beijing University of Technology, Wuhan, China

Division Collaboration

Reproductive Sciences; Developmental Biology; Pulmonary Medicine; Biomedical Informatics; Safety - The James A. Anderson Center; Infectious Disease; Human Genetics; Biostatistics and Epidemiology » SK Dey, Takiko Daikoku, Christopher Wylie, James Wells, Noah Schroyer, Aaron Zorn, Richard Lang, William Hardie, Imre Solti, Steven Muething, Margaret Hostetter, Ge Zhang, and Maurizio Macaluso

Division's faculty have close collaborations with faculty in multiple divisions within Cincinnati Children's, the University of Cincinnati, and with investigators across the United States and throughout the world.

The Perinatal Institute at Cincinnati Children's provided a new home for efforts to both improve outcomes for infants born prematurely and prevent prematurity to synergistically reduce infant mortality in our region. To accomplish these daunting goals, we have assembled faculty from across Cincinnati Children's, the college of medicine, the arts and sciences and institutions around Ohio in an integrative, transdisciplinary endeavor unique in pediatrics and women's health. Perinatal Institute investigators maintain collaborative relationships with colleagues in Japan, Germany, Mexico, Argentina, Finland, and Australia.

Grants, Contracts, and Industry Agreements

Grant and Contract Awards		Annual Direct
BRIDGES, J		
The Role of HIF2a in Airway Smooth Muscle Remodeling		
American Lung Association		
RG-195621-N	07/01/11-06/30/13	$40,000
Cystic Fibrosis Foundation Research Development Program - Project 4		
Cystic Fibrosis Foundation		
	07/01/07-06/30/12	$40,000
CHEN, G		
University Research Council Postdoctoral Fellow Research		
University of Cincinnati		
	12/01/11-11/30/12	$5,000
GLASSER, S		
Role of Surfactant Protein-C and Innate Lung Defense		
National Institutes of Health		
R01 HL 050046	08/01/09-07/31/13	$250,000
GOYAL, N		
Dosage Effect of Home Visitation on Neonatal Outcomes		
National Institutes of Health (University of Cincinnati)		
K12 HD 051953	04/01/12-03/31/14	$100,000

HALL, E

Neonatal Research Networks Terminology Harmonization
Department of Health and Human Services(University of Colorado)
HHSN275200800018C 01/01/12-03/31/12 $7,410

HILLMAN, N

Lung Injury with Resuscitation in the Preterm
National Institutes of Health
K08 HL 097085 08/01/09-07/31/14 $121,750

IKEGAMI, M

Role of C/EBPalpha in Cytoprotection and Recovery from Lung Injury
National Institutes of Health
R01 HL 095464 04/01/09-03/31/13 $247,500

JOBE, A / CHOUGNET C

Biomarkers of Immunologic Function and Preterm Respiratory Outcomes
National Institutes of Health
U01 HL 101800 05/01/10-04/30/15 $381,253

Jobe, A	Core	$153,901
Chougnet, C	Project	$93,788
Chougnet, C	Project	$31,922
Kingma, P	Project	$20,448
Hardie, W	Project	$49,983
Morrow, A	Project	$31,211

Biomarkers of Immunologic Function and Preterm Respiratory Outcomes
National Institutes of Health(University of Pennsylvania)
U01 HL 101794 09/20/10-04/30/15 $25,562

JOBE, A / KALLAPUR, S

Late Preterm Birth, Ureaplasma Species and Childhood Lung Disease
National Institutes of Health
R01 HL 097064 09/24/09-07/31/13 $348,802

KALIN, T

Role of Foxm1 in Lung Cancer Microenvironment
National Institutes of Health
R01 CA 142724 07/01/10-06/30/15 $201,275
Role of Foxm1 in the Pathogenesis of Prostate Cancer
Department of Defense Army
W81XWH0910389 07/01/09-06/30/12 $75,538

KALINICHENKO, V

Foxf1 Transcription Factor in Development of Pulmonary Capillaries
National Institutes of Health
R01 HL 084151 05/01/11-04/30/15 $250,000

KALLAPUR, S

Mechanisms of Fetal Inflammatory Response Syndrome Induced by Chorioamnionitis
National Institutes of Health
R01 HD 057869 02/03/09-01/31/14 $242,830

KAMATH-RAYNE, B

Novel Amniotic Fluid Biomarkers to Predict Fetal Lung Maturity
National Institutes of Health(University of Cincinnati)

K12 HD51953	07/01/11-06/30/13		$100,000

KENNY, A

Secreted BMP Antagonists in Foregut Organ Development
National Institutes of Health

K08 HL105661	12/08/2010-11/30/2015		$121,300

KINGMA, P

Surfactant Protein D in Pulmonary and Systemic Host Defense
National Institutes of Health

K08 HL 089505	07/01/08-06/30/13		$121,600

LECRAS, T

Impact of Early Life Diesel Exposure on Immune Patterning
National Institutes of Health

R01 HL 097135	05/01/10-04/30/15		$343,734
LeCras, T		$134,837	
Hershey, G		$208,897	

MERHAR, S

Protein Supplementation in Infants with Brain Injury
The Gerber Foundation

PN-12-004-424-3068	06/01/12-05/31/15		$6,666

MORROW, A

Novel Genetic and Salivary Glycan Biomarkers for Risk of NEC in ELBW Infants
National Institutes of Health

R01 HD 059140	01/15/09-12/31/13		$573,036

The Role of Human Milk in Infant Nutrition and Health
National Institutes of Health

P01 HD 013021	08/01/09-07/31/14		$959,816
Jiang, Xi	Core D	$84,803	
Jiang, Xi	Project 2	$110,955	

MUGLIA, L

Genetic Analysis of Human Preterm Birth
March of Dimes National

21-FY11-583	01/01/12-02/28/14		$383,596

Amygdala Glucocorticoid Receptor Function in Stress
National Institutes of Health

R01 MH079010	01/01/12-12/31/13		$261,822

Alcohol Action on Extended Amygdala Glutamate Synapses
National Institutes of Health(Vanderbilt University)

R01 AA19455	05/01/12-04/30/13		$9,802

Research Consortium on Pre-Term Birth (Strauss, A - PI)
Burroughs Wellcome Fund

1007414.04	01/01/12-06/30/13		$318,657

PERL, A

FGF and PDGF Regulate Myofibroblast Differentiation in Alveolar Regeneration
National Institutes of Health

R01 HL 104003	07/01/10-06/30/14		$250,000

SCHIBLER,K

NICHD Cooperative Multicenter Neonatal Research Network Capitation

Research Triangle International (National Institutes of Health)
U10 HD 063048 04/01/11-03/31/16 $125,827

NICHD Cooperative Multicenter Neonatal Research Network
National Institutes of Health
U10 HD 027853 04/01/11-03/31/16 $197,000

SHANNON, J

LPCAT1 is Essential for Perinatal Lung Function and Survival
National Institutes of Health
R01 HL 098319 07/01/10-06/30/14 $314,281

SINNER, D

Molecular Mechanisms Underlying Lung Growth and Hypoplasia: Role of Wntless
March of Dimes
5-FY12-59 02/01/12-01/31/14 $68,182

TRAPNELL, B

Macrophage-based Human Gene Therapy for Hereditary PAP
National Institutes of Health
R21 HL 106134 12/15/10-11/30/12 $150,000

Role of GM-CSF in Myeloid Cell Function and Innate Immunity
National Institutes of Health
R01 HL 085453 04/01/11-03/31/16 $250,000

Cincinnati Center for Clinical/Translational Sciences & Training
National Institutes of Health(University of Cincinnati)
UL1 RR 026314 04/01/12-03/31/14 $23,181

WEAVER, T

Role of SFTPC in Pathogenesis of Interstitial Lung Disease
National Institutes of Health
R01 HL 086492 12/01/08-11/30/13 $326,260

The Role of Autophagy in the Pathogenesis of interstitial Lung Disease
National Institutes of Health
R01 HL 103923 08/01/11-06/30/15 $335,127

WHITSETT, J

Airway Progenitor Cell Proliferation and Differentiation During Lung Repair
National Institutes of Health
U01 HL 110964 01/01/12-12/31/16 $555,300

Pulmonary and Cardiovascular Development Training Grant
National Institutes of Health
T32 HL 007752 07/01/09-06/30/14 $254,539

Transcriptional Control of Submucosal Gland Formation and Function
National Institutes of Health
R01 HL 108907 07/01/11-04/30/15 $257,958

Transcriptional Programming of Asthma Related Pathology in Respiratory Epithelial Cells
National Institutes of Health
R01 HL 095580 05/24/69-04/01/09 $342,888

Cystic Fibrosis Foundation Research Development Program (Core 1)
Cystic Fibrosis Foundation
03/01/12-06/30/15 $50,000

XU, Y

Role of SREBP Network in Surfactant Lipid Homeostasis and Lung Maturation
National Institutes of Health
R01 HL 105433 07/01/11-06/30/15 $311,281

Cystic Fibrosis Foundation Research Development Program - Project 3

Cystic Fibrosis Foundation		
	03/01/12-06/30/15	$80,000
	Current Year Direct	**$9,428,773**

Industry Contracts

KINGMA, P	
Airway Therapeutics, LLC	$44,750
MORROW, A	
Mead Johnson & Company LLC	$35,649
TRAPNELL, B	
Pfizer, Inc.	$567,202
VALENTINE, C	
Nestle Infant Nutrition (Paragon)	$11,935
Current Year Direct Receipts	**$659,536**
Total	**$10,088,309**