**Division Details**

**Division Data Summary**

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<th>RESEARCH AND TRAINING DETAILS</th>
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<td>Number of Faculty</td>
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<td>Direct Annual Industry Support</td>
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<td>Peer Reviewed Publications</td>
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<tr>
<th>CLINICAL ACTIVITIES AND TRAINING</th>
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<td>Outpatient Encounters</td>
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**Significant Accomplishments**

**Progress Against Pediatric Lung Disease**

Kathryn Wikenheiser-Brokamp, MD, PhD, studies the genetic and developmental basis of lung disease, with specific interest in the pediatric lung tumor pleuropulmonary blastoma (PPB), chronic obstructive pulmonary disease and lung cancer. Wikenheiser-Brokamp has identified critical biologic functions for the Rb/p16 and p53 pathways in pulmonary epithelial progenitor/stem cell growth in the context of lung development, repair after injury and carcinogenesis.

Wikenheiser-Brokamp also studies how DICER1 and the microRNAs it generates control organogenesis and protect against PPB. She leads the basic science research for a multi-institutional team of researchers that recently discovered the first human syndrome associated with DICER1 mutations. She also serves as principal investigator on a consortium grant to explore the key regulatory pathways underlying DICER1 related lung phenotypes.

Wikenheiser-Brokamp has developed mouse models based upon genetic alterations in human disease along with complementary cell culture systems to identify key regulatory networks controlling lung development and disease pathogenesis. Her research is supported by the NIH, American Cancer Society, and the St. Baldrick’s Foundation. This year, Wikenheiser-Brokamp also was appointed Associate Director of the Medical Scientist.
Breakthrough Findings in Pediatric Liver Disease

Since joining the Department of Pediatrics in 1984, Kenneth Setchell, PhD, has focused his work in bile acid metabolism. He has identified and described six genetic defects in the pathway for bile acid synthesis, which are manifested as progressive neonatal liver disease. His research group now serves as an international center for the diagnosis and treatment of liver disease caused by genetic defects in cholesterol and bile acid syntheses.

In a recent study published in *Gastroenterology*, Setchell and colleagues characterized the clinical, biochemical, molecular and morphologic features of a genetic defect in bile acid conjugation in 10 pediatric patients with fat soluble vitamin deficiency, and some patients with growth failure or transient neonatal cholestatic liver disease. Their findings reveal the importance of bile acid conjugation in lipid absorption and indicate that patients with idiopathic neonatal cholestasis or later onset of unexplained fat soluble vitamin deficiency should be screened for defects in bile acid conjugation.

This study has been recognized in multiple published commentaries due to the significance of these observations, which may represent only the tip of an iceberg of patients with hereditary defects in bile acid conjugation.

Mass Spectrometry Expands

We have invested heavily in expanding our mass spectroscopy capabilities, including increased technical support and state-of-the-art equipment. We now operate 10 mass spectrometers ranging from simple quadrupole mass specs to highly accurate triple quadrupole time-of-flight equipment that will be the cornerstone of our developing metabolomics program.

Currently, our mass spectrometry labs perform more than 17,000 clinical assays a year. We also are working to develop and implement a personalized therapy drug management program in collaboration with colleagues in Clinical Pharmacology and Pathology and Laboratory Medicine.

Neuropathology Program Grows

Brain tumors are the leading cause of childhood cancer deaths. Pediatric brain tumors are recognized as being biologically different from adult tumors and require a different treatment approach. Cincinnati Children’s has become a nationally recognized center for treating childhood brain tumors, evaluating approximately 100 new brain tumor cases a year.

Lili Miles, MD, who joined our Division in 2003, brings special expertise in pediatric neuropathology and muscle disorders to the battle against pediatric brain tumors. She has worked closely with a clinical team including members of Neuro-Oncology, Neurology, Neurosurgery, and Radiology to develop the brain tumor program at Cincinnati Children’s. Miles also provides pathology review expertise for the Diffuse Intrinsic Pontine Glioma International Repository, which is based at Cincinnati Children’s and supported by funds from The Cure Starts Now Foundation. Miles recently presented a review of the tumor repository and ongoing studies at a Foundation-sponsored symposium in Cincinnati.

Cincinnati Children’s also is the primary site for the national Pediatric Brain Tumor Consortium under the
direction of Maryam Fouladi, MD. In the Consortium’s medulloblastoma protocol study, Miles will be providing state-of-the-art pathology support to characterize potential biological markers that could enhance the classification of these tumors and potentially serve as targets for improved therapy.

Division Publications


34. Qiu Q, Li R, Jiang P, Xue L, Lu Y, Song Y, Han J, Lu Z, Zhi S, Mo JQ, Guan MX. **Mitochondrial tRNA mutations are associated with maternally inherited hypertension in two Han Chinese pedigrees.** *Hum Mutat.* 2012; 33:1285-93.


Faculty, Staff, and Trainees

Faculty Members

David Witte, MD, Professor
  Leadership Division Director
  Research Interests Renal pathology, molecular pathology

Mohammad Azam, PhD, Assistant Professor
  Research Interests Cancer Biology and Neural Tumors Program

Kevin E Bove, MD, Professor
  Research Interests Pediatric liver disease, biliary atresia

J. Todd Boyd, DO, Assistant Professor
  Research Interests Pulmonary pathology, graduate medical education

Margaret H Collins, MD, Professor
  Research Interests Pediatric gastrointestinal pathology, especially pediatric eosinophilic gastrointestinal disorders, pediatric inflammatory bowel disease, pediatric bowel motility disorders

Anita Gupta, MD, Assistant Professor
  Research Interests Liver tumor pathology, vascular anomalies

Gang Huang, PhD, Assistant Professor
  Research Interests Cancer pathology

Richard L McMasters, MD, Assistant Professor
  Research Interests Hematopathology

Lili Miles, MD, Associate Professor
  Leadership Director, Training Program
  Research Interests Brain tumor, epilepsy research, neuromuscular diseases and NASH liver

Michael Miles, PharmD, Professor
  Research Interests Neuropathology of mitochondrial disease

Jun Q Mo, MD, Associate Professor
  Research Interests Hematopathology

Joel E Mortensen, PhD, Associate Professor
  Leadership Director, Diagnostic Infectious Disease Lab
  Research Interests Microbiology

Mandy F O’Leary, MD, Assistant Professor
  Research Interests Transfusion medicine

Kenneth D Setchell, PhD, Professor
  Leadership Director, Mass Spec Lab
  Research Interests Biochemistry, Bile acids, Steroid and cholesterol metabolism, Steroids, Liver disease, Liver transplantation, Gastroenterology, Nutrition/Diet, Phytochemicals, Isoflavones/Lignans, Breast cancer, Colon cancer, Mass spectrometry – biomedical mass spectrometry, Chromatography, Analytical Biochemistry, Assay development, Therapeutic drug monitoring, Pharmacokinetics and metabolism, Genetics

S. Kumar Shanmukhappa, PhD, Assistant Professor
Research Interests Experimental animal models

Amy Sheil, MD, Assistant Professor

Rachel Sheridan, MD, Assistant Professor

Research Interests Liver pathology, biliary atresia

Jerzy W Stanek, MD, PhD, Professor

Research Interests Pathology and pathomechanisms of in-utero hypoxia, particularly in the placenta; Pathology of perinatal mortality and morbidity

Paul E Steele, MD, Associate Professor

Leadership Medical Director, Clinical Lab

Research Interests Clinical lab medicine

Keith F Stringer, MD, Assistant Professor

Research Interests Microscopic techniques for assessing mRNA expression, protein production and cellular identity in eukaryotic tissues

Peter Tang, PhD, Assistant Professor

Research Interests Special chemistry

Mikako Warren, MD, Assistant Professor

Research Interests Renal pathology

Kathryn Wikenheiser-Brokamp, MD, PhD, Associate Professor

Research Interests Genetic and developmental basis of lung disease, lung cancer and pediatric cystic lung disease

Trainees

Division Collaboration

Human Genetics » Gregory Grabowski MD

Providing technical and professional support for NIH study to characterize a metabolic disease animal model.

Gastroenterology, Hepatology and Nutrition » Mitch Cohen MD, Jorge Bezerra MD, Xiaonan Han PhD, and Noah Shroyer PhD

Digestive Health Center: Integrated morphology core lab, provides technical and professional support to members of the DHC involved in basic and translational research in gastrointestinal tract.

Gastroenterology, Hepatology and Nutrition » James Heubi MD, John Bucuvalas MD, Jorge Bezerra MD, and Kathleen Campbell MD

Director of Pathology Core for multicenter BARC and CLIC studies on biliary atresia and other chronic liver disorders in children.

Endocrinology » Stuart Handwerger MD

Providing technical and professional support for NIH placental studies.

Rheumatology » John Harley MD, Sue Thompson PhD, and Hermine Brunner MD
Providing pathology professional and technical support for establishment of Biorepository service and support for Rheumatology core lab for Cincinnati Rheumatic Diseases Center and multicenter study for lupus nephritis.

**Allergy and Immunology** » Marc Rothenberg MD and Pablo Abonia MD

Providing professional support for the Cincinnati Center for Esoinophilic Disorders program and related research.

**Hematology/Oncology** » Maryam Fouladi MD and Richard Dressi PhD

Providing pathology professional and technical support for multicenter referral service for the High Grade Glioma program and basic research program.

**Hematology/Oncology Research** » Yi Zheng PhD, James Mulloy PhD, and Jose Cancelas MD, PhD

Joint development of Leukemia Biology program at Cincinnati Children's.

**Division of Hematology/Oncology; Department of Pediatric Surgery** » Denise Adams MD, Richard Azizkhan MD, and Anusa Dasgupta MD

Hemangioma/vascular malformation clinical program. Providing professional diagnostic and technical pathology support for multidisciplinary patient care program.

**Division of Clinical Pharmacology** » Sander Vinks, PharmD, PhD

Development of a centralized therapeutic drug monitoring program for personalized medical care.

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**Grants, Contracts, and Industry Agreements**

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<td><em>Molecular Mechanisms of Leukemogenesis Mediated by MLL-Partial Tandem Duplication</em></td>
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Industry Contracts

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