

MEDICAL DIRECTORS

ARUP MEDICAL DIRECTORS
AND CONSULTING FACULTY | 2015



ARUP LABORATORIES

ARUP Laboratories is a national clinical and anatomic pathology reference laboratory and a nonprofit enterprise of the University of Utah and its Department of Pathology. Located in Salt Lake City, Utah, ARUP offers in excess of 3,000 tests and test combinations, ranging from routine screening tests to esoteric molecular and genetic assays. Rather than competing with its clients for physician office business, ARUP chooses instead to support clients' existing test menus by offering complex and unique tests, with accompanying consultative support, to enhance their abilities to provide local and regional laboratory services. ARUP's clients include many of the nation's university teaching hospitals and children's hospitals, as well as multihospital groups, major commercial laboratories, group purchasing organizations, military and other government facilities, and major clinics. In addition, ARUP is a worldwide leader in innovative laboratory research and development, led by the efforts of the ARUP Institute for Clinical and Experimental Pathology®.



Since its formation in 1984 by the Department of Pathology at the University of Utah, ARUP has founded its reputation on reliable and consistent laboratory testing and service. This simple strategy contributes

significantly to client satisfaction. When ARUP conducts surveys, clients regularly rate ARUP highly and respond that they would recommend ARUP to others.

As the most responsive source of quality information and knowledge, ARUP strives to be the reference laboratory of choice for community healthcare systems. ARUP helps its clients meet the customized needs of their unique communities. **We believe in collaborating, sharing knowledge, and contributing to laboratory science in ways that provide the best value for the patient. Together, ARUP and its clients will improve patient care today and in the future.**



patients. answers. results.

A laboratory test is more than a number; it is a person, an answer, a diagnosis.

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ARCHANA MISHRA AGARWAL, MD
Medical Director, for Hematopathology
and Special Genetics

Dr. Agarwal is an assistant professor of pathology at the University of Utah School of Medicine. She received her MD at Delhi University in India and was a postdoctoral research scholar at the University of Iowa. She served as a pathology resident, a hematopathology fellow, and a molecular genetics pathology fellow at the University of Utah School of Medicine. Dr. Agarwal is board certified in hematopathology, anatomic pathology,

and clinical pathology. She is also a member of several professional societies, including the College of American Pathologists and the American Society for Clinical Pathology. Dr. Agarwal's research interests include red-cell enzymopathies, hemoglobinopathies, and molecular hematopathology.



ERICA ANDERSEN, PHD
Medical Director, Cytogenetics and Genomic Microarray

Dr. Andersen is an assistant professor of pathology at the University of Utah School of Medicine. She received her PhD in genetics from the University of Wisconsin-Madison and completed a clinical cytogenetics fellowship at the University of Utah



MOUIED ALASHARI, MD
Pediatric Pathologist

Dr. Alashari is an associate professor of pathology at the University of Utah School of Medicine. He received his MD from Baghdad University College of Medicine, and completed residencies in anatomic pathology and general surgery at New York Medical College, a clinical pathology residency at Yale University, and a pediatric pathology fellowship at the Children's Hospital of Pittsburgh. He is board certified by the American Board of Pathology in anatomic and clinical pathology and pediatric pathology.

Dr. Alashari is a member of several professional societies, including the Society for Pediatric Pathology, the American Society of Clinical Pathologists, and the College of American Pathologists.



EDWARD R. ASHWOOD, MD
President and CEO

Dr. Ashwood is a professor of pathology at the University of Utah School of Medicine. He joined ARUP in 1985. He received his MD from the University of Colorado and completed a laboratory medicine residency in clinical pathology at the University of Washington. Dr. Ashwood is board certified in clinical and chemical pathology, and his research interests include the clinical chemistry of pregnancy. He is the co-editor of the *Tietz Textbook of Clinical Chemistry and Molecular Diagnostics*, *Tietz Fundamentals of Clinical Chemistry*, and *Fundamentals of Molecular Diagnostics*.



DANIEL ALBERTSON, MD
Medical Director, Surgical Pathology and Oncology

Dr. Albertson is an assistant professor of pathology at the University of Utah School of Medicine. He received his MD from the University of Nebraska and completed his residency in anatomic and clinical pathology at Creighton University, followed by a surgical pathology fellowship at the University of Utah. While at Creighton, Dr. Albertson served as the chief resident for two years and received the Hal Lankford Pathology Resident Award. He is a member of the American Society for

Clinical Pathologists (ASCP) and the College of American Pathologists (CAP). Dr. Albertson's special research interest includes genitourinary pathology.



DAVID W. BAHLER, MD, PHD
Medical Director, Hematopathology

Dr. Bahler is an associate professor of pathology at the University of Utah School of Medicine. He is certified by the American Board of Pathology in clinical pathology, with an added qualification in hematology. Dr. Bahler received his PhD in immunology and his MD from the University of Rochester.

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ADAM BARKER, PHD
Medical Director, Microbiology

Dr. Barker is an assistant professor at the University of Utah School of Medicine. He received his PhD in microbiology and immunology at the University of Colorado Health Sciences Center and completed a postdoctoral fellowship in the Department of Microbiology and Molecular Genetics at Harvard Medical School. Dr. Barker is the recipient of the 2009 Outstanding Postdoctoral Award from the Harvard Medical School and 2002 Excellence in Research Award from the University of Colorado Health Sciences Center. He is a member of the American Society of Microbiology, Biophysical Society, and Protein Society.



HUNTER BEST, PHD
Medical Director, Molecular Genetics

Dr. Best is an assistant professor of clinical pathology at the University of Utah School of Medicine. He received his PhD in molecular and cellular pathology at the University of North Carolina School of Medicine and completed a fellowship in clinical molecular genetics at the Vanderbilt University Medical Center in Nashville. He is a member of the American Society for Investigative Pathology, Association for Molecular Pathology, and American Association for the Advancement of Science.



PINAR BAYRAK-TOYDEMIR, MD, PHD
Medical Director, Molecular Genetics and Genomics Laboratory

Dr. Bayrak-Toydemir is an associate professor of pathology at the University of Utah, School of Medicine. She received her MD from the Ankara University School of Medicine in Ankara Turkey, where she also received her PhD in human genetics. Subsequently, she completed her fellowship in clinical molecular genetics at the University of Utah. Dr. Bayrak-Toydemir is board certified in medical genetics, and her research interests include

inherited vascular disorders, specifically hereditary hemorrhagic telangiectasia, and implementation of new technologies, such as next-generation sequencing, in clinical settings.



ROBERT C. BLAYLOCK, MD
Medical Director, Blood Services and Phlebotomy and Support Services

Medical Director, Immunohematology Reference Laboratory
Medical Director, University Hospitals and Clinics Clinical Laboratory
Medical Director, University of Utah Transfusion Services

Dr. Blaylock is an associate professor of pathology at the University of Utah School of Medicine. He received his MD from the University of Utah School of Medicine and is board certified in clinical pathology by the American Board of Pathology, with special certification in blood banking/transfusion medicine. Dr. Blaylock co-authored *Practical Aspects of the Transfusion Service*.



PHILIP S. BERNARD, MD
Medical Director, Molecular Oncology

Dr. Bernard is an associate professor of anatomic pathology at the University of Utah School of Medicine. As an investigator at the Huntsman Cancer Center, Dr. Bernard's laboratory uses comprehensive genomic analyses to identify and translate biomarkers into clinical care for cancer patients. Dr. Bernard received his MD from and completed his postdoctoral training at the University of Utah and is certified in clinical pathology by the American Board of Pathology.



MARY BRONNER, MD
Division Chief, Anatomic Pathology and Oncology

Dr. Bronner is a Carl R. Kjeldsberg presidential endowed professor of pathology at the University of Utah School of Medicine. Dr. Bronner received her MD from the University of Pennsylvania and completed her pathology residency training and chief residency at the Hospital of the University of Pennsylvania in Philadelphia. Dr. Bronner's honors include her election as president of the GI Pathology Society, election as council member of the United States and Canadian Academy of Pathology,

and, in 2005, the award of the Arthur Purdy Stout Prize, recognizing her work as a surgical pathologist under the age of 45 whose research publications have had a major impact on diagnostic pathology. Dr. Bronner is an editorial journal board member for *Human Pathology*, *The American Journal of Surgical Pathology*, and *Modern Pathology*. She has served as an investigator on numerous NIH and foundation grants over the course of her career and has published over 100 peer-reviewed articles and numerous book chapters.

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BARBARA E. CHADWICK, MD
Medical Director, Cytology Laboratory

Dr. Chadwick is an assistant professor of anatomic pathology at the University of Utah School of Medicine. She received her MD at Loma Linda University in California where she also served as a pathology fellow. Dr. Chadwick completed her residency in anatomic and clinical pathology at the University of Utah School of Medicine and was a cytopathology fellow at the University of Washington in Seattle. She is a member of the United States and Canadian Academy of Pathology,

American Society of Cytopathology, and College of American Pathologists. Dr. Chadwick's research interests include the use of molecular markers in cytopathology, pancreatic and biliary cancer, and cervical cancer screening.



JESSICA COMSTOCK, MD
Pediatric Pathologist

Dr. Comstock is the director of autopsy at Primary Children's Hospital and an assistant professor of pathology at the University of Utah School of Medicine. She received her MD from the University of Iowa and completed both a pathology residency and a pediatric pathology fellowship at the University of Utah. She is board certified in anatomic and clinical pathology with a sub-certification in pediatric pathology. Dr. Comstock is a member of several professional societies, including

the Society of Pediatric Pathology, College of American Pathologists, and the American Society of Clinical Pathologists.



FREDERIC CLAYTON, MD
Director, Anatomic Pathology Autopsy Service

Dr. Clayton is an associate professor of pathology and autopsy director at the University of Utah School of Medicine. He received his MD from Washington University in St. Louis and completed postgraduate training in anatomic pathology at Stanford University Hospital and in clinical pathology at the University of Utah. He also completed a fellowship in surgical pathology at the University of Minnesota Hospital and in anatomic pathology at Anderson Hospital. Dr. Clayton is

a member of the United States and Canadian Academy of Pathology.



MARC ROGER COUTURIER, PHD
Medical Director, Microbial Immunology
Medical Director, Parasitology and Fecal Testing
Medical Director, Infectious Disease Rapid Testing

Dr. Couturier is an assistant professor of pathology at the University Of Utah School of Medicine. He received his PhD in medical microbiology and immunology with a specialty in bacteriology from the University of Alberta in Edmonton, Alberta, Canada. Dr. Couturier served as a research associate/post-doctoral fellow at the Alberta Provincial Laboratory for Public Health and completed a

medical microbiology fellowship (ABMM) at the University of Utah. His research interests include *Helicobacter pylori* diagnostics and population prevalence, in particular identifying populations with increased risk of infection and reduced access to medical care. Dr. Couturier also has a research focus aimed at developing improved diagnostics for emerging agents of infectious gastroenteritis. He is board certified in medical microbiology, and a member of the American Society for Microbiology and Infectious Disease Society of America.



MICHAEL COHEN, MD
Medical Director, Anatomic Pathology and Oncology Division

Dr. Cohen is a professor and vice chair for faculty and house staff development at the University of Utah School of Medicine. He received his MD from Albany Medical College in Albany, NY and completed his anatomic pathology residency at the University of California, San Francisco. Dr. Cohen has served on the editorial board of, among others, *Advances in Anatomic Pathology*, *Cancer Cytopathology*, *Diagnostic Cytopathology*, and the *Journal of Urology*, and currently serves on the *American Journal of Clinical Pathology* and *Clinical Cancer Research* boards. He has been the recipient of multiple honors,

including the Regents Award for Faculty Excellence at the University of Iowa and the Leonard Tow Humanism in Medicine Award. Dr. Cohen has been included in *Castle Connolly America's Top Doctors* since 2007 and *America's Top Doctors for Cancer* since 2005; *Consumers' Research Council of America Guide to America's Top Pathologists* since 2007; and *Best Doctors in America* list since 2005.



IRENE DE BIASE, MD, PHD
Assistant Medical Director, Biochemical Genetics Lab and Newborn Screening Laboratory

Dr. De Biase is an assistant professor of pathology at the University Of Utah School Of Medicine. She received her MD and PhD in cellular and molecular genetics at the Federico II University in Naples, Italy. Dr. De Biase served as a postdoctoral fellow in molecular genetics at the University of Oklahoma Health Sciences Center and as a postdoctoral fellow in clinical biochemical genetics at the Greenwood Genetics Center in South Carolina.

She was a recipient of the SERGG student travel award and SIMD student travel award and is a member of the Society for Inherited Metabolic Disorders. Dr. De Biase's research interests include lysosomal storage disorders and fatty acid oxidation disorders. Dr. De Biase is board certified in clinical biochemical genetics.

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JULIO DELGADO, MD, MS

Head, Histocompatibility and Immunogenetics Laboratory

Section Chief, Immunology Division
Co-Executive Director, ARUP Institute for Clinical and Experimental Pathology

Dr. Delgado is an associate professor of pathology at the University of Utah School of Medicine. He received his MD from Universidad Industrial de Santander in Colombia and his MS degree in epidemiology from the Harvard School of Public Health, completing both

his clinical residency training in clinical pathology and his research fellowship in immunology at the Harvard Medical School. He is board certified in clinical pathology and histocompatibility laboratory testing by the American Board of Pathology and the American Board of Histocompatibility and Immunogenetics. Dr. Delgado's research interests include immunity to infectious diseases and transplantation immunology.



RACHEL E. FACTOR, MD, MHS

Medical Director, Cytology Laboratory and Anatomic Pathology

Dr. Factor is an assistant professor of pathology at the University of Utah Health Sciences Center. She received her master of health science from Johns Hopkins School of Public Health and her MD from the Albert Einstein College of Medicine in Bronx, New York. She completed an internship in internal medicine at NYU Medical Center and a residency in anatomic pathology followed by fellowships in surgical pathology and cytopathology

at Brigham and Women's Hospital in Boston. Dr. Factor is board certified in anatomic pathology and cytopathology, and is a member of the College of American Pathology, United States and Canadian Academy of Pathology, and the American Society for Clinical Pathology. Her research interests include topics in breast pathology and cytopathology.



ERINN DOWNS-KELLY, DO, MS

Medical Director, Anatomic Pathology and Oncology

Dr. Downs-Kelly is an associate professor of pathology at the University of Utah School of Medicine. She received her DO from Michigan State University and her MS from Northern Michigan University. Following her residency in anatomic and clinical pathology at the Cleveland Clinic, Dr. Downs-Kelly completed a gastrointestinal, hepatic, and pancreaticobiliary pathology fellowship at the Cleveland Clinic and a breast pathology

fellowship at the MD Anderson Cancer Center. Dr. Downs-Kelly is a member of various professional organizations, including the College of American Pathologists, American Society for Clinical Pathology, and the International Society of Breast Pathology. Her research interests include non-obligate precursor lesions of the breast, as well as prognostic and predictive marker testing.



MARK FISHER, PHD, D(ABMM)

Medical Director, Bacteriology, Antimicrobials, Parasitology, and Infectious Disease Rapid Testing Laboratories

Dr. Fisher is an assistant professor of pathology at the University of Utah School of Medicine. He obtained a PhD in microbiology and molecular genetics from Emory University and a master of science in microbiology from Idaho State University. Dr. Fisher subsequently completed fellowships in microbial pathogenesis at the Rocky Mountain Laboratories (NIH) and in

medical microbiology at the University of Utah. He is board certified in medical microbiology, and his research interests include microbial pathogenesis and transmission of vector borne pathogens.



LYSKA L. EMERSON, MD

Medical Director, Anatomic Pathology

Dr. Emerson is an assistant professor of pathology at the University of Utah School of Medicine. She received her MD from the University of Texas Health Sciences Center at Houston and served a residency in pathology at the University of New Mexico Health Sciences Center and University of Texas at Houston.

Dr. Emerson completed her fellowship in general surgical pathology at the University of Utah School of Medicine. She is certified by the American Board of Pathology

in anatomic pathology and is a member of the United States and Canadian Academy of Pathology, American Society for Clinical Pathology (fellow), and the Huntsman-Intermountain Cancer Care Program. Dr. Emerson's service work is predominantly in general surgical pathology, with a subspecialty interest in gastrointestinal pathology. Her research efforts are currently in the area of pancreatic-cancer research.



ELIZABETH L. FRANK, PHD

Medical Director, Analytic Biochemistry Laboratory
Medical Director, Calculi and Manual Chemistry Laboratory
Co-Medical Director, Mass Spectrometry Laboratory

Dr. Frank is an associate professor of pathology at the University of Utah School of Medicine. She received her PhD from the University of Colorado at Boulder in organic chemistry and completed her clinical internship

in pathology from the Penrose Hospital School of Medical Technology. Dr. Frank continued her training with a postdoctoral fellowship in pharmacy at the University of Colorado Health Sciences Center and a postdoctoral fellowship in clinical chemistry at the University of Utah School of Medicine. Dr. Frank is certified in clinical chemistry by the American Board of Clinical Chemistry.

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KATHERINE GEIERSBACH, MD, FCAP, FACMG
Medical Director, Solid Tumor Molecular Diagnostics

Dr. Geiersbach is an assistant professor of pathology at the University of Utah School of Medicine. She received her MD from the University of Colorado School of Medicine and completed her residency in pathology at the University of Colorado Health Sciences Center.

Dr. Geiersbach is certified by the American Board of Pathology in anatomic and clinical pathology, with subspecialty certification in molecular genetic pathology and clinical cytogenetics. She is a fellow of the College

of American Pathologists and the American College of Medical Genetics.

Dr. Geiersbach's research interests include DNA-based genotyping of molar pregnancy, cytogenetic abnormalities in spontaneous pregnancy loss, and genetic abnormalities in cancer.



DAVID G. GRENACHE, PHD
Medical Director, Special Chemistry Laboratory
Co-Director, Electrophoresis and Manual
Endocrinology Laboratory
Section Chief, Clinical Chemistry

Dr. Grenache an associate professor of pathology at the University of Utah School of Medicine.

Dr. Grenache earned his PhD in biomedical sciences from Worcester Polytechnic Institute in Worcester, MA and completed his postdoctoral training in clinical chemistry at Washington University School of Medicine

in St. Louis, MO. Dr. Grenache is a fellow in the National Academy of Clinical Biochemistry and is board certified in clinical chemistry by the American Board of Clinical Chemistry. His research interests include reproductive biochemistry and emerging biomarkers of disease.



JONATHAN R. GENZEN, MD, PHD
Co-Medical Director, Automated Core Laboratory

Dr. Genzen is an assistant professor of pathology at the University of Utah School of Medicine. He received his MD and PhD at the University of Chicago and completed his clinical pathology residency at Yale-New Haven Hospital/Yale University Department of Medicine, where he also conducted his postdoctoral research fellowship. He is board certified in clinical pathology by the American Board of Pathology and is a fellow of the American Society for Clinical Pathology. Dr. Genzen is

a member of the American Association for Clinical Chemistry and the Academy of Clinical Laboratory Physicians and Scientists. His clinical and research focus involves automated chemistry and quality improvement through informatics.



ALLIE GROSSMANN, MD, PHD
Medical Director, Surgical Pathology and
Molecular Oncology

Dr. Grossmann received a BS in zoology at the College of Idaho and a PhD and MD from the Oregon Health Sciences University, where she studied tyrosine kinase substrate specificity with Brian J. Druker, MD. Dr. Grossmann completed both a residency in anatomic pathology and a research fellowship in molecular medicine at the University of Utah. Her postdoctoral

work in the laboratory of Dean Y. Li, MD, PhD, focused on the role of small GTPases in melanoma invasion and metastasis. Most recently, Dr. Grossmann completed a fellowship in molecular genetic pathology at ARUP Laboratories. Her primary subspecialty interests are sarcoma pathology and molecular oncology. Her research interests include mechanisms of tumorigenesis, metastasis, and the development of targeted therapies for cancer treatment.



EVELYN V. GOPEZ, MD
Medical Director

Dr. Gopez is a professor of pathology and associate dean of the Inclusion and Outreach Program at the University of Utah School of Medicine. She received her MD at the University of Santo Tomas in the Philippines and served a residency in anatomic and clinical pathology at the Berkshire Medical Center in Massachusetts. Dr.

Gopez completed a fellowship in cytopathology and surgical pathology at the University of Pennsylvania, and is board certified in anatomic and clinical pathology as well as cytopathology.



H. EVIN GULBAHCE, MD
Medical Director, Surgical Pathology and Oncology

Dr. Gulbahce is a professor of pathology at the University of Utah School of Medicine. She received her MD from Hacettepe University in Ankara, Turkey, and completed a residency in anatomic and clinical pathology and a surgical pathology fellowship at the University of Minnesota, where she remained as a faculty member.

Dr. Gulbahce is a member of the American Society of Cytopathology, the College of American Pathology, and the International Society of Breast Pathology, amongst others. Her research interests include breast cancer risk factors, pulmonary complications of solid organs, and hematopoietic stem cell transplantation.

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KIMBERLY E. HANSON, MD, MHS
Medical Director, Mycology, Mycobacteriology, and
Virology Laboratories
Section Chief, Microbiology

Dr. Hanson is an assistant professor of medicine and pathology at the University of Utah School of Medicine. She earned her MD from Northwestern University Medical School and her master of health science at Duke University Medical Center. Dr. Hanson completed her clinical training in medicine at the Dartmouth-Hitchcock Medical Center and her infectious diseases and medical microbiology fellowships at Duke University. Prior to joining ARUP, Dr. Hanson worked as an associate in pathology and medicine at Duke University Medical Center and was an associate director of the Duke Molecular Microbiology Laboratory. Her clinical and research interests focus on the diagnosis and management of infectious complications following transplantation. She is board certified in infectious disease, medical microbiology, and general internal medicine.



NAHLA HEIKAL, MD, MS
Assistant Medical Director, Immunology and
Hemostasis/Thrombosis

Dr. Heikal is an assistant professor at the University of Utah School of Medicine. She received her MD from the Ein-Shams University School of Medicine in Cairo, Egypt, and a master's degree in clinical and chemical pathology from the Cairo University School of Medicine. Dr. Heikal completed a clinical immunology fellowship and a clinical pathology residency at the University of Utah School of Medicine and holds American Board of Pathology board certification in clinical pathology as well as a New York State Department of Health certification in diagnostic immunology. She is a member of the American Association of Immunologists, International Society of Heart and Lung Transplant, College of American Pathologists, and American Society of Clinical Pathology.



CHARLES D. HAWKER, PHD, MBA, FACB
Scientific Director, Automation and Special Projects

Dr. Hawker is a past president of the Association of Clinical Scientists, the National Academy of Clinical Biochemistry (NACB), and the Clinical Ligand Assay Society (CLAS). He received the John V. Bergen Award from the Clinical and Laboratory Standards Institute in 2010, the NACB's Professor Alvin Dubin Award in 2005, and the Association for Laboratory Automation's Becton Dickinson Award in 2000. Dr. Hawker is the co-author of chapters on automation in the fifth edition of the *Tietz Textbook of Clinical Chemistry and Molecular Diagnostics* and the sixth edition of the *Tietz Fundamentals of Clinical Chemistry*. He received his PhD from the University of Pennsylvania and his MBA from Washington University, St. Louis.



HARRY R. HILL, MD
Medical Director, Immunology and Infectious Disease

Dr. Hill is a professor of pathology, pediatrics, and medicine at the University of Utah School of Medicine. He is a diplomate of the American Board of Pediatrics and a member of the American Society of Clinical Pathologists, the Academy of Clinical Laboratory Physicians and Scientists, the American Society of Microbiology, the Infectious Disease Society of America, and the American Association of Immunology. Dr. Hill received his MD from the Baylor University College of Medicine.



KAREN A. HEICHMAN, PHD
Vice President, Oncology Technology Development
and In-licensing

Dr. Heichman is an adjunct associate professor at the University of Utah School of Medicine. Her role at ARUP involves both developing and managing scientific and business collaborations, with the goal of identifying and implementing new oncology tests and technologies for use in the clinical laboratory setting. She is also involved in developing and managing programs and partnerships with the pharmaceutical industry. Dr. Heichman holds an AB in genetics from the University of California at Berkeley and a PhD in biological chemistry from the UCLA School of Medicine. She trained as a postdoctoral fellow in the field of cycle control at the Fred Hutchinson Cancer Research Center in Seattle. Dr. Heichman has more than 25 years of scientific experience in both corporate and academic institutions. Prior to joining ARUP, she spent several years at Myriad Genetics, where she was the vice president of proteomic research, and three years at the Huntsman Cancer Institute at the University of Utah as the director of cancer systems biology and resources. She has been a longstanding member of the National Cancer Institute Cancer Center's Clinical Cancer Investigations Committee, where she is involved in clinical trial design and evaluation.



DAVID R. HILLYARD, MD
Medical Director, Molecular Infectious Diseases

Dr. Hillyard is a professor of pathology, with an adjunct appointment in biology, at the University of Utah School of Medicine. Dr. Hillyard received his MD from the Columbia University College of Physicians and Surgeons. His training was in anatomic and clinical pathology, with fellowships in medical microbiology and microbial genetics.

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DR. BO HONG

Medical Director, Cytogenetics and Microarray

Dr. Hong is an instructor at the University of Utah School of Medicine. She received her MD at Beijing Medical University in Beijing, China, and completed a residency in internal medicine and hematology at People's Hospital, Beijing Medical University, and a clinical cytogenetics fellowship at the University of Utah. Her academic interests include the clinical significance of cytogenetic findings in hematologic malignancies,

particularly in pediatric leukemia and treatment-related leukemia.



ELKE JARBOE, MD

Medical Director, Surgical Pathology and Cytopathology

Dr. Jarboe is an assistant professor of pathology at the University of Utah School of Medicine. She received her MD from and completed her anatomic pathology residency training at the University of Colorado School of Medicine. Subsequently, she completed fellowships in women's and perinatal pathology and cytopathology at Brigham and Women's Hospital in Boston. Her primary subspecialty and research interest is in gynecologic pathology. Dr. Jarboe is a member of several professional societies, including the United States and Canadian Academy of Pathology,

American Association for Cancer Research, American Society for Clinical Pathology, and College of American Pathologists.



JERRY W. HUSSONG, MD, DDS, MS

Vice President, Chief Medical Officer and Director of Laboratories

Medical Director, Hematologic Flow Cytometry Laboratory

Dr. Hussong is an associate professor of pathology at the University of Utah School of Medicine. He received his MD at Northwestern University Medical School and his DDS from Northwestern University Dental School; he also received an MS degree in cellular and molecular

pathology at Northwestern University. Dr. Hussong completed a postdoctoral fellowship in hematopathology at the University of Utah and served an AP/CP pathology residency at Northwestern Memorial Hospital in Chicago. Dr. Hussong serves on the editorial board of Archives in Pathology and has been a member of the CAP Cancer Committee and Surgical Pathology (PIP) Committee. He currently serves on the CAP Economic Affairs Committee. His clinical interests include flow cytometry, hematopathology, and immunohistochemistry; he also has a strong additional research interest in immunophenotyping of hematopoietic neoplasms and the prognostic role of angiogenesis in hematopoietic neoplasms.



PETER E. JENSEN, MD

Chair, Department of Pathology and ARUP Board

Dr. Jensen received a BS in biochemistry from the University of Georgia in Athens and an MD from Vanderbilt University in Nashville. He completed his residency in anatomic pathology at the Washington University School of Medicine in St. Louis. He was an assistant and associate professor in the Department of Pathology and Laboratory Medicine and Winship Cancer Center at Emory University, where he also served as an associate medical director in the Clinical Immunology

Laboratory. Dr. Jensen was the director of the Graduate Studies, Immunology, and Molecular Pathogenesis program at Emory University, as well as the director of experimental pathology and vice-chair in the Department of Pathology. He has 73 peer-reviewed publications and served as the associate editor for the *Journal of Immunology* from 1992 to 1999; he has also been a manuscript reviewer for several prominent journals.



BRIAN R. JACKSON, MD, MS

Vice President, Chief Medical Informatics Officer

Dr. Jackson directs the Informatics Department at ARUP, including ARUP Consult®, decision support, product management, informatics software development, and ATOP® consulting. He is also the medical director for Referral Testing and an associate professor of pathology at the University of Utah. He received his BA in mathematics, his MS in medical informatics, and his MD from the University of Utah, and completed a clinical pathology residency at Dartmouth-Hitchcock

Medical Center. Prior to his employment at ARUP, Dr. Jackson was a staff clinical pathologist and informaticist at Dartmouth-Hitchcock Medical Center, a product manager for a Belgium-based medical software firm, and a National Library of Medicine informatics fellow at the University of Utah. Dr. Jackson's research interests include economic analysis of diagnostic testing and physician utilization of laboratory tests. He is certified in clinical pathology by the American Board of Pathology.



KAMISHA JOHNSON-DAVIS, PHD, DABCC

Medical Director, Clinical Toxicology Laboratory

Dr. Johnson-Davis is an assistant professor of pathology at the University of Utah School of Medicine. Dr. Johnson-Davis received her PhD in pharmacology at the University of Utah and is board certified in clinical chemistry by the American Board of Clinical Chemistry. She completed her postdoctoral fellowship in clinical chemistry at the University of Utah, Department of Pathology, and was a postdoctoral research associate at the Center of Human Toxicology at the University of

Utah. Dr. Johnson-Davis is a member of various professional societies, including the Academy of Clinical Laboratory Physicians and Scientists and the American Association for Clinical Chemistry.

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TODD KELLEY, MD

Medical Director, Molecular Hematopathology Laboratory
Medical Director, Hematopathology Laboratory

Dr. Kelley is an associate professor in the Department of Pathology at the University of Utah. He received his MS in immunology and microbiology and his MD from Ohio State University, and completed fellowship training in hematopathology at the Cleveland Clinic. He is board certified in anatomic and clinical pathology by the American Board of Pathology, with subspecialty certification in hematology. His research interests include

the identification of novel diagnostic and prognostic biomarkers in leukemia and lymphoma.



ALLEN N. LAMB, PHD, FACMG

Medical Director, Cytogenetics and Genomic
Microarray Laboratory

Dr. Lamb an associate professor of clinical pathology in the Department of Pathology at the University of Utah School of Medicine. He received his PhD from Wesleyan University in molecular biology and biochemistry. He completed fellowships in clinical cytogenetics in the Department of Pediatrics at the University of North Carolina and in clinical molecular genetics at Harvard Medical School. Dr. Lamb is a founding fellow of the

American College of Medical Genetics and is certified by the American Board of Medical Genetics in clinical cytogenetics and clinical molecular genetics.



ATTILA KUMANOVICS, MD

Assistant Medical Director, Immunology Laboratory
Co-Director, Immunogenetics Laboratory

Dr. Kumanovics is an assistant professor of pathology at the University of Utah School of Medicine. Dr. Kumanovics received his MD at the University of Pecs Medical and Health Sciences Centre in Hungary. He completed postdoctoral research fellowships at the University of Utah School of Medicine, University of Texas Southwestern Medical Center, and Howard Hughes Medical Institute, and served as a clinical

pathology resident, an immunology fellow, and a molecular genetic pathology fellow at the University of Utah School of Medicine. Dr. Kumanovics is board certified in clinical pathology by the American Board of Pathology and molecular genetic pathology by the American Board of Medical Genetics and American Board of Pathology.



CHRISTOPHER M. LEHMAN, MD

Co-Medical Director, University Hospitals and
Clinics Clinical Laboratory

Dr. Lehman is an associate professor of pathology at the University of Utah School of Medicine. He received his MD from the University of Utah and is board certified in clinical pathology, blood banking, and transfusion medicine by the American Board of Pathology. In addition to other memberships, Dr. Lehman is a member of the American Association of Blood Banks.



NORIKO KUSUKAWA, PHD

Vice President

Director, New Technology Assessment and Licensing

Dr. Kusukawa is an adjunct associate professor of pathology at the University of Utah School of Medicine. Her role at ARUP is to locate new cutting-edge technologies and organize collaborations with like-minded organizations with the goal of bringing those technologies into the clinical laboratory setting. In addition to laboratory experience, Dr. Kusukawa has more than 15 years of business-development experience.

Prior to her position at ARUP, Dr. Kusukawa was a technical director of FMC Corporation, overseeing the Research and Development and Compliance and Quality Systems departments. Dr. Kusukawa received her PhD from Kyoto University in Japan.



K. DAVID LI

Medical Director, Hematopathology Laboratory

Dr. Li is an assistant professor of pathology at the University of Utah School of Medicine. He received his MD from New York Medical College and completed a residency in anatomic and clinical pathology at the University of California, San Diego, where he served as chief resident and received the David J. Epstein Research Award during his last year. Dr. Li also completed a fellowship in hematopathology at University of Utah, and is board certified by the American Board of Pathology

in anatomic and clinical pathology, with subspecialty boards in hematology. He is a member of several professional societies, including the College of American Pathologists, the American Society for Clinical Pathology, and the United States and Canadian Academy of Pathology. Dr. Li's research interests include flow cytometry and immunohistochemistry of B-cell lymphomas.

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TING LIU, MD
Director, Surgical Pathology

Dr. Liu is an assistant professor of surgical pathology at the University of Utah School of Medicine and the program director of the surgical pathology fellowship program at the University of Utah Department of Pathology. Dr. Liu received her MD from Beijing University of Chinese Medicine and her MS in pathophysiology from Peking Union Medical College. She completed AP/CP residency training at Drexel University College of Medicine, a fellowship in

hematology at Drexel University College of Medicine, and an oncologic/surgical fellowship at Memorial Sloan-Kettering Cancer Center. Dr. Liu is an AP/CP and hematopathology-boarded pathologist. Her current research interests include oncologic clinical research.



ELAINE LYON, PHD
Section Chief, Molecular Genetics
Co-Medical Director, Pharmacogenomics

Dr. Lyon is an associate professor of pathology at the University of Utah School of Medicine. She received her PhD in medical genetics from the University of Alabama at Birmingham and continued with fellowship training in clinical molecular genetics at the University of Utah. Dr. Lyon combines clinical laboratory responsibilities with research and development in human genetics, employing methods for mutation detection by targeted

mutation analysis, gene sequencing, gene scanning, exonic-level deletion, and duplications and molecular haplotyping. Dr. Lyon has focused her interest in studies to determine the significance of rare variants and is involved with evaluating and establishing locus-specific databases that combine genetic variants with clinical symptoms.



NICOLA LONGO, MD, PHD
Medical Director, Biochemical Genetics Laboratory

Dr. Longo is a professor of pediatrics and an associate professor of pathology at the University of Utah. He received his MD and PhD in molecular biology and pathology from the University of Parma Medical School in Italy and trained in medical and biochemical genetics at Emory University in Atlanta, Georgia. Dr. Longo is board certified in medical genetics and clinical biochemical genetics.



RONG MAO, MD
Medical Director, Molecular Genetics
and Genomics

Dr. Mao is an associate professor of pathology and co-director of the Clinical Medical Genetics Fellowship Program at the University of Utah School of Medicine. Dr. Mao received her MD from Capital University of Medicine in Beijing, China and her MS in molecular pathology from Beijing Union Medical College. She is certified by the American Board of Medical Genetics, with a subspecialty in clinical molecular genetics, and by

the New York State Department of Health, with a subspecialty in genetic testing.

AMY LOWICHIK, MD, PHD
Staff Pathologist, Pediatric Pathology

Dr. Lowichik is an associate professor of pediatric pathology at the University of Utah School of Medicine. She is also the director of Autopsy Service and Anatomic Pathology at Primary Children's Medical Center and the associate chief of the Division of Pediatric Pathology at the University of Utah School of Medicine. Dr. Lowichik received her PhD in zoology and microbiology at Tulane University and her MD at the University of Michigan in Ann Arbor. She served as a pediatrics resident at the Children's Medical Center of Dallas and a pediatric pathology fellow at the University of Texas Southwestern Medical School. Dr. Lowichik is board certified in pediatric pathology, clinical pathology, and anatomic pathology, and is a member of the Society for Pediatric Pathology. Dr. Lowichik's research interests include pediatric gastrointestinal pathology and medical education.



GWENDOLYN A. MCMILLIN, PHD
Medical Director, Toxicology
Co-Medical Director, Pharmacogenetics

Dr. McMillin is an associate professor of pathology at the University of Utah School of Medicine. She received her PhD in pharmacology and toxicology from the University of Utah and is certified by the American Board of Clinical Chemistry in clinical chemistry and toxicological chemistry.

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RODNEY R. MILES, MD, PHD
Medical Director, Hematopathology

Dr. Miles is an assistant professor of pathology at the University of Utah School of Medicine. He received his MD and a PhD in cell biology from the University of Nebraska and is certified by the American Board of Pathology in anatomic and clinical pathology, with subspecialty certification in hematology. His research interests include biological subtypes of adult and pediatric non-Hodgkin lymphomas. Dr. Miles is a fellow of the American Society for Clinical Pathology and a member of

the American Society of Hematology, the Society for Hematopathology, and the United States and Canadian Academy of Pathology.



JAY L. PATEL, MD
Medical Director, Hematopathology Laboratory

Dr. Patel is an assistant professor of pathology at the University of Utah School of Medicine. He received his MD from the University of Arizona and completed a residency in anatomic and clinical pathology at the University of Utah. Dr. Patel then served as a hematopathology fellow at Stanford University. He is certified by the American Board of Pathology in anatomic and clinical pathology, with subspecialty boards in hematology, and is a member of the CAP Hematology and Clinical Microscopy Resource Committee. Dr. Patel's clinical

and research interests are broad and include all aspects of hematopathology. He is keen on application of next-generation sequencing technologies in the diagnosis and prognostication of hematolymphoid malignancies and benign hematologic disorders.



CHERYL ANN PALMER, MD
Medical Director, Neuropathology

Dr. Palmer is a professor of pathology and the director of the Pathology Residency Program at the University of Utah School of Medicine. She received her MD at West Virginia University and served as a resident in neurology and postdoctoral fellow in neuropathology at the University of Utah, where she also completed internships in internal medicine and pathology. She is a fellow of the American Academy of Neurology, serves as the chairman of the membership committee of American Association

of Neuropathologists, and sits on the editorial board of *Case Reports in Pathology*. Dr. Palmer's research interests include neuropathological parameters of epilepsy, relationships between histologic and molecular genetic findings in brain tumors, and pediatric neuropathology, with special emphasis on epileptogenic disorders and brain tumors.



SHERRIE L. PERKINS, MD, PHD
Medical Director, Hematopathology

Section Chief, Hematopathology
Chief, Clinical Pathology
Vice Chair, Pathology
Senior Vice President, Research and Development
Co-Executive Director, ARUP Institute for Clinical and Experimental Pathology

Dr. Perkins, a tenured professor at the University of Utah School of Medicine, has been with ARUP and the University of Utah for more than 20 years and has served in numerous leadership positions, including director of hematopathology, interim department chair, and, for the past three years, a member of the ARUP Laboratories' executive management team. She is board certified in anatomic pathology, with a special qualification in hematology. Dr. Perkins received her PhD in biochemistry from the University of Miami, and earned her MD and completed her pathology residency at Washington University in St. Louis. She completed her hematopathology fellowship under Dr. Carl Kjeldsberg at the University of Utah and has published more than 170 peer-reviewed articles and 70 book chapters.



MARZIA PASQUALI, PHD
Medical Director, Biochemical Genetics
and Newborn Screening
Section Chief, Biochemical Genetics

Dr. Pasquali is a professor at the University of Utah School of Medicine and a clinical scientist in the area of newborn screening. Born and educated in Italy, Dr. Pasquali earned her degrees of doctor in pharmaceutical chemistry and technology and pharmacy doctor at the University of Parma School of Pharmacy. Dr. Pasquali

trained in biochemical genetics at Emory University and later served as the co-director of the Biochemical Genetics Laboratory. Dr. Pasquali is board certified in clinical biochemical genetics.



JOSEF T. PRCHAL, MD
Medical Director, Special Genetics

Dr. Prchal's primary appointment is at the University of Utah in the Division of Hematology, Department of Internal Medicine. He received his medical education at Charles University and completed his internal medicine residency and hematology fellowship at the University of Toronto. Dr. Prchal was then a research fellow at City of Hope National Medical Center. He has had academic appointments at the University of Alabama at Birmingham and Baylor College of Medicine. Dr. Prchal is an expert in the areas of erythrocyte enzymology, polycythemia, hemoglobin variants, and thalassemias. His expertise in these areas provides strength for hematology testing in special genetics, molecular genetics, and molecular oncology.

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THEODORE J. PYSHER, MD
Chief, Pediatric Pathology and Electron Microscopy

Dr. Pysher is an adjunct professor of pediatrics, professor of clinical pathology, and chief of the Division of Pediatric Pathology at the University of Utah School of Medicine. He is also the head of pathology and director of laboratories at Primary Children's Medical Center.

Dr. Pysher received his MD at the University of Chicago, and trained as a pathology resident at Cleveland Metropolitan General, pediatrics resident at Rainbow Babies Children's Hospital in Cleveland, and pediatric

pathology fellow at Children's Hospital of Los Angeles. He is a former president of the Society for Pediatric Pathology, and a member of the Pediatric Pathology Test Development and Advisory Committee of the American Board of Pathology and the editorial board for *Pediatric and Developmental Pathology*. Dr. Pysher's research interests include hemolytic uremic syndrome and pediatric laboratory medicine.



GEORGE M. RODGERS III, MD, PHD
Medical Director, Hemostasis and Thrombosis Laboratory

Dr. Rodgers is a professor of medicine and pathology at the University of Utah School of Medicine. He received his PhD in pharmacology and his MD from the Tulane University School of Medicine and is certified in internal medicine by the American Board of Internal Medicine and in hematology by the American Board of Pathology. Dr. Rodgers is the co-editor of *Wintrobe's Clinical Hematology*.



MONICA PATRICIA REVELO, MD, PHD
Medical Director, Renal Pathology

Dr. Revelo is an associate professor of pathology at the University of Utah School of Medicine. Dr. Revelo received her MD from the Central University of Ecuador School of Medicine and her PhD in pathology from the Federal University of Minas Gerais in Brazil.

She completed a fellowship in renal pathology at Vanderbilt University Medical Center and is certified by the American Board of Pathology. Her research interests include mechanisms of chronic allograft and

antibody mediated-rejection in kidney, heart, and pancreas transplants, molecular mechanisms of prostate carcinoma development and progression, and transgenic mouse models of acute tubular injury.



JUAN ROSAI, MD
Consultant Surgical Pathologist

Dr. Rosai is a consultant surgical pathologist at ARUP. He received his MD at the University of Buenos Aires School of Medicine in Argentina, and completed his pathology residency at the Hospital Regional Mar del Plata in Argentina and at the Washington University School of Medicine and Barnes Hospital in St. Louis, where he also attained his fellowship training in surgical pathology under Dr. Lauren V. Ackerman. Dr. Rosai's awards include the USCAP President's Award in 2012

and the IAP Pathology Gold Medal for outstanding contributions in international pathology education and research in 2010. He has published 52 books, book chapters, and monographs, and more than 390 peer-reviewed papers. He is the primary author of *Rosai and Ackerman's Surgical Pathology*, the world's preeminent textbook of surgical pathology.



ALAN L. ROCKWOOD, PHD
Scientific Director, Mass Spectrometry Laboratory

Dr. Rockwood is a clinical associate professor of pathology at the University of Utah School of Medicine and an adjunct research collaborator for the Chemistry Department at Brigham Young University. He is a member of the American Association for Clinical Chemistry, American Society for Mass Spectrometry, and the Indian Society for Mass Spectrometry. Dr. Rockwood received his PhD in chemistry from Utah State University.



MOHAMED E. SALAMA, MD
Medical Director, Hematopathology and Immunoperoxidase Staining

Dr. Salama is an associate professor of pathology and director of the hematopathology fellowship program at the University of Utah School of Medicine. Dr. Salama received his MD from Cairo University and completed a hematopathology fellowship at the University of New Mexico and a surgical pathology fellowship at Stanford University. He is certified by the American Board of

Pathology in anatomic pathology and hematopathology. His areas of interest span all aspects of hematopathology, including morphology and specialized studies of bone marrow and lymph node.

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WADE SAMOWITZ, MD

Medical Director, Solid Tumor Molecular Diagnostics and Histology

Staff Pathologist, Anatomic Pathology

Dr. Samowitz is a professor of pathology at the University of Utah School of Medicine. He received his MD from SUNY Downstate, and completed residency training in anatomic pathology at the University of Chicago and fellowships in gastrointestinal pathology at Johns Hopkins Hospital. Specializing in gastrointestinal pathology and the molecular genetics of colorectal

cancer, Dr. Samowitz is the medical director for numerous molecular tests in gastrointestinal cancer and other tumors, including microsatellite instability by IHC and PCR, mutational testing for *BRAF*, *PIK3CA*, and *NRAS*, evaluation for molar pregnancy, and specimen identification.



PATRICIA R. SLEV, PHD

Medical Director, Serological Hepatitis/Retrovirus Laboratory

Co-Medical Director, Immunogenetics, ARUP Laboratories

Dr. Slev is an assistant professor of pathology at the University of Utah School of Medicine. She earned her PhD in immunology and laboratory medicine from the University of Florida, Gainesville and completed a fellowship in clinical chemistry at the University of Utah. Dr. Slev's research interests are in immunogenetics and pathogen interactions, particularly HIV and viral hepatitis.



ROBERT SCHLABERG, MD, MPH

Medical Director, Microbial Amplified Detection, Virology, and Fecal Chemistry Laboratories

Assistant Medical Director, Virology and Molecular Infectious Disease Laboratories

Dr. Schlberg is an assistant professor of clinical pathology at the University of Utah School of Medicine. He received his MD and doctor medicinae degrees at the Julius-Maximilians-University in Wuerzburg, Germany and his master of public health at the Mailman School of

Public Health at Columbia University in New York City, where he also served as a postdoctoral fellow. Dr. Schlberg trained in clinical pathology at the Columbia University College of Physicians and Surgeons, where he was the chief clinical pathology resident. He is certified in clinical pathology and medical microbiology by the American Board of Pathology and was awarded the Young Investigator Award by the Academy of Clinical Laboratory Physicians and Scientists.



KRISTI J. SMOCK, MD

Medical Director, Hemostasis/Thrombosis Laboratory

Dr. Smock is an associate professor of pathology at the University of Utah School of Medicine. She received her MD from the University of Utah and completed residency training in anatomic and clinical pathology and fellowship training in hematopathology at the University of Utah. She is board certified by the American Board of Pathology in anatomic and clinical pathology with subspecialty certification in hematology. She is a fellow of the College of American Pathologists and American

Society for Clinical Pathology and an active member of several other professional organizations, including the North American Specialized Coagulation Laboratory Association, International Society on Thrombosis and Haemostasis, and American Society of Hematology. Dr. Smock has research interests in a variety of areas related to hemostasis/thrombosis.



ROBERT SCHMIDT, MD, PHD, MBA

Director, Center for Effective Medical Testing

Dr. Schmidt is an assistant professor of pathology at the University of Utah School of Medicine. He received his medical degree from the University of Sydney in Sydney and completed his residency training in clinical pathology at the University Of Utah School of Medicine. He received an MS in biochemical engineering at the Massachusetts Institute of Technology, an MBA at the University of Chicago, a PhD in operations management at the University of Virginia, and an MMed in clinical

epidemiology from the University of Sydney.

Prior to completing medical school, Dr. Schmidt was an assistant professor of operations management at the Carlson School of Management at the University of Minnesota and an associate professor of clinical operations management at the Marshall School of Business at the University of Southern California. Dr. Schmidt's medical research focuses on diagnostic testing, specifically utilizing his business background to complement medical knowledge in performing evidence-based evaluation of diagnostic testing. His research includes comparative effectiveness, cost-effectiveness, and utilization analyses of diagnostic tests, as well as operations and technology management related to diagnostic testing.



JOSHUA A. SONNEN, MD

Medical Director, Anatomic Pathology, Oncology, and Neuropathology

Dr. Sonnen is an associate professor of pathology at the University of Utah School of Medicine. He received his MD from the Keck School of Medicine, University of Southern California, completing his residency at the University of Arizona, Tucson, and his neuropathology fellowship at the University of Washington, Seattle. He is a member of the College of American Pathologists (CAP) and American Association of Neuropathologists.

Dr. Sonnen's research interests include the neuropathology of age-related cognitive decline in population-based studies and chronic traumatic encephalopathy.

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SARAH SOUTH, PHD, FACMG
Medical Director, Cytogenetics, Genomic Microarray,
and Genetic Processing Laboratories
Section Chief, Cytogenetics

Dr. South is an associate professor of pediatrics and pathology at the University of Utah School of Medicine. Dr. South received her PhD from the Johns Hopkins School of Medicine in human genetics and completed a postdoctoral research fellowship in prenatal genetics at the John Hopkins Hospital and a clinical cytogenetics fellowship at the University of Utah School of Medicine.

She is board certified in clinical cytogenetics by the American Board of Medical Genetics. Dr. South is the director of the ABMG-certified training program in clinical cytogenetics and a faculty member in the genetic counseling training program at the University of Utah. Her research interests include the development of new technologies for enhanced detection and characterization of chromosome abnormalities.



ANNE E. TEBO, PHD
Medical Director, Immunology Laboratory

Dr. Tebo is an associate professor of pathology at the University of Utah School of Medicine. She received her PhD from the Eberhard Karls Universität Tübingen in Germany and completed postdoctoral training in immunology from the Department of Microbiology at the University of Birmingham at Alabama. Dr. Tebo continued her training with a clinical immunology fellowship at the Department of Pathology in the University of Utah School of Medicine.



**JOELY A. STRASESKI, PHD, MS,
MT(ASCP), DABCC**
Medical Director, Endocrinology
Co-Medical Director, Core Laboratory

Dr. Straseski is an assistant professor of pathology at the University of Utah School of Medicine. She received her PhD in pathology and laboratory medicine and a master of science in bacteriology from the University of Wisconsin-Madison, where she also served as a postdoctoral associate in the Department of Pathology.

Dr. Straseski completed a postdoctoral fellowship in clinical chemistry at the Johns Hopkins Medical Institutions in Baltimore, Maryland. She has previously been awarded the Past-Presidents' Scholarship by the American Association for Clinical Chemistry, as well as a Distinguished Abstract Award from the National Academy of Clinical Biochemistry. Dr. Straseski is board certified in clinical chemistry by the American Board of Clinical Chemistry.



REHA TOYDEMIR, MD, PHD
Medical Director, Cytogenetics

Dr. Toydemir is an assistant professor at the University of Utah School of Medicine. He was a fellow in cytogenetics at ARUP Laboratories and a previous postdoctoral associate in the Human Genetics Department at the University of Utah. He completed his PhD in genetics at the University of Utah and his MD at the University of Ankara School of Medicine in Turkey. He was the recipient of the 2007 James W. Prah Award for Outstanding Contributions by a Graduate Student in the

biological or biomedical science at the University of Utah and is a member of the American Society of Human Genetics and Turkish Society of Medical Genetics.



FREDERICK STRATHMANN, PHD
Medical Director, Toxicology Laboratory
Associate Scientific Director, Mass Spectrometry

Dr. Strathmann is an assistant professor of pathology at the University of Utah School of Medicine. He received his MS and PhD in pathology and laboratory medicine at the University of Rochester in New York, completed a clinical chemistry fellowship at the University of Washington in Seattle, and is ABCC board certified in clinical chemistry and toxicological chemistry.



KARL V. VOELKERDING, MD
Director, Molecular Pathology Fellowship

Dr. Voelkerding is a past president of the Association for Molecular Pathology. He received his MD from the University of Cincinnati College of Medicine and is certified by the American Board of Pathology in Clinical Pathology and by the American Board of Pathology and the American Board of Medical Genetics in Molecular Genetic Pathology. Dr. Voelkerding's research interests include the development and diagnostic translation of new molecular technologies with a current emphasis on genomic sequencing and its application in medical practice.

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RONALD L. WEISS, MD, MBA
Medical Director, Hematopathology

Dr. Weiss served as ARUP's chief medical officer and director of laboratories from 1993 until 2002, director of business development from 2002 until 2003, president and chief operating officer from 2003 until 2009, and executive vice president from 2009 until 2010. Dr. Weiss is a professor of pathology at the University of Utah and is board certified in anatomic/clinical pathology, microbiology, and hematology by the American Board of Pathology. Dr. Weiss is past chairman of the board of the American Clinical Laboratory Association and past president of the American Pathology Foundation. He is a fellow of the College of American Pathologists and the American Society for Clinical Pathology. Dr. Weiss received his MD from Creighton University and an MBA from the University of Utah, where he completed his residency training.



XINJIE XU, PHD, FACMG
Medical Director, Cytogenetics and Genomic Microarray
Assistant Medical Director, Molecular Hematopathology/Oncology

Dr. Xu is an assistant professor of pathology at the University of Utah School of Medicine. She received her PhD in genetics from the University of Wisconsin-Madison and completed a clinical cytogenetics fellowship at the University of Wisconsin-Madison and a clinical molecular genetics fellowship at Boston University. Dr. Xu is a fellow of the American College of Medical Genetics and a member of several professional societies, including the American Society of Human Genetics and the American Society of Clinical Pathology. Her research interests include the identification of novel molecular markers in cancer and the development of novel diagnostic tools for genetic testing.



BENJAMIN L. WITT, MD
Medical Director, Cytopathology

Dr. Witt is an assistant professor of cytology and surgical pathology at the University of Utah School of Medicine, where he serves as the residency rotation director for cytopathology, and a member of the University of Utah Medical Education Committee. Dr. Witt received his MD at the University of Colorado Denver, School of Medicine and completed his AP/CP pathology residency at the University of Chicago (NorthShore) where he served as the chief resident during his last two years. He also completed a cytopathology fellowship at the University of Utah/ARUP Laboratories, and is board certified in anatomic and clinical pathology, with subspecialty boards in cytopathology. Dr. Witt is a member of the College of American Pathologists, the American Society for Clinical Pathology, and the American Society of Cytopathologists. His research interests include quality assurance, as well as studies related to fine-needle aspiration and exfoliative cytology.



TATIANA YUZYUK, PHD
Assistant Medical Director, Newborn Screening and Biochemical Genetics

Dr. Yuzyuk is an assistant professor of pathology at the University of Utah School of Medicine. She received her PhD in biochemistry and molecular biology at SUNY Upstate Medical University and served as a clinical biochemical fellow at the University of Utah. Dr. Yuzyuk's research interests include galactosemia and lysosomal storage disorders.



CARL T. WITTWER, MD, PHD
Medical Director and Technical Vice President, Immunologic Flow Cytometry Laboratory

Dr. Wittwer is a professor of pathology at the University of Utah School of Medicine. He is an associate editor of *Clinical Chemistry* and is best known for developing techniques in rapid-cycle PCR and real-time PCR. Dr. Wittwer received his MD from the University of Michigan School of Medicine and his PhD in biochemistry from Utah State University. He is board certified in anatomic and clinical pathology by the American Board of Pathology.



HOLLY ZHOU, MD, MS
Pediatric Pathologist

Dr. Zhou is an associate professor of pathology at the University of Utah School of Medicine. She received her medical degree from Fujian Medical College of China, where she also completed an MS in endocrinology. Subsequently, Dr. Zhou completed a research fellowship in endocrinology at the University of Maine, and both an AP/CP residency and a pediatric pathology fellowship at New York University. She is board certified by the American Board of Pathology in both anatomic and clinical pathology and pediatric pathology. Dr. Zhou is a member of the United States and Canadian Academy of Pathology and the Society for Pediatric Pathology. Her research interests include pediatric bone and soft tissue tumors.



MEDICAL DIRECTORS & CONSULTING FACULTY

ARUP's medical directors and consultants are nationally and internationally recognized pathologists, subspecialty-qualified clinicians, and board-certified clinical scientists. These professionals make significant contributions in research and development, and each holds a faculty appointment at the University of Utah School of Medicine.



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