

# Curriculum Vitae

Last Updated: 4/15/2023

## **PERSONAL DATA**

Name: Yan-Ting Shiu  
Birthplace: Taipei, Taiwan  
Citizenship: Taiwan, United States

## **EDUCATION**

<b><u>Years</u></b>	<b><u>Degree</u></b>	<b><u>Institution (Area of Study)</u></b>
1999 - 2001	Postdoctoral Training	University of California, San Diego (Bioengineering) La Jolla, CA
1994 - 1999	Ph.D.	Rice University (Chemical Engineering) Houston, TX
1990 - 1994	B.S.	National Taiwan University (Chemical Engineering) Taipei, Taiwan

## **UNIVERSITY OF UTAH ACADEMIC HISTORY**

### **Internal Medicine (Nephrology), 07/01/2010 - Present**

08/16/2022 Professor  
07/01/2021 – 08/15/2022 Research Professor  
07/01/2015 – 06/30/2021 Research Associate Professor  
07/01/2010 – 06/30/2015 Research Assistant Professor

### **Nutrition and Integrative Physiology, 10/10/2018 - Present**

10/10/2018 Adjunct Faculty

### **Biomedical Engineering, 07/01/2002 - 06/30/2010**

07/01/2002 – 06/30/2010 Assistant Professor (focus on classroom teaching and service)

## **PROFESSIONAL EXPERIENCE**

### **Full-Time Positions**

2022 - Present Professor, Department of Internal Medicine, Division of Nephrology & Hypertension, University of Utah, Salt Lake City, UT

2021 - 2022 Research Professor, Department of Internal Medicine, Division of Nephrology & Hypertension, University of Utah, Salt Lake City, UT

2015 - 2021 Research Associate Professor, Department of Internal Medicine, Division of Nephrology & Hypertension, University of Utah, Salt Lake City, UT

2010 - 2015            Research Assistant Professor, Department of Internal Medicine, Division of Nephrology & Hypertension, University of Utah, Salt Lake City, UT

2002 - 2010            Assistant Professor, Department of Biomedical Engineering, University of Utah, Salt Lake City, UT (focus on classroom teaching and service)

1999 - 2001            Postgraduate Researcher, Department of Bioengineering and the Whitaker Center for Biomedical Engineering, University of California San Diego, La Jolla, CA (postdoc advisor: Shu Chien, M.D., Ph.D.)

1994 - 1999            Graduate Research Assistant, Department of Chemical Engineering, Rice University, Houston, TX (Ph.D. advisor: Larry V. McIntire, Ph.D.)

1994 - 1996            Graduate Teaching Assistant, Department of Chemical Engineering, Rice University, Houston, TX

**Part-Time Positions**

2021 - Present            Biomedical Engineer (Grade 14), Salt Lake City Veterans Affairs Medical Center, Salt Lake City, UT

2018 - 2021            Research Health Scientist (Grade 13), Salt Lake City Veterans Affairs Medical Center, Salt Lake City, UT

**Editorial Experience**

2022 - Present            Associate Editor, Frontiers in Bioengineering and Biotechnology – Biomechanics Section

2021 - 2022            Guest Editor, Research Topic: “Hemodynamic Forces and Endothelial Mechanobiology in Vascular Diseases”, Frontiers in Bioengineering and Biotechnology – Biomechanics Section

2021 - Present            Review Editor, Frontiers in Pharmacology – Renal Pharmacology Section

2019 - Present            Review Editor, Frontiers in Bioengineering and Biotechnology – Biomaterials Section

2019 - Present            Editorial Board for *Kidney360*

2017 - 2022            Editorial Advisor Board for The Open Urology and Nephrology Journal

**Reviewer Experience**

Reviewer for Acta Biomaterialia

Reviewer for American Journal of Kidney Diseases

Reviewer for Annals of Biomedical Engineering

Reviewer for BioMed Central (BMC) Cardiovascular Disorders

Reviewer for BioNanoScience

Reviewer for Biomaterials

Reviewer for Biomechanics and Modeling in Mechanobiology

Reviewer for Biophysical Journal

Reviewer for Biotechnology Progress

Reviewer for Cell Biochemistry and Biophysics

Reviewer for Cellular and Molecular Bioengineering

Reviewer for Clinical Journal of the American Society of Nephrology

Reviewer for Computer Methods and Programs in Biomedicine

Reviewer for Connective Tissue Research  
 Reviewer for Critical Reviews in Biomedical Engineering  
 Reviewer for Frontiers in Bioengineering and Biotechnology – Biomechanics Section  
 Reviewer for Frontiers in Bioengineering and Biotechnology – Biomaterials Section  
 Reviewer for Frontiers in Physiology – Renal and Epithelial Physiology Section  
 Reviewer for Hemodialysis International  
 Reviewer for International Journal for Numerical Methods in Biomedical Engineering  
 Reviewer for Journal of Biomechanical Engineering  
 Reviewer for Journal of Biomechanics  
 Reviewer for Journal of Biomedical Materials Research: Part B - Applied Biomaterials  
 Reviewer for Journal of Clinical Medicine  
 Reviewer for Journal of Medical Devices  
 Reviewer for Journal of Thrombosis and Haemostasis  
 Reviewer for Journal of American Society of Nephrology  
 Reviewer for Kidney360  
 Reviewer for Kidney International  
 Reviewer for Microvascular Research  
 Reviewer for Molecular Cell Biology by Lodish et al. (6th edition)  
 Reviewer for The Open Urology and Nephrology Journal  
 Reviewer for Theoretical Biology and Medical Modeling  
 Reviewer for Tissue Engineering  
 Reviewer for Translational Research

### **SCHOLASTIC HONORS**

2023	Outstanding Undergraduate Research Mentor Award, School of Medicine, University of Utah
2022	Fellow of American Society of Nephrology
2001 - Present	Faculty advisor to 36 University of Utah Undergraduate Research Grant recipients
2001 - Present	Number of invited talks to colloquia or seminar series: 17
2001	United Engineering Foundation Conference Fellowship for New Professionals
1998	Student Travel Award, Annual Meeting of the Biomedical Engineering Society
1996	Special Recognition Award, Poster Retreat, Institute of Biosciences and Bioengineering and the Department of Biochemistry and Cell Biology, Rice University, Houston, TX
1994	Graduate Student Fellowship, Department of Chemical Engineering, Rice University, Houston, TX
1993	Undergraduate Summer Research Program Scholarship, National Science Council, Taipei, Taiwan (Project: Computational modeling of drug delivery)
1993	National Outstanding Chemical Engineering Student Scholarship, Li-Ching Foundation, Taipei, Taiwan

- 1993 President's Award (top 5% of the class), National Taiwan University, Taipei, Taiwan
- 1993 Sun Jui-Chiang's Scholarship, Department of Chemical Engineering, National Taiwan University, Taipei, Taiwan

## **ADMINISTRATIVE EXPERIENCE**

### **Administrative Duties**

- 2014 - Present Active participation in local services at the University of Utah and Salt Lake City VA Medical Center: Chair and Member on the Department of Internal Medicine Research Advisory Committee; Member on the School of Medicine Admissions Committee and the MD/PhD Program Admissions Committee; Participating faculty in the Health Sciences LEAP program and the Undergraduate Research Education Series; Member on the Oversight Committee, Health Sciences Center Cell Imaging Core Facility; Member on the VASLCHCS IACUC
- 2015 - Present Active participation in the research community at the national and international levels: Ad hoc member on the NIH KUFD study section and BTSS study section; Member on the AHA Peer Review Committees; Member on the Biomedical Engineering Society (BMES) Affiliations Committee and Abstract Reviewer for the BMES Annual Meetings; Reviewer for over 30 journals ranging broadly from engineering and biophysics to biomedical sciences; Associate Editor for Frontiers in Bioengineering and Biotechnology – Biomechanics; Member on the Editorial Boards of 4 journals (The Open Urology and Nephrology Journal, Kidney 360, Frontiers in Bioengineering and Biotechnology – Biomaterials, Frontiers in Pharmacology)

### **Professional Organization & Scientific Activities**

- 2016 - 2018 Abstract Reviewer, Biomedical Engineering Society, Review abstracts submitted for the BMES Annual Meetings
- 2015 - 2018 Member, Biomedical Engineering Society, Affiliations Committee
- 2004 - 2006 Member, Society of Women Engineers, University of Utah Chapter
- 2003 Moderator, National Conferences on Undergraduate Research, 17th National Conference, University of Utah

### **Grant Review Committee/Study Section**

- 2021 - Present Ad hoc member, NIH Kidney and Urological Systems Function and Dysfunction (KUFD) study section and Bioengineering, Technology, and Surgical Sciences (BTSS) study section
- 2018 - Present Grant Reviewer, The Netherlands Organisation for Scientific Research (NWO domain Applied and Engineering Sciences)
- 2017 - Present Grant Reviewer, University of Utah Center of Clinical and Translational Science (CCTS) (now Clinical and Translational Science Institute (CTSI)) Peer Grant Review Program
- 2017 - Present Grant Reviewer, University of Utah Seed Grant Application
- 2016 - Present Member, American Heart Association Peer Review Study Groups: Vascular Endothelial Biology and Basic Vascular Sciences

2006 External Grant Reviewer, Alberta Heritage Foundation for Medical  
2004 External Grant Reviewer, American Chemical Society Petroleum Research

### **PROFESSIONAL COMMUNITY ACTIVITIES**

2006 - 2007 Member, Salt Lake Valley Regional Science & Engineering Fair, Scientific Review Committee  
2002 Moderator, Salt Lake Community College, SLCC Biotechnology Summit, Miller Campus, UT

### **UNIVERSITY COMMUNITY ACTIVITIES**

#### **University Level**

2007 - 2010 Member, University Financial Aids and Scholarship Committee

#### **University of Utah Health**

2017 - 2019 Member, Cell Imaging Core Facility, Oversight Committee  
2014 - Present Participating Faculty, Health Sciences LEAP Program, Research Mentor and Speaker at the Health Sciences LEAP Class (UUhsc 3000 - Health Sciences Research Seminar for Advanced LEAP Students)

#### **College Level**

2022 - Present Member, MD/PhD Program Admissions Committee  
2016 - 2019 Member, School of Medicine Admissions Committee  
2004 - 2006 Council Member, College of Engineering, College Council  
2002 - 2005 Member, College of Engineering, Undergraduate Scholarships Committee

#### **Department Level**

2021 - Present Chair, Internal Medicine, Research Advisory Committee  
2016 - 2019 Member, Internal Medicine, Research Advisory Committee  
2006 - 2007 Member, Biomedical Engineering, Graduate Council Review  
2005 - 2010 Advisor, Biomedical Engineering, BS/MS Program  
2004 - 2010 Member, Biomedical Engineering, Graduate Committee  
2002 - 2005 Chair, Biomedical Engineering, Undergraduate Scholarships Committee  
2002 - 2004 Member, Biomedical Engineering, Graduate Admissions Committee and Graduate Fellowships Committee

#### **Programs, Centers & Institutes**

2016 - 2018 Participating Faculty, Undergraduate Research Opportunities Program, Discipline-Specific Writing: Medicine (Undergraduate Research Education Series)

### **SERVICE AT AFFILIATED INSTITUTIONS**

2017 - Present Scientific Member and Voting Member, Salt Lake Veterans Administration Medical Center, Institutional Animal Care and Use Committee

## **CURRENT MEMBERSHIPS IN PROFESSIONAL SOCIETIES**

American Society of Nephrology

### **FUNDING**

#### **Active Grants**

- 07/01/21 - 05/31/25 R01DK129299  
Nanotechnology as a Therapeutic Approach in Arteriovenous Fistula Maturation  
Principal Investigator(s): Yan-Ting Shiu (Contact PI), Edgar Jaimes  
Direct Costs: \$1,437,156 Total Costs: \$1,750,937  
National Institute of Diabetes and Digestive and Kidney Diseases  
Role: Principal Investigator (Contact PI)
- 06/01/21 - 04/30/25 R01HL153244  
Autophagy and Arteriovenous Fistula Maturation  
Principal Investigator(s): Timmy Lee (Contact PI), Yan-Ting Shiu, John David Symons  
Direct Costs: \$1,804,939 Total Costs: \$2,150,248  
National Heart, Lung, and Blood Institute  
Role: Principal Investigator (MPI)
- 09/17/19 - 06/30/24 R01DK121227  
Dual Role of Lysyl Oxidase in Arteriovenous Fistula Failure  
Principal Investigator(s): Roberto Vazquez-Padron (Contact PI), Yan-Ting Shiu  
Direct Costs: \$1,319,900 Total Costs: \$1,899,789  
National Institute of Diabetes and Digestive and Kidney Diseases  
Role: Principal Investigator (MPI)
- 10/01/18 - 09/30/23 I01BX004133  
Mechanisms of Imbalanced Inward and Outward Arteriovenous Fistula Remodeling  
Principal Investigator(s): Yan-Ting Shiu  
Direct Costs: \$927,904 Total Costs: \$927,904  
Veterans Affairs Merit Review Award  
Role: Principal Investigator
- 12/15/17 - 11/30/23 R01HL139692  
Hemodynamic Adaptation and Vascular Remodeling in Fistula Development  
Principal Investigator(s): Timmy Lee  
Direct Costs: \$1,587,180 Total Costs: \$2,116,180  
National Heart, Lung, and Blood Institute  
Role: Co-Investigator

#### **Pending Grants**

- 10/01/23 - 09/30/27 I01BX006269  
AGE-RAGE Signaling in Arteriovenous Fistula Remodeling  
Principal Investigator(s): Yan-Ting Shiu  
Direct Costs: \$1,169,638 Total Costs: \$1,169,638  
Veterans Affairs Merit Review Award  
Role: Principal Investigator

10/01/23 - 09/30/27 I01BX006078  
 BCCMA: Cardiovascular Remodeling following Arteriovenous Fistula Creation:  
 Aging Contributes to Adverse Arteriovenous Fistula Remodeling  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$1,200,000 Total Costs: \$1,200,000  
 Veterans Affairs Merit Review Award  
 Role: Principal Investigator

09/01/23 - 08/31/28 R01DK136297  
 Integrin Activation to Prevent Early Arteriovenous Fistula Failure in End-stage  
 Renal Disease Patients  
 Principal Investigator(s): Roberto Vazquez-Padron (Contact PI), Vineet Gupta,  
 Yan-Ting Shiu  
 Direct Costs: \$1,964,992 Total Costs: \$3,072,542  
 National Institute of Diabetes and Digestive and Kidney Diseases  
 Role: Principal Investigator (MPI)

09/01/23 - 08/31/28 R01HL166602  
 Arteriovenous Fistula Remodeling in the Setting of Atherosclerosis  
 Principal Investigator(s): Timmy Lee (Contact PI), Ho-Wook Jun, Jeonga Kim  
 Direct Costs: \$1,958,874 Total Costs: \$2,795,403  
 National Heart, Lung, and Blood Institute  
 Role: Co-Investigator

**Past Grants**

07/01/21 - 06/30/22 Role of Noncoding RNAs in Vascular Function in Chronic Kidney Disease –  
 A pilot study in CRIC  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$48,539 Total Costs: \$74,022  
 National Institute of Diabetes and Digestive and Kidney Diseases Chronic  
 Renal Insufficiency (CRIC) Opportunity Pool Program  
 Role: Principal Investigator

08/07/14 - 07/31/20 R01DK100505  
 Mechanotransduction in Neointimal Hyperplasia Formation in Arteriovenous  
 Grafts  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$870,000 Total Costs: \$1,296,300  
 National Institute of Diabetes and Digestive and Kidney Diseases  
 Role: Principal Investigator

07/01/19 - 06/30/20 51006067  
 Using Ultrasound Elastography to Guide Hemodialysis Fistula Creation  
 Surgery  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$15,000 Total Costs: \$15,000  
 National Kidney Foundation of Utah and Idaho  
 Role: Principal Investigator

02/01/19 - 12/31/19 50503524  
 The Effects of the NVS Compound on Vascular Wall Cells and  
 Arteriovenous Fistula Remodeling  
 Principal Investigator(s): Yan-Ting Shiu

Direct Costs: \$50,000 Total Costs: \$68,250  
 Alucent Biomedical, Inc.  
 Role: Principal Investigator

07/01/16 - 03/31/18 54503387  
 UAB Fee-For-Service (MRI-CFD Study of Mouse AVF; UAB Nephrology Research and Training Center Anderson Innovation Award; PI: Lee; Total Costs: \$50,000)  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$6,594 Total Costs: \$9,000  
 University of Alabama at Birmingham  
 Role: Principal Investigator

09/01/15 - 08/31/16 50502946  
 Phase I Project for AFE System and AVF Outflow Vein CFD  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$9,183 Total Costs: \$13,683  
 Flow Forward Medical, Inc.  
 Role: Principal Investigator

08/14/14 - 06/30/15 51005096  
 Sunitinib as a Potential Treatment of Hemodialysis Vascular Access Stenosis  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$15,000 Total Costs: \$15,000  
 National Kidney Foundation of Utah and Idaho  
 Role: Principal Investigator

04/01/13 - 03/31/19 726  
 Elastin Coating for Improving Indwelling Catheters  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$29,708 Total Costs: \$29,708  
 Western Institute For Biomedical Research (now Western Institute For Veterans Research)  
 Role: Principal Investigator

01/01/09 - 12/31/11 \*0970307N  
 Preventing Stenosis of Synthetic Vascular Grafts by Modest Ultrasound Heating  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$136,000 Total Costs: \$149,600  
 American Heart Association National Program  
 Role: Principal Investigator  
*\* Received a 3rd percentile score.*

07/01/07 - 06/30/09 0765113Y  
 Mechanical Strain and High Glucose Effects on Vascular Endothelium  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$127,272 Total Costs: \$140,000  
 American Heart Association Western States Affiliate  
 Role: Principal Investigator

08/01/04 - 07/31/05 51003073  
 Role of Mechanical Stresses in the Repair of Wounded Vascular Endothelium Under Hyperglycemic Conditions  
 Principal Investigator(s): Yan-Ting Shiu



Direct Costs: \$29,500 Total Costs: \$29,500  
 University of Utah Research Foundation  
 Role: Principal Investigator

02/01/03 - 01/31/06 RG020133  
 Mechanical Regulation of Vascular Endothelial Cell Remodeling to Form  
 New Blood Vessels  
 Principal Investigator(s): Yan-Ting Shiu  
 Direct Costs: \$194,040 Total Costs: \$237,370  
 Whitaker Foundation  
 Role: Principal Investigator

07/01/18 - 05/31/22 R01HL141540  
 Autophagy Maintains Vascular Function through a Novel Glycolysis-linked  
 Pathway Regulating eNOS  
 Principal Investigator(s): J. David Symons  
 Direct Costs: \$1,143,540 Total Costs: \$1,743,899  
 National Heart, Lung, and Blood Institute  
 Role: Co-Investigator

09/01/16 - 03/31/21 R01AG050238  
 Telomere Uncapping and Arterial Dysfunction: Novel Mechanism and  
 Implications for Aging  
 Principal Investigator(s): Anthony J. Donato  
 Direct Costs: \$1,085,395 Total Costs: \$1,561,681  
 National Institute on Aging  
 Role: Co-Investigator

07/01/11 - 04/30/17 R01DK088777  
 Hemodynamics and Vascular Wall Biology Determine Arteriovenous Fistula  
 Maturation  
 Principal Investigator(s): Alfred K. Cheung (Contact  
 PI), Scott Berceci, Prabir Roy-Chaudhury  
 Direct Costs: \$2,290,502 Total Costs: \$2,588,901  
 National Institute of Diabetes and Digestive and  
 Kidney Diseases  
 Role: Co-Investigator

09/01/06 - 08/31/13 R01HL67646  
 Prevention of Hemodialysis Vascular Access Stenosis  
 Principal Investigator(s): Alfred K. Cheung  
 Direct Costs: \$3,720,552 Total Costs: \$5,532,724  
 National Heart, Lung, and Blood Institute  
 Role: Co-Investigator

07/01/08 - 06/30/10 R15HL089926  
 Combating Restenosis with Surface Nano-Texturing  
 Principal Investigator(s): S. Aouadi, Southern Illinois University  
 Direct Costs: \$216,750 Total Costs: \$216,750  
 National Heart, Lung, and Blood Institute  
 Role: Co-Investigator

04/01/05 - 03/31/08 R21HL080610  
 Antithrombin III Targeting to HSPG- & Heparin-Coated Surfaces  
 Principal Investigator(s): Susan C. Bock

Direct Costs: \$250,000 Total Costs: \$398,814  
National Heart, Lung, and Blood Institute  
Role: Co-Investigator

## **TEACHING RESPONSIBILITIES/ASSIGNMENTS**

### **Course and Curriculum Development**

Spring 2008, 2010	MODIFIED, BIOEN 5001 Biophysics: 4 credit hours, taught 2 times, approx. 50 students per class
Spring 2006, 2008, 2010	NEW, BIOEN 6065 Biotransport Phenomena: 3 credit hours, taught 3 times, approx. 10 students per class (first offered as a Special Topic class in 2006, 2 credit hours)
Spring 2003, 2004, 2005, 2007	MODIFIED, BIOEN 6140 Fundamentals of Tissue Engineering: 2 credit hours, taught 4 times, approx. 16 students per class
Fall 2002-2009	NEW, BIOEN 6050 Cellular Physiology for Engineers: 3 credit hours, taught 8 times, approx. 20 students per class

### **Course Lectures**

Fall 2016	Undergraduate Bioengineering Colloquia Speaker, BIOEN 3091: Current Research in Bioengineering
Fall 2016, 2020-2022	Presenter, UHSC 3000: Health Sciences Research Seminar for Advanced LEAP Students
Spring 2010	Co-instructed with Dr. White, BIOEN 5001: Biophysics, 56 students
Spring 2010	Instructor, BIOEN 6065: Biotransport Phenomena, 13 students
Fall 2009	Instructor, BIOEN 6050: Cellular Physiology for Engineers, 10 students
Spring 2009	Co-instructed with Drs. Broadhead, Joshi, and MacLeod, BIOEN 4202: Senior Thesis Project, 31 students
Fall 2008	Instructor, BIOEN 6050: Cellular Physiology for Engineers, 12 students
Fall 2008	Co-instructed with Drs. Broadhead, Joshi, and MacLeod, BIOEN 4201: Senior Thesis Project, 33 students
Spring 2008	Instructor, BIOEN 5001: Biophysics, 31 students
Spring 2008	Instructor, BIOEN 6065: Biotransport Phenomena, 7 students
Fall 2007	Instructor, BIOEN 6050: Cellular Physiology for Engineers, 16 students
Fall 2007	Instructor, BIOEN 6900: Special Topic: Cellular Physiology, 4 students
Spring 2007	Instructor, BIOEN 6061: Scientific Presentation II, 29 students
Spring 2007	Instructor, BIOEN 6140: Fundamentals of Tissue Engineering, 25 students
Fall 2006	Instructor, BIOEN 6050: Cellular Physiology for Engineers, 25 students
Fall 2006	Instructor, BIOEN 6900: Special Topic: Cellular Physiology, 4 students
Spring 2006	Instructor, BIOEN 6061: Scientific Presentation II, 16 students
Spring 2006	Instructor, BIOEN 6900: Special Topic: Biotransport Phenomena, 8 students
Fall 2005	Instructor, BIOEN 6050: Cellular Physiology for Engineers, 12 students
Spring 2005	Instructor, BIOEN 6061: Scientific Presentation II, 33 students
Spring 2005	Instructor, BIOEN 6140: Fundamentals of Tissue Engineering, 15 students
Fall 2004	Instructor, BIOEN 6050: Cellular Physiology for Engineers, 30 students
Spring 2004	Instructor, BIOEN 6140: Fundamentals of Tissue Engineering, 15 students
Spring 2004	Instructor, BIOEN 6061: Scientific Presentation II, 26 students

Fall 2003	Instructor, BIOEN 6050: Cellular Physiology for Engineers, 40 students
Spring 2003	Instructor, BIOEN 6900: Special Topic: Scientific Presentation II, 15 students
Spring 2003	Instructor, BIOEN 6140: Fundamentals of Tissue Engineering, 9 students
Spring 2003	Instructor, BIOEN 6090: Bioengineering Department Seminar, 2 students
Fall 2002	Instructor, BIOEN 6050: Cellular Physiology for Engineers, 16 students
Fall 2002	Instructor, PHYSL 6020: Cellular Physiology, 2 students

### **Laboratory Teaching**

2002 - Present	Research advisor of 4 PhD students, 14 masters students, and 46 undergraduate students in my laboratory, as well as member of 33 masters and doctoral research supervisory committees at the University of Utah since 2002.
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### **Trainee Supervision**

#### Visiting Faculty

2018 - 2019	Research Advisor, Yingnan Li, Baodi Clinical College of Tianjin Medical University, J-1 Visiting Scholar (Dr. Li is a Practicing Nephrologist in the Division of Nephrology, Baodi Clinical College of Tianjin Medical University, Tianjin, China)
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#### Interns/Gap-Year Students

2023 - Present	Supervisor, Joshua Chang, University of Utah, Research Intern and Lab Technician
2022 - Present	Supervisor, Amani Oumar, University of Utah, Research Intern and Lab Technician
2021 - 2022	Supervisor, Brayden Fairbourn, University of Utah, Research Intern and Lab Technician (went on to University of Utah School of Medicine, Class of 2026)
2020 - 2021	Supervisor, Marina Knysheva, University of Utah, Research Intern and Lab Technician (went on to University of Utah School of Medicine, Class of 2025)
2018 - 2020	Supervisor, Jason Chieh Sheng Tey, University of Utah, Research Intern and Lab Technician (went on to Kentucky College of Osteopathic Medicine, Class of 2024)
2017 - 2019	Supervisor, Ha Le, University of Utah, Research Intern and Lab Technician (went on to University of Utah School of Medicine, Class of 2023)
2016 - 2017	Supervisor, Yun-Feng Candice Cho, University of Utah, Research Intern and Lab Technician (went on to Cornell University for graduate studies)

#### Medical Student

2023 - Present	Yingri Annie Li, University of Utah School of Medicine, Class of 2026
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#### Postdoctoral Fellow

2022 - Present	Hannah Northrup, Ph.D., Division of Nephrology & Hypertension, University of Utah
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#### PhD/Doctorate

2022	Advisor & Chair of Research Supervisory Committee, Hannah Northrup, University of Utah, Department of Biomedical Engineering (Ph.D., 2022)
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- 2019 Advisor & Chair of Research Supervisory Committee, Daniel Pike, University of Utah, Department of Biomedical Engineering (Ph.D., 2019)
- 2013 Co-Advisor & Co-Chair of Research Supervisory Committee, Christopherson Gibson, University of Utah, Department of Biomedical Engineering (Ph.D., 2013, Primary Advisor: D. Li, M.D./Ph.D. Program)
- 2012 Advisor & Chair of Research Supervisory Committee, Justin Wilkins, University of Utah, Department of Biomedical Engineering (Ph.D., 2012)

MD, PhD

- 2021 Instructor in Dr. Chung-Te Liu Liu's PhD Training Course, Chung-Te Liu, Taipei Medical University, Ph.D. Advisor: Dr. Po-Hsun Huang (Dr. Liu is a Practicing Nephrologist in the Division of Nephrology, Department of Internal Medicine, Wanfang Hospital, Taipei, Taiwan) (Ph.D., 2021)

Masters

- 2023 - Present Advisor & Chair of Research Supervisory Committee, Gabrielle Hadinger, University of Utah, Department of Biomedical Engineering
- 2023 Advisor & Chair of Research Supervisory Committee, Britney Chen, University of Utah, Department of Biomedical Engineering (M.S., 2023)
- 2023 Advisor & Chair of Research Supervisory Committee, Shelly Baltazar, University of Utah, Department of Biomedical Engineering (M.S., 2023)
- 2022 Advisor & Chair of Research Supervisory Committee, Samantha Vranes, University of Utah, Department of Biomedical Engineering (M.S., 2022)
- 2020 Advisor & Chair of Research Supervisory Committee, Isabelle Falzon, University of Utah, Department of Biomedical Engineering (M.S., 2020)
- 2014 Advisor & Chair of Research Supervisory Committee, Michelle Fitts, University of Utah, Department of Biomedical Engineering (M.S., 2014)
- 2013 Co-Advisor & Co-Chair of Research Supervisory Committee, Michael Query, University of Utah, Department of Electrical and Computer Engineering (M.S., 2013, Primary Advisor: D. Christensen)
- 2011 Advisor & Chair of Internship Supervisory Committee, Ming-Wei Alyssa Li, University of Utah, Professional Master of Science and Technology - Biotechnology Track, 2011
- 2010 Co-Advisor & Co-Chair of Research Supervisory Committee, Mark Brinton, University of Utah, Department of Electrical and Computer Engineering (M.S., 2010, Primary Advisor: D. Christensen)
- 2010 Advisor & Chair of Research Supervisory Committee, Luis Cheng Sun, University of Utah, Department of Biomedical Engineering (M.S., 2010)
- 2010 Advisor & Chair of Research Supervisory Committee, R. Jay Christopherson, University of Utah, Department of Biomedical Engineering (M.S., 2010)
- 2009 Advisor & Chair of Research Supervisory Committee, Matthew Iwamoto, University of Utah, Department of Biomedical Engineering (M.S., 2009)
- 2005 Advisor & Chair of Research Supervisory Committee, Cole Quam, University of Utah, Department of Biomedical Engineering (M.S., 2005)
- 2005 Advisor & Chair of Research Supervisory Committee, Sandeep Todi, University of Utah, Department of Biomedical Engineering (M.E., 2005)

Undergraduate

2022 - Present	Research Advisor & Senior Thesis Advisor, Emma Breen, University of Utah, Major in Biomedical Engineering (Honors College)
2022 - Present	Research Advisor & Senior Thesis Advisor, River Tobias, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
2022 - Present	Research Advisor & Senior Thesis Advisor, Alec Tzeng, University of Utah, Major in Biomedical Engineering
2022 - 2023	Research Advisor, Joshua Chang, University of Utah, Major in Biology (Honors College), The Beehive Honor Society Class of 2023
2021 - Present	Research Advisor & Senior Thesis Advisor, Nicholas Thomson, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
2021	Research Advisor, Adam Ford, University of Utah, Major in Biochemistry
2021 - 2023	Research Advisor & Senior Thesis Advisor, Gabrielle Hadinger, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
2020 - 2022	Research Advisor & Senior Thesis Advisor, Parker Selbo, University of Utah, Major in Biomedical Engineering
2020 - 2022	Research Advisor & Senior Thesis Advisor, Britney Chen, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
2020 - 2022	Research Advisor, Amani Oumar, University of Utah, Major in Kinesiology with an emphasis in Exercise Science and minoring in Gerontology, Participant of Health Sciences LEAP Program, Recipient of U of U Undergraduate Research Opportunities Program Grant
2020 - 2022	Research Advisor & Senior Thesis Advisor, Simran Karim, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
2020 - 2021	Research Advisor, Scott McMullin, University of Utah, Major in Chemistry, Recipient of U of U Undergraduate Research Opportunities Program Grant
2019 - 2021	Research Advisor, Brayden Fairbourn, University of Utah, Major in Chemistry, Recipient of U of U Undergraduate Research Opportunities Program Grant
2019 - 2020	Research Advisor, Eli Dalton, University of Utah, Major in Electrical and Computer Engineering
2019 - 2021	Research Advisor, Savanna Cahoon, University of Utah, Major in Biology, Recipient of U of U Undergraduate Research Opportunities Program Grant
2019 - 2021	Research Advisor & Senior Thesis Advisor, Samantha Vranes, University of Utah, Major in Biomedical Engineering, Participant of Health Sciences LEAP Program, Recipient of U of U Undergraduate Research Opportunities Program Grant
2019 - 2022	Research Advisor & Senior Thesis Advisor, Shelly Baltazar, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
2019 - 2020	Research Advisor & Senior Thesis Advisor, Mark Eisele, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant

2018 - 2020 Research Advisor, Spencer Tingey, University of Utah, Major in Chinese, Recipient of U of U Undergraduate Research Opportunities Program Grant

2018 Research Advisor, Jack Fan, Rice University, Major in Mathematics

2018 - 2020 Research Advisor, Marina Knysheva, University of Utah, Major in Health Promotion and Education, Recipient of U of U Undergraduate Research Opportunities Program Grant and Chevron Foundation-Undergraduate Research Scholarship

2017 Research Advisor, Hawa Dahir, University of Utah, Major in Health, Society, and Policy

2017 - 2020 Research Advisor & Senior Thesis Advisor, Miriam Vail, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant

2017 - 2019 Research Advisor & Senior/Honors Thesis Advisor, Isabelle Falzon, University of Utah, Major in Biomedical Engineering (Honors College), Recipient of U of U Undergraduate Research Opportunities Program Grant

2016 - 2020 Research Advisor, Noelle Huhn, University of Utah, Major in International Studies, Recipient of U of U Undergraduate Research Opportunities Program Grant

2016 - 2018 Research Advisor & Senior Thesis Advisor, Ashely Lewis, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant

2015 - 2017 Research Advisor, Alexia Teran, University of Utah, Major in Biology, Recipient of U of U Undergraduate Research Opportunities Program Grant

2015 Research Advisor, Ha Le, Harvard University, Major in Biomedical Engineering

2014 - 2018 Research Advisor, Chad Sundberg, University of Utah, Major in Biology, Recipient of U of U Undergraduate Research Opportunities Program Grant

2014 - 2018 Research Advisor, Jason Chieh Sheng Tey, University of Utah, Major in Biology, Participant of Health Sciences LEAP Program, Recipient of U of U Undergraduate Research Opportunities Program Grant

2014 - 2016 Research Advisor & Senior Thesis Advisor, Yun-Feng Candice Cho, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant

2011 - 2014 Research Advisor, Kasey Anderson, University of Utah, Major in English, Participant of College of Science ACCESS Program, Recipient of U of U Undergraduate Research Opportunities Program Grant

2009 Research Advisor & Senior Thesis Advisor, Atsutoshi Kubota, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant

2008 Research Advisor & Senior Thesis Advisor, Chad Tagge, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant

2008 Research Advisor & Senior Thesis Advisor, Jessie France, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant

- 2007 Research Advisor & Senior Thesis Advisor, Darren Stirland, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
- 2007 Research Advisor & Senior Thesis Advisor, Vasiliy Chernyshev, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
- 2006 Research Advisor & Senior Thesis Advisor, R. Joel Welch, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
- 2006 Research Advisor & Senior Thesis Advisor, Jacob Jensen, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
- 2005 Research Advisor & Senior Thesis Advisor, Luis Cheng-Sun, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
- 2005 Research Advisor & Senior Thesis Advisor, Taylor Moore, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
- 2005 Research Advisor & Senior Thesis Advisor, Jessica Sorensen, University of Utah, Major in Biomedical Engineering
- 2004 Research Advisor & Senior Thesis Advisor, Ming-Wei Alyssa Li, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
- 2003 Research Advisor & Senior Thesis Advisor, Cole Quam, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant, Invited Undergraduate Research Presentation by the American Physiological Society in Experimental Biology 2004.
- 2002 Research Advisor & Senior Thesis Advisor, Matthew Iwamoto, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant
- 2002 Research Advisor & Senior Thesis Advisor, Carlos Buckner, University of Utah, Major in Biomedical Engineering, Recipient of U of U Undergraduate Research Opportunities Program Grant

#### High School

- 2015 - 2017 Research Advisor, Jack Fan, Skyline High School
- 2013 - 2014 Research Advisor, Jason Chieh Sheng Tey, Hillcrest High School

#### **Graduate Student Committees**

- 2023 - Present Chair, Gabrielle Hadinger, University of Utah, Department of Biomedical Engineering (M.S., 2024, expected)
- 2022 - 2023 Chair, Britney, University of Utah, Department of Biomedical Engineering (M.S., 2023)

2022 - 2023 Chair, Shelly Baltazar, University of Utah, Department of Biomedical Engineering (M.S., 2023)

2021 - Present Member, Hossein Abdeahad, University of Utah, Department of Nutrition and Integrative Physiology (Ph.D. student, Advisor: A. Donato)

2021 - 2022 Chair, Samantha Vranes, University of Utah, Department of Biomedical Engineering (M.S., 2022)

2019 - 2020 Chair, Isabelle Falzon, University of Utah, Department of Biomedical Engineering (M.S., 2020)

2019 - 2022 Member, Torikul Islam, University of Utah, Department of Nutrition and Integrative Physiology (Ph.D., 2022, Advisor: L. Lesniewski)

2018 - 2022 Chair, Hannah Northrup, University of Utah, Department of Biomedical Engineering (Ph.D., 2022)

2017 - 2022 Member, Kelly Smith, University of Utah, Department of Biomedical Engineering (Ph.D. 2022, Advisor: L. Timmins)

2017 - 2022 Member, Steven LaBelle, University of Utah, Department of Biomedical Engineering (Ph.D., 2022, Advisor: J. Weiss)

2017 - 2021 Member, Jae Min Cho, University of Utah, Department of Nutrition and Integrative Physiology (Ph.D., 2021, Advisor: J.D. Symons)

2019 Chair, Daniel Pike, University of Utah, Department of Biomedical Engineering (Ph.D., 2019)

2014 Member, Meghana Pandit, University of Utah, Department of Pharmaceutics & Pharmaceutical Chemistry (Ph.D., 2014, Advisor: D. Kohan)

2014 Chair, Michelle Fitts, University of Utah, Department of Biomedical Engineering (M.S., 2014)

2013 Member, Lowell Edgar, University of Utah, Department of Biomedical Engineering (Ph.D., 2013, Advisor: J. Weiss)

2013 Member, Laura Chapin, University of Utah, Department of Oncological Sciences (Ph.D., 2013, Advisor: M. Beckerle)

2013 Member, Kathleen Job, University of Utah, Department of Biomedical Engineering (Ph.D., 2013, Advisor: V. Hlady)

2013 Member, Sun Hyung Kwon, University of Utah, Department of Pharmacology & Toxicology (Ph.D., 2013, Advisor: D. Blumenthal)

2013 Co-Chair, Michael Query, University of Utah, Department of Electrical and Computer Engineering (M.S., 2013, Primary Advisor: D. Christensen)

2013 Co-Chair, Christopherson Gibson, University of Utah, Department of Bioengineering (Ph.D., 2013, Primary Advisor: D. Li)

2012 Member, Yi Wang, University of Utah, Department of Biomedical Engineering (Ph.D., 2012, Advisor: D. Parker)

2012 Member, Vy Tran, University of Utah, Department of Biomedical Engineering (Ph.D., 2012, Advisor: K. Balagurunathan)

2012 Member, Bradley Borden, University of Utah, Department of Biomedical Engineering (Ph.D., 2012, Advisor: S. Kim)

2012 Chair, Justin Wilkins, University of Utah, Department of Biomedical Engineering (Ph.D., 2012)



2011 Member, Venkatareddy Nadithe, University of Utah, Department of  
Pharmaceutics & Pharmaceutical Chemistry (Ph.D., 2011, Advisor: Y. Bae)

2011 Member, Lindsey Corum, University of Utah, Department of Biomedical  
Engineering (Ph.D., 2011, Advisor: V. Hlady)

2011 Member, Deepa Mishra, University of Utah, Department of Biomedical  
Engineering (Ph.D., 2011, Advisor: Y. Bae)

2011 Chair, Ming-Wei Alyssa Li, University of Utah

2010 Member, Allen Fung, University of Utah, Department of Biomedical  
Engineering (M.S., 2010, Advisor: J. Weiss)

2010 Member, Aleksander Skardal, University of Utah, Department of Biomedical  
Engineering (Ph.D., 2010, Advisor: G. Prestwich)

2010 Co-Chair, Mark Brinton, University of Utah, Department of Electrical and  
Computer Engineering (M.S., 2010, Primary Advisor: D. Christensen)

2010 Chair, Luis Cheng Sun, University of Utah, Department of Biomedical  
Engineering (M.S., 2010)

2010 Chair, R. Jay Christopherson, University of Utah, Department of Biomedical  
Engineering (M.S., 2010)

2009 Member, Jeffrey Wolchok, University of Utah, Department of Biomedical  
Engineering (Ph.D., 2009, Advisor: P. Tresco)

2009 Member, Adam Beckstrom, University of Utah, Department of Biomedical  
Engineering (M.S., 2009, Co-advisors: R. Bloebaum & J. Skedros)

2009 Member, Manpreet Kaur, University of Utah, Department of Biomedical  
Engineering (M.S., 2009, Department of Bioengineering, Advisor: P. Kiser)

2009 Member, Bing Leng, University of Utah, Department of Biomedical  
Engineering (Ph.D., 2009, Department of Bioengineering, Advisor: S. Bock)

2009 Member, Trevor Shelton, University of Utah, Department of Biomedical  
Engineering (M.S., 2009, Advisor: K. Bachus)

2009 Member, Laxminarayanan Krishnan, University of Utah, Department of  
Biomedical Engineering (Ph.D., 2009, Advisor: J. Weiss)

2009 Chair, Matthew Iwamoto, University of Utah, Department of Biomedical  
Engineering (M.S., 2009)

2008 Member, Daniel Vickers, University of Utah, Department of Biomedical  
Engineering (M.S., 2008, Advisor: D. Christensen)

2008 Member, Bret Bergstrom, University of Utah, Department of Biomedical  
Engineering (M.E., 2008, Advisor: D. Westenskow)

2007 Member, Monica Serban, University of Utah, Department of Medicinal  
Chemistry (Ph.D., 2007, Advisor: G. Prestwich)

2006 Member, Chad Brokopp, University of Utah, Department of Biomedical  
Engineering (M.S., 2006, Advisor: P. Tresco)

2005 Member, Bryin Wright, University of Utah, Department of Biomedical  
Engineering (Ph.D., 2005, Advisor: V. Hlady)

2005 Member, Kristin Fitzpatrick, University of Utah, Department of Biomedical  
Engineering (M.S., 2005, Advisor: G. Prestwich)

- 2005 Member, Gerald Hodgkinson, University of Utah, Department of Biomedical Engineering (Ph.D., 2005, Advisor: V. Hlady)
- 2005 Member, Bryan Howard, University of Utah, Department of Biomedical Engineering (M.S., 2005, Advisor: N. Rapoport)
- 2005 Chair, Sandeep Todi, University of Utah, Department of Biomedical Engineering (M.E., 2005)
- 2005 Chair, Cole Quam, University of Utah, Department of Biomedical Engineering (M.S., 2005)
- 2004 Member, Rosalina Das, University of Utah, Department of Biomedical Engineering (M.S., 2004, Advisor: J. Weiss)

### **Internal Teaching Experience**

- 2010 - Present Nephrology Research Conference (Wednesday: 10/27/2010, 4/6/2011, 3/7/2012, 6/27/2012, 11/28/2012, 6/11/2014, 5/6/2015, 12/16/2020, 8/4/2021, 5/4/2022, 10/19/2022; Friday: 3/1/2013, 5/7/2013, 9/20/2013, 1/24/2014, 5/9/2014, 12/5/2014, 1/30/2015, 6/26/2015, 3/25/2016, 3/24/2017, 9/14/2018, 5/1/2020, 6/25/2021)
- 2003 Mathematical Biology Program Seminar, University of Utah
- 2002 Bioengineering Department Seminar, University of Utah
- 2002 Center for Biopolymers at Interfaces, University of Utah

### **Additional Teaching Contribution**

- 2002 - Present Active participation in undergraduate research training: Faculty advisor to 3 Honors student, 3 LEAP students, and 36 University of Utah Undergraduate Research Opportunity Grant recipients since 2002.
- 2002 - Present Active participation in graduate research training: Has served as a chair or member of 51 M.S. and Ph.D. Thesis Research Supervisory Committees at the University of Utah since 2002.

### **PEER-REVIEWED JOURNAL ARTICLES**

# = first author (11 papers)

\* = corresponding or co-corresponding author (25 papers)

*Italicized names* = my trainees (32 papers)

1. #, \$He Y, #, \$Shiu YT, Imrey P, Radeva M, Beck G, Gassman J, *Northrup H*, Roy-Chaudhury P, Berceci S, Cheung A; for the Hemodialysis Fistula Maturation Study Group. (2023). Association of shear stress with subsequent lumen remodeling in hemodialysis arteriovenous fistulas. *Clin J Am Soc Nephrol*, 18(1):72-83. (\$: contributed equally to this work)
2. *Northrup H*, He Y, *Le H*, Berceci SA, Cheung AK, \*Shiu YT (2022). Differential hemodynamics between arteriovenous fistulas with or without intervention before successful use. *Front Cardiovasc Med*, 9:1001267.
3. He Y, *Northrup H*, *Le H*, Cheung AK, Berceci SA, \*Shiu YT (2022). Medical image-based computational fluid dynamics and fluid-structure interaction analysis in vascular diseases. *Frontiers in Bioengineering and Biotechnology – Biomechanics Section*, 10, 855791.
4. *Li Y*, He Y, *Falzon I*, *Fairbourn B*, *Tingey S*, Imrey P, Radeva M, Beck G, Gassman J, Roy-Chaudhury P, Berceci SA, Cheung AK, \*Shiu YT, for the Hemodialysis Fistula Maturation Study (2022). Dynamic remodeling of human arteriovenous fistula wall obtained from

- magnetic resonance imaging during the first six months after creation. *Kidney International Reports*, 7(8), 1905-1909.
5. *Liu CT, Hsu SC, Hsieh HL, Chen CH, Chen CY, Sue YM, Chen TH, Hsu YH, Lin FY, Shih CM, \*Shiu YT, Huang PH* (2022). Inhibition of  $\beta$ -catenin signaling attenuates arteriovenous fistula thickening in mice by suppressing myofibroblasts. *Molecular Medicine*, 28 (1), 7.
  6. *Northrup H, Somarathna M, Corless S, Falzon I, Totenhagen J, Lee T, \*Shiu YT* (2021). Analysis of geometric and hemodynamic profiles in rat arteriovenous fistula following PDE5A inhibition. *Frontiers in Bioengineering and Biotechnology*, section Biomechanics, 9, 779043.
  7. *Somarathna M, Hwang P, Millican R, Alexander G, Isayeva-Waldrop T, Sherwood J, Brott B, Falzon I, Northrup H, Shiu YT, Stubben C, Totenhagen J, Jun H, Lee T* (2021). Nitric oxide releasing nanomatrix gel treatment inhibits venous intimal hyperplasia and improves vascular remodeling in a rodent arteriovenous fistula. *Biomaterials*, 280, 121254.
  8. *\*Shiu YT, He Y, Tey JCS, Knysheva M, Anderson B, Kauser K* (2021). Natural Vascular Scaffolding Treatment Promotes Outward Remodeling During Arteriovenous Fistula Development in Rats. *Frontiers in Bioengineering and Biotechnology*, section Tissue Engineering and Regenerative Medicine, 9, 622617.
  9. *Liu CT, Hsu SC, Hsieh HL, Chen CH, Chen CY, Sue YM, Lin FY, Shih CM, \*Shiu YT, Huang PH* (2021). Parathyroid hormone induces transition of myofibroblasts in arteriovenous fistula and increases maturation failure. *Endocrinology*, 162(7), bqab044.
  10. *Hernandez D, Applewhite B, Martinez L, Laurito T, Tabbara M, Rojas M, Wei Y, Selman G, Knysheva M, Velazquez O, Salman LH, Andreopoulos F, Shiu YT, Vazquez-Padron R* (2021). Inhibition of Lysyl Oxidase with b-aminopropionitrile Improves Venous Adaptation after Arteriovenous Fistula Creation. *Kidney360*, 2, 270-278.
  11. *He Y, Northrup H, Roy-Chaudhury R, Cheung AK, Berceci S, \*Shiu YT* (2021). Analyses of hemodialysis arteriovenous fistula geometric configuration and its associations with maturation and reintervention. *Journal of Vascular Surgery*. 73(5), 1778-1786.
  12. *Falzon I, Northrup H, Guo L, Totenhagen J, Lee T, \*Shiu YT* (2020). The geometry of arteriovenous fistulas using endothelial nitric oxide synthase mouse models. *Kidney360*, 1(9), 925-935.
  13. *Yang CY, Li MC, Lan CW, Lee WJ, Lee CJ, Wu CH, Tang JM, Niu YY, Lin YP, Shiu YT, Cheung AK, Lee YHW, Lee OKS, Chien S, Tarng DC* (2020). The anastomotic angle of hemodialysis arteriovenous fistula is associated with flow disturbance at the venous stenosis location on angiography. *Frontiers in Bioengineering and Biotechnology*, section Biomechanics, 8, 846.
  14. *Cho JM, Shiu YT, Symons JD, Lee T* (2020). Vasoreactivity of the murine external jugular vein and carotid artery. *J Vasc Res*, 57(5), 291-301.
  15. *\*Shiu YT, Rotmans JI, Geelhoed WJ, Pike DB, Lee T* (2019). Arteriovenous conduits for hemodialysis: How to better modulate the pathophysiological vascular response to optimize vascular access durability. *AJP Renal Physiol*, 316(5), F794-F806.
  16. *Kubiak RW, Zelnick L, Hoofnagle A, Alpers CE, Terry CM, Shiu YT, Cheung AK, de Boer IH, Robinson-Cohen C, Allon M, Dember LM, Feldman HI, Himmelfarb J, Huber TS, Roy-Chaudhury P, Vazquez MA, Kusek JW, Beck G, Imrey PB, Kestenbaum B, the Hemodialysis Fistula Maturation Study Group* (2019). Mineral metabolism disturbances and arteriovenous fistula maturation. *Eur J Vasc Endovasc Surg*, 57(5), 719-728.
  17. *Pike D, Shiu YT, Cho YF, Le H, Somarathna M, Isayeva T, Guo L, Symons JD, Kevil CG, Totenhagen J, Lee T* (2019). The effect of endothelial nitric oxide synthase on the hemodynamics and wall mechanics in murine arteriovenous fistulas. *Sci Rep*, 9(1), 4299.

18. Park SK, La Salle DT, Cerbie J, Cho JM, Bledsoe A, Nelson A, Morgan DE, Richardson RS, **Shiu YT**, Boudina S, Trinity JD, Symons JD (2018). Elevated arterial shear rate increases indices of endothelial cell autophagy and nitric oxide synthase activation in humans. *Am J Physiol Heart Circ Physiol*, 316(1), H106-H112.
19. Robbin ML, Greene T, Allon M, Dember LM, Imrey PB, Cheung AK, Himmelfarb J, Huber TS, Kaufman JS, Radeva ML, Roy-Chaudhury P, **Shiu YT**, Vazquez MA, Umphrey H, Alexander L, Abts C, Beck GJ, Kusek JW, Feldman HI, the Hemodialysis Fistula Maturation Study Group (2018). Prediction of arteriovenous fistula clinical maturation from post-operative ultrasound measurements: findings from the Hemodialysis Fistula Maturation Study. *J Am Soc Nephrol*, 29 (11), 2735-2744.
20. **Shiu YT**, Jaimes EA (2018). Transcription factor ETS-1 and reactive oxygen species: Role in vascular and renal injury. *Antioxidants (Basel)*, 3(7), 7.
21. Allon M, Litovsky SH, Zhang Y, *Le H*, Cheung AK, **Shiu YT** (2018). Association of preexisting arterial intimal hyperplasia with arteriovenous fistula outcomes. *Clin J Am Soc Nephrol*, 13(9), 1358-1363.
22. Kwon SH, Li L, Terry CM, **Shiu YT**, Moos PJ, Milash BA, Cheung AK, Blumenthal DK (2018). Differential gene expression patterns in vein regions susceptible versus resistant to neointimal hyperplasia. *Physiol Genomics*, 50(8), 615-627.
23. Wang K, Zelnick LR, Hoofnagle AN, Vaisar T, Henderson CM, Imrey PB, Robinson-Cohen C, de Boer IH, **Shiu YT**, Himmelfarb J, Beck G, Kestenbaum B, the Hemodialysis Fistula Maturation Study Group (2018). Alteration of HDL protein composition with hemodialysis initiation. *Clin J Am Soc Nephrol*, 13(8), 1225-1233.
24. Allon M, Litovsky SH, *Tey JCS*, *Sundberg CA*, Zhang Y, Chen Z, Fang Y, Cheung AK, **Shiu YT** (2019). Abnormalities of vascular histology and collagen fiber configuration in patients with advanced chronic kidney disease. *J Vasc Access*, 20(1), 31-40.
25. He Y, **Shiu YT**, *Pike DB*, Roy-Chaudhury P, Cheung AK, Berceci SA (2018). Comparison of hemodialysis arteriovenous fistula blood flow rates measured by Doppler ultrasound and phase-contrast magnetic resonance imaging. *J Vasc Surg*, 68(6), 848-1857.
26. Martinez L, Duque JC, Tabbara M, Paez A, Selman G, Hernandez DR, *Sundberg CA*, *Tey JCS*, **Shiu YT**, Cheung AK, Allon M, Velazquez OC, Salman LH, Vazquez-Padron RI (2018). Fibrotic venous remodeling and non-maturation of arteriovenous fistulas. *J Am Soc Nephrol*, 29(3), 1030-1040.
27. Shang F, Wang S, Hsu C, Miao Y, Martin M, Yin Y, Wu C, Wang Y, Wu G, Chien S, Huang H, Tarng D, **Shiu Y**, Cheung A, Huang P, Chen Z, Shyy J (2017). MicroRNA-92a Mediates Endothelial Dysfunction in Chronic Kidney Disease. *J Am Soc Nephrol*, 28(11), 3251-3261.
28. Cheung AK, Imrey PB, Alpers CE, Robbin ML, Radeva M, Larive B, **Shiu YT**, Allon M, Dember LM, Greene T, Himmelfarb J, Roy-Chaudhury P, Terry CM, Vazquez MA, Kusek JW, Feldman HI, the Hemodialysis Fistula Maturation Study Group (2017). Intimal hyperplasia, stenosis and arteriovenous fistula maturation failure in the hemodialysis fistula maturation study. *J Am Soc Nephrol*, 28(10), 3005-3013.
29. Alpers CE, Imrey PB, Hudkins KL, Wietecha TA, Radeva M, Allon M, Cheung AK, Dember LM, Roy-Chaudhury P, **Shiu YT**, Terry CM, Farber A, Beck GJ, Feldman HI, Kusek JW, Himmelfarb J, Hemodialysis Fistula Maturation Study Group (2017). Histopathology of veins obtained at hemodialysis arteriovenous fistula creation surgery. *J Am Soc Nephrol*, 28(10), 3076-3088.

30. van Ballegooijen AJ, Zelnick L, Hoofnagle A, Hamburg NM, Robinson-Cohen C, Roy-Chaudhury P, Cheung AK, **Shiu YT**, de Boer IH, Himmelfarb J, Beck G, Imrey PB, Kusek JW, Kestenbaum B (2017). Association of vitamin D metabolites with arterial function in the Hemodialysis Fistula Maturation Study. *Am J Kidney Dis*, 69(6), 805-814.
31. *Pike DB*, **Shiu YT**, Somarathna M, Guo L, Isayeva T, Totenhagen H, Lee TC (2017). High resolution hemodynamic profiling of murine arteriovenous fistula using magnetic resonance imaging and computational fluid dynamics. *Theor Biol Med Model*, 14(1), 5.
32. Machin DR, Leary ME, He Y, **Shiu YT**, Tanaka H, Donato AJ (2016). Ultrasound assessment of flow-mediated dilation of the brachial and superficial femoral arteries in rats. *J Vis Exp*, 117, e54762.
33. **Shiu YT**, Litovsky SH, Cheung AK, *Pike DB*, *Tey CS*, Zhang Y, Robbin M, Hoyt K, Allon M (2016). Preoperative vascular medial fibrosis and arteriovenous fistula development. *Clin J Am Soc Nephrol*, 11(9), 1615-23.
34. Allon M, Greene T, Dember LM, Vita JA, Cheung AK, Imrey PB, Kaufman JS, Robbin ML, **Shiu YT**, Terry CM, Umphrey HR, Feldman HI, the Hemodialysis Fistula Maturation Study Group (2016). Association between preoperative vascular function tests and postoperative arteriovenous fistula development. *J Am Soc Nephrol*, 27(12), 3788-95.
35. Robbin ML, Greene T, Cheung AK, Allon M, Berceli SA, Kaufman JS, Allen M, Imrey PB, Radeva MK, **Shiu YT**, Umphrey HR, Young CJ, the Hemodialysis Fistula Maturation Study Group (2016). Arteriovenous fistula development in the first 6 weeks after creation. *Radiology*, 279(2), 620-9.
36. Kwon SH, Li L, He Y, *Tey CS*, Li H, Zhuplatov IS, Kim SJ, Terry CM, Blumenthal DK, **Shiu YT**, Cheung AK (2015). Prevention of venous neointimal hyperplasia by a multitarget receptor tyrosine kinase inhibitor. *J Vasc Res*, 52(4), 244-56.
37. *Wilkins JR*, *Pike DB*, *Gibson CC*, Li L, **Shiu YT** (2015). The interplay of cyclic stretch and vascular endothelial growth factor in regulating the initial steps for angiogenesis. *Biotechnol Prog*, 31(1), 248-57.
38. *Gibson C*, Zhu W, Davis C, Bowman-Kirigin J, Chan A, Ling J, Walker A, Goitre L, Monache S, Retta S, **Shiu YT**, Grossmann A, Thomas K, Donato A, Lesniewski L, Whitehead K, Li DY (2015). Strategy for identifying repurposed drugs for the treatment of cerebral cavernous malformation. *Circulation*, 131(3), 289-99.
39. Gomez AD, Zou D, **Shiu YT**, Hsu E (2014). Characterization of regional deformation and material properties of the intact explanted vein by micro-CT and computational analysis. *Cardiovasc Eng Technol*, 5(4), 359-70.
40. *Wilkins JR*, *Pike DB*, *Gibson CC*, *Kubota A*, **Shiu YT** (2014). Differential effects of cyclic stretch on bFGF- and VEGF-induced sprouting angiogenesis. *Biotechnol Prog*, 30(4), 879-88.
41. *Fitts M*, *Pike D*, *Anderson K*, **Shiu YT** (2014). Hemodynamic shear stress and endothelial dysfunction in hemodialysis access. *Open Urol Nephrol J*, 7(Suppl1:M5), 33-44.
42. Chapin LM, Edgar L, Blankman E, Beckerle MC, **Shiu YT** (2014). Mathematical modeling of lateral communication of neighboring actin stress fiber sarcomeres mechanics during baseline conditions. *Cell Mol Bioeng*, 7(1), 73-85.
43. McNichols C, *Wilkins J*, *Kubota A*, **Shiu YT**, Aouadi SM, Kohli P (2014). Investigating surface topology and cyclic-RGD peptide functionalization on vascular endothelialization. *J Biomed Mater Res A*, 102(2), 532-9.

44. He Y, Terry CM, Nguyen C, Berceli SA, \***Shiu YT**, Cheung AK (2013). Serial analysis of lumen geometry and hemodynamics in human arteriovenous fistula for hemodialysis using magnetic resonance imaging and computational fluid dynamics. *J Biomech*, 46(1), 165-169.
45. Ives SJ, Andtbacka RH, Kwon SH, **Shiu YT**, Ruan T, Noyes RD, Zhang QJ, Symons JD, Richardson RS (2012). Heat and  $\alpha$ 1-adrenergic responsiveness in human skeletal muscle feed arteries: the role of nitric oxide. *J Appl Physiol*, 113(11), 1690-8.
46. Chapin LM, Blankman E, Smith MA, **Shiu YT**, Beckerle MC (2012). Lateral communication between stress fiber sarcomeres facilitates a local remodeling response. *Biophys J*, 103(10), 2082-92.
47. *Brinton MR, Tagge CA, Stewart RJ, Cheung AK, \*Shiu YT, Christensen DA* (2012). Thermal sensitivity of endothelial cells on synthetic vascular graft material. *Int J Hyperthermia*, 28(2), 163-74.
48. *Brinton MR, Stewart RJ, Cheung AK, Christensen DA, \*Shiu YT* (2011). Modelling ultrasound-induced mild hyperthermia of hyperplasia in vascular grafts. *Theor Biol Med Model*, 8, 42.
49. Wilson BD, *Gibson CC, Sorensen LK, Guilhermier MY, Clinger M, Kelley LL, \*Shiu YT, Li DY* (2011). Novel approach for endothelializing vascular devices: understanding and exploiting elastin-endothelial interactions. *Ann Biomed Eng*, 39(1), 337-46.
50. He Y, Terry CM, Berceli SA, Cheung AK, \***Shiu YT** (2010). A longitudinal study of hemodynamics in a functional human hemodialysis fistula using 3T magnetic resonance imaging-based computational fluid dynamics analysis. *Proceedings of the American Society of Mechanical Engineering 2010 Summer Bioengineering Conference, Parts A and B*, 211-212.
51. Singhal AK, Symons JD, Boudina S, Jaishy B, \***Shiu YT** (2010). Role of endothelial Cells in myocardial ischemia-reperfusion injury. *Vascular Disease Prevention*, 7, 1-14.
52. Li L, Terry CM, **Shiu YT**, Cheung AK (2008). Neointimal hyperplasia associated with synthetic hemodialysis grafts. *Kidney Int*, 74(10), 1247-61.
53. *Joung IS, Iwamoto MN, Quam CT, \*Shiu YT* (2006). Cyclic strain modulates tubulogenesis of endothelial cells in a 3D tissue culture model. *Microvasc Res*, 71(1), 1-11.
54. Chien S, Li S, **Shiu YT**, Li YS (2005). Molecular basis of mechanical modulation of endothelial cell migration. *Front Biosci*, 10, 1985-2000.
55. Miao H, Hu YL, **Shiu YT**, Yuan S, Zhao Y, Kaunas R, Wang Y, Jin G, Usami S, Chien S (2005). Effects of flow patterns on the localization and expression of VE-cadherin at vascular endothelial cell junctions: in vivo and in vitro investigations. *J Vasc Res*, 42(1), 77-89.
56. #\***Shiu YT**, Weiss JA, Hoying JB, *Iwamoto MN, Joung IS, Quam CT* (2005). The role of mechanical stresses in angiogenesis. *Critical Reviews in Biomedical Engineering*, 33(5), 431-510.
57. #**Shiu YT**, Li S, Marganski WA, Usami S, Schwartz MA, Wang YL, Dembo M, Chien S (2004). Rho mediates the shear-enhancement of endothelial cell migration and traction force generation. *Biophys J*, 86(4), 2558-65.
58. #**Shiu YT**, McIntire LV (2003). In vitro studies of erythrocyte-vascular endothelium interactions. *Ann Biomed Eng*, 31(11), 1299-313.
59. #**Shiu YT**, Li S, Yuan S, Wang Y, Nguyen P, Chien S (2003). Shear stress-induced c-fos activation is mediated by Rho in a calcium-dependent manner. *Biochem Biophys Res Commun*, 303(2), 548-55.

60. **#Shiu YT**, McIntire LV, Udden MM (2002). Sickle erythrocytes increase prostacyclin and endothelin-1 production by cultured human endothelial cells under flow conditions. *Eur J Haematol*, 68(3), 163-9.
61. Li S, Bhatia S, Hu YL, **Shiu YT**, Li YS, Usami S, Chien S (2001). Effects of morphological patterning on endothelial cell migration. *Biorheology*, 38(2-3), 101-8.
62. **#Shiu YT**, Udden MM, McIntire LV (2000). Perfusion with sickle erythrocytes up-regulates ICAM-1 and VCAM-1 gene expression in cultured human endothelial cells. *Blood*, 95(10), 3232-41.

## **BOOK CHAPTERS**

1. **Shiu YT** (2007). Chapter 4: Mechanical forces on cells. In Fisher JP, Mikos AG, Bronzino JD (Eds.), *Tissue engineering* (1st edition). Boca Raton, FL, USA: CRC Press.
2. **Shiu YT** (2006). Chapter 33: Mechanical forces on cells. In Bronzino JD (Ed.), *Tissue Engineering and Artificial Organs/The Biomedical Engineering Handbook* (3rd edition). Boca Raton, FL, USA: CRC Press.

## **ADDITIONAL PUBLICATIONS**

### **Others**

1. **Shiu YT** (1999). Effects of sickle erythrocytes on metabolism and gene regulation in cultured human endothelial cells under flow conditions. Ph.D. Thesis. Houston, TX: Department of Chemical Engineering, Rice University.

## **PENDING**

1. Tang X, Lai C, Malhi N, Chadha R, Luo Y, Liu X, Yuan D, Tapia A, Abdollahi M, Zhang G, Calandrelli R, **Shiu YT**, Wang Z, Rhee J, Zhang S, Natarajan R, Chen Z. Long Non-Coding RNA LEENE Regulates Blood Pressure and Heart Function. (submitted to *Non-Coding RNA*)
2. *Northrup H*, He Y, Berceci S, Cheung A, **\*Shiu YT**. Histology, hemodynamics, and wall mechanics of failed AVF versus successful arteriovenous fistula from a single patient: a case report. (submitted to *American Journal of Kidney Diseases*)
3. Somarathna M, *Northrup H*, Ingle K, Isayeva-Waldrop T, Nguyen N, Lose B, **Shiu YT**, Lee T. PDE5A inhibition with sildenafil promotes vascular outward remodeling following arteriovenous fistula creation. (submitted to *BioMedical Engineering Online*)
4. *Knysheva M*, Machin D, *Le H*, *Tey CSJ*, *Northrup H*, He Y, Chen Z, Leary M, Tanaka H, Donato AJ, Cheung AK, **\*Shiu YT**. Reduced endothelium-dependent vasodilation and impaired arteriovenous fistula development in a rat model with chronic kidney disease. (manuscript in preparation)
5. *Le H*, *Tey CSJ*, *Knysheva M*, *Northrup H*, He Y, Chen Z, Fang Y, Lesniewski L, Cheung AK, **\*Shiu YT**. Inhibition of microRNA-92a enhances arteriovenous fistula development in mice. (manuscript in preparation)

## **POSTER PRESENTATIONS**

- 2022 Northrup H, Somarathna M, Ingle K, Isayeva-Waldrop T, Ngyuyen T, Totenhagen J, Lee T, **Shiu YT**. PDE5A Inhibition Enhances Vascular Outward Remodeling and Changes Hemodynamic Profiles in Rat Arteriovenous Fistulas. 22nd International Vascular Biology Meeting, Oakland, CA

- 2022 Fairbourn B, Oumar A, Knysheva M, He Y, Lesniewski L, Donato AJ, Cheung AK, **Shiu YT**. Aging and Arteriovenous Fistula Development in a Mouse Model. American Society of Nephrology Kidney Week 2022, Orlando FL
- 2022 Northrup H, He Y, Le H, Berceci S, Cheung A, **Shiu YT**. Differential hemodynamics between arteriovenous fistulas with or without intervention before successful use. American Society of Nephrology Kidney Week 2022, Orlando, FL
- 2022 Chen B, Fairbourn B, Northrup H, Lee T, **Shiu YT**. Comparison of local hemodynamics in rat arteriovenous fistula with and without accessory vein. American Society of Nephrology Kidney Week 2022, Orlando, FL
- 2022 Baltazar S, Fairbourn B, Northrup H, Lee T, **Shiu YT**. Effect of endothelial nitric oxide synthase expression levels on the hemodynamic parameters in murine arteriovenous fistulas. American Society of Nephrology Kidney Week 2022, Orlando, FL
- 2022 Vranes S, Fairbourn B, Northrup H, He Y, Berceci S, Cheung AK, **Shiu YT**. Differences in early hemodynamics between arteriovenous fistulas and grafts in porcine models. American Society of Nephrology Kidney Week 2022, Orlando, FL
- 2021 Northrup H, **Shiu YT**, Cahoon S, Somarathna M, Lee T. Heterogeneous local hemodynamics in rat arteriovenous fistula with sildenafil treatment. American Society of Nephrology Kidney Week 2021, San Diego, CA (a digital meeting)
- 2021 Fairbourn B, Northrup H, Le H, **Shiu YT**, Cheung A. Effects of smoothing methods on hemodynamic assessment of a human arteriovenous graft. American Society of Nephrology Kidney Week 2021, San Diego, CA (a digital meeting)
- 2020 **Shiu YT**, Anderson B, He Y, Tey CSJ, Knysheva M, Kauser K. Natural Vascular Scaffolding Therapy for Arteriovenous Fistula Development in Rats. American Society of Nephrology Kidney Week 2020, Denver CO (a digital meeting)
- 2020 Northrup H, Falzon I, Cahoon S, **Shiu YT**, Somarathna M, Lee T. Geometry and Interuser Variability of Arteriovenous Fistulas in Mice and Rats. American Society of Nephrology Kidney Week 2020, Denver CO (a digital meeting)
- 2020 Cahoon S, Falzon I, **Shiu YT**, Cheung AK. Longitudinal Geometry of Pig Arteriovenous Fistulas (AVFs). American Society of Nephrology Kidney Week 2020, Denver CO (a digital meeting)
- 2019 Northrup H, **Shiu YT**, Pike D, Falzon I, Somarathna M, Guo L, Lee TC. Hemodynamical and geometrical characteristics of rat arteriovenous fistula: effect of nitric oxide treatment. American Society of Nephrology Kidney Week 2019, Washington DC
- 2019 Li Y, Tingey S, Cheung AK, **Shiu YT**. Human arteriovenous fistula wall thickness in the first six months after creation. American Society of Nephrology Kidney Week 2019, Washington DC
- 2019 Falzon ID, **Shiu YT**, Pike D, Northrup H, Somarathna M, Guo L, Lee TC. Effect of endothelial nitric oxide synthase on geometrical parameters of murine arteriovenous fistulas. American Society of Nephrology Kidney Week 2019, Washington DC
- 2019 **Shiu YT**, Le HD, Allon M, Robbin ML, Hudkins KL, Alpers CE, Greene T, Cheung AK. Preexisting venous medial matrix metalloproteinase (MMP)-2 and arteriovenous fistula (AVF) maturation: Findings from the Hemodialysis Fistula Maturation (HFM) Consortium Study. 11th Congress of the Vascular Access Society, Rotterdam, the Netherlands
- 2019 Pike D, **Shiu YT**, Cho YF, Le H, Somarathna M, Isayeva T, Guo L, Symons JD, Kevil CG, Totenhagen J, Lee T. The effect of endothelial nitric oxide synthase on the hemodynamics and wall mechanics in murine arteriovenous fistulas. 11th Congress of the Vascular Access Society, Rotterdam, the Netherlands
- 2019 Pike D, **Shiu YT**, Falzon ID, Le H, Symons JD, Kevil CG, Somarathna M, Guo L, Isayeva T, Totenhagen J, Lee T. Serial analysis of lumen size and hemodynamics in murine



- arteriovenous fistulas. 11th Congress of the Vascular Access Society, Rotterdam, the Netherlands
- 2019 **Shiu YT**, Tey CSJ, He Y, Le HD, Falzon ID, Chen Z, Fang Y, Lesniewski L, Cheung AK. Inhibition of microRNA-92a enhances arteriovenous fistula development in rodent models. 11th Congress of the Vascular Access Society, Rotterdam, the Netherlands ***[Won Best Poster Award]***
- 2019 **Shiu YT**, Le HD, He Y, Tey CSJ, Falzon ID, Zhang Y, Allon M, Lee TC, Berceli SA, Nath KA, Jaimes EA, Cheung AK. Roles of matrix metalloproteinase-2 and -9 in arteriovenous fistula development in rodent models. 11th Congress of the Vascular Access Society, Rotterdam, the Netherlands
- 2018 **Shiu YT**, Le HD, He Y, Tey CSJ, Falzon ID, Zhang Y, Allon M, Lee TC, Berceli SA, Nath KA, Jaimes EA, Cheung AK. Roles of matrix metalloproteinase (MMP)-2 and MMP-9 in arteriovenous fistula (AVF) development. American Society of Nephrology Kidney Week 2018, San Diego, CA
- 2018 **Shiu YT**, Le HD, Allon M, Robbin ML, Hudkins KL, Alpers CE, Greene T, Cheung AK. Preexisting venous medial matrix metalloproteinase (MMP)-2 and arteriovenous fistula (AVF) maturation: Findings from the Hemodialysis Fistula Maturation (HFM) Consortium Study. American Society of Nephrology Kidney Week 2018, San Diego, CA
- 2017 **Shiu YT**, He Y, Machin DR, Tey CSJ, Fan JZ, Chen Z, Leary ME, Tanaka H, Donato AJ, Cheung AK. Reduced endothelium-dependent vasodilation and impaired arteriovenous fistula development in a rat model with chronic kidney disease. American Society of Nephrology Kidney Week 2017, New Orleans, LA
- 2017 Lee TC, Pike D, Isayeva-Waldrop T, Guo L, Somarathna MS, **Shiu YT**. The role of endothelial nitric oxide synthase expression in arteriovenous fistula remodeling and hemodynamic adaptation. American Society of Nephrology Kidney Week 2017, New Orleans, LA
- 2017 **Shiu YT**, Litovsky SH, Tey CSJ, Sundberg C, Zhang Y, Cheung AK, Allon M. Vascular histology of upper extremities in patients with chronic kidney disease and normal controls. American Society of Nephrology Kidney Week 2017, New Orleans, LA
- 2016 Loree HM, Pike D, Richardson JS, **Shiu YT**, Kraiss LW, Franano N. AFE system provides improved hemodynamic conditions for vein maturation compared to conventional AVF. American Society of Nephrology Kidney Week 2016, Chicago, IL
- 2016 **Shiu YT**, Pike D, He Y, Lee TC, Jaimes EA, Berceli SA, Cheung AK. Neointima formation in hemodialysis grafts: A role for abnormal vein wall dynamics? American Society of Nephrology Kidney Week 2016, Chicago, IL
- 2016 **Shiu YT**, Litovsky SH, Cheung AK, Pike D, Tey CS, Zhang Y, Young CJ, Allon M. Association between preoperative venous medial collagen fiber configuration and arteriovenous fistula development. American Society of Nephrology Kidney Week 2016, Chicago, IL
- 2016 Shang F, Wang SC, Hsu CY, **Shiu YT**, Huang PH, Shyy JYJ, Chen Z. MicroRNA-92a mediates endothelial dysfunction in chronic kidney disease. American Heart Association Scientific Sessions 2016, New Orleans, Louisiana [Circulation. 2016;134(Suppl 1): A15912]
- 2016 Tansley GD, Richardson JS, White DG, Pike DB, **Shiu YT**, Loree HM, Franano FN. Numerical studies of arteriovenous fistula eligibility (AFE) system conduit flows. The 24th Congress of the International Society for Rotary Blood Pumps, ISRBP2016, Mito, Japan [Poster #106]
- 2015 **Shiu YT**, Allon M, Pike D, Tey CS, Litovsky SH, Cheung AK. Arteriovenous fistula maturation and medial collagen organization assessed by second harmonic generation microscopy. American Society of Nephrology Kidney Week 2015, San Diego, CA

- 2015 Bartlett M, He Y, Pike DB, **Shiu YT**, Roy-Chaudhury P, Berceli S, Cheung AK, Terry CM. Accessory vein characterization to assess influence on native arteriovenous fistula hemodynamics. 2015 Biomedical Engineering Society Annual Meeting, Tempa, FL
- 2014 **Shiu YT**, Pike DB, Fitts M, Terry CM, Cheung AK. Effect of blood vessel wall deformation on simulated hemodynamics in arteriovenous vascular access models. American Society of Nephrology Kidney Week 2014, Philadelphia, PA
- 2014 Allon M, Greene T, Dember LM, Vita JA, Cheung AK, Imrey P, Kaufman JS, Robbin ML, **Shiu YT**, Stern L, Terry CM, Umphrey HR, Feldman HI and the HFM study Group. Association between preoperative vascular function tests and postoperative dialysis arteriovenous fistula ultrasound measurements of blood flow and diameter. American Society of Nephrology Kidney Week 2014, Philadelphia, PA
- 2014 **Shiu YT**, Pike DB, Terry CM, Fitts M, Zhuplatov IS, Cheung AK. Different associations of wall shear stress with lumen remodeling in artery and vein following arteriovenous fistula creation in a porcine model. American Society of Nephrology Kidney Week 2014, Philadelphia, PA
- 2013 **Shiu YT**, Gomez A, Li H, Zhuplatov IS, Cheung AK, Hsu E. A novel method for high-resolution characterization of vein deformation under arterial blood pressure. American Society of Nephrology Kidney Week 2013, Atlanta, GA
- 2013 Terry CM, Fitts M, Pike DB, **Shiu YT**, He Y, Berceli SA, Cheung AK. A longitudinal study on the hemodynamic and lumen changes in human arteriovenous fistulas. American Society of Nephrology Kidney Week 2013, Atlanta, GA
- 2013 **Shiu YT**, Pike DB, Terry CM, He Y, Li H, Zhuplatov IS, Cheung AK. Correlation between wall shear stress and subsequent lumen area change at venous anastomosis is different from that at arterial anastomosis. American Society of Nephrology Kidney Week 2013, Atlanta, GA
- 2012 **Shiu YT**, Pike DB, Terry CM, He Y, Li H, Zhuplatov IS, Cheung AK. Relationship between hemodynamics and later lumen changes in a porcine arteriovenous graft model. American Society of Nephrology Kidney Week 2012, San Diego, CA
- 2012 Wilkins JR, Gibson CC, Pike DB, **Shiu YT**. Roles of cyclic stretch and actin filaments in bFGF-mediated sprouting angiogenesis. 2012 Biomedical Engineering Society Annual Meeting, Atlanta, GA
- 2011 **Shiu YT**, Brinton MR, Cheung AK, Stewart RJ, Christensen DA. Modeling ultrasound-induced heating of hemodialysis grafts. American Society of Nephrology Kidney Week 2011, Philadelphia, PA
- 2010 Christopherson RJ, Terry CM, Li H, Zhuplatov I, Cheung AK, **Shiu YT**. Computational fluid dynamics of wall shear stress in a longitudinal porcine model of synthetic arteriovenous graft stenosis. American Society of Nephrology Renal Week 2010, Denver, CO
- 2010 Li L, Christopherson RJ, Carlson M, Blumenthal D, Terry CM, **Shiu YT**, Cheung AK. Different gene expression profiles between arterial and venous anastomoses in a porcine arteriovenous PTFE graft model. American Society of Nephrology Renal Week 2010, Denver, CO
- 2010 Wilkins JR, Kubota A, **Shiu YT**. The interplay of cyclic strain and vascular endothelial growth factor in regulating angiogenesis. Biomedical Engineering Society Annual Meeting, Austin, TX
- 2010 Christopherson RJ, Terry CM, Li H, Zhuplatov I, Cheung AK, **Shiu YT**. Longitudinal MRI-based CFD analysis of hemodynamics in a porcine model of dialysis graft stenosis. Biomedical Engineering Society Annual Meeting, Autstin, TX
- 2008 Christopherson RJ, Kirby RM, Terry CM, Cheung AK, **Shiu YT**. A continuum pharmacokinetic model for perivascular drug transport at the venous anastomosis of an

- arteriovenous hemodialysis graft. American Institute of Chemical Engineering Annual Meeting, Philadelphia, PA
- 2008 Iwamoto MN, Chernyshev VS, Welch RJ, **Shiu YT**. Effect of cyclic stretch on angiogenesis of different endothelial cell types. Biomedical Engineering Society Annual Meeting, St. Luis, MO
- 2007 Christopherson RJ, Kirby RM, Terry CM, Cheung AK, **Shiu YT**. Modeling of perivascular delivery of dipyridamole and rapamycin to an arteriovenous hemodialysis graft. American Institute of Chemical Engineering Annual Meeting, Salt Lake City, UT
- 2007 Sun LC, Quam CT, Jensen JA, **Shiu YT**. Cyclic stretch inhibits endothelial cell migration through reactive oxygen species. American Institute of Chemical Engineering Annual Meeting, Salt Lake City, UT
- 2007 Iwamoto MN, Jensen JA, Chernyshev VS, **Shiu YT**. Effect of cyclic stretch on endothelial tubulogenesis in a 3D cell culture model. American Institute of Chemical Engineering Annual Meeting, Salt Lake City, UT
- 2007 Corum LE, Stirland D, **Shiu YT**. Shear stress transiently upregulates Ets-1 protein production in subconfluent endothelial cells. American Institute of Chemical Engineering Annual Meeting, Salt Lake City, UT
- 2007 Christopherson RJ, Kirby RM, Terry CM, Cheung AK, **Shiu YT**. Computational modeling of perivascular tissue pharmacokinetics of dipyridamole and rapamycin. Biomedical Engineering Society Annual Meeting, Los Angeles, CA
- 2007 Sun LC, Quam CT, Jensen JA, **Shiu YT**. Reactive oxygen species mediate the inhibition of endothelial cell migration by cyclic stretch. Biomedical Engineering Society Annual Meeting, Los Angeles, CA
- 2007 Iwamoto MN, Jensen JA, Chernyshev VS, **Shiu YT**. Three-dimensional endothelial tubulogenesis under cyclic stretch. Biomedical Engineering Society Annual Meeting, Los Angeles, CA
- 2007 Corum LE, Stirland D, **Shiu YT**. Ets-1 protein expression in subconfluent endothelial cells is transiently upregulated by flow. Biomedical Engineering Society Annual Meeting, Los Angeles, CA
- 2006 Corum LE, Moore TJ, **Shiu YT**. The effect of fluid shear stress on endothelial Ets-1 protein levels is dependent on cell confluence. Biomedical Engineering Society Annual Meeting, Chicago, IL
- 2006 Iwamoto MN, Joung IS, Jensen JA, Chernyshev VS, **Shiu YT**. Cyclic strain affects the orientation of endothelial tubulogenesis in a frequency-dependent manner. Experimental Biology 2006, San Francisco, CA
- 2006 Corum LE, Moore TJ, **Shiu YT**. Fluid shear stress effects on Ets-1 levels in endothelial cells. Experimental Biology 2006, San Francisco, CA
- 2006 Iwamoto MN, Jensen JA, Chernyshev VS, **Shiu YT**. Frequency-dependent orientation of endothelial tubulogenesis under cyclic stretch. Biomedical Engineering Society Annual Meeting, Chicago, IL
- 2005 Moore TJ, **Shiu YT**. Effect of fluid shear stress in the differentiation of endothelial progenitor cells. AICHE Annual Meeting, Cincinnati, OH
- 2005 Quam CT, Iwamoto MN, Li M, Cheng L, Joung IS, **Shiu YT**. Mechanisms of endothelial cell migration under cyclic stretch. Experimental Biology 2005, San Diego, CA
- 2005 Iwamoto MN, Joung IS, Moore TJ, **Shiu YT**. Effects of cyclic strain on the tubulogenesis of vascular endothelial cells. Biomedical Engineering Society Annual Meeting, Baltimore, MD
- 2005 Quam CT, Sun LC, Li MW, **Shiu YT**. Effect of cyclic stretch on the migration of endothelial cells. American Institute of Chemical Engineering Annual Meeting, Cincinnati, OH
- 2004 Quam CT, Joung IS, Iwamoto MN, **Shiu YT**. Effects of cyclic stretch and hyperglycemia on endothelial wound closure. Experimental Biology 2004, Washington, DC

- 2004 Leng B, **Shiu YT**, Riesenfeld J, Bock SC. Shear rate dependent partitioning of antithrombin III isoforms and variants. Biomedical Engineering Society Annual Meeting, Philadelphia, PA
- 2004 Joung IS, Iwamoto MN, Li M, Quam CT, **Shiu YT**. Combined effect of fluid shear stress and matrix proteins on the remodeling of endothelial cells. Biomedical Engineering Society Annual Meeting, Philadelphia, PA
- 2003 Miao H, **Shiu YT**, Yuan SL, Hu YL, Zhao YH, Kaunas R, Usami S, Chien S. Mechanism of VE-cadherin remodeling under different flow patterns. Experimental Biology 2003, San Diego, CA
- 2003 Buckner C, Quam CT, Joung IS, Iwamoto MN, **Shiu YT**. A new cell stretching device: A study on the repair of vascular endothelium under cyclic strain. Biomedical Engineering Society Annual Meeting, Nashville, TN
- 2001 Kaunas R, **Shiu YT**, Usami S, Chien S. Roles of Rac and Cdc42 in aortic smooth muscle cell shape changes induced by uniaxial strain. Biomedical Engineering Society Annual Meeting, Durham, NC
- 2001 Miao H, **Shiu YT**, Yuan S, Hu Y, Jin G, Kaunas R, Usami S, Chien S. Effects of different flow patterns on the localization and expression of vascular endothelial cell junction proteins. American Heart Association: Scientific Sessions 2001, Anaheim, CA
- 2000 **Shiu YT**, Li S, Chien S. Roles of fibronectin concentration and Rho family small GTPases in endothelial cell mobility under shear stress. Experimental Biology 2000, San Diego, CA
- 2000 **Shiu YT**, Li S, Wang Y, Yuan S, Chen PC, Chien S. The shear stress-induced c-fos promoter activation is regulated by Rho GTPases and intracellular calcium. Biomedical Engineering Society Annual Meeting, Seattle, WA
- 1997 **Shiu YT**, Udden MM, McIntire LV. Exposure to sickle erythrocytes increased the production of vasoactive molecules and soluble adhesion molecules by human endothelial cells in vitro under flow conditions. American Institute of Chemical Engineering Annual Meeting, Los Angeles, CA

## **ORAL PRESENTATIONS**

### **Meeting Presentations**

#### **International**

- 2023 Northrup H, Fairbourn B, Oumar A, Knysheva M, He Y, Lesniewski L, Donato AJ, Cheung AK, **Shiu YT**. Aging and DNA Damage in Arteriovenous Fistula Remodeling. The 13th Congress of the Vascular Access Society 2023, Porto, Portugal
- 2011 Gibson CC, McCullagh JP, Mleynek TM, **Shiu YT**, Lesniewski LA, Donato AJ, Whitehead KJ, Li DY. CCM2 regulates superoxide and nitric oxide in the endothelium. International Angioma Alliance Meeting, Paris, France
- 2008 Aouadi M, Duggins M, Kokonou M, Rebhloz C, **Shiu YT**, Nagabhirava B, Lustre B, Kohli P. Surface nano-texturing to combating in-stent restenosis and late-stent thrombosis. First International Symposium on Plasma Processing and Biomedical Applications, Milos Island, Greece
- 2007 Leng B, Lu A, Riesenfeld J, **Shiu YT**, Bock S. Enhanced heparin binding affinities increase the efficiencies at which the beta-antithrombin III isoform and a recombinant ATIII variant load onto pentasaccharide-bearing surfaces under flow. XXIst Congress of the ISTH, Geneva, Switzerland
- 2001 Miao H, **Shiu YT**, Yuan S, Hu Y, Jin G, Kaunas R, Li Y S, Usami S, Chien S. Effects of different flow patterns on the localization and expression of cell junction proteins. Euromech Colloquium No420: Mechanobiology of Cells and Tissues (European Mechanics Society), Nancy, France

## National

- 2023 Northrup H, Somarathna M, Ingle K, Isayeva-Waldrop T, Nguyen N, Lose N, Totenhagen J, Lee T, **Shiu YT**. PDE5A inhibition enhances vascular outward remodeling and changes hemodynamic profiles in rat arteriovenous fistulas. The 19th Annual Scientific Meeting of the American Society of Diagnostic and Interventional Nephrology, Orlando, FL ***[Won the 1st place for the RapidFire Abstracts Award]***
- 2021 Somarathna M, Hwang P, Isayeva-Waldrop T, Falzon I, Northrup H, **Shiu YT**, Jun H, Lee T (2021). Effects of NOS3 and Nitric Oxide Releasing Bionanomatrix Gel on Reducing Neointimal Hyperplasia and vascular remodeling. American Society of Nephrology Kidney Week 2021, San Diego, CA (a digital meeting)
- 2020 Northrup H, **Shiu YT**, Falzon I, Somarathna M, Lee T. Hemodynamics and Geometry of Rat Arteriovenous Fistulas: Effect of Sildenafil Treatment. American Society of Nephrology Kidney Week 2020, Denver, CO (a digital meeting)
- 2018 **Shiu YT**, Tey CSJ, He Y, Le HD, Falzon ID, Chen Z, Fang Y, Lesniewski L, Cheung AK. Inhibition of microRNA-92a enhances arteriovenous fistula development. American Society of Nephrology Kidney Week 2018, San Diego, CA
- 2016 Pike DB, Richardson JS, **Shiu YT**, Kraiss LW, Loree HM, Franano FN, Cheung AK. Computational study of AFE system outflow vein blood flow. American Society for Artificial Internal Organs (ASAIO) Annual Conference 2016, San Francisco, CA
- 2015 Pike DB, He Y, Terry CM, Cheung AK, **Shiu YT**. Differential hemodynamic changes and lumen remodeling in the artery and vein of porcine arteriovenous graft and fistula. 2015 Summer Biomechanics, Bioengineering and Biotransport Conference, Snowbird, UT
- 2012 **Shiu YT**, Li H, Zhuplatov IS, Terry CM, Cheung AK, Tan W. Development of novel bioengineered grafts for hemodialysis vascular access. American Society of Nephrology Kidney Week 2012, San Diego, CA
- 2012 Terry CM, He Y, **Shiu YT**, Banerjee R, Roy-Chaudhury P, Berceci SA, Cheung AK. Development of sequential techniques to correlate hemodynamics with subsequent lumen geometry changes in arteriovenous fistula. American Society of Nephrology Kidney Week 2012, San Diego, CA
- 2012 Wilkins JR, Pike DB, Gibson CC, **Shiu YT**. Differential effects of cyclic stretch on angiogenesis induced by different growth factors. 2012 Biomedical Engineering Society Annual Meeting, Atlanta, GA
- 2012 Wilkins JR, Pike DB, Gibson CC, Li L, **Shiu YT**. Roles of Rho-associated kinase and receptor tyrosine kinase signaling in cyclic stretch-induced angiogenesis. 2012 Biomedical Engineering Society Annual Meeting, Atlanta, GA
- 2011 **Shiu YT**, Pike DB, Terry CM, Li H, Cheung AK. Wall shear stress and oscillatory shear index in a porcine arteriovenous graft model. American Society of Nephrology Kidney Week 2011, Philadelphia, PA
- 2011 Kwon SH, Li L, **Shiu YT**, Kim H, Li H, Blumenthal D, Cheung AK. Sunitinib inhibits venous neointimal hyperplasia formation in a perfused organ culture system. American Society of Nephrology Kidney Week 2011, Philadelphia, PA
- 2011 Tripp S, Blake A, Kohan J, Yhompson J, **Shiu YT**, Kwon SH, Cheung AK, Salama M. Computer assisted image analysis using color deconvolution is a reproducible technique for quantification of extracellular matrix in blood vessel wall. National Society of Histotechnology Meeting, Cincinnati, OH

- 2010 Li L, Christopherson RJ, Carlson M, Blumenthal D, Terry CM, **Shiu YT**, Cheung AK. Gene expression profiles in different venous regions with distinct hemodynamic environments in a porcine arteriovenous PTFE graft model. American Society of Nephrology Renal Week 2010, Denver, CO
- 2010 Wilson BD, Gibson CD, Sorensen LK, Guilhermier MY, Clinger M, Kelley LL, **Shiu YT**, Li DY. Exploiting the differential cellular effects of elastin as a device coating. Biomedical Engineering Society Annual Meeting, Austin, TX
- 2010 Brinton M, Tagge C, Stewart R, Cheung A, **Shiu YT**, Christensen DA. The effects of mild hyperthermia on vascular endothelial cells cultured on expanded polytetrafluoroethylene. Society of Thermal Medicine Annual Meeting, Clearwater Beach, Florida
- 2009 Iwamoto MN, Wilkins JR, **Shiu YT**. Sprouting angiogenesis under cyclic stretch. Biomedical Engineering Society Annual Meeting, Pittsburgh, PA
- 2001 **Shiu YT**, Li S, Wang YL, Schwartz MA, Chien S. Rho small GTPase mediates the shear-enhancement of endothelial cell migration. Biomedical Engineering Society Annual Meeting, Durham, NC
- 1999 **Shiu YT**, Udden MM, McIntire LV. Perfusion with sickle erythrocytes upregulates ICAM-1 and VCAM-1 gene expression in cultured human endothelial cells. American Institute of Chemical Engineering Annual Meeting, Dallas, TX
- 1998 **Shiu YT**, McCormick SM, Udden MM, McIntire LV. Sickle erythrocytes upregulate ICAM-1 Expression and circulating ICAM-1 levels in cultured human endothelial cells under flow conditions. Biomedical Engineering Society Annual Meeting, Cleveland, OH
- 1997 **Shiu YT**, Udden MM, McIntire LV. Sickle cell perfusion stimulated the production of vasoactive peptides and soluble adhesion molecules in cultured endothelial cells. Twenty-Fifth Annual Meeting of the National Sickle Cell Disease Program, Washington, DC

#### Local/Regional

- 2012 Gibson CC, Davis CT, Ling J, **Shiu YT**, Lesniewski LA, Donato AJ, Whitehead KJ, Li DY. A high-content screen identifies novel therapeutics for a hereditary stroke syndrome. University of Utah Research Trainee Symposium, Deer Valley, Utah

#### **Invited/Visiting Professor Presentations**

##### International

- 2023 "Clinical Implications of Vascular Mechanobiology in Hemodialysis Vascular Access Complications" Session. 2023 Annual Meeting of the Chinese Medical Association, Taipei, Taiwan
- 2018 "Role of Vascular Pathomechanics in Hemodialysis Fistula Maturation". The Twelfth Bilateral Symposium between University of California, San Diego (UCSD) and the University System of Taiwan (UST)(NCTU and NYMU), San Diego, CA
- 2017 "Reduced endothelium-dependent vasodilation and impaired arteriovenous fistula development in a rat model with chronic kidney disease". 2017 UCSD-NYMU-NCTU Symposium & the 11th NYMU-UCSD Joint Symposium, Taipei, Taiwan
- 2015 "Local Hemodynamics in Hemodialysis Vascular Access". UU-TVGH-NYMU-NCTU Forum on Hemodialysis Vascular Access Research, Taipei, Taiwan

##### National

- 2022 Vascular Biomechanics of AVFs in Renal (1) Session, the American Society for Artificial Internal Organs (ASAIO) 67th Annual Conference, Chicago, IL, 2022

- 2021 City College of New York, Department of Biomedical Engineering Seminar, November 17, “Translational Research in Hemodialysis Vascular Access” (CCNY BME ZOOM Seminar)
- 2020 Novel Pharmacotherapy and Drug Delivery for Vascular Access Treatment, the “From Discovery to Therapeutics: Have We Moved the Needle in Vascular Access Medicine?” session. American Society of Nephrology Kidney Week 2020, Denver, CO (a digital meeting)
- 2018 Bioengineering Department, University of California San Diego
- 2015 Bioengineering Department, University of California San Diego
- 2007 School of Chemical Engineering Seminar, Purdue University
- 2006 Bioengineering Seminar Series, University of Illinois at Urbana-Champaign
- 2006 Biomedical Engineering Program Seminar, Mayo Clinic College of Medicine
- 2001 Chemical Engineering Department Seminar, University of Florida
- 2001 Biomedical Engineering Department Seminar, Columbia University
- 2001 Chemical Engineering Department Seminar, University of Southern California
- 2001 Chemical Engineering Department Seminar, University of Rochester, USA
- 1999 Bioengineering Department Seminar, University of Washington

## **OTHER SCHOLARLY ACTIVITIES**

### **Additional Research/Scholarship Contributions**

- 2020 Patent application 62910873, Targeted Nanomedicine for Treating Arteriovenous Fistula (AVF) Failure. Fang Y, Tirrell MV, **Shiu YT**.
- 2012 Disclosure U-5304, Christensen DA, **Shiu YT**, Cheung AK and Query ME. Microbubble Facilitation of Cavitation to Prevent Hyperplasia in Vascular Grafts.
- 2005 - 2006 Consultant (design of dialysis catheters), Bard Access Systems, Inc., Salt Lake City, UT
- 2005 Disclosure U-3934, Stewart RJ and **Shiu YT**. Systems and Methods for the Reduction of Undesired Material about an Indwelling Medical Instrument.