## Significant Accomplishments

### Investigating Brain Tumors

The Pediatric Brain Tumor Consortium is part of a national effort to improve the outcome for the nearly 4,000 new pediatric brain tumor cases diagnosed and managed each year in this country. Maryam Fouladi, MD, MSc, chairs the Consortium, which develops treatment protocols, central pathology review and banking of rare tissue specimens to benefit investigators in their research.

Lili Miles, MD, is responsible for central pathology review of tumor cases for multiple clinical studies in the consortium. Miles directs the tissue banking efforts for these cases from across the US.

Cincinnati Children's has also established the Diffuse Intrinsic Pontine Glioma (DIPG) study, led by Mariko DeWire, MD. DeWire has organized a multidisciplinary group to obtain these rare tumor specimens from autopsy and patient families now contribute to the effort to better understand these highly lethal tumors. Fifteen patients have contributed to the study and extensive investigations are underway.

### Advances in Metabolomics

Our division has made major investments in mass spectrometry to enhance research at Cincinnati Children's. We established a Mass Spectrometry Metabolomics Core facility to provide insight into how metabolic changes account for disease, to search for disease biomarkers, and to evaluate and monitor responses to therapy.
Using a state-of-the-art Waters Xevo G2S Q-TOF (triple quadrupole/time of flight) instrument capable of extremely fast scanning speeds (80,000 ions/sec), we can detect as many as 10,000 metabolites from a drop of urine, blood, plasma, tissue or cell extract. We can compare diseased and non-diseased states, pre- and post-treatment changes, or longitudinal changes that may occur with disease. Consequently, we have found novel metabolic changes of clinical significance. Among them are perturbations in lipid metabolism in cell lines, animal models and patients with Fanconi Anemia; the mechanism behind patients with PFIC3 heterozygosity developing liver disease in early life; skin barrier development; modulating macrophage immune function during infections; and lipid metabolism in airway disease.

The Mass Spectrometry Metabolomics Core is complemented by the newly formed Nuclear Magnetic Resonance Metabolomics Core directed by Lindsey Romick-Rosendale, making a powerful platform for biomarker discovery.

**Faculty Teaching Recognized**

The Division of Pathology has a history of contributions to the University of Cincinnati College of Medicine medical student curriculum and educational training programs. In the past year, Keith Stringer, MD; Kathryn Wikenheiser-Brokamp, MD, PhD; and David Witte, MD, have received awards for their teaching contributions.

Anita Gupta, MD, was invited to lecture at the 2014 Indo-Global Healthcare Summit in Hyderabad, India, in recognition of her contributions to the understanding of liver tumors and vascular malformations and tumors in children.

**Division Publications**


57. Xanthakos SA, Podberesky DJ, Serai SD, Miles L, King EC, Balistreri WF, Kohli R. Use of magnetic resonance elastography to assess hepatic fibrosis in children with chronic liver disease. J Pediatr.
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

Michael Baker, MD, Assistant Professor
  Research Interests Pulmonary pathology, Cardiac pathology

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

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

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  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

Lindsey Romick-Rosendale, PhD, Assistant Professor
Research Interests Metabolomics

Kenneth D Setchell, PhD, Professor
Leadership Director, Mass Spec Lab
Research Interests Biochemistry, Bile acids, Sterol 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
- Dehua Wang, MD, PL-6, Indiana University
- Daniel Leino, MD, PL-6, University of Michigan
Division Collaboration

Providing technical and professional support for NIH study to characterize a metabolic disease animal model (David Witte MD)

**Human Genetics** » Gregory Grabowski MD

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. (David Witte MD, Kevin Bove MD, Rachel Sheridan MD)

**Gastroenterology, Hepatology and Nutrition** » Mitch Cohen MD and Jorge Bezerra MD

Director of Pathology Core for multicenter BARC and CLIC studies on biliary atresia and other chronic liver disorders in children. (Kevin Bove MD, Ken Setchell PhD)

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

Providing technical and professional support for NIH placental studies (Jerzy Stanek MD, PhD)

**Endocrinology** » Stuart Handwerger 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. (David Witte MD)

**Rheumatology** » John Harley MD, Sue Thompson, PhD, and Hermine Brunner MD

Providing professional support for the Cincinnati Center for Eosinophilic Disorders program and related research. (Margaret Collins MD)

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

Providing pathology professional and technical support for multicenter referral service for the High Grade Glioma program and basic research program. (David Witte MD, Lili Miles MD)

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

Joint development of Leukemia Biology program at Cincinnati Children’s. (Mohammad Azam PhD, Gang Huang PhD)

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

Hemangioma/vascular malformation clinical program. Providing professional diagnostic and technical pathology support for multidisciplinary patient care program. (Anita Gupta MD)

**Hematology/Oncology** » Denise Adams MD and Anita Gupta MD

**Pediatric General and Thoracic Surgery** » Richard Azizkhan MD and Anusa Dasgupta MD

Development of a centralized therapeutic drug monitoring program for personalized medical care. (Ken Setchell PhD)

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

Grants, Contracts, and Industry Agreements
## Grant and Contract Awards

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<th>Agency</th>
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<td>AZAM, M</td>
<td>Improved Therapeutic Approaches for Hematological Disorder Treated with Tyrosine</td>
<td>National Institutes of Health</td>
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<td>Mechanisms of Drug Resistance in Myeloproliferative Neoplasms Treated With JAK2 Inhibitor</td>
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<td>Meritage Oral Budesonide Suspension in Adolescent and Young Adults with Eosinophilic Esophagitis</td>
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<td>Training Program in Cancer Therapeutics</td>
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<td>University of Cincinnati</td>
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| Current Year Direct | $1,373,077 |

### Industry Contracts

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