

Department of Pathology & Immunology

The Department of Pathology & Immunology (<http://pathology.wustl.edu/>) is involved in the clinical diagnosis and monitoring of disease, in the teaching of pathology and immunology, and in research on the molecular basis of disease and immunology.

The department is responsible through its divisions for studying the pathogenesis and the biochemical and anatomical basis of diseases. Pathologists do research on disease processes using molecular, genetic and structural analysis. Pathologists have the responsibility for the cytological and anatomical diagnosis of diseases and for developing novel structural and molecular approaches for the analysis of them, particularly cancers and infectious diseases. The divisions of Anatomic and Molecular Pathology (<https://pathology.wustl.edu/divisions/amp/>), Immunobiology (<https://pathology.wustl.edu/divisions/immunobiology/>), Laboratory and Genomic Medicine (<http://pathology.wustl.edu/divisions/lgm/>) and Neuropathology (<http://pathology.wustl.edu/divisions/neuropathology/>) have faculty involved in teaching, clinical service and research. Prominent areas of research include experimental diabetes, hematology, bone pathophysiology, cancer, and gastrointestinal and vascular pathology.

The department teaches an extensive course during the second year of the curriculum and presents a number of conferences that third- and fourth-year students can attend. The department also offers a number of clerkships. The course director of the second-year Pathology course is Erika C. Crouch, PhD, MD. Students can take clerkships in Autopsy Pathology, Surgical Pathology or Laboratory Medicine, or they may participate in the research activities of the faculty.

The Division of Immunobiology (<https://pathology.wustl.edu/divisions/immunobiology/>) integrates immunobiology activities at the school. It is responsible for the teaching of immunology during the first year of the curriculum (Brian T. Edelson, MD, PhD, is the course director) and for conducting basic research in immunobiology and in the immunological basis of disease.

Many faculty in the department are involved in graduate teaching and participate in the various programs offered by the Division of Biology and Biomedical Sciences (<http://dbbs.wustl.edu/Pages/>). The department has strong participation in the Immunology graduate program.

Website: <https://pathology.wustl.edu>

Faculty

Joseph Gaut, MD, PhD (<https://pathology.wustl.edu/people/joseph-gaut-md-phd/>)

Anatomic and Molecular Pathology Division Head

Robert Schreiber, PhD (<https://pathology.wustl.edu/people/robert-schreiber-phd/>)

Immunobiology Division Head

Charles Eby, MD (<https://pathology.wustl.edu/people/charles-eby-md/>)

Laboratory and Genomic Medicine Division Head

Robert E. Schmidt, MD, PhD (<https://pathology.wustl.edu/people/robert-schmidt-md-phd/>)

Neuropathology Division Head

Visit our website for more information about our faculty (<https://pathology.wustl.edu/people/>) and their appointments.

A

Michael Alberti, MD

Instructor in Pathology and Immunology (Pending Dean's Approval) (primary appointment)

BS California Lutheran University 2005

MD University of Alabama 2013

Paul M Allen, MS, PHD

Robert L. Kroc Professor of Pathology and Immunology (primary appointment)

MS University of Michigan 1977

BS University of Michigan 1974

PHD University of Michigan 1981

Gaya K Amarasinghe, PHD

Professor of Pathology and Immunology (primary appointment)

Professor of Biochemistry and Molecular Biophysics

Professor of Molecular Microbiology

PHD University of Maryland 2001

BS City College 1997

Ferdinand Enginco Amarillo, PHD

Associate Professor of Pathology and Immunology (primary appointment)

PHD Florida State University 2010

Neil William Anderson, BS1, MD

Associate Professor of Pathology and Immunology (primary appointment)

Associate Professor of Pediatrics

BS1 University of Wisconsin-Madison 2005

MD University of Wisconsin-Madison 2009

Maksym Artomov, PHD, MS

Associate Professor of Pathology and Immunology (primary appointment)

Associate Professor of Biomedical Engineering

PHD Mass Inst of Technology (MIT) 2009
MS University of Chicago 2005

B

Samuel James Ballentine, MD

Assistant Professor of Pathology & Immunology (primary appointment)
MD New York University 2013

Michael James Barratt, PHD

Associate Professor of Pathology and Immunology (primary appointment)
PHD KINGS COLLEGE LONDON 1994

Cory Thomas Bernadt, MD, PHD

Associate Professor of Pathology and Immunology (primary appointment)
MD University of Nebraska 2006
PHD University of Nebraska 2004
BS Nebraska Wesleyan University 1998

Deeptha Bhattacharya, PHD

Adjunct Associate Professor of Pathology and Immunology (primary appointment)
PHD University of CA Berkeley 2001
BS Indiana University Bloomington 1996

Fouad Ismat Boulos, BS1, MD

Associate Professor of Pathology and Immunology (primary appointment)
BS1 American University of Beirut 1996
MD American University of Beirut 2001

Victor Borisovich Brodsky, MD

Associate Professor of Pathology and Immunology (primary appointment)
BS Boston University 2001
MD Boston University 2005

Elizabeth M Brunt, MD

Professor Emeritus of Pathology and Immunology (primary appointment)
MD University of Texas Galveston 1981
BS Georgetown University 1974

Melissa Marie Budelier, PHD

Instructor in Pathology and Immunology (primary appointment)
PHD Washington Univ in St. Louis 2018
BS Marquette University 2013

Carey-Ann Dawn Burnham, PHD

Professor of Pathology and Immunology (primary appointment)
Professor of Medicine
Professor of Molecular Microbiology
Professor of Pediatrics
Vice Chair for Faculty Development Department of Pathology and Immunology
PHD University of Alberta 2007

BS University of Alberta 2002

Kathleen Byrnes, MD

Assistant Professor of Pathology and Immunology (primary appointment)
BS Washington Univ in St. Louis 2008
MD Tulane University 2013

C

Yang Cao, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
PHD Univ of Wisconsin Madison 2014

Marina Cella, MD

Professor of Pathology and Immunology (primary appointment)
MD University of Genova 1989

Jiye Cheng, MS, PHD

Instructor in Pathology and Immunology (Pending Dean's Approval) (primary appointment)
MS Ohio State University 2010
PHD Ohio State University 2011

Rebecca D Chernock, MD

Professor of Pathology and Immunology (primary appointment)
Professor of Otolaryngology
MD University of Pennsylvania 2004
BS Brown University 1999

Kyunghee Choi, PHD, MS

Professor of Pathology and Immunology (primary appointment)
BS Seoul National University 1982
PHD University of Illinois 1988
MS Seoul National University 1984

John Spellman Aranake Chrisinger, MD

Assistant Professor of Pathology and Immunology (primary appointment)
BA Washington Univ in St. Louis 2004
MD Washington Univ in St. Louis 2012

Marco Colonna, MD

Robert Rock Belliveau MD Professor of Pathology (primary appointment)
Professor of Medicine
MD Parma University 1983

Leigh Anne Compton, MD, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
MD Vanderbilt University 2008
BS Centenary College Louisiana 1998
PHD Vanderbilt University 2005

Joseph C. Corbo, AB, MD, PHD

Professor of Pathology and Immunology (primary appointment)
Professor of Genetics
Professor of Ophthalmology and Visual Sciences

AB Stanford University 1990
MD University of California 1999
BS Stanford University 1990
PHD University of California 1997

Richard James Cote, MD

Professor of Pathology and Immunology (primary appointment)
Head of the Department of Pathology and Immunology
MD University of Chicago 1980

Erika C Crouch, PHD, MD

Professor of Pathology and Immunology (primary appointment)
Vice Chair for Education Department of Pathology and Immunology
PHD University of Washington 1978
MD University of Washington 1979

D

Sonika M Dahiya, MD

Professor of Pathology and Immunology (primary appointment)
MD Kasturba Medical College 2000

Gautam Dantas, PHD

Professor of Pathology and Immunology (primary appointment)
Professor of Biomedical Engineering
Professor of Molecular Microbiology
PHD University of Washington 2005
BS Macalester College 2000

Louis P Dehner, MD

Professor of Pathology and Immunology (primary appointment)
Professor of Pathology in Pediatrics
MD Washington Univ in St. Louis 1966
BA Washington Univ in St. Louis 1962

George J Despotis, MD

Associate Professor of Pathology and Immunology (primary appointment)
Associate Professor of Anesthesiology
MD Saint Louis University 1985
BA Greenville College 1981

Dennis J. Dietzen, PHD

Professor of Pathology and Immunology (primary appointment)
Professor of Pediatrics
BS Marian College 1986
PHD Indiana University Bloomington 1992

Eric James Duncavage, MD

Professor of Pathology and Immunology (primary appointment)
BS Vanderbilt University 1998
MD University of Tennessee 2004

William Michael Dunne Jr, PHD

Adjunct Professor of Pathology and Immunology (primary appointment)
PHD Univ of Wisconsin Madison 1981
BS Univ of Wisconsin Madison 1975

E

Charles S Eby, MD

Professor of Pathology and Immunology (primary appointment)
Professor of Medicine
BS Duke University 1977
MD Vanderbilt University 1981

Brian T. Edelson, MD, PHD, UNKNOWN

Associate Professor of Pathology and Immunology (primary appointment)
MD Washington Univ in St. Louis 2004
PHD Washington Univ in St. Louis 1995
UNKNOWN Brown University 1995

Takeshi Egawa, PHD, MD

Associate Professor of Pathology and Immunology (primary appointment)
PHD Osaka University 2002
MD Osaka University 1994

David Eisenstein, MD

Associate Professor of Pathology and Immunology (primary appointment)
MD University of Cincinnati 1989

Ali Hassan Ellebedy, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
Assistant Professor of Medicine
Assistant Professor of Molecular Microbiology
BS Cairo University 2004
PHD Univ of TN - Health Sci Center 2011

F

Christopher William Farnsworth, PHD

Assistant Professor of Pathology & Immunology (primary appointment)
BS Roberts Wesleyan College 2009
PHD University of Rochester 2017

John Lawrence Frater, MD

Associate Professor of Pathology and Immunology (primary appointment)
MD Medical College of Ohio 1996
BS University of Notre Dame 1992

Daved H Fremont, PHD

Professor of Pathology and Immunology (primary appointment)
Professor of Biochemistry and Molecular Biophysics
Professor of Molecular Microbiology
BS Univ of Wisconsin Madison 1986
PHD University of CA San Diego 1993

G

Joseph P. Gaut, PHD, MD

Associate Professor of Pathology and Immunology (primary appointment)

Associate Professor of Medicine
PHD Washington Univ in St. Louis 2004
BA Washington Univ in St. Louis 1996
MD Washington Univ in St. Louis 2004

Susan Gilfillan, PHD

Associate Professor of Pathology and Immunology (primary appointment)
BA University of Denver 1982
PHD Stanford University 1990

Juan G Gonzalez, MD, BS1

Professor of Pathology and Immunology (primary appointment)
MD Universidad Autonoma De Nuevo 1978
BS1 New Mexico St University 1971

Jeffrey I Gordon, MD

Professor of Pathology and Immunology (primary appointment)
Director of the Center for Genome Sciences
Dr Robert J Glaser Distinguished University Professor
Professor of Developmental Biology
Professor of Medicine
Professor of Molecular Microbiology
BA Oberlin College 1969
MD University of Chicago 1973

Ann Marie Gronowski, MS, PHD

Professor of Pathology and Immunology (primary appointment)
Professor of Obstetrics and Gynecology
Vice Chair for Faculty Development Department of Pathology and Immunology
MS Iowa State University 1988
PHD Univ of Wisconsin Madison 1992
BS University of Illinois 1985

Brenda Jean Grossman, MD, MS

Professor of Pathology and Immunology (primary appointment)
Professor of Medicine
MD Medical College Georgia 1980
BS Ohio University 1976
MS Saint Louis University 2003

H

Ian Sean Hagemann, MD, PHD

Associate Professor of Pathology and Immunology (primary appointment)
Associate Professor of Obstetrics and Gynecology
MD Washington Univ in St. Louis 2008
BA Princeton University 2000
PHD Washington Univ in St. Louis 2008

Scott A Handley, PHD

Associate Professor of Pathology and Immunology (primary appointment)
PHD Washington Univ in St. Louis 2006
BS Southwest Missouri St University 1998

Thomas Joseph Hannan, BA1, DVM

Instructor in Pathology and Immunology (primary appointment)
BA1 Georgetown University 1989
BA Georgetown University 1989
DVM Tufts University 1995

Anjum Hassan, MD, MD1

Associate Professor of Pathology and Immunology (primary appointment)
MD Aga Khan University 1989
MD1 School Not Listed 1989

Mai He, PHD, MD

Associate Professor of Pathology and Immunology (primary appointment)
PHD Rutgers University 2001
MD Fudan University 1993

Jasmin Herz, PHD, MS

Assistant Professor of Pathology and Immunology (Pending Executive Faculty Approval) (primary appointment)
BS University of Cologne (Koln) 2000
PHD University of Cologne (Koln) 2008
MS University of Cologne (Koln) 2004

Jonathan W Heusel, MD, PHD

Professor of Pathology and Immunology (primary appointment)
Professor of Genetics
MD Washington Univ in St. Louis 1995
PHD Washington Univ in St. Louis 1995

Matthew Charles Hibberd, PHD

Instructor in Pathology and Immunology (primary appointment)
PHD Washington Univ in St. Louis 2016
BS Lincoln School of Commerce 2007

J

Ronald R Jackups Jr, PHD, MD

Associate Professor of Pathology and Immunology (primary appointment)
Associate Professor of Pediatrics
BS Washington Univ in St. Louis 2000
PHD University of Illinois Chicago 2008
MD University of Illinois Chicago 2008

Umang Jain, PHD, MS

Instructor in Pathology and Immunology (Pending Dean's Approval) (primary appointment)
PHD Dalhousie University 2015
BS Manipal University 2007
MS Manipal University 2009

K

Jonathan Kipnis, MS, PHD

Professor of Pathology and Immunology (primary appointment)
Alan A and Edith L Wolff Distinguished Professor
Professor of Neurological Surgery
Professor of Neurology
Professor of Neuroscience

MS Weizmann Institute of Science 1999
BS Tel-Aviv University 1998
PHD Weizmann Institute of Science 2004

Eynav Yafit Klechevsky, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
PHD Baylor University 2007

Hannah Rachel Krigman, MD

Associate Professor of Pathology and Immunology (primary appointment)
MD University of North Carolina 1988
BA Amherst College 1983

Kilannin Cathleen Krysiak, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
PHD Washington Univ in St. Louis 2014
BS University of Illinois 2006

L

Jack H Ladenson, PHD

Oree M Carroll and Lillian B Ladenson Professor of Clinical Chemistry in Pathology and Immunology (primary appointment)
Professor of Clinical Chemistry in Medicine
BS Pennsylvania State University 1964
PHD University of Maryland 1971

Yi-Shan Lee, PHD, MD

Assistant Professor of Pathology and Immunology (primary appointment)
PHD Duke University 2008
MD National Taiwan University 2000

Cheryl Faye Lichti, D SC, BAS

Assistant Professor in Pathology and Immunology (primary appointment)
D SC Duke University 1993
BAS Hendrix College 1988

Chieh-Yu Lin, PHS, MD

Assistant Professor of Pathology and Immunology (primary appointment)
PHS Stanford University 2014
MD National Taiwan University 2009

Heide Maria Lind, MD

Associate Professor in Pathology and Immunology (primary appointment)
MD University of Iowa 1979

Chang Liu, PHD, MD

Associate Professor of Pathology and Immunology (primary appointment)
PHD Oregon Health Science Unvers 2010
MD Peking Union Medical College 2004

Ta-Chiang Liu, PHD, MD

Associate Professor of Pathology and Immunology (primary appointment)
PHD Imperial College 2003
MD National Yang-Ming University 1997

M

Mena Magdi Zaki Mansour, MD1

Assistant Professor of Pathology and Immunology (primary appointment)
MD1 Alexandria University 2005

Denis Mogilenko, MS1, PHD, BS1

Instructor in Pathology and Immunology (Pending Dean's Approval) (primary appointment)
MS1 St Petersburg State University 2007
PHD Academy of Sciences of USSR 2011
BS1 St Petersburg State University 2005

Nima Mosammaparast, MD, PHD

Associate Professor of Pathology and Immunology (primary appointment)
MD University of Virginia 2006
PHD University of Virginia 2005
BS University of Rochester 1998

Kenneth M Murphy, MD, PHD

Professor of Pathology and Immunology (primary appointment)
Eugene Opie First Centennial Professor of Pathology and Immunology
MD Johns Hopkins University 1984
PHD Johns Hopkins University 1984

Theresa L Murphy, PHD

Professor of Pathology and Immunology (primary appointment)
PHD Johns Hopkns University Medic 1983
BS University of Arizona 1978

N

Rakesh Nagarajan, MD, PHD, BA1

Adjunct Associate Professor of Pathology and Immunology (primary appointment)
MD Washington Univ in St. Louis 2002
PHD Washington Univ in St. Louis 2002
BA University of Virginia 1994
BA1 University of Virginia 1994

Pooja P Navale, MD

Assistant Professor of Pathology and Immunology (primary appointment)
MD Tata Inst of Fundamental Resch 2013

Julie Ann Neidich, MD

Associate Professor of Pathology and Immunology (primary appointment)
MD George Washington University 1983

Christopher A Nelson, PHD

Associate Professor of Pathology and Immunology (primary appointment)

BS Univ of Wisconsin Madison 1985

PHD Washington Univ in St. Louis 1995

O

Eugene Merle Oltz, PHD

Adjunct Professor of Pathology and Immunology (primary appointment)

BS Cornell University 1982

PHD Columbia University 1987

P

Vijayalakshmi Padmanabhan, MBBS, M PH

Professor of Pathology and Immunology (PEFA) (primary appointment)

MBBS Kasturba Medical College 1988

M PH Dartmouth College 2015

Bijal A. Parikh, MD, PHD

Assistant Professor of Pathology and Immunology (primary appointment)

MD U Medical-Dental Of New Jersey 2006

PHD Rutgers University 2004

Jonathan Robert Brestoff Parker, MD, MS, PHD

Assistant Professor of Pathology and Immunology (primary appointment)

BS Skidmore College 2008

MD University of Pennsylvania 2016

MS University College Cork 2010

PHD University of Pennsylvania 2015

Jacqueline Elise Payton, MD, PHD

Assistant Professor of Pathology and Immunology (primary appointment)

MD University of Illinois 2004

BS Bradley University 1996

PHD University of Illinois 2002

Richard J. Perrin, MD, PHD

Assistant Professor of Pathology and Immunology (primary appointment)

BS Yale University 1992

MD University of Illinois Chicago 2004

PHD University of Illinois 2001

Stephen P. Persaud, PHD, MD

Instructor in Pathology & Immunology (primary appointment)

PHD Washington Univ in St. Louis 2015

BS Cornell University 2005

MD Washington Univ in St. Louis 2015

John David Pfeifer, PHD, MD

Professor of Pathology and Immunology (primary appointment)

Professor of Obstetrics and Gynecology

PHD University of California 1987

BA University of California 1981

MD University of California 1988

R

Gwendalyn Jan Randolph, PHD

Unanue Distinguished Professof of Immunology (primary appointment)

Professor of Medicine

BS Temple University 1991

PHD State University of New York 1995

Alejandro Reyes

Adjunct Assistant Professor of Pathology and Immunology (primary appointment)

Jon H Ritter, MD

Professor of Pathology and Immunology (primary appointment)

BA Mankato St University 1983

MD University of Minnesota 1988

Nidhi Rohatgi, PHD

Instructor in Pathology and Immunology (primary appointment)

PHD All-India Inst of Medical Sci 2005

Stephen Matthew Roper, PHD, MS

Assistant Professor of Pathology and Immunology (primary appointment)

PHD Medical University of Sth Car 2015

MS Texas Tech University 2007

BS Texas Tech University 2004

Marianna B Ruzinova, PHD, MD

Associate Professor of Pathology and Immunology (primary appointment)

PHD Cornell University 2004

MD Cornell University 2005

S

Robert Edward Schmidt, PHD, MD

Professor of Pathology and Immunology (primary appointment)

BA Washington Univ in St. Louis 1969

PHD Washington Univ in St. Louis 1976

MD Washington Univ in St. Louis 1976

Robert D Schreiber, PHD

Andrew M Bursky and Jane M Bursky Distinguished Professor (primary appointment)

Professor of Molecular Microbiology

PHD State University of New York 1973

BA State University of New York 1968

Molly Schroeder, PHD

Assistant Professor of Pathology and Immunology (primary appointment)

PHD Baylor College of Medicine 2012

BS Saint Louis University 2006

Mitchell G Scott, PHD, MS

Professor of Pathology and Immunology (primary appointment)

Clinical Research Assistant Professor of Medicine

PHD Washington Univ in St. Louis 1982
MS University of Missouri 1977
BS Washington Univ in St. Louis 1974

Andrey S Shaw, MD

Adjunct Professor of Pathology and Immunology (primary appointment)
BA Columbia University 1979
MD Columbia University 1984

Kathleen C Sheehan, PHD

Professor of Pathology and Immunology (primary appointment)
BS University of Notre Dame 1980
PHD Saint Louis University 1986

Igor Smirnov, DVM

Assistant Professor of Pathology and Immunology (primary appointment)
DVM Moscow Veterinary Academy 1993

Sanjay Joshua Swamidass, MA, PHD, MD

Associate Professor of Pathology and Immunology (primary appointment)
Associate Professor of Biomedical Engineering
MA University of California 2006
PHD University of California 2007
MD University of California 2009
BS University of California 2000

T

Steven L Teitelbaum, MD

Messing Professor of Pathology and Immunology (primary appointment)
Professor of Medicine
BA Columbia University 1960
MD Washington Univ in St. Louis 1964

Suzanne Renee Thibodeaux, MD, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
MD Univ Texas Health Sci San Anto 2013
PHD Univ Texas Health Sci San Anto 2011
BS Tulane University 2005

U

Emil Raphael Unanue, MD

Paul and Ellen Lacy Professor of Pathology and Immunology (primary appointment)
MD Havana University 1960
BS Institute of Secondary Educati 1952

V

Steven John Van Dyken, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
PHD University of San Diego 2006

BS Calvin College 1998

Siddarth Venkatesh, PHD, PHD

Instructor in Pathology and Immunology (Pending Dean's Approval) (primary appointment)
PHD Auburn University 2015
PHD Rockefeller University 2015

William Vermi

Adjunct Assistant Professor of Pathology and Immunology (primary appointment)

Herbert W Virgin IV, MD, PHD

Adjunct Professor of Pathology and Immunology (primary appointment)
MD Harvard University 1985
PHD Harvard University 1985
BA Harvard University 1977

W

Xiaoxiao Wan, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
PHD University of MO Columbia 2015

Yi Wang, PHD

Instructor in Pathology and Immunology (Pending Dean's Approval) (primary appointment)
PHD University of Pennsylvania 2015
BS Peking University 2008

Mark A Watson, MD, PHD

Associate Professor of Pathology and Immunology (primary appointment)
MD Washington Univ in St. Louis 1992
PHD Washington Univ in St. Louis 1992
BA University of Pennsylvania 1985

Cody Hudson Weimholt, BS1, DOST

Assistant Professor of Pathology and Immunology (primary appointment)
BS1 University of MO Columbia 2005
DOST Kirksville College of Osteopat 2013

George Randolphe Wettach, MD, MS

Associate Professor in Pathology and Immunology (primary appointment)
BS University of CA Berkeley 1995
MD Eastern Virginia Med School 2006
MS Eastern Virginia Med School 2002

Frances V White, MS, MD

Associate Professor of Pathology and Immunology (primary appointment)
Associate Professor of Pediatrics
MS University of North Carolina 1978
BA Princeton University 1975
MD University of North Carolina 1989

Parker C Wilson, MD, PHD

Instructor in Pathology and Immunology (Pending Dean's Approval) (primary appointment)
MD Medical University of Sth Car 2013
PHD Medical University of Sth Car 2013
BS Johns Hopkins University 2005

Terry A Woodford-Thomas, MS, PHD

Adjunct Assistant Professor of Pathology and Immunology (primary appointment)
BS Eastern Illinois University 1975
MS Purdue University 1977
PHD Va Polytechnic Inst & State U 1982

Chao Wu, PHD

Instructor in Pathology and Immunology (primary appointment)
PHD Washington Univ in St. Louis 2016
BS China Agriculture University 2008

Y

Melanie Leann Yarbrough, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
PHD University of Texas Southwest 2009

Z

Ray Zhang, MD, PHD

Instructor in Pathology and Immunology (primary appointment)
MD University of Pennsylvania 2016
PHD University of Pennsylvania 2015

Bernd Heinrich Zinselmeyer, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
PHD University of Strathclyde 2006

Wei Zou, MA, PHD

Assistant Professor of Pathology and Immunology (primary appointment)
MA Qingdao University 1994
PHD Hebrew University 2003

Research Electives

Pathology and Immunology Research Electives

During the fourth year, opportunities exist for many varieties of advanced clinical or research experiences.

Paul M. Allen, PhD

BJC Institute of Health, 8th Floor
Phone: 314-362-8758

This lab's focus is on research in immunology and the recognition of antigen by T cells. We are investigating how the T cell receptor functions developmentally, biochemically and structurally. We utilize in vivo models to study the role of T cells in alloreactivity/graft rejection and inflammatory bowel disease.

Jacques U. Baenziger, MD, PhD

Kingshighway Building, 2nd Floor, Room 2423
Phone: 314-362-8730

Glycobiology; informational role of carbohydrates in protein targeting and reproductive endocrinology.

Jeffrey I. Gordon, MD

4444 Forest Park, 5th Floor
Phone: 314-362-7243

Genomic and metabolic foundations of symbiotic host-microbial interactions in the human gut; impact on obesity and malnutrition.

Michael McDaniel, PhD

3709 West Building
Phone: 314-362-7435

The focus of this laboratory is to study the function and growth of pancreatic islets in Types 1 and 2 diabetes. Mammalian target of rapamycin (mTOR) is a protein kinase that integrates signals from growth factors and nutrients to regulate DNA and protein synthesis. G-protein-coupled receptor agonists such as GLP-1 have been shown to enhance proinsulin biosynthesis and secretion and to stimulate cellular growth and proliferation. Our objective is to further explore the mechanisms of action of GLP-1 to enhance DNA and protein synthesis via mTOR in rodent and human islets. These studies are of fundamental interest for optimizing mTOR to induce cellular growth and proliferation, to enhance pre- and post-islet transplantation in Type 1 diabetes, and to prolong b-cell compensation in response to insulin resistance in Type 2 diabetes. The failure of b-cells in obesity-associated Type 2 diabetes is believed to correlate with the intracellular accumulation of lipids that contribute to defects in insulin secretion and the maintenance of b-cell mass. Our studies have identified lipoprotein lipase in b-cells; this is a key enzyme for catalyzing the hydrolysis of lipoprotein-associated TAG to produce free fatty acids (FFAs) for local cellular uptake. We are also characterizing the effects of enhanced FFA uptake through fatty acid transporters and determining the regulation of lipid droplet synthesis and breakdown by lipid droplet-associated proteins. Recent studies suggest that FFAs upregulate mitochondrial uncoupling proteins proposed to dissipate the proton gradient across the mitochondrial inner membrane. The objective of this study is to delineate the link between FFAs and b-cell mitochondrial dysfunction in Type 2 diabetes.

Kenneth M. Murphy, MD, PhD

Clinical Sciences Research Building, 7th Floor, Room 7766
Phone: 314-362-2009

Function of dendritic cells in T cell responses and anti-tumor vaccines.

Robert D. Schreiber, PhD

BJC Institute of Health, 8th Floor
Phone: 314-362-8747

Tumor immunology and cancer immunoediting; research on natural and therapeutically induced responses to tumors; definition of the molecular roles of interferon-gamma and interferon-alpha/beta in these processes.

Carl H. Smith, MD

St. Louis Children's Hospital
Phone: 314-454-6029

Placental transport; surface membrane structure and function.

Thaddeus S. Stappenbeck, MD, PhD

Clinical Sciences Research Building, North Tower, Room 1020
Phone: 314-362-4214

My lab studies the cause of inflammatory bowel disease, a condition that leads to spontaneous inflammation of the intestine. We study the mechanisms of host gene mutations as well as abnormalities in host-microbial interactions that drive this disease.

Steven Teitelbaum, MD

Barnes-Jewish Hospital
Phone: 314-454-8463

This lab studies the cellular and molecular mechanisms of bone remodeling, with particular emphasis on osteoclast biology as it relates to the pathogenesis and prevention of diseases such as osteoporosis. We focus on integrin and cytokine biology utilizing a variety of genetically manipulated mice.

John Turk, MD, PhD

6609 Wohl
Phone: 314-362-8190

This lab looks at phospholipase A2 (PLA2) enzymes in the regulation of insulin secretion from pancreatic islet cells (e.g., a novel iPLA2 that does not require Ca²⁺ cloned from rat and human islets that is involved in cell secretion and proliferation). We also perform studies of iPLA2, its post-translational modifications, and its interactions with other proteins involving mice that are iPLA2-deficient globally or in selected tissues,

transgenic mice that overexpress iPL2 in β -cells, and insulinoma cells with genetically manipulated iPLA2 expression. The mass spectrometric characterization of proteins and complex lipids is an important tool in these studies.

Emil R. Unanue, MD

BJC Institute of Health, 8414
Phone: 314-362-8748

Our focus is research that involves immunobiology and immunopathology. We examine cellular interactions that result in immune induction and cellular immunity. These cellular interactions are examined in normal immune responses and in autoimmune diseases. The focus is to identify the proteins responsible for the activation of lymphocytes in Type 1 diabetes.

Herbert Virgin, MD, PhD

Clinical Sciences Research Building, Room 8849
Phone: 314-362-9223

We work on issues at the interface of virology and immunology by analyzing aspects of viral immunity, viral pathogenesis and viral genetics that contribute to virulence and disease.

Mark A. Watson, MD, PhD

Clinical Sciences Research Building, North Tower, Room 1029
Phone: 314-454-7919

Our laboratory is interested in defining patterns of somatic gene mutation, gene expression and quantitative tumor clonality that can be used to predict distant site metastases and therapeutic vulnerability in patients with lung and breast cancer. Experimental approaches use histopathological review as well as the next-generation DNA exome and RNA sequencing (NGS) of primary cancer patient tissues, coupled with bioinformatics and statistical modeling, to identify candidate biomarker patterns that may be useful for the clinical management of cancer patients.

Courses

Visit online course listings to view offerings for M60 Path (<https://courses.wustl.edu/CourseInfo.aspx?sch=M&dept=M60>).

M60 Path 523 Immunology

The course consists of lectures, laboratory exercises and clinical correlations. It covers all aspects of the immune response - general properties of the immune system, effector molecules, cells and their function, cellular interactions, vaccines, and immunological diseases. Two laboratory exercises focus on blood typing and allergy. Students will also meet in groups (20-25 students) with clinicians to discuss a variety of clinical cases that relate to the course material.
Credit 37 units.

M60 Path 665 Pathology

This course is a comprehensive survey of the biology and morphology of human disease through a combination of lectures and laboratory sessions. The year begins with a review of basic disease mechanisms at the cellular and molecular level. Subsequently, the pathogenesis and characteristics of important diseases involving each organ system of the body are presented. During the year, students will become familiar with the methods of contemporary pathologic analysis. They will also learn how the results of pathologic studies are used in the clinical setting to establish diagnoses, to assess prognosis and response to therapy, and to evaluate the quality of patient care.

Credit 115 units.

M60 Path 702 Laboratory Medicine Clerkship

This elective is designed to teach the student how clinical laboratory assays are used in the diagnosis of disease and to understand the quality assurance tools the laboratory utilizes to assure the reliability of tests. The two-week elective includes rotations through laboratories in clinical chemistry, clinical microbiology, transfusion medicine, molecular diagnostics and hematopathology. During the elective the student will have a daily schedule, which includes didactic sessions with senior staff and house staff. Particularly useful clinical skills to be acquired include: morphology of peripheral blood smears and bone marrow biopsies; interpretation of coagulation tests, biomarkers of cardiac damage and serum protein electrophoresis patterns. Also covered are appropriate use of blood component therapy, and therapeutic apheresis and identification of infectious organisms. Students will attend quality assurance meetings with senior staff, participate in microbiology rounds and present case discussions during this elective.

Credit 77 units.

M60 Path 750 Surgical Pathology Clerkship

This elective is designed to familiarize students with the discipline of surgical pathology and to encourage the development of basic skills in gross pathology and histopathological interpretation. The Laboratory of Surgical Pathology at Barnes-Jewish Hospital receives a broad range of medical biopsy material in addition to specimens derived from the busy surgical subspecialty practices. As a result, this elective is beneficial not only for students considering a career in pathology, but also for students planning careers in internal medicine, surgery, obstetrics-gynecology, pediatrics, radiology, radiation oncology and dermatology. Students on this elective will (1) Learn how patient specimens are received and processed, (2) Acquire skills in the gross examination and microscopic diagnosis of disease through active participation and (3) Learn the role of the pathologist in the preoperative, intraoperative, and postoperative care and management of patients. Students will function as junior house staff managing their own cases with supervision from residents, fellows and attending pathologists. Students may also wish to participate in ongoing research projects within the Department as time, and interest, allows. The daily schedule for students begins at 8:00 a.m. with morning conference. In general, the student will be able to complete all gross examination and sign-out activities by 4:30 p.m. Students are welcome to stay beyond 4:30 p.m. to participate in any of the academic or other working activities of the Division. Student time distribution: Clinical duties 85%, Conference/Lectures 15%; Major teaching responsibility: Attending staff, residents and fellows; Patients seen/weekly: N/A; On call/weekend responsibility: None
Credit variable, maximum 77 units.

M60 Path 805 Autopsy Pathology

This elective is designed to introduce students to autopsy pathology. Students will assist in performing autopsies, and together with the first-year pathology residents, will participate in all of the activities of the Autopsy Service including brain cutting, specialty microscopic conferences, and weekly autopsy case conferences. Students will be under the direction of senior pathology faculty. Note that this elective is not available during the COVID-19 pandemic.

M60 Path 807 Dermatopathology

The student will be involved in all activities of the dermatopathology service. These include review, discussion and signout of microscopic skin specimens. Signout occurs each day with a team that includes an attending, fellow, and residents from both dermatology and pathology. The medical student will work closely with the residents and fellow to preview cases prior to signout. Dermatology Grand Rounds is held on Thursday mornings and is mandatory. In addition, dermatopathology slide review conferences are held on Friday mornings and are mandatory. Other learning opportunities include informal unknown slide sessions, weekly Inpatient Dermatology Clinicopathologic Conference and monthly Cutaneous Lymphoma Conference. The primary goal of this elective is to acquire basic competence in the diagnosis of skin diseases at the microscopic level. A secondary goal is to acquire understanding of the structure and function of the laboratory at the technical, administrative and medical professional level as it pertains to skin specimens.

M60 Path 812 General Cytopathology

This elective is designed to familiarize students with the discipline of Cytopathology and to encourage the development of basic skills. Cytopathology impacts many different areas of patient care and medical practice. The Cytopathology Laboratory at Barnes-Jewish Hospital receives a broad range of medical cytology material involving fine needle aspiration biopsies (FNA), body fluids and Pap tests. As a result, the elective is beneficial for students considering a career in pathology and for students planning careers in internal medicine, surgery, OB/GYN, ENT, and radiology. The focus of the experience can be customized based on the interest of the student. Desk space and a microscope are provided. Students on the elective will (1) learn how patient specimens are received and processed, (2) acquire skills in the microscopic diagnosis of disease through active participation, and (3) learn the role of the cytopathologist in the care and management of patients. Students will have the opportunity to function as junior house staff managing their own cases with supervision from residents, fellows, and attending cytopathologist. There are text books and extensive study sets to permit students to focus on specific areas of interest. The daily schedule for student begins previewing the cytology cases at 8:00 am. The student will attend daily pathology noon didactic conferences. In general, the student will be able to complete sign-out activities by 4:30 pm.

M60 Path 813 Molecular Pathology

This elective is designed to introduce students to the field of Molecular Pathology, including established molecular diagnostics and Next Generation Sequencing clinical assays. Students will learn through observation in the laboratory, didactic sessions, resident and fellow presentations, sign out with attending pathologists, and clinical informatics workshops. Opportunities

for assay validation as well as additional instruction in cytogenomics are available and tailored to student interest. Students will work with residents/fellows on the rotation and participate as part of the team.

M60 Path 815 OB/GYN Pathology

This elective is a subinternship in Ob/Gyn pathology. The expectation is that the student participate in the service along with house officer rotating on the service. The elective stresses the principles of anatomic pathology when applied to operative material in obstetrics and gynecology. The sub-intern will examine gross and microscopic specimens in the Ob/Gyn Pathology Lab and review the histology along with pertinent literature with a senior pathologist. The elective is appropriate both for students intending a career in pathology, and those intending careers in other specialties. The student will gain familiarity with the diagnosis of more common OB/Gyn diagnoses, including malignancy, and premalignant conditions, as well as placental conditions. Ample time will be available for attending conferences in both OB/Gyn and Pathology.

M60 Path 820 Surgical Pathology

This elective is designed to familiarize students with the discipline of Surgical Pathology and to encourage the development of basic skills in gross pathology and histopathological interpretation. The Laboratory of Surgical Pathology at Barnes-Jewish Hospital receives a broad range of medical biopsy material in addition to specimens derived from the busy surgical subspecialty practices. As a result, this elective is beneficial not only for students considering a career in pathology, but also for students planning careers in internal medicine, surgery, obstetrics-gynecology, pediatrics, radiology, radiation oncology and dermatology. Students on this elective will (1) learn how patient specimens are received and processed, (2) acquire skills in the gross examination and microscopic diagnosis of disease through active participation, and (3) learn the role of the pathologist in the preoperative, intraoperative, and postoperative care and management of patients. Students will function as junior house staff, managing their own cases with supervision from residents, fellows, and attending pathologists. Students may also wish to participate in ongoing research projects within the department as time and interest allow. At the end of the rotation, students are required to do a formal case presentation for the residents, fellows, and attending staff. The daily schedule for students begins at 8:00 am with morning conference. In general, the student will be able to complete all gross examination and sign-out activities by 4:30 pm. Students are welcome to stay beyond 4:30 pm to participate in any of the academic or other working activities of the Division.

M60 Path 825 Introduction to Neuropathology

The course is structured to give the student a full-time immersion in the specialty of Neuropathology, including both Neurosurgical and Neuroautopsy derived material. The course is structured to give the student a full-time immersion in the specialty of neuropathology, including both neurosurgical and neuroautopsy derived material. There are daily didactic sessions that cover the spectrum of neurological diseases, review gross and microscopic neuro-anatomy, discuss approaches to the diagnosis of nervous system disease, and point out the interrelationships of research to clinical problems. Multiple clinical conferences and diagnostic working sessions complement reading, use of a large microscopic divisional study set and project work.

M60 Path 860 Clinical Laboratory Medicine

This elective rotation is designed to teach the student how clinical laboratory assays are used in the diagnosis of disease and to understand the quality assurance tools the laboratory utilizes to assure the reliability of tests. The elective includes rotations through a variety of clinical laboratories including clinical chemistry, clinical microbiology, hematopathology, molecular pathology, and transfusion medicine. During the elective the student will have a daily schedule, which includes didactic sessions with faculty and regular interactions with house staff. Some examples of useful clinical skills acquired during the experience include: morphologic review of peripheral blood smears and bone marrow biopsies; interpretation of coagulation tests, biomarkers of cardiac damage and serum protein electrophoresis patterns; identification of infectious organisms; and appropriate use of blood component therapy and therapeutic apheresis. The rotation culminates with a case discussion presented by the medical student which focuses on application of clinical laboratory evaluations to direct patient care.

M60 Path 900 Research Elective - Pathology

Research opportunities may be available. If interested, please contact the Department of Pathology and Immunology.
