University of California, San Francisco

CURRICULUM VITAE

Name: Stephen L Nishimura, MD

Position: Professor In Residence, Step 3
Pathology
School of Medicine

Address: Box SFGH
1001 Potrero Ave, SFGH 3, 211
University of California, San Francisco
San Francisco, CA 94143
Voice: 206-5906
Fax: 206-4123
Email: stephen.nishimura@ucsf.edu

EDUCATION

1977 - 1978	Colgate University, Hamilton, NY		
1979 - 1981	Wesleyan University, Middletown, CT	BA	Chemistry
1983 - 1988	University of Vermont College of Medicine	MD	Medicine
1988 - 1991	University of California at San Francisco	Pathology and Laboratory Medicine	
1991 - 1995	University of California at San Francisco	Molecular and Cell Biology	
1997 - 1997	Armed Forces Institute of Pathology, Washington, DC	Pulmonary Pathology	

LICENSES, CERTIFICATION

2010	Medical license (G8337)
1994	Diplomat of the American Board of Pathology, Anatomic and Clinical Pathology

PRINCIPAL POSITIONS HELD

1981 - 1983	Research Assistant in Neuropharmacology	Memorial Sloan-Kettering	Neurology, Cancer Center, NY
1984 - 1984	Research Fellowship in Pharmacology	University of Vermont	Pharmacology
1986 - 1987	Post-Sophomore Fellowship in Pathology	University of Vermont	Pathology

1988 - 1991	Resident in Anatomic Pathology and	University of California	Anatomic pathology and Laboratory Medicine
1990 - 1991	Laboratory Medicine	at San Francisco	Laboratory Medicine
1991 - 1991	Chief Resident in Pathology	San Francisco General Hospital	Pathology
1991 - 1991	Post-Doctoral Research Fellow	University of California	Medicine
1995 - 1995	Clinical Instructor in Pathology	San Francisco General Hospital	Pathology
1995 - 1998	Adjunct Assistant Professor in Pathology	University of California	at San Francisco
1998 - 2003	Assistant Professor in Pathology in Residence	University of California	at San Francisco
2003 - 2009	Associate Professor in Pathology in Residence	University of California	at San Francisco
2009 - present	Professor in residence	University of California	at San Francisco
2009 - 2010	Acting Chief of Pathology	San Francisco General Hospital	Pathology
2014 - 2015	Acting Chief of Pathology	San Francisco General Hospital	Pathology
2016 - present	Interim Chief of Pathology	Zuckerberg San Francisco General	Pathology

OTHER POSITIONS HELD CONCURRENTLY

1997 - 2000	Consultant, Cancer Genomics	Chiron Corporation, Emeryville, CA	
2003 - 2003	Consultant, Pulmonary Pathology	Actelion Pharmaceuticals Ltd.	Build 1 Clinical Trial
2013 - present	Scientific Advisory Board	CSA Medical	

HONORS AND AWARDS

1991	Research Fellowship, Department of Pathology, University of California at San Francisco
1992	College of American Pathologists Foundation Scholar
1993	National Research Service Award (CA09335)
1995	Clinical Investigator Award (KO8 CA63148)
1998	ACS Institutional Award

1998 American Lung Association, Research Grant

1998 Edward Livingston Trudeau Scholar

1998 American Lung Association

1999 American Heart Association, Grant in Aid

2000 UCSF Academic Senate Award

2000 UCSF, REAC Award

2000 Hellman Family Award for Early-Career Faculty

2001 Selected Speaker, Gordon Research Conference on MMPs

2002 Independent Scientist Award (NIH)

2005 Selected Speaker, Gordon Research Conference on Integrins

2006 Invited Speaker, University of Alabama, Cell Biology

2007 Invited Speaker, Gordon Conference, Tissue repair and

2007 injury, Colby-Sawyer College, NH

KEYWORDS/AREAS OF INTEREST

Lung, Airway Remodeling COPD, Pulmonary Fibrosis, Lung Cancer, Airway epithelium, Cell Proliferation, Integrins, TGF-β, Cytokines, Angiogenesis, Vasculogenesis, Surgical Pathology, Lung Pathology

CLINICAL ACTIVITIES SUMMARY

Surgical Pathology Attending: I have attended on the surgical pathology service at SFGH between 8 and 26 weeks/year for the past 20 years. When on service, I supervise 3-4 residents, fellows and medical students.

Currently, I attend on the general pathology service at SFGH for 12-16 weeks a year. During this time I oversee residents, medical students and fellows.

My subspecialty interest is pulmonary pathology and I am responsible for pulmonary pathology at the SFGH all year.

MEMBERSHIPS

- American Society of Investigative Pathology
- Cancer and Leukemia Group B
- UCSF/Mt Zion Cancer Center
- Thoracic Oncology Research Group, UCSF
- American Thoracic Society
- College of American Pathologists
- American Society for Biochemistry and Molecular Biology

SERVICE TO PROFESSIONAL PUBLICATIONS

- Journal of Biologic Chemistry (Ad hoc reviewer; 3 papers in 5 years)
- Oncogene (Ad hoc reviewer, 2 papers in 5 years)
- American Journal of Respiratory Cell and Molecular Biology (Ad hoc reviewer 7 papers in 5 years)
- Experimental Cell Research (Ad hoc reviewer, 1 paper in 5 years)
- American Journal of Pathology (Ad hoc reviewer, 9 paper s in 5 years)
- Journal of Cell Science (3 papers in five years)
- Journal of Molecular Biology (1 paper in 5 years)
- Journal of Epithelial Biology (1 paper in 5 years)
- Matrix Biology (1 paper in 5 years)
- PLoS Computational Biology (1 paper 5 years)
- Amercian Journal of Physiology (1 paper in 3 years)PLOSone (5 papers in 3 years)Chest, Ad Hoc Reviewer (1 paper in 3 years)Journal of Cell Biology (1 paper in 3 years)Journal of Cell Biology (1 Paper in 5 Years)
- Journal of Cell Biology 1 Paper in 5 years)
- Cell Reports (4 papers in 5 years)

2011 - present Associate Editor, PLOSone

2015 - European Journal of Cell Biology (1 Paper)

2015 - PLOSone, (2 Papers)

2015 - American Journal of Pathology (1 Paper)

INVITED PRESENTATIONS - INTERNATIONAL

2001 Gordon Conference on Matrix Metalloproteases, Il Ciocco, Italy

2007 Gordon Conference on Tissue Repair and Regeneration, Colby-Sawyer College, NH

2010 Co-Chair International Blood-Brain-Barrier Consortium, Bend, Oregon

2012 American Thoracic Society, San Francisco, CA

2013 Keytone Conference, Dendritic Cells, Keystone Colorado

2016 American Thoracic Society, San Francisco Speaker

2017 FASEB meeting ; TGF-beta super family signaling in development and disease, Lisbon, Portugal Speaker

INVITED PRESENTATIONS - NATIONAL

2001 Oregon Health Sciences Center, Portland Or.

2002 University of New Mexico, Cancer Center

2005 Gordon Research Conference on Fibronectin and related molecules, Ventura, CA

2006 University of Alabama, Cell Biology program

2007 Gordon Conference on Tissue repair and injury, Colby Sawyer College, NH

2008 NIH workshop on cerebral vascular malformations, Bethesda, MD

2008 University of Vermont Lung Center, Burlington, VT

2010 NIH, Epithelial plasticity, Special meeting, Bethesda, MD

2011 Genentech, South San Francisco, CA

2011 MedImmune, Gaitherberg, MD

2012 American Thoracic Society, San Francisco, CA

2013 UC Innovation Award presentation , South San Francisco

2014 UC Centers for Accelerated Innovation Award, UCLA

INVITED PRESENTATIONS - REGIONAL AND OTHER INVITED PRESENTATIONS

2001 UCSF, Pathology and Laboratory Medicine Grand Rounds

2002 Stanford University Department of Pathology

2003 Neurosurgery Grand Rounds, UCSF

2003 Thoracic Oncology Program Retreat

2004 Program Project Retreat, UCSF

2005 Thoracic Oncology Program Retreat

2006 Program Project Retreat, UCSF

2006 Thoracic Oncology Program Retreat

2007 Deans's research conference, SFGH, UCSF

2009 Thoracic Oncology Program Retreat

2010 Department of Experimental Medicine

2010 Thoracic Oncology Retreat

2010 Pulmonary Research Retreat, UCSF

2013 UCOP Proof of Concept Technology and Innovation retreat2

2013 Pulmonary Research Retreat, UCSF

2014 UCSF Liver Center Mini-symposium, Fibrosis

2014 Dean's Seminar, UCSF, SFGH

CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT ACTIVITIES

2000	Mechanisms of Disease, weekly pathology conference
1997	Pulmonary Clinical Case Conference, SFGH
2006	Amercian Thoracic Society, Moscone Center, San Francisco
2010	Pulmonary Clinical Case Conference, UCSFAmercian Thoracic Society, Moscone Center, San Francisco
2016	Amercian Thoracic Society, Moscone Center, San Francisco

GOVERNMENT AND OTHER PROFESSIONAL SERVICE

2006 - 2006	Hellman Family selection committee	
2007 - 2007	Wellcome Trust, Ad Hoc reviewer	
2008 - 2008	Wellcome Trust, Ad Hoc reviewer	
2009 - 2009	NIH, NIDA-Special emphasis panel-Genes and environment initiative	
2010 - 2010	NIH, NHLBI, Ad-Hoc reviewer	
2010 - 2010	Blood Brain Barrier international consortium, Co-chair, Bend, Oregon	
2010 - 2010	NIH, Epithelial plasticity, Special meeting, Bethesda, MD	
2011 - 2011	Grant reviewer, Biotechnology and Biologic Sciences Research Council,	Ad hoc reviewer
2011 - 2011	University of Vermont, School of Medicine, Environmental Lung Health Program	External Advisory Committee
2012 - 2012	NIH, Lung, Cellular, Molecular Immunology study section, Ad Hoc reviewer	
2013 - 2013	NIH, Lung, Cellular, Molecular Immunology study section, Ad Hoc reviewer	
2015 - 2016	Wellcome Trust,	Ad hoc reviewer

SERVICE ACTIVITIES SUMMARY

I attend on the general surgical pathology service providing 24/7 attending coverage approximately 14 weeks/year.
This year, I will assume the role of Acting Chief of Pathology at SFGH, in place of the current Chief, who will be on sabbatical for ~1 yr. This will involve weekly meetings and presentations to the service chiefs regarding the state of the department and the leadership and coordination of all aspects of the clinical service. I current perform the role of assistant chief, and have assumed roles that include covering Dean's meetings and Executive committee meetings when the chief can not attend.

UNIVERSITY SERVICE

UC SYSTEM AND MULTI-CAMPUS SERVICE

2012 - 2012	Out-licensing of humanized monoclonal anti-avb8 antibodies	Inventor

UCSF CAMPUSWIDE

2011 - 2011	Faculty search committtee, Pathology	Chair
2012 - 2012	Faculty search committee, Pathology	Member
2005 - 2015	Cancer Committee, SFGH	Member
2015 - present	SFGH research committee	Chair (co-)

SCHOOL OF MEDICINE

1995 - 1998	Attending Autopsy and Surgical Pathologist, SFGH, and UCSF 4 months/year
1998 - 2000	Attending Autopsy and Surgical Pathologist, SFGH, 3 months/year
2000 - 2002	Attending Autopsy and Surgical Pathologist, SFGH, 5 months/year
2002 - 2002	Attending Autopsy and Surgical Pathologist, SFGH, 2 months/year
1998 - 1998	Tumor Board, representing pathology, every other week
1997 - 1997	Multidisciplinary pulmonary teaching Conference, every week
1999 - 1999	Interstitial Lung Disease Multidisciplinary Conference, every week
2000 - 2000	SFGH Cancer Committee
2010 - 2011	Acting Chief of Pathology, SFGH
2014 - 2015	Acting Chief of Pathology, SFGH
2016 -	Interim Chief of Pathology, ZSFG

DEPARTMENTAL SERVICE

2002 - 2002	Department of Pathology Faculty Search Committee
2003 - 2003	Department of Medicine Faculty Search Committee
2008 - 2008	Department of Pathology Faculty Search Committee
2009 - 2009	Department of Pathology Faculty Search Committee
2009 - 2009	Department of Medicine Faculty Search Committee
2010 - 2010	Department of Medicine Faculty Search Committee
2011 - 2012	Department of Pathology Faculty Search Committee, Chair

TEACHING SUMMARY

Over the past 20 years, my teaching interests and efforts have steadily increased and diversified. My efforts can be divided into teaching of house staff/fellows; teaching of medical students; teaching of graduate students and faculty and teaching of post-doctoral fellows and undergraduate students. Some of the most rewarding teaching that I am involved in revolves

around the medical student pathology course. Through the years I have organized a medical student course (Advances in Medical Sciences), given numerous lectures, teaching basic aspects of lung pathology and airway biology. I focus the lectures so that they integrate pathology with immunology, histology, anatomy and with the introduction to clinical medicine course. I am now leading laboratories and small group teaching sessions, both in the old and new curriculum. In lectures, I try to provide a comprehensive base of information that is scientifically and clinically rigorous while at the same time being comprehensible to students with a wide range of scientific and clinical experience. In laboratories, I try to encourage critical thinking and provoke thoughtful discussion and peer-to-peer learning. This, I hope, will improve the transfer of information and will help the students place pathology and pathogenesis into a context relevant to patient care.

I am involved in the teaching of pulmonary fellows. I represent pathology for the weekly pulmonary conference and participate in case discussions. While this is a "working conference" focused mainly on the pulmonary fellows, the audience also includes medical attendings, residents, medical students, undergraduate observers and nurse practitioners. Patients are presented and the differential diagnosis is discussed, the salient pathologic features are pointed out, and therapeutic measures are entertained.

As a surgical pathologist I supervise and provide formal and informal teaching to medical students and pathology residents around the microscope. These sessions included daily □sign-outs□ where diagnoses are rendered for current cases. They also include consultations for second opinions of cases and consensus conferences. The audience may vary between one to four residents and medical students. Formal teaching includes monthly teaching sessions for pathology residents designed to hone frozen section technical and diagnostic skills. As interim chief of pathology, I have redesigned and organized the resident teaching curriculum to include formal teaching sessions in cytology, surgical pathology, neuropathology, placental pathology and frozen section diagnosis. I also have started the ZSFG pathology consensus conference which is attended by the surgical pathology attendings, resident, students and fellows. The purpose of this conference is to increase diagnostic accuracy, provoke critical discussion and opinions, standardize wording and grading schemes, and to teach residents and fellows the thought process of rendering diagnoses and communicating those diagnoses accurately and effectively to clinicians.

As a researcher, I am involved in frequent teaching sessions concerning my research interests. These are mostly informal 1-1 sessions with students and fellows where I teach student basic molecular and cellular biology, statistical analysis, critical thinking and hypothesis generation and testing. I have given courses in international meetings, most recently the American Thoracic meeting in 2016. I have supervised undergraduates from UC Berkeley (Ran Chang, Ahmed Ellatma), recent college graduates (Stephanie Gline, Tyren Barker, Kate McNelly, Royce Ma, Michelle Levine, Andrew Bondessson), and post-doctoral fellows Drs. Dez-hi Mu, David O'Connell, Lars Fjelbirkeland, Jun Araya, Jennifer Marcovics., Hideya Kitamura, Sangeeta Somanath, Robert Seed, Oliver Brand, Shunsuke Minagawa, Mitsuo, Hashimoto, Harusuke Yanagisawa, Naoki Takasaka, Catherine Moermans, Saburo Ito, Anthony Cormier). Through didactic teaching and daily discussions, I have acted as a mentor and am closely involved in trainee□s career development. I have completed the UCSF Faculty mentoring course. I lead weekly lab meetings, which are informal presentations of information pertinent to our research. I also participate in several multicenter research forums where members of my lab present research findings twice yearly.

FORMAL TEACHING

Not UCSF	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size

Not UCSF	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	1997 - 2016	Pulmonary Organ Block	Lecturer	Medicine	All
	1997 - 2016	Organ Blocks	Lab leader	Medicine	60
	2016 - present	Bridges	Lecturer	Medicine	All
	2016 - present	Bridges	Small group leader	Medicine	12-16

INFORMAL TEACHING

1995 - 2014 Over the course of my career at UCSF, I have been continuously involved in the informal training of medical, graduate students and fellows in various departments at UCSF and other Universities. These informal activities center around research methodology, hypothesis testing, preparation of manuscripts and presentation of research findings. These interaction take place through email exchanges, phone conversations and face-to-face meetings at UCSF and at scientific meetings. I spend approximately 2 hrs/day with lab members going over their results, demonstrating techniques and teaching them theory,methodology and statistical analysis.

MENTORING SUMMARY

I consider mentorship to be an integral part of my mission at UCSF. I have recently taken and complete the course in mentoring at UCSF. I have many former students that are in academic positions around the world.

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Dates	Name	Program or School	Mentor Type	Role	Current Position
2015 - present	Ahmed Ellatma	UC Berkeley	Research/Scholarly Mentor,Project Mentor,Career Mentor	PI	Junior at UCB

POSTDOCTORAL FELLOWS AND RESIDENTS MENTORED

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2000 - 2000	Karin Chang	Cornell University (So)		Supervised Summer Work	Chicago Medical School-last known
2002 - 2002	Stephanie Gline	Wesleyan University(grad.)		Supervised post-baccalaureate work	Post-doctoral fellow, University of CaliforniaSan Francisco
1999 - 2000	David O'Connell	Post-doctoral Fellow		Research Supervisor	Head Student Fellowships, Trinity College,Dublin, Ireland
1999 - 2003	Dezhi Mu	Post-doctoral Fellow		Research Supervisor	Associate Professor, Hospital of W. China, Medical University, Chengdu, CHN
2000 - 2003	Lars Fjellbirkeland	Post-doctoral Fellow		Research Supervisor	Dept of Internal Medicine,University of Oslo, Norway
2004 - 2004	Jun Araya	Post-doctoral Fellow		Research Supervisor	Associate Professor, Jikei University, Tokyo < Japan
2005 - 2005	Cedric Govaerts	Post-doctoral Fellow		Co-Mentor	Researcher, University of Brussels, Belgium

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2007 - 2007	Jennifer Markovics	Post-Doctoral Fellow		Research Supervisor	Researcher, Celgene, Mission Bay, San Francisco, UCSF
2008 - 2008	Hideya Kitamura	Post-doctoral Fellow		Research Supervisor	Assistant Professor, Jikei University, Tokyo < Japan
2008 - 2008	Thomas Arnold	Post-doctoral Fellow	Co-Mentor/Clinical Mentor	Co-Mentor	Post-doctoral Fellow, Department of Physiology, UCSF
2010 - 2010	Sangeeta Somanath	Post-doctoral Felllow		Research Supervisor	Instructor, University of Texas,
2010 - 2010	Shunsuke Minagawa	Post-doctoral Felllow		Research Supervisor	Assistant Professor, Jikei University, Tokyo
2012 - 2014	Mitsuo Minagawa	Post-doctoral Felllow		Research Supervisor	Assistant Professor, Jikei University
2012 - 2012	OliverBrand	Post-doctoral Felllow		Research Supervisor	Fellow, Manchester University, UK
2012 - 2012	HaruhiroYanagi sawa	Post-doctoral Felllow		Research Supervisor	Nishimuura Lab, UCSF
2013 - 2013	Rob Seed	Post-doctoral Felllow		Research Supervisor	Fellow, University of Leeds, UK
2013 - 2013	Anthongy Cormier	Post-doctoral Felllow		Research Supervisor	Nishimuura Lab, UCSF

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2014 - 2016	Catherine Moermans	Post-doctoral Felllow		Research Supervisor	Nishimuura Lab, UCSF
2015 - 2016	Naoki Takasaka	Post-doctoral Fellow	Research/Scholarly Mentor	Research Supervisor	Nishimura Lab, UCSF
2014 - 2015	Ran Cheng	Undergraduate Student Volunteer	Research/Scholarly Mentor,Career Mentor	Supervisor	Graduate student, Tokyo University, JP
2013 - 2015	Kate McKnelly	Research Assistant	Research/Scholarly Mentor,Career Mentor	Supervisor	Graduate Student, Chemistry, UC Irvine
2013 - 2015	Royce Ma	Research Assistant	Research/Scholarly Mentor,Career Mentor	Supervisor	Graduate Student Immunology, Baylor University
2014 - 2015	Michelle Levine	Research Assistant	Research/Scholarly Mentor,Career Mentor	Supervisor	Medical Student, Rocky Vista University College of Osteopathic Medicine, CO
2014 - 2015	Han Li	Volunteer	Research/Scholarly Mentor,Career Mentor	Supervisor	Student UC Berkeley
2014 - 2016	Andrew Bondesson	Research Assistant	Research/Scholarly Mentor,Career Mentor	Supervisor	Graduate Student, Immunology, University of WA

FACULTY MENTORING

Dates	Name	Position while Mentored	Mentor Type	Mentoring Role	Current Position
2004 - 2012	Tomoki Hashimoto	Assistant/Associate professor		Career and researchadvice	Professor

Dates	Name	Position while Mentored	Mentor Type	Mentoring Role	Current Position
2007 - 2012	Jun Araya	Assistant professor		Career and researchadvice	Associate Professor
2007 - 2012	Roland Bainton	Assistant professor		Political and research advice	Associate Professor
2008 - 2012	Jianlong Lou	Assistant Professor		Career navigation	Assistant Professor
2012 - 2012	Bradley Stohr	Assistant Professor		Career navigation	Assistant Professor
2015 - present	Sarah Umetsu	Clinical Instructor	Career Mentor	Assigned Career Mentor	Clinical Instructor
2016 - present	Rebecca Wolsky	Clinical Instructor	Career Mentor	Career and research advice	Clinical Instructor

RESEARCH AND CREATIVE ACTIVITIES SUMMARY

My research interests focus on the regulation of cell behavior through cell-extracellular matrix interactions. These interactions have been shown to be important in development, cell signaling, tumor growth, metastasis, angiogenesis and wound repair. Major mediators of cell-matrix interactions are the integrin family of cell adhesion molecules. Integrins are integral transmembrane proteins which act to transduce information contained in the extracellular matrix to the cell interior and conversely from the cell interior to the extracellular environement. Bidirectional integrin signaling provides the cell information that leads to cell movement, differentiation, cell death or cell proliferation. As a pathologist, I am most keenly interested in the down stream effects of these molecules pertinent to homeostasis and how perturbation of homeostatic set points lead to fibrosis and cancer progression. As a pulmonary pathologist, I am most keenly interested in these process in the lung.

I have chosen to focus my research primarily on the cell biology of epithelial-mesenchymal interactions in airway development and disease. Our interest in this area began with the identification of the integrin αvβ8 as a potent inhibitor of airway epithelial proliferation, which led us to identify a novel mechanism of TGF-β activation. In this mechanism, the latent domain of TGF-β binds with high affinity to the integrin αvβ8 and following the recruitment of the matrix-metalloproteinase MT1-MMP the latent domain of TGF-β is cleaved allowing the paracrine secretion of active TGF-β (this is in contrast to the mechanism utilized by the integrin αvβ6 where the active TGF-β remains cell associated). We have gone on to show that in cultured fragments of intact bronchial walls from human subjects that this mechanism of TGF-β activation is a major source of regulation of airway epithelial proliferation. We have defined the epithelial and mesenchymal contributions to TGF-β activation and have surprisingly found that αvβ8-mediated activation of TGF-β occurs mainly in subepithelial airway fibroblasts where it might play a major role in regulating the reciprocal trophic interactions between airway epithelial and the surrounding fibroblast sheath during human airway development. These spatially restricted reciprocal interactions guide the proper differentiation of airway cell types during development. In chronic obstructive pulmonary disease (COPD), a chronic lung disease where airway remodeling is an important pathologic component, we hypothesized that chronic epithelial injury could lead to aberrant "reactivation" of these normally highly regulated

epithelial-mesenchymal trophic interactions. Indeed, we have recently reported that squamous metaplasia of airway epithelium, a common change in smokers, leads to increased airway epithelial secretion of IL-1β. Increased IL-1β acts on adjacent fibroblasts to induce αvβ8 surface expression and αvβ8-mediated activation of TGF-β, which feeds into a self amplifying loop of TGF-b activation. We currently have funding (2RO1- HL63993-01) to study the regulation of β8 expression and function of αvβ8-mediated activation in COPD using human in vitro and in vivo systems. Our work in COPD has immediate therapeutic implications; selective inhibition of αvβ8 would bypass the undesirable systemic effects of global TGF-β inhibition. We have developed a high affinity Mab (using both human and mouse version) to use in preclinical mouse models to test for efficacy and toxicity in a number of disease models. To test this Mab we have developed a human ITGB8 BAC rescue mouse expressing a single integrated copy of ITGB8 expressed appropriately to rescue the lethal itgb8 null phenotype. This model will be used for both efficacy and toxicity assays.

Another recent focus of research is to understand the cellular interactions required for vessel formation in the central nervous system (CNS). Towards that goal, we will investigate the cell-type specific roles that cell adhesion receptors play in CNS vessel formation. For CNS vessels to become fully competent, interactions of endothelial cells with other cell types are likely required. Genetic evidence has implicated that the recruitment of pericytes/smooth muscle cells is important for proper cerebral vessel development. In vitro studies have pointed toward astrocytes as another putative cell-type required for proper cerebral endothelial development. However, the molecular basis of the reciprocal signaling between CNS endothelial cells and these other cell types is poorly understood. We have previously determined that a cell-adhesion receptor, integrin αvβ8, recently identified as being essential for murine cerebral vascular development, is expressed by astrocytes and not by endothelial cells or smooth muscle cells. That the integrin β8 subunit knock-out mice die at late gestation of cerebral hemorrhage is the first genetic evidence to support a role for astrocytes in cerebral vascular development and suggests that αvβ8 acts directly through mediating adhesive cell-cell interactions between astrocytes and endothelial cells or indirectly through another pathway. Our data support an indirect mode of action of αvβ8 since our preliminary data suggests that that αvβ8 is the major molecular mediator of TGF-β activation in cultured astrocytes. Furthermore, despite exhaustive efforts, we have no evidence that αvβ8 mediates cell-cell adhesion. TGF-β is likely candidate molecule to provide instructional cues and to orchestrate proliferation and differentiation events between endothelial cells and mesenchymal cell types. TGF-β is essential to normal cerebral vasculogenesis since loss of function of the endothelial receptors for active TGF-β, endoglin and Alk-1, lead to hereditary hemorrhagic telangectasia (HHT) in humans and a similar cerebral hemorrhagic disorder in mice. Because TGF-β is ubiquitously expressed in tissues almost entirely in an inactive (latent) state, the αvβ8-dependent conversion of latent to active TGF-β could be a major point in the regulation of TGF-β function in CNS vessel development. Future work will include cell biologic work to gain mechanistic insight into TGF-β activation in neural tissues and cell biologic and genetic approaches to understand the role of non-endothelial cells in CNS vasculogenesis. Towards that end we have generated neural-cell specific "knock-in" mice to to rescue the β8 knock-out lethal phenotype.

In summary, the major theme of our research is to understand how the functions of integrins, cytokines and MMPs are orchestrated to achieve proper development and to achieve homeostatic regulation and how alterations in the orchestration of these molecules influences neoplasia and wound healing.

Most significant recent publications:

I have chosen a spectrum of publications that represent the three different aspects of my experimental work. These are: airway biology, vascular neurobiology and experimental pathology.

Airway Biology: A recently accepted manuscript "Selective Targeting of TGF-b activation in treating fibroinflammatory airway disease" represents 12 years of work in my laboratory. It includes developing a therapeutic monoclonal antibody for treatment of airway disease, efficacy studies in three mouse models of airway disease, and an in-depth structural, biochemical and structural biologic examination of the mechanism of action of the antibody. Other significant recent contributions to epithelial biology that I have made are represented by: Hideya Kitamura, Stephanie Cambier, Sangeeta Somanath, Tyren Barker, Shunsuke Minagawa, Jennifer Markovics, Amanda Goodsell, Jean Publicover, Louis Reichardt, David Jablons, Paul Wolters, Arthur Hill, James D. Marks, Jianlong Lou, Jean Francois Pittet, Jack Gauldie, Jody Baron, Stephen L. Nishimura, Mouse and human lung fibroblasts regulate dendritic cell trafficking, airway inflammation and fibrosis, through integrin αvβ8-mediated activation of TGF-β, J Clin Investigation, 2011 Jul 1;121(7):2863-75.; Jun Araya, Stephanie Cambier, Jennifer A. Markovics, Paul Wolters, David Jablons, Arthur Hill, Walter Finkbeiner, Kirk Jones, V. Courtney Broaddus, Dean Sheppard, Andrea Barzcak, Yuanyuan Xiao, David J. Erle, Stephen L. Nishimura, Squamous metaplasia amplifies pathologic epithelial-mesenchymal interactions in COPD, 2007, J. Clin. Investigation, Nov 1;117(11):3551-3562 ; Araya, J., Cambier, S., Morris, A., Finkbeiner, W., Nishimura, S.L. Integrin mediated TGF-ß activation regulates homeostasis of the pulmonary epithelial-mesenchymal trophic unit, Am. J. Path. 2006, In Press; Mu, Dezhi, Cambier, S, Baron, JL, Munger, J, Sheppard, D, Broaddus, VC, Nishimura, SL, The integrin αvβ8 mediates epithelial homeostasis through the MT1-MMP-dependent activation of TGF-β J. Cell Biol. 2002, Apr, 157(3),493-507 and Cambier, S, Mu D, O'Connell, D, Liu, W-H, Travis, W, Broaddus, VC, Nishimura, SL, The integrin αvβ8 negatively regulates the growth of airway epithelium, Cancer Res. 2000 Dec 15;60(24):7084-93. These publications represent the first papers describing the function of the integrin αvβ8 in the lung and define a novel pathway of integrin-mediated activation of TGF-β. Furthermore, these papers define a novel mechanism of epithelial homeostasis with broad implications to airway remodeling and cancer pathogenesis. In these studies, I functioned as the principal investigator and was responsible for experimental design and interpretation. I performed initial pilot studies and then taught and supervised post-doctoral fellows, students and technical personnel. I forged the collaborative relationships and oversaw the writing of the manuscript. I also played a substantial contributory role in the report, Jarad, G., Wang, B., Khan, S., DeVore, J., Miao, H., Wu, K., Nishimura, S.L., Wible, B.A., Konieczkowski, M., Sedor , J.R., Schelling, J.R., Fas Activation Induces Renal Tubular Epithelial Cell β8 Integrin Expression and Function in the Absence of Apoptosis, J Biol Chem. 2002 Dec 6;277(49):47826-47833. In this manuscript, I aided in experimental design and contributed a number of crucial molecular and immunologic reagents.

Vascular neurobiology: Two publications in the field of neural vascular biology highlight our interest in cell biology, gene regulation and human genetics (Cambier, S., Gline, S.E., Araya, J, Collins, R., Einheber, S., Dolganov, G., Boudreau, N., Nishimura, S.L., Integrin αvβ8-mediated activation of TGF-β: an angiogenic control switch, Am. J. Path..) which provides the first mechanistic evidence for a CNS-specific mechanism of vessel development involving paracrine interactions between astrocytes and endothelial cells. 28. Su, Hua; Kim, Helen; Pawlikowska, Ludmila; Kitamura, Hideya; Shen, Fanxia; Cambier, Stephanie; Markovics, Jennifer; Lawton, Michael; Sidney, Steve; Bollen, Andrew; Kwok, Pui-Yan; Reichardt, Louis; Yang. GY; Young, William; Nishimura, Stephen. Reduced Expression of Integrin αvβ8 is Associated with Brain Arteriovenous Malformation (BAVM) Pathogenesis, Am J Pathol. 2010 Feb;176(2):1018-27

Structural Biology: Our lab has developed an interest in integrin structure. In particular, we are interested in sorting out the structural biology of integrin-TGF-β interaction. Our first contribution to this area was Gline, S.E., Cambier, S., Govaerts, C., Nishimura, S.L., A 50 Å separation of the integrin αvβ3 extracellular domain C- termini reveals an intermediate activation state, J Biol Chem, 2004, (e-published, 10/8/04).). We have extended this work to investigate the extracellular domain conformational heterogeneity of αvβ8 to provide initial insight into the structure of the integrin-L-TGF-β complex. This work is in press in Science Translational Medicine

SIGNIFICANT PUBLICATIONS

1. Hideya Kitamura, Stephanie Cambier, Sangeeta Somanath, Tyren Barker, Shunsuke Minagawa, Jennifer Markovics, Amanda Goodsell, Jean Publicover, Louis Reichardt, David Jablons, Paul Wolters, Arthur Hill, James D. Marks, Jianlong Lou, Jean Francois Pittet, Jack Gauldie, Jody Baron, Stephen L. Nishimura, Mouse and human lung fibroblasts regulate dendritic cell trafficking, airway inflammation and fibrosis, through integrin αvβ8-mediated activation of TGF-β, J Clin Investigation, 2011 Jul 1;121(7):2863-75.
I served as the PI of this study which is the first to define a role for lung fibroblasts in directing pathologic inflammation. I was the main contributor to the design and conception of all of experiments and supervised the post-docs who performed the studies.
2. Markovics JA, Araya J, Cambier S, Somanath S, Gline S, Jablons D, Hill A, Wolters PJ, Nishimura SL. Interleukin-1{beta} induces increased transcriptional activation of the transforming growth factor-{beta} activating integrin subunit {beta}8 through altering chromatin architecture. J Biol Chem. 2011 Aug 30
I was the PI and oversaw the design and execution of the experiments.
3. Markovics JA, Araya J, Cambier S, Jablons D, Hill A, Wolters PJ, Nishimura SL. Transcription of the transforming growth factor {beta} (TGF-{beta}) activating integrin {beta}8 subunit is regulated by SP3, AP-1 and the P38 pathway.J Biol Chem. 2010 Jun 2. [Epub ahead of print]
I served as PI and oversaw all aspects of the study.
4. Shunsuke Minagawa, Jianlong Lou, Robert I. Seed, Anthony Cormier, Shenping Wu, Yifan Cheng, Lynne Murray, Ping Tsui, Jane Connor, Ronald Herbst, Cedric Govaerts, Tyren Barker, Stephanie Cambier, Haruhiko Yanagisawa, Amanda Goodsell, Mitsuo Hashimoto, Oliver J. Brand, Ran Cheng, Royce Ma, Kate J. McKnelly, Weihua Wen, Arthur Hill, David Jablons, Paul Wolters, Hideya Kitamura, Jun Araya, Andrea J. Barczak, David J. Erle, Louis Reichardt, James D. Marks, Jody L. Baron, Stephen L. Nishimura, Selective targeting of TGF-β activation to treat fibroinflammatory airway disease, 2014, Science Translational Medicine, In Press
I served as PI and oversaw all aspects of the study.

SIGNIFICANT PUBLICATIONS

1. Hideya Kitamura, Stephanie Cambier, Sangeeta Somanath, Tyren Barker, Shunsuke Minagawa, Jennifer Markovics, Amanda Goodsell, Jean Publicover, Louis Reichardt, David Jablons, Paul Wolters, Arthur Hill, James D. Marks, Jianlong Lou, Jean Francois Pittet, Jack Gauldie, Jody Baron, Stephen L. Nishimura, Mouse and human lung fibroblasts regulate dendritic cell trafficking, airway inflammation and fibrosis, through integrin αvβ8-mediated activation of TGF-β, J Clin Investigation, 2011 Jul 1;121(7):2863-75.
I served as the PI of this study which is the first to define a role for lung fibroblasts in directing pathologic inflammation. I was the main contributor to the design and conception of all of experiments and supervised the post-docs who performed the studies.
2. Markovics JA, Araya J, Cambier S, Somanath S, Gline S, Jablons D, Hill A, Wolters PJ, Nishimura SL. Interleukin-1{beta} induces increased transcriptional activation of the

transforming growth factor-{beta} activating integrin subunit {beta}8 through altering chromatin architecture. J Biol Chem. 2011 Aug 30
I was the PI and oversaw the design and execution of the experiments.
3. Su, Hua; Kim, Helen; Pawlikowska, Ludmila; Kitamura, Hideya; Shen, Fanxia; Cambier, Stephanie; Markovics, Jennifer; Lawton, Michael; Sidney, Steve; Bollen, Andrew; Kwok, Pui-Yan; Reichardt, Louis; Yang. GY; Young, William; Nishimura, Stephen. Reduced Expression of Integrin αvβ8 is Associated with Brain Arteriovenous Malformation (BAVM) Pathogenesis, Am J Pathol. 2010 Feb;176(2):1018-27
I served as PI of the study and oversaw all aspects of the project and wrote the manuscript.
4. Markovics JA, Araya J, Cambier S, Jablons D, Hill A, Wolters PJ, Nishimura SL. Transcription of the transforming growth factor {beta} (TGF-{beta}) activating integrin {beta}8 subunit is regulated by SP3, AP-1 and the P38 pathway.J Biol Chem. 2010 Jun 2. [Epub ahead of print]
I served as PI and oversaw all aspects of the study.

SIGNIFICANT PUBLICATIONS
1. Hideya Kitamura, Stephanie Cambier, Sangeeta Somanath, Tyren Barker, Shunsuke Minagawa, Jennifer Markovics, Amanda Goodsell, Jean Publicover, Louis Reichardt, David Jablons, Paul Wolters, Arthur Hill, James D. Marks, Jianlong Lou, Jean Francois Pittet, Jack Gauldie, Jody Baron, Stephen L. Nishimura, Mouse and human lung fibroblasts regulate dendritic cell trafficking, airway inflammation and fibrosis, through integrin αvβ8-mediated activation of TGF-β, J Clin Investigation, 2011 Jul 1;121(7):2863-75.
I served as the PI of this study which is the first to define a role for lung fibroblasts in directing pathologic inflammation. I was the main contributor to the design and conception of all of experiments and supervised the post-docs who performed the studies.
2. Markovics JA, Araya J, Cambier S, Somanath S, Gline S, Jablons D, Hill A, Wolters PJ, Nishimura SL. Interleukin-1{beta} induces increased transcriptional activation of the transforming growth factor-{beta} activating integrin subunit {beta}8 through altering chromatin architecture. J Biol Chem. 2011 Aug 30
I was the PI and oversaw the design and execution of the experiments.
3. Su, Hua; Kim, Helen; Pawlikowska, Ludmila; Kitamura, Hideya; Shen, Fanxia; Cambier, Stephanie; Markovics, Jennifer; Lawton, Michael; Sidney, Steve; Bollen, Andrew; Kwok, Pui-Yan; Reichardt, Louis; Yang. GY; Young, William; Nishimura, Stephen. Reduced Expression of Integrin αvβ8 is Associated with Brain Arteriovenous Malformation (BAVM) Pathogenesis, Am J Pathol. 2010 Feb;176(2):1018-27
I served as PI of the study and oversaw all aspects of the project and wrote the manuscript.
4. Markovics JA, Araya J, Cambier S, Jablons D, Hill A, Wolters PJ, Nishimura SL. Transcription of the transforming growth factor {beta} (TGF-{beta}) activating integrin {beta}8 subunit is regulated by SP3, AP-1 and the P38 pathway.J Biol Chem. 2010 Jun 2. [Epub ahead of print]
I served as PI and oversaw all aspects of the study.

SIGNIFICANT PUBLICATIONS
1. Hideya Kitamura, Stephanie Cambier, Sangeeta Somanath, Tyren Barker, Shunsuke Minagawa, Jennifer Markovics, Amanda Goodsell, Jean Publicover, Louis Reichardt, David Jablons, Paul Wolters, Arthur Hill, James D. Marks, Jianlong Lou, Jean Francois Pittet, Jack Gauldie, Jody Baron, Stephen L. Nishimura, Mouse and human lung fibroblasts regulate dendritic cell trafficking, airway inflammation and fibrosis, through integrin αvβ8-mediated activation of TGF-β, J Clin Investigation, 2011 Jul 1;121(7):2863-75.

I served as the PI of this study which is the first to define a role for lung fibroblasts in directing pathologic inflammation. I was the main contributor to the design and conception of all of experiments and supervised the post-docs who performed the studies.

2. Markovics JA, Araya J, Cambier S, Somanath S, Gline S, Jablons D, Hill A, Wolters PJ, Nishimura SL. Interleukin-1{beta} induces increased transcriptional activation of the transforming growth factor-{beta} activating integrin subunit {beta}8 through altering chromatin architecture. J Biol Chem. 2011 Aug 30

I was the PI and oversaw the design and execution of the experiments.

3. Su, Hua; Kim, Helen; Pawlikowska, Ludmila; Kitamura, Hideya; Shen, Fanxia; Cambier, Stephanie; Markovics, Jennifer; Lawton, Michael; Sidney, Steve; Bollen, Andrew; Kwok, Pui-Yan; Reichardt, Louis; Yang. GY; Young, William; Nishimura, Stephen. Reduced Expression of Integrin αvβ8 is Associated with Brain Arteriovenous Malformation (BAVM) Pathogenesis, Am J Pathol. 2010 Feb;176(2):1018-27

I served as PI of the study and oversaw all aspects of the project and wrote the manuscript.

4. Markovics JA, Araya J, Cambier S, Jablons D, Hill A, Wolters PJ, Nishimura SL. Transcription of the transforming growth factor {beta} (TGF-{beta}) activating integrin {beta}8 subunit is regulated by SP3, AP-1 and the P38 pathway.J Biol Chem. 2010 Jun 2. [Epub ahead of print]

I served as PI and oversaw all aspects of the study.

RESEARCH AWARDS - CURRENT

1. 1R01HL113032-01	PI	10 % effort	Nishimura (PI)
NIH/NHLBI		04/01/2012	03/31/2016
Role of genetic variation in TGF-beta overactivation in COPD		$ 312,973 direct/yr 1	$ 1,334,063 total

Project goals: AIM1) To discover all common genetic variants in and around ITGB8 associated with increased B8 expression; AIM2) To test common genetic variants in ITGB8 for association with COPD and lung phenotypes; AIM3) To test the hypothesis that genetic variation in ITGB8 leads to increased ITGB8 expression; and AIM4) To test the hypothesis that genetic variation in ITGB8 leads to altered airway disease susceptibility.

Conception, oversight, execution.

2. U54HL119893	PI	5 % effort	Nishimura (PI)
University of California/NIH NHLBI Center for Accelerated Innovation			
Selective targeting of TGF-β activation for airway remodeling with engineered monoclonal antibodies		$ 100,000 direct/yr 1	$ 200000 total

AIMs) To optimize glycosylation of anti-β8 antibody clone B5 and related antibodies; To create optimized anti-β8 antibodies for immunohistochemical detection; To create novel neutralizing anti-β8 antibodies Overlap: None

Conception, oversight, execution.

3. 1R01HL134183-01	PI (MPI: Contact PI)	15 % effort	Nishimura (PI)
Structural mechanism of integrin-mediated TGF-b activation		07/04/2016	4/30/2020
Structural mechanism of integrin-mediated TGF-b activation		$ 338,183 (Total) direct/yr 1	$ 1,353,622 total

$536,020 direct/yr1

RESEARCH AWARDS - PAST

1. 01HL090662 PI — Nishimura (PI)

   NIH — 09/01/2009 — 08/31/2011

   Role of squamous metaplasia in airway wall thickening — $ 250000 direct/yr 1 — $ 750000 total

   Conception, oversight, execution.

2. 2RO1- HL63993-01 PI — Nishimura (PI)

   NIH — 7/1/2009 — 6/30/2014

   Integrin avb8 Inhibits Airway Epithelial Cell Growth

   Specific Aim 1: To test the hypothesis that the increased β8 expression in COPD is mediated by response to inflammatory cytokines and alterations in HDAC activity. Specific Aim 2: To test the hypothesis that increased integrin αvβ8 expression on airway epithelial cells and lung fibroblasts in COPD leads to increased activation of TGF-β. Specific Aim 3: To test the hypothesis that increased integrin αvβ8 mediated activation of TFG- β in COPD leads to alterations in airway epithelial and fibroblast functions involved in airway remodeling.

   Conception, oversight, execution.

3. NS-44155 Project 4 — Young (PI)

   NIH — 09/1/2009 — 03/31/2014

   Integrative studies of brain vascular malformations (project 4) — $ 125,000 (Nishimura Project) direct/yr 1 — $ 625000 total

   Aim 1: will explore the mechanisms of transcriptional regulation of β8. Aim 2: to correlate β8 expression, and downstream angiogenic signaling in BAVM and control tissues with allelic variation. Aim 3: to directly test the respective roles of αvβ8 and TGF-β signaling in CNS vascular integrity

   Conception, oversight, execution.

4. The use of a multi-sample bead mill homogenizer to efficiently process biological specimens

   UCSF Academic Sentate — $12,000 total — $12,000 total

   Mouse smoking machine — $ 35,000 direct/yr 1 — $ 35,000 total

PEER REVIEWED PUBLICATIONS

1. Nishimura, S., Pasternak, G. W. Opiate and Opioid Peptide Binding in Rat and Goldfish: Further Evidence for Opiate Receptor Heterogeneity. Br. Res., 248:192-195, 1982.
2. Wolozin, B. L., Nishimura S. L., Pasternak, G. W. The Binding of k- and s- Opiates in Rat Brain. J. Neuroscience, Vol. 2, No. 6, pp. 708-13, June 1982.
3. Nishimura, S. L., Recht, L. D., Pasternak, G. W. Biochemical Characterization of High Affinity 3H-Opioid Binding; Further Evidence for Mul Sites. Mol. Pharm. 25:29-37, 1983.
4. Ling, G. S. F., Spiegel, K., Nishimura, S. L., Pasternak, G. W. Dissociation of Morphine's Analgesic and Respiratory Depressant Actions. Eur. J. Pharm. 86:487-488, 1983.
5. Pasternak, G. W., Gintzler, A., Houghton, R. A., Ling, G. S. F., Goodman, R. R., Spiegel, K., Nishimura, S. L., Johnson, N. J., Recht, L. D. Biochemical and Pharmacological Evidence of Opiate Receptor Multiplicity in the Central Nervous System. Life Sci., Sup. 1, pp. 167-173, 1983.
6. Laher, F., Nishimura, S. L., Bevan, J. A. Prazosin Selectively Antagonizes Norepinephrine Contractions at Low-Affinity, Non-Alpha, Adrenoceptor Sites (Extraceptors) in Arterial Smooth Muscle. J. Pharm. and Exp. Ther., Vol. 239, No. 3, 1986.
7. Perkocha LA, Geaghan SM, Yen TS, Nishimura SL, Chan SP, Garcia-Kennedy R, Honda G, Stoloff AC, Klein HZ, Goldman RL, et al. Clinical and pathological features of bacillary peliosis hepatis in association with human immunodeficiency virus infection. N Engl J Med. 1990 Dec 6; 323(23):1581-6. PMID: 2233946
8. Frank UK, Nishimura SL, Li NC, Sugai K, Yajko DM, Hadley WK, Ng VL. Evaluation of an enzyme immunoassay for detection of cryptococcal capsular polysaccharide antigen in serum and cerebrospinal fluid. J Clin Microbiol. 1993 Jan; 31(1):97-101. PMID: 8417038. PMCID: PMC262628
9. Weinacker A, Chen A, Agrez M, Cone RI, Nishimura S, Wayner E, Pytela R, Sheppard D. Role of the integrin alpha v beta 6 in cell attachment to fibronectin. Heterologous expression of intact and secreted forms of the receptor. J Biol Chem. 1994 Mar 4; 269(9):6940-8. PMID: 8120056
10. Nishimura SL, Sheppard D, Pytela R. Integrin alpha v beta 8. Interaction with vitronectin and functional divergence of the beta 8 cytoplasmic domain. J Biol Chem. 1994 Nov 18; 269(46):28708-15. PMID: 7525578
11. Breuss JM, Gallo J, DeLisser HM, Klimanskaya IV, Folkesson HG, Pittet JF, Nishimura SL, Aldape K, Landers DV, Carpenter W, et al. Expression of the beta 6 integrin subunit in development, neoplasia and tissue repair suggests a role in epithelial remodeling. J Cell Sci. 1995 Jun; 108 (Pt 6):2241-51. PMID: 7673344
12. Ramos DM, Chen BL, Boylen K, Stern M, Kramer RH, Sheppard D, Nishimura SL, Greenspan D, Zardi L, Pytela R. Stromal fibroblasts influence oral squamous-cell carcinoma cell interactions with tenascin-C. Int J Cancer. 1997 Jul 17; 72(2):369-76. PMID: 9219848
13. Milner, R., Frost, E., Nishimura, S., Delcommenne, M., Streuli, C., Pytela, R., ffrench-Constant, C., Expression of avb3 and avb8 integrin during oligodendrocyte precursor differentiation in the presence and absence of axons, Glia, 1977, 21:350-360.

14. Nishimura SL, Boylen KP, Einheber S, Milner TA, Ramos DM, Pytela R. Synaptic and glial localization of the integrin alphavbeta8 in mouse and rat brain. Brain Res. 1998 Apr 27; 791(1-2):271-82. PMID: 9593935

15. Nishimura SL, Broaddus VC. Asbestos-induced pleural disease. Clin Chest Med. 1998 Jun; 19(2):311-29. PMID: 9646983

16. Thomas S. Jacques, Joao B. Relvas, Stephen Nishimura, Robert Pytela, Gwynneth M. Edwards, Charles H. Streuli and Charles ffrench-Constant. Neural precursor cell chain migration and division are regulated through different b1 integrins. Development, 1998 Aug;125(16):3167-77.

17. Milner R, Huang X, Wu J, Nishimura S, Pytela R, Sheppard D, ffrench-Constant C, Distinct roles for astrocyte avb5 and avb8 integrins in adhesion and migration. J Cell Sci 1999;112(Pt 23):4271-4279

18. Morris AM, Nishimura S, Huang L. Subacute hypersensitivity pneumonitis in an HIV infected patient receiving antiretroviral therapy. Thorax. 2000 Jul; 55(7):625-7. PMID: 10856327. PMCID: PMC1745796

19. Gaertner, E.M., Steinberg, D.M., Huber, M., Hayashi, T.., Tsuda, N., Askin, F.B., Bell, S.W., Nguyen, B., Colby, W., Nishimura, S.L. Miettinen, M., Travis, W.D. Pulmonary and Mediastinal Glomus Tumors: Report of Five Cases including a Pulmonary Glomangiosarcoma. A Clinicopathologic Study with Literature Review, Am J Surg Pathol. 2000 Aug;24(8):1105-14.

20. Cambier S, Mu DZ, O'Connell D, Boylen K, Travis W, Liu WH, Broaddus VC, Nishimura SL. A role for the integrin alphavbeta8 in the negative regulation of epithelial cell growth. Cancer Res. 2000 Dec 15; 60(24):7084-93. PMID: 11156415

21. Mu D, Cambier S, Fjellbirkeland L, Baron JL, Munger JS, Kawakatsu H, Sheppard D, Broaddus VC, Nishimura SL. The integrin alpha(v)beta8 mediates epithelial homeostasis through MT1-MMP-dependent activation of TGF-beta1. J Cell Biol. 2002 Apr 29; 157(3):493-507. PMID: 11970960. PMCID: PMC2173277

22. Baron JL, Gardiner L, Nishimura S, Shinkai K, Locksley R, Ganem D. Activation of a nonclassical NKT cell subset in a transgenic mouse model of hepatitis B virus infection. Immunity. 2002 Apr; 16(4):583-94. PMID: 11970881

23. Jarad G, Wang B, Khan S, DeVore J, Miao H, Wu K, Nishimura SL, Wible BA, Konieczkowski M, Sedor JR, Schelling JR. Fas activation induces renal tubular epithelial cell beta 8 integrin expression and function in the absence of apoptosis. J Biol Chem. 2002 Dec 6; 277(49):47826-33. PMID: 12324452

24. Fjellbirkeland L, Cambier S, Broaddus VC, Hill A, Brunetta P, Dolganov G, Jablons D, Nishimura SL. Integrin alphavbeta8-mediated activation of transforming growth factor-beta inhibits human airway epithelial proliferation in intact bronchial tissue. Am J Pathol. 2003 Aug; 163(2):533-42. PMID: 12875973. PMCID: PMC1868219

25. Morris DG, Jasmer RM, Huang L, Gotway MB, Nishimura S, King TE. Sarcoidosis following HIV infection: evidence for CD4+ lymphocyte dependence. Chest. 2003 Sep; 124(3):929-35. PMID: 12970019

26. Jarad, G., Wang, B., Khan, S., DeVore, J., Miao, H., Wu, K., Nishimura, S.L., Wible, B.A., Konieczkowski, M., Sedor , J.R., Schelling, J.R., Fas Activation Induces Renal Tubular

Epithelial Cell b8 Integrin Expression and Function in the Absence of Apoptosis, J Biol Chem. 2002 Dec 6;277(49):47826-47833

27. Jackson T, Clark S, Berryman S, Burman A, Cambier S, Mu D, Nishimura S, King AM. Integrin alphavbeta8 functions as a receptor for foot-and-mouth disease virus: role of the beta-chain cytodomain in integrin-mediated infection. J Virol. 2004 May; 78(9):4533-40. PMID: 15078934. PMCID: PMC387692

28. Gline SE, Cambier S, Govaerts C, Nishimura SL. A 50-A separation of the integrin alpha v beta 3 extracellular domain C termini reveals an intermediate activation state. J Biol Chem. 2004 Dec 24; 279(52):54567-72. PMID: 15475365

29. In Innes, A, Nishimura, S., Huang, L., Resolution of lymphocytic interstitial pneumonia in a patient with AIDs after highly active retroviral therapy. Sex Trans Infect, 2004 80-417-418.

30. Cambier S, Gline S, Mu D, Collins R, Araya J, Dolganov G, Einheber S, Boudreau N, Nishimura SL. Integrin alpha(v)beta8-mediated activation of transforming growth factor-beta by perivascular astrocytes: an angiogenic control switch. Am J Pathol. 2005 Jun; 166(6):1883-94. PMID: 15920172. PMCID: PMC1602409

31. Kim KU, Wilson SM, Abayasiriwardana KS, Collins R, Fjellbirkeland L, Xu Z, Jablons DM, Nishimura SL, Broaddus VC. A novel in vitro model of human mesothelioma for studying tumor biology and apoptotic resistance. Am J Respir Cell Mol Biol. 2005 Dec; 33(6):541-8. PMID: 16123394. PMCID: PMC2715331

32. Neurohr C, Nishimura SL, Sheppard D. Activation of transforming growth factor-beta by the integrin alphavbeta8 delays epithelial wound closure. Am J Respir Cell Mol Biol. 2006 Aug; 35(2):252-9. PMID: 16574941. PMCID: PMC2643260

33. Araya, J., Cambier, S., Morris, A., Finkbeiner, W., Nishimura, S.L. Integrin mediated TGF-ß activation regulates homeostasis of the pulmonary epithelial-mesenchymal trophic unit, Am. J. Path. 2006, 169:405-415.

34. Diaz JV, Koff J, Gotway MB, Nishimura S, Balmes JR. Case report: a case of wood-smoke-related pulmonary disease. Environ Health Perspect. 2006 May; 114(5):759-62. PMID: 16675433. PMCID: PMC1459932

35. Araya J, Cambier S, Morris A, Finkbeiner W, Nishimura SL. Integrin-mediated transforming growth factor-beta activation regulates homeostasis of the pulmonary epithelial-mesenchymal trophic unit. Am J Pathol. 2006 Aug; 169(2):405-15. PMID: 16877343. PMCID: PMC1698780

36. Araya J, Cambier S, Markovics JA, Wolters P, Jablons D, Hill A, Finkbeiner W, Jones K, Broaddus VC, Sheppard D, Barzcak A, Xiao Y, Erle DJ, Nishimura SL. Squamous metaplasia amplifies pathologic epithelial-mesenchymal interactions in COPD patients. J Clin Invest. 2007 Nov; 117(11):3551-62. PMID: 17965775. PMCID: PMC2040320

37. Vilarinho S, Ogasawara K, Nishimura S, Lanier LL, Baron JL. Blockade of NKG2D on NKT cells prevents hepatitis and the acute immune response to hepatitis B virus. Proc Natl Acad Sci U S A. 2007 Nov 13; 104(46):18187-92. PMID: 17991774. PMCID: PMC2084318

38. An F, Drummond DC, Wilson S, Kirpotin DB, Nishimura SL, Broaddus VC, Liu B. Targeted drug delivery to mesothelioma cells using functionally selected internalizing human single-chain antibodies. Mol Cancer Ther. 2008 Mar; 7(3):569-78. PMID: 18319332. PMCID: PMC2943512

39. Barbone, D, Wilson, S, Jablons, D., Nishimura, SL, Broaddus, C, Role of mTor in mescothelioma cell survival in tumor fragment spheroids, 2008, Am J Respir Cell Mol Biol. 2008 Nov;39(5):576-83

40. Wilson SM, Barbone D, Yang TM, Jablons DM, Bueno R, Sugarbaker DJ, Nishimura SL, Gordon GJ, Broaddus VC. mTOR mediates survival signals in malignant mesothelioma grown as tumor fragment spheroids. Am J Respir Cell Mol Biol. 2008 Nov; 39(5):576-83. PMID: 18511708. PMCID: PMC2574528

41. Zhu Y, Cuevas IC, Gabriel RA, Su H, Nishimura S, Gao P, Fields A, Hao Q, Young WL, Yang GY, Boudreau NJ. Restoring transcription factor HoxA5 expression inhibits the growth of experimental hemangiomas in the brain. J Neuropathol Exp Neurol. 2009 Jun; 68(6):626-32. PMID: 19458547. PMCID: PMC2728585

42. Nishimura SL. Integrin-mediated transforming growth factor-beta activation, a potential therapeutic target in fibrogenic disorders. Am J Pathol. 2009 Oct; 175(4):1362-70. PMID: 19729474. PMCID: PMC2751532

43. Chesnokova LS, Nishimura SL, Hutt-Fletcher LM. Fusion of epithelial cells by Epstein-Barr virus proteins is triggered by binding of viral glycoproteins gHgL to integrins alphavbeta6 or alphavbeta8. Proc Natl Acad Sci U S A. 2009 Dec 1; 106(48):20464-9. PMID: 19920174. PMCID: PMC2787161

44. Leblanc GG, Golanov E, Awad IA, Young WL; Biology of Vascular Malformations of the Brain NINDS Workshop Collaborators. Biology of vascular malformations of the brain. Stroke. 2009 Dec;40(12):e694-702

45. Araya, J, Nishimura, S.L. Fibrogenic reactions in the lung, Annu Rev Pathol. 2010;5:77-98

46. Su H, Kim H, Pawlikowska L, Kitamura H, Shen F, Cambier S, Markovics J, Lawton MT, Sidney S, Bollen AW, Kwok PY, Reichardt L, Young WL, Yang GY, Nishimura SL. Reduced expression of integrin alphavbeta8 is associated with brain arteriovenous malformation pathogenesis. Am J Pathol. 2010 Feb; 176(2):1018-27. PMID: 20019187. PMCID: PMC2808104

47. Arjomandi, M., Seward, J., Gotway, M.B., Nishimura, S., Fulton, G.P., Thundiyil, J., King, Jr., T.E., Harber, P Balmes, J.R., Low Prevalence of Chronic Beryllium Disease among Workers at a Nuclear Weapons Research and Development Facility (2010) J Occ Environ. Med, In Press

48. Araya J, Nishimura SL. Fibrogenic reactions in lung disease. Annu Rev Pathol. 2010; 5:77-98. PMID: 20078216

49. Su, Hua; Kim, Helen; Pawlikowska, Ludmila; Kitamura, Hideya; Shen, Fanxia; Cambier, Stephanie; Markovics, Jennifer; Lawton, Michael; Sidney, Steve; Bollen, Andrew; Kwok, Pui-Yan; Reichardt, Louis; Yang. GY; Young, William; Nishimura, Stephen. Reduced Expression of Integrin αvβ8 is Associated with Brain Arteriovenous Malformation (BAVM) Pathogenesis, Am J Pathol. 2010 Feb;176(2):1018-27

50. Arjomandi M, Seward J, Gotway MB, Nishimura S, Fulton GP, Thundiyil J, King TE, Harber P, Balmes JR. Low prevalence of chronic beryllium disease among workers at a nuclear weapons research and development facility. J Occup Environ Med. 2010 Jun; 52(6):647-52. PMID: 20523233. PMCID: PMC3313491

51. Markovics JA, Araya J, Cambier S, Jablons D, Hill A, Wolters PJ, Nishimura SL. Transcription of the transforming growth factor beta activating integrin beta8 subunit is

regulated by SP3, AP-1, and the p38 pathway. J Biol Chem. 2010 Aug 6; 285(32):24695-706. PMID: 20519498. PMCID: PMC2915706

52. Leblanc GG, Golanov E, Awad IA, Young WL Biology of vascular malformations of the brain.; Biology of Vascular Malformations of the Brain NINDS Workshop Collaborators. Stroke. 2009 Dec;40(12):e694-702. Epub 2009 Oct 15. Review.

53. Minagawa S, Araya J, Numata T, Nojiri S, Hara H, Yumino Y, Kawaishi M, Odaka M, Morikawa T, Nishimura SL, Nakayama K, Kuwano K. Accelerated epithelial cell senescence in IPF and the inhibitory role of SIRT6 in TGF-ß-induced senescence of human bronchial epithelial cells. Am J Physiol Lung Cell Mol Physiol. 2011 Mar; 300(3):L391-401. PMID: 21224216. PMCID: PMC3284316

54. Publicover J, Goodsell A, Nishimura S, Vilarinho S, Wang ZE, Avanesyan L, Spolski R, Leonard WJ, Cooper S, Baron JL. IL-21 is pivotal in determining age-dependent effectiveness of immune responses in a mouse model of human hepatitis B. J Clin Invest. 2011 Mar; 121(3):1154-62. PMID: 21393863. PMCID: PMC3049376

55. Kitamura H, Cambier S, Somanath S, Barker T, Minagawa S, Markovics J, Goodsell A, Publicover J, Reichardt L, Jablons D, Wolters P, Hill A, Marks JD, Lou J, Pittet JF, Gauldie J, Baron JL, Nishimura SL. Mouse and human lung fibroblasts regulate dendritic cell trafficking, airway inflammation, and fibrosis through integrin avß8-mediated activation of TGF-ß. J Clin Invest. 2011 Jul; 121(7):2863-75. PMID: 21646718. PMCID: PMC3223836

56. Zea Borok, Jeffrey A. Whitsett, Peter B. Bitterman, Victor J. Thannickal, Darrell N. Kotton, Susan D. Reynolds, Mark A. Krasnow, Diana W. Bianchi, Edward E. Morrisey, Brigid L. Hogan, Jonathan M. Kurie,David C. Walker, Derek C. Radisky Steve L. Nishimura, Shelia M. Violette, Paul W. Noble, Steve D. Shapiro, Carol J. Blaisdell, Harold A. Chapman, Cell Plasticity in Lung Injury and Repair, 2011, Proc Am Thorac Soc Vol 8. pp 215-222

57. Numata T, Araya J, Fujii S, Hara H, Takasaka N, Kojima J, Minagawa S, Yumino Y, Kawaishi M, Hirano J, Odaka M, Morikawa T, Nishimura SL, Nakayama K, Kuwano K. Insulin-dependent phosphatidylinositol 3-kinase/Akt and ERK signaling pathways inhibit TLR3-mediated human bronchial epithelial cell apoptosis. J Immunol. 2011 Jul 1; 187(1):510-9. PMID: 21646299

58. Markovics JA, Araya J, Cambier S, Somanath S, Gline S, Jablons D, Hill A, Wolters PJ, Nishimura SL. Interleukin-1beta induces increased transcriptional activation of the transforming growth factor-beta-activating integrin subunit beta8 through altering chromatin architecture. J Biol Chem. 2011 Oct 21; 286(42):36864-74. PMID: 21878622. PMCID: PMC3196125

59. Fujii, S, Hara, H, Araya, J, Takasaka, N, Kojima, J, Ito, S, Minagawa, S, Yumino, Y, Ishikawa, T, Numata, T, Kawawashi, M, Hirano, J, Odaka, M, Morikawa, Nishimura, SL, Nakayama, K, Kuwano, K, Insufficient autophagy, promotes, bronchial epithelial senescence, in COPD, Oncoimmunology, 2012, 1;1(5):630-641

60. Araya J, Kojima J, Takasaka N, Ito S, Fujii S, Hara H, Yanagisawa H, Kobayashi K, Tsurushige C, Kawaishi M, Kamiya N, Hirano J, Odaka M, Morikawa T, Nishimura SL, Kawabata Y, Hano H, Nakayama K, Kuwano K. Insufficient autophagy in idiopathic pulmonary fibrosis. Am J Physiol Lung Cell Mol Physiol. 2013 Jan 1; 304(1):L56-69. PMID: 23087019

61. Publicover J, Gaggar A, Nishimura S, Van Horn CM, Goodsell A, Muench MO, Reinhardt RL, van Rooijen N, Wakil AE, Peters M, Cyster JG, Erle DJ, Rosenthal P, Cooper S, Baron

JL. Age-dependent hepatic lymphoid organization directs successful immunity to hepatitis B. J Clin Invest. 2013 Sep 3; 123(9):3728-39. PMID: 23925290. PMCID: PMC3754256

62. Takasaka N, Araya J, Hara H, Ito S, Kobayashi K, Kurita Y, Wakui H, Yoshii Y, Yumino Y, Fujii S, Minagawa S, Tsurushige C, Kojima J, Numata T, Shimizu K, Kawaishi M, Kaneko Y, Kamiya N, Hirano J, Odaka M, Morikawa T, Nishimura SL, Nakayama K, Kuwano K. Autophagy induction by SIRT6 through attenuation of insulin-like growth factor signaling is involved in the regulation of human bronchial epithelial cell senescence. J Immunol. 2014 Feb 1; 192(3):958-68. PMID: 24367027

63. Wu TC, Xu K, Banchereau R, Marches F, Yu CI, Martinek J, Anguiano E, Pedroza-Gonzalez A, Snipes GJ, O'Shaughnessy J, Nishimura S, Liu YJ, Pascual V, Banchereau J, Oh S, Palucka K. Reprogramming tumor-infiltrating dendritic cells for CD103+ CD8+ mucosal T-cell differentiation and breast cancer rejection. Cancer Immunol Res. 2014 May; 2(5):487-500. PMID: 24795361. PMCID: PMC4014008

64. Lee TH, McKleroy W, Khalifeh-Soltani A, Sakuma S, Lazarev S, Riento K, Nishimura SL, Nichols BJ, Atabai K. Functional genomic screen identifies novel mediators of collagen uptake. Mol Biol Cell. 2014 Mar; 25(5):583-93. PMID: 24403604. PMCID: PMC3937085

65. Sallach J, Di Pasquale G, Larcher F, Niehoff N, Rübsam M, Huber A, Chiorini J, Almarza D, Eming SA, Ulus H, Nishimura S, Hacker UT, Hallek M, Niessen CM, Büning H. Tropism-modified AAV Vectors Overcome Barriers to Successful Cutaneous Therapy. Mol Ther. 2014 Jan 28. doi: 10.1038/mt.2014.14. [Epub ahead of print]

66. Minagawa S, Lou J, Seed RI, Cormier A, Wu S, Cheng Y, Murray L, Tsui P, Connor J, Herbst R, Govaerts C, Barker T, Cambier S, Yanagisawa H, Goodsell A, Hashimoto M, Brand OJ, Cheng R, Ma R, McKnelly KJ, Wen W, Hill A, Jablons D, Wolters P, Kitamura H, Araya J, Barczak AJ, Erle DJ, Reichardt LF, Marks JD, Baron JL, Nishimura SL. Selective targeting of TGF-ß activation to treat fibroinflammatory airway disease. Sci Transl Med. 2014 Jun 18; 6(241):241ra79. PMID: 24944194. PMCID: PMC4341974

67. Te-Chia Wu, Kangling Xu, Romain Banchereau, Florentina Marches, Chun I. Yu, Jan Martinek, Esperanza Anguiano, Alexander Pedroza-Gonzalez, G. Jackson Snipes, Joyce O'Shaughnessy, Stephen Nishimura, Yong-Jun Liu, Virginia Pascual, Jacques Banchereau, Sangkon Oh, and Karolina Palucka, Reprogramming Tumor-Infiltrating Dendritic Cells for CD103+CD8+ Mucosal T-cell Differentiation and Breast Cancer Rejection. Cancer Immun Res, 2014, in press

68. Ito S, Araya J, Kurita Y, Kobayashi K, Takasaka N, Yoshida M, Hara H, Minagawa S, Wakui H, Fujii S, Kojima J, Shimizu K, Numata T, Kawaishi M, Odaka M, Morikawa T, Harada T, Nishimura SL, Kaneko Y, Nakayama K, Kuwano K. PARK2-mediated mitophagy is involved in regulation of HBEC senescence in COPD pathogenesis. Autophagy. 2015 Mar 4; 11(3):547-59. PMID: 25714760

69. Brand OJ, Somanath S, Moermans C, Yanagisawa H, Hashimoto M, Cambier S, Markovics J, Bondesson AJ, Hill A, Jablons D, Wolters P, Lou J, Marks JD, Baron JL, Nishimura SL. Transforming Growth Factor-ß and Interleukin-1ß Signaling Pathways Converge on the Chemokine CCL20 Promoter. J Biol Chem. 2015 Apr 27. PMID: 25918170. PMCID: PMC4505537

70. Hashimoto M, Yanagisawa H, Minagawa S, Sen D, Goodsell A, Ma R, Moermans C, McKnelly KJ, Baron JL, Krummel MF, Nishimura SL. A Critical Role for Dendritic Cells in

the Evolution of IL-1ß-Mediated Murine Airway Disease. J Immunol. 2015 Apr 15; 194(8):3962-9. PMID: 25786688. PMCID: PMC4390519

71. Hashimoto M, Yanagisawa H, Minagawa S, Sen D, Ma R, Murray LA, Tsui P, Lou J, Marks JD, Baron JL, Krummel MF, Nishimura SL. TGF-ß-Dependent Dendritic Cell Chemokinesis in Murine Models of Airway Disease. J Immunol. 2015 Aug 1; 195(3):1182-90. PMID: 26109638. PMCID: PMC4506848

72. Publicover J, Jespersen JM, Johnson AJ, Nishimura SL, Goodsell A, Wakil AE, Rosenthal P, Pai E, Avanesyan L, Cooper S, Baron JL. Liver capsule: Age-influenced hepatic immune priming determines HBV infection fate: Implications from mouse to man. Hepatology. 2016 Jan; 63(1):260. PMID: 26457468

73. Ma L, Shen F, Jun K, Bao C, Kuo R, Young WL, Nishimura SL, Su H. Integrin β8 Deletion Enhances Vascular Dysplasia and Hemorrhage in the Brain of Adult Alk1 Heterozygous Mice. Transl Stroke Res. 2016 Jun 29. [Epub ahead of print]/> PMID: 27352867

BOOKS AND CHAPTERS

1. **Nishimura, S.L.**, Broaddus, V.C., Asbestos-related pleural diseases, (Chapter), Chest Clinics of North America 1998;19(2):311-29

2. **Nishimura, S.L.**, Finkbeiner, W., Pulmonary Pathology, (Chapter), in Textbook of Respiratory Medicine, Murray and Nadel, Eds., 4th Ed..

SIGNIFICANT PUBLICATIONS

1. Hideya Kitamura, Stephanie Cambier, Sangeeta Somanath, Tyren Barker, Shunsuke Minagawa, Jennifer Markovics, Amanda Goodsell, Jean Publicover, Louis Reichardt, David Jablons, Paul Wolters, Arthur Hill, James D. Marks, Jianlong Lou, Jean Francois Pittet, Jack Gauldie, Jody Baron, Stephen L. Nishimura, Mouse and human lung fibroblasts regulate dendritic cell trafficking, airway inflammation and fibrosis, through integrin αvβ8-mediated activation of TGF-β, J Clin Investigation, 2011 Jul 1;121(7):2863-75.

   I served as the PI of this study which is the first to define a role for lung fibroblasts in directing pathologic inflammation. I was the main contributor to the design and conception of all of experiments and supervised the post-docs who performed the studies.

2. Hashimoto M, Yanagisawa H, Minagawa S, Sen D, Goodsell A, Ma R, Moermans C, McKnelly KJ, Baron JL, Krummel MF, Nishimura SL. A Critical Role for Dendritic Cells in the Evolution of IL-1ß-Mediated Murine Airway Disease. J Immunol. 2015 Apr 15; 194(8):3962-9. PMID: 25786688. PMCID: PMC4390519

   I served as PI of the study and oversaw all aspects of the project and wrote the manuscript.

3. Hashimoto M, Yanagisawa H, Minagawa S, Sen D, Ma R, Murray LA, Tsui P, Lou J, Marks JD, Baron JL, Krummel MF, Nishimura SL. TGF-ß-Dependent Dendritic Cell Chemokinesis in Murine Models of Airway Disease. J Immunol. 2015 Aug 1; 195(3):1182-90. PMID: 26109638. PMCID: PMC4506848

   I served as PI and oversaw all aspects of the study.

4. Brand OJ, Somanath S, Moermans C, Yanagisawa H, Hashimoto M, Cambier S, Markovics J, Bondesson AJ, Hill A, Jablons D, Wolters P, Lou J, Marks JD, Baron JL, Nishimura SL. Transforming Growth Factor-ß and Interleukin-1ß Signaling Pathways Converge on the Chemokine CCL20 Promoter. J Biol Chem. 2015 Apr 27. PMID: 25918170. PMCID: PMC4505537

   I served as PI and oversaw all aspects of the study.

5. Minagawa S, Lou J, Seed RI, Cormier A, Wu S, Cheng Y, Murray L, Tsui P, Connor J, Herbst R, Govaerts C, Barker T, Cambier S, Yanagisawa H, Goodsell A, Hashimoto M, Brand OJ, Cheng R, Ma R, McKnelly KJ, Wen W, Hill A, Jablons D, Wolters P, Kitamura H, Araya J, Barczak AJ, Erle DJ, Reichardt LF, Marks JD, Baron JL, Nishimura SL. Selective targeting of TGF-ß activation to treat fibroinflammatory airway disease. Sci Transl Med. 2014 Jun 18; 6(241):241ra79. PMID: 24944194. PMCID: PMC4341974

   I served as PI and oversaw all aspects of the study.

PATENTS ISSUED OR PENDING

1. INTEGRIN αVβ8 NEUTRALIZING ANTIBODY (US Provisional Application No. 61/305,749 filed February 18, 2011, and US Provisional Application No. 61/428,814, filed December 30,2010)
2. ANTIBODIES THAT BIND INTEGRIN αVβ8 (US Provisional Application, filed Aug 17, 2011)
3. IMPROVED ALPHA-V BETA-8 ANTIBODIES (US Provisional Application, filed June 17, 2014)

ACADEMIC LEADERSHIP

Co-chair of the ZSFG research committee. Have played a leadership role in organizing, facilitating planning, dissemination of information and programming the planned new research building at ZSFG.