

CURRICULUM VITAE

NAME: Xuejun Wang, M.D., Ph.D.

NICKNAME: “XJ” Wang

CITIZENSHIP: U.S.A.

AFFILIATION: Division of Biomedical and Translational Sciences
Sanford School of Medicine
University of South Dakota
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RANK AND/OR TITLE: Tenured Full Professor of Basic Biomedical Sciences
Director, the MD/PhD Program

Complete List of Published Work in My Bibliography:
<https://www.ncbi.nlm.nih.gov/myncbi/xuejun.wang.1/bibliography/public/>

ORCID: <https://orcid.org/0000-0001-9267-1343>

Google Scholar: <https://scholar.google.ca/citations?user=ipQguqMAAAAJ&hl=en>

EDUCATION

September 1980 to July 1985

Wuhan University College of Medicine, Wuhan, Hubei, China
Bachelor of Medicine in Clinical Medicine (M.D. equivalent)

September 1985 to July 1988

Wuhan University College of Medicine, Wuhan, Hubei, China
M.S. in Pathophysiology (Advisor: Chuanren Dong, M.D.)
Thesis Title: Hastened Plasma Coagulation and Thrombosis Contribute to The Induction of Myocardial Infarction/Necrosis by Isoproterenol in Rats.

January 1996 to August 1998

University of South Dakota College of Medicine, Vermillion, South Dakota, USA
Ph.D. in Anatomy and Structural Biology (Advisor: A. Martin Gerdes, Ph.D.)
Dissertation Title: Cardiomyocyte Remodeling in Chronic Pressure Overload Cardiac Hypertrophy and Heart Failure in Guinea Pigs.

POSTDOCTORAL TRAINING

September 1998 to September 2001

Postdoctoral Fellow

Advisor: Jeffrey Robbins, Ph.D.

Division of Molecular Cardiovascular Biology

Cincinnati Children's Hospital Medical Center

Cincinnati, Ohio

American Heart Association (AHA) Postdoctoral Fellowship project title: Dissecting Desmin-related Cardiomyopathy with Mouse Transgenesis.

ACADEMIC/ADMINISTRATIVE APPOINTMENTS

September 2006 – present

Professor and Director

The MD/PhD Program

Sanford School of Medicine

University of South Dakota

Vermillion, SD

September 2010 - July 2016

Director

The Interim PQCD Research Center

USD Sanford School of Medicine

Vermillion, SD

June 2006

Tenure granted by University of South Dakota

June 2005 – August 2006

Associate Professor (Tenure Track/Tenured)

Cardiovascular Research Institute,

Sanford School of Medicine of the University of South Dakota

Sioux Falls, SD

October 2001 – May 2005

Assistant Professor (Tenure Track)

Cardiovascular Research Institute

University of South Dakota School of Medicine

Sioux Falls, SD

September 1998 – September 2001

Research Fellow

Division of Molecular Cardiovascular Biology

Cincinnati Children's Hospital Medical Center

Cincinnati, Ohio

January 1996 – August 1998

Graduate Assistant

Department of Anatomy and Structural Biology

University of South Dakota School of Medicine

Vermillion, SD

November 1994 – December 1995

Research Associate
Department of Anatomy and Structural Biology
University of South Dakota School of Medicine
Vermillion, SD

July 1993 – October 1994

Associate Professor
Department of Pathophysiology
Wuhan University College of Medicine
Wuhan, Hubei, China

July 1988 – June 1993

Instructor
Department of Pathophysiology
Wuhan University College of Medicine
Wuhan, Hubei, China

September 1985 – June 1988

Graduate Teaching and Research Assistant
Department of Pathophysiology
Wuhan University College of Medicine
Wuhan, Hubei, China

SPECIAL HONORS OR RECOGNITIONS

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|------|---|
| 1988 | Best Original Research Article Award
Society of Pathophysiology of Hubei Province, P.R. China |
| 1988 | Best Original Research Articles in Natural Sciences (3 rd prize)
The Science & Technology Association of Hubei Province, P. R. China |
| 1990 | Best Original Research Articles in Natural Sciences (2 nd prize)
The Science and Technology Association of Hubei Province, P. R. China |
| 1991 | Best Original Scientific Research Articles (2 nd prize)
The Science and Technology Association of Wuhan, P.R. China |
| 1993 | The Medical Sciences and Technology Advancement Awards (2 nd prize)
The Department of Health, Hubei Province, China |
| 1995 | Best Original Scientific Research Articles (3 rd prize)
The Science and Technology Association of Wuhan, the Commission of Science and Technology of Wuhan, and the Department of Personnel of Wuhan, China |
| 1995 | The Sciences and Technology Advancement Awards (3 rd prize) |

The Government of Hubei Province, China

- 2000 Postdoctoral Fellowship
American Heart Association (AHA) Ohio Valley Affiliate
- 2000 Young Investigator Award
Heart Failure Society of America (HFSA)
- 2001 Young Investigator Award
International Society for Heart Research-North American Section (ISHR-NAS)
- 2002 Best Abstract Award Finalist
ISHR-North American Section Annual Meeting
- 2002 Scientist Development Award
American Heart Association (AHA) National Center
- 2003 Distinguished Performance Award
Vice President for Health Affairs and Office of the Dean, USD School of Medicine
- 2005 The Protein Folding Scientific Advisory Committee Poster Award
“Inaugural Annual Symposium of Protein Folding Disorders”
Cambridge Healthtech Institute
- 2007 AHA Established Investigator Award
American Heart Association National Center
- 2008 President Award for Excellence in Research of the Established Faculty
University of South Dakota
- 2010 Fellow
AHA Council on Basic Cardiovascular Sciences
- 2011 Fellow
American Physiological Society: Cardiovascular Section
- 2012 Distinguished Service Award
The Academy of Cardiovascular Research Excellence (ACRE)
- 2019 Fellow (FISHR)
International Society of Heart Research (ISHR)
- 2020 Professor of the Game
University of South Dakota Academic Affairs
(Designated at USD Men’s basketball game vs. Purdue Fort Wayne, 1/23/2020)
- 2021 The 2021 USD Sanford School of Medicine Class 1958 Basic Biomedical Sciences Award
The Sanford School of Medicine Alumni Relations Council

(This award was established in 2008 in honor of Dr. W.O. Read, Professor of Physiology. This award recognizes a faculty member in the Division of Basic Biomedical Sciences who has shown excellence in teaching, research and service.)

- 2026 The Carl J. Wiggers Award (award letter received).
The American Physiological Society (APS)
(This award is presented to a scientist who has made outstanding contributions to cardiovascular research throughout their career, has been an active and committed member of the APS CV section, and who will attract outstanding new members to the Cardiovascular Section from the US and abroad.)

MEMBERSHIPS AND OFFICES IN PROFESSIONAL SOCIETIES

Membership

- 2000- American Heart Association (AHA)
2000- International Society for Heart Research (ISHR): North American Section
2003- Academy of Cardiovascular Research Excellence (ACRE), lifetime member
2005- American Physiological Society (APS)
2018- Chinese American Heart Association (CNAHA), lifetime member

Offices

- 2008-2010 Board Director, ACRE
2010 Chair, Nomination/Election Committee, ACRE
2010-2014 Research Committee of AHA Midwest Affiliate
2010-2014 The Committee for Melvin L. Marcus Young Investigator Award in Cardiovascular Sciences
2014 The Committee for the Junior Young Investigator Award, ISHR-North American Section
2013-2015 Nominating Committee of APS Cardiovascular Section
2013-present Scientific Advisory Board of the International Academy of Cardiology
2016-2022 Awards Committee, APS Cardiovascular Section
2019-2022 Chair, Awards Committee, APS Cardiovascular Section
2019-2022 Steering Committee, APS Cardiovascular Section
2020-2021 President-elect, Midlands Society of Physiological Sciences (a chapter of APS)

- 2021-2022 President, Midlands Society of Physiological Sciences (a chapter of APS)
<https://msps-online.org/previous-years/>
- 2022-2025 Fellowship Committee, APS Cardiovascular Section
- 2021-2022 President-elect, Academy of Cardiovascular Research Excellence (ACRE).
<http://my-acre.org/>
- 2023-2024 President, Academy of Cardiovascular Research Excellence (ACRE).
<http://my-acre.org/>
- 2025-2026 Immediate Past President/Chair of the Long-rang Planning Committee, ACRE,
<https://my-acre.org/about/board-of-directors>

CONSULTING POSITIONS

A. PEER REVIER

Acta Pharmaceutica Sinica B
American Journal of Cardiology
American Journal of Pathology
American Journal of Physiology: Cellular Physiology
American Journal of Physiology: Heart and Circulatory Physiology
Antioxidants & Redox Signaling
Archives of Biochemistry and Biophysics
Autophagy
BBA-Gene Regulatory Mechanisms
BBA-Molecular Basis of Disease
BBA-Molecular Cell Research
BBRC
BioMed Central-Cardiovascular Disorders
Biomolecules
Brain Research Bulletin
Cardiovascular Research
Cardiovascular Toxicology
Cell Physiology & Biochemistry
Cell Motility and Cytoskeleton
Cells
Circulation
Circulation Research
Circulation: Heart Failure
Clinica Chemica Acta
Comprehensive Physiology
Coronary Artery Disease
Current Molecular Medicine

Developmental Biology
EBiomedicine
eLife
EMBO Molecular Medicine
European Journal of Heart Failure
European Pharmacology Research
Experimental Cell Research
Free Radical Biology and Medicine
Frontiers in Cell and Developmental Biology
Frontiers in Physiology
Frontiers in Public Health
Growth Hormone and IGF Research
Human Molecular Genetics
Hypertension
International Journal of Medicine
International Journal of Molecular Medicine
International Journal of Molecular Science
International Journal of Obesity
International Journal of Nanomedicine
Journal of American College of Cardiology
Journal of American Heart Association
Journal of Cardiac Failure
Journal of Cardiovascular Pharmacology
Journal of Cell Physiology
Journal of Cell Science
Journal of Cellular and Molecular Medicine
Journal of Clinical Investigation
JCI-Insight
Journal of Investigative Medicine
Journal of Molecular and Cellular Cardiology
Journal of Molecular and Cellular Biology
Journal of Physiology
Journal of Translational Medicine
Journal of Vascular Research
Journal of Visualized Experiments
Medical Hypotheses
Metabolism
Molecular Cellular Biochemistry
Molecular and Cellular Biology
Molecular Medicine
Molecular Therapy Nucleic Acids
Nature Communication

Nature Review of Cardiology
 Pharmacology Research
 Physiology Reports
 PLoS Genetics
 PLoS One
 PNAS
 Protein and Cell
 Redox Biology
 Scientific Reports
 Trends in Cardiovascular Medicine
 Trends in Molecular Medicine

B. EDITORIAL BOARDS

2009-2010	Guest Editor for a Spotlight Issue on “The Ubiquitin-Proteasome Pathway in Cardiovascular Disease” for <i>Cardiovascular Research</i>
2011-7/2023	Associate Editor-in-Chief, <i>American Journal of Cardiovascular Disease</i>
8/2023-present	Editor-in-Chief, <i>American Journal of Cardiovascular Disease</i>
2012-present	<i>American Journal of Physiology- Heart & Circulatory Physiology</i>
2012-present	Review Editor, <i>Frontiers in Clinical and Translational Physiology</i>
2013-2019	Review Editor, <i>Frontiers in Physiology-Striated Muscle Physiology</i>
2013-2017	<i>Circulation Research</i>
2019 – present	Associate Editor, <i>Frontiers in Striated Muscle Physiology</i>
2020 – present	<i>Journal of Molecular and Cellular Cardiology</i>
2020 – 2025	Associate Editor, <i>Frontiers in Ageing - Aging, Metabolism and Redox Biology</i>
2020 - 2021	Co-Guest Editor for <i>Cells</i> Special Issue on “Molecular Mechanisms Underlying Cardiac Dysfunction” https://www.mdpi.com/journal/cells/special_issues/cardiac_dysfunction_mechanisms
2020 - present	<i>Engineering</i>
2022 - 2024	Co-Topic Editor for Research Topic on “Proteostasis in Cardiac Health and Disease” sponsored by <i>Frontiers in Molecular Biosciences</i> and <i>Frontiers in</i>

Cellular and Developmental Biology (<https://www.frontiersin.org/research-topics/31026/proteostasis-in-cardiac-health-and-disease>)

2024-present *Circulation Research*

2025-present *Journal of Cardiac Aging*

C. NATIONAL/INTERNATIONAL COMMITTEES

2003-2020 International Expert Panel
Singapore National Medical Research Council

2005-2007 External Expert Grant Reviewer
Philip Morris External Research Program

2006 National Institutes of Health
National Heart, Lung & Blood Institute; Ad hoc Reviewer for PPG

2007-2009 American Heart Association (AHA) National Center
Cardiac Biology/Regulation Study Section II; Chartered Member

2009 AHA National Center
Cardiac Biology/Regulation Study Section 2; Chairman

2007-2015 China National Natural Science Foundation
Key Research Projects; Oversea Expert Reviewer

2008-2009 National Institutes of Health
Cardiac Contractility & Heart Failure Study Section; Ad hoc Member

2009-2013 National Institutes of Health
Cardiac Contractility & Heart Failure Study Section; Chartered Member

2009-present Abstract Review
AHA Annual Scientific Sessions

2012-2015 AHA National Center
Cardiac Biol. & Regulation – Basic Science Study Section; chartered member

2014-present Abstract Reviewer
AHA Basic Cardiovascular Sciences Annual Scientific Session

2014 International Society for Heart Research North American Section

Junior Young Investigator Award; Judge

2015 -present	Grant Reviewer Israel Science Foundation, Israel
2015	Grant Reviewer Fondazione Cariparo, Italy
2015	NIH Special Emphasis Panel Cardiovascular and Respiratory Sciences Member Conflict Applications (ZRG1 CVRS-B 02)
2015	NIH Special Emphasis Panel Cardiovascular and Respiratory Sciences Member Conflict Applications (ZRG1 CVRS-E (02) M)
2015	The Ministry of Science and Technology, China The State Science and Technology Awards of China; Oversea Reviewer
2015	The Ministry of Education, China. The Chang-Jiang Scholar Program; Oversea Reviewer
2015	International Society for Heart Research-North American Section (ISHR-NAS) 2015 Annual Meeting (Seattle, WA) Poster Awards; Judge
2016	NIH National Heart Lung and Blood Institute (NIH/NHLBI) Program Project Grant Peer Review Panel (2016/05 HLBP 1); Ad hoc Reviewer
2017	NIH National Heart Lung and Blood Institute (NIH/NHLBI) Program Project Review Committee (HLBP 1 Workgroup 005, 2017/05 HLBP1); Ad hoc Reviewer
2017 - 2018	AHA National Center Cardiac Biol. & Regulation – Basic Science Study Section; chartered member
2018	NIH Center for Scientific Review ZRG1 F05-U (20) Fellowships: Cell Biology, Developmental Biology, and Bioengineering
2018 -	UK Medical Research Council, Ad Hoc Reviewer
2018	The Netherlands Organization for Scientific Research (NWO/ZonMw), Ad Hoc Reviewer

2020 - 2022	AHA National Center Career Development Awards Cardiac Basic Sciences 2 committee, chartered member
2020	National Institutes of Health Myocardial Ischemia and Metabolism (MIM) Study Section; <i>Ad hoc</i> Member (2020 June meetings)
2020	National Institutes of Health Special Emphasis Panel for the dissolving MIM: ZRG1 MIM-R 01 (meeting date October 29-30, 2020)
2020-2022	International Expert Panel Singapore National Medical Research Council
2020	Judge Panel, Young Investigator Awards Great Wall International Congress of Cardiology 2020 (GW-ICC 2020 virtual)/Asian Heart Society Congress 2020, October 18, 2020
2021	National Institutes of Health Special Emphasis Panel, Fellowship: Cell Biology, Developmental Biology, and Bioengineering (F05-U) (meeting date Feb 18-19, 2021)
2022	National Institutes of Health Myocardial Physiology/Pathophysiology A – MPPA, February 22-23, June 22-23, and November 7-8, 2022.
2023	National Institutes of Health Myocardial Physiology/Pathophysiology A – MPPA, February 22-23, June 21-22, 2023
2022-	AHA National Center Established Investigator Awards (EIA) Peer Review Committee, chartered member
2022-	Invited external reviewer for University of Nebraska system internal grants.
2023-2024	Member of the Open Fund – Young Individual Research Grant (OF-YIRG) Review Panel (RP), National Medical Research Council, Singapore
2024	National Institutes of Health Myocardial Physiology/Pathophysiology A – MPPA, Feb 28-29, July 9-10, Oct 30-31, 2024

- 2024 National Institutes of Health
National Institute of General Medical Sciences Predoctoral T32 SEP, ZGM1
TWD-M (MS), June 6-7, 2024
- 2024 China Xplorer Prize application reviewer, May 10-June 15, 2024
- 2024 National Institutes of Health
National Heart, Lung and Blood Institute
R35 Outstanding Investigator Awards (OIA) Review Panel 2024/10 ZHL1-
CSR-I (01), July 24-25, 2024
- 2025 National Institutes of Health
Myocardial Physiology/Pathophysiology A – MPPA, Feb 26-27 (April 2-3),
June 25-26, and Oct 29-30 (invitation accepted), 2025.
- 2025 China Xplorer Prize application reviewer, May 20-June 9, 2025
- 2025 United Kingdom Research and Innovation (UKRI) grant review (Sept. – Oct.)

COMMITTEE ASSIGNMENTS

University of South Dakota (USD) Sanford School of Medicine

- 2001-2003 Coordinator, Cardiovascular Research Institute Seminar and Journal Club Series
- 2002-2004 Coordinator for Graduate Studies, Cardiovascular Research Institute
- 2002-2004 Director, Molecular Biology Core of Cardiovascular Research Institute
- 2002-2005 Internal Advisory Committee for the Cardiovascular COBRE
- 2003-2009 Research Committee of School of Medicine
- 2005-2007 Chair, Research Committee of School of Medicine
- 2004-2007 Graduate Committee of USD School of Medicine
- 2005-2007 University Senate
- 2005-2006 Conference of the Senate
- 2005 The Task Force of the USD Senate on USD Conflict of Interest Policy Draft
- 2005-2008 Medical Student Research Committee
- 2006 The Task Force for the Creation of Medical Student Scholarship Pathway
- 2006-2016 Chair, the MD/PhD Admissions Committee
- 2016-present The MD/PhD Admissions Standing Committee, permanent voting member
- 2007 Pre-Tenure Review Committee for Dr. Yifan Li
- 2007 Pre-Tenure Review Committee for Dr. Alexander Erkin

- 2007 Chair, the Taskforce to Establishing a Graduate Course on *Grant and Scientific Writing*, for Basic Biomedical Sciences Graduate Program
- 2007 Convener, the Molecular Pathogenesis group SWOT (strength, weakness, opportunities, and threat) Analysis for Division of Basic Biomedical Sciences Research Retreat 2007.
- 2007-2014 Research Council of the Division of Basic Biomedical Sciences
- 2007-2008 Chair, the Search Committee for a tenure-track faculty position in Protein Quality Control (PQC) of the Division of Basic Biomedical Sciences
- 2008-2009 The Search Committee for a tenure-track faculty position in Protein Quality Control (PQC) of the Division of Basic Biomedical Sciences
- 2008 USD Committee investigating alleged research misconduct of a faculty member
- 2009-2018 Sanford School of Medicine P&T Committee
- 2009-2014 Chair, Monthly PQC Roundtable Meeting
- 2009-2010 LCME Task Force Sub-Committee
- 2010-2011 Chair, the Organizing Committee for the Inaugural Symposium on Ubiquitin, Protein Quality Control and Molecular Pathogenesis, Vermillion, SD, June 22-24, 2011.
- 2010-2011 The Search Committee for a tenure-track faculty position in Protein Quality Control and Degradation (PQCD)
- 2010-2016 Director, the Interim Center for PQCD Research
- 2009-2016 Chair, the Finance/Budget Committee for PQCD Research & Development
- 2011-2012 Task Force for Medical Curriculum Reform (Skin & Musculoskeletal Block)
- 2011 The Search Committee for VP of Health Affairs/Dean of Sanford School of Medicine
- 2011 Pre-tenure Review Committee of Dr. Victor Huber
- 2012 Chair, The Organizing Committee for the Second Symposium on Ubiquitin, Protein Quality Control and Molecular Pathogenesis, Deadwood, SD, June 13-15, 2012
- 2012 Pre-tenure Review Committee of Dr. Hongmin Wang
- 2013 The Primary Committee for Dr. Carlos Telleria's Promotion to Full Professor
- 2013 Pre-tenure Review Committee of Dr. Khosrow Rezvani
- 2013 The Search Committee for two tenure-track faculty positions in the Department of Biomedical Engineering

2014	Chair, The Organizing Committee for the Third Symposium on Ubiquitin, Protein Quality Control and Molecular Pathogenesis, Deadwood, SD, June 4-6, 2014
2014-2019	Grant Applications Pre-submission Internal Review Committee of Division of Basic Biomedical Sciences
2014	Pre-tenure Review Committee of Dr. James S. P.
2016-6/2022	Graduate Committee of USD Sanford School of Medicine, standing member.
7/2023-present	Graduate Committee of USD Sanford School of Medicine, Advisory member.
2018	Member of The Search Committee for a tenure-track Assistant or Associate Professor in infectious disease for the Division of Basic Biomedical Sciences
2018	Member of The Primary Committee for Dr. S. N. Sathyanesan's Promotion to Full Professor
2019	Member of The Search Committee for a tenure-track Assistant Professor for the Division of Basic Biomedical Sciences
2019	Chair, The Primary Committee for Dr. H. Wang's Promotion to Full Professor.
2021-2023	P&T Committee, Sanford School of Medicine, USD.
2023-present	University Graduate Council, USD
2023-present	Advisory Member, Basic Biomedical Sciences Graduate Program
2024-2025	Chair, pre-tenure review committee for Dr. William Chen
2024-2025	USD Sanford School of Medicine reaccreditation taskforce

COMMUNITY SERVICE

2002-2006	Judge, Sioux Valley Hospital & Health System Annual Quality Fair
2003	Volunteer Speaker, AHA Sioux Falls Regional Gala
2006 – 2017	Faculty Advisor, USD Association of Chinese Students and Scholars
2015- 2020	Food Server, USD Lee Medical Building Annual Welcome Table Christmas Dinner

TEACHING AND ADVISING

A. COURSES TAUGHT

1. ANAT 511	<i>Gross Anatomy</i>	USD School of Medicine and Health Sciences
2. ANAT 521	<i>Microanatomy</i>	USD School of Medicine and Health Sciences
3. BIOCHEM	<i>Medical Biochemistry</i>	USD Sanford School of Medicine
4. PHPH 792	<i>Genetic Approaches</i>	USD Graduate School (Course Director)
5. CPHD 740	<i>Protein Quality Control</i>	USD Graduate School (Course Director)
6. BIOC 798	<i>Heat Shock Proteins</i>	USD Graduate School
7. PHPH 728	<i>Signal Transduction</i>	USD Graduate School
8. CPHD 788	<i>Res Basic Biomed Sci</i>	USD Graduate School

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| 9. CPHD 898 | <i>Thesis Research</i> | USD Graduate School |
| 10. CPHD 620 | <i>Foundations of Cardiovasc. Sci.</i> | USD Graduate School (Course Director) |
| 11. CPHD 792 | <i>Heat Shock Proteins and Dis.</i> | USD Graduate School |
| 12. IMC 601 | <i>Skin and Musculoskeletal Block</i> | USD Sanford School of Medicine |
| 13. IMC 605 | <i>Cardiovascular Block</i> | USD Sanford School of Medicine |
| 14. CPHD 792 | <i>PQCD Journal Club</i> | USD Graduate School (Course Director) |
| 15. PHGY 792 | <i>Physiology Journal Club</i> | USD Graduate School (Course Director) |

B. GRADUATE STUDENTS MENTORING

1. Served as the Primary Mentor

Graduate student names	Degree obtained (pursued)	Dates	Current positions
Wei Huang (visiting student)	Ph.D.	10/2001 – 10/2002	Professor of Medicine, Nanjing Medical University, Nanjing, Jiangsu, China
Assangi R. K. Kumarapeli	Ph.D.	9/2002 - 8/2006	Associate Professor, Department of Pathology, University of Arkansas for Medical Sciences, Little Rock, AR
Mingxin Tang	M.S.	7/2003 – 8/2006	Research Scientist University of Hawaii, Honolulu, HI, PA
Jie Li	Ph.D.	9/2003 - 12/2008	Assistant Professor, Medical College of Georgia Augusta University, Augusta, GA, USA
Qingwen Zheng	Ph.D.	9/2005 – 12/2010	Physician, Kaiser Permanente Roseville Medical Center Roseville, California
Mark J. Ranek, BS	Ph.D.	9/2006 – 5/2012	Assistant Professor, Johns Hopkins University
Lei Zhang, MS	Ph.D. (co-mentor)	8/2015 – 8/2016	Postdoc at Medical University of South Carolina, Charleston, SC
Hanming Zhang, BS	(PhD)	8/2013 – 5/2019	Postdoc at Yale University, New Haven, Connecticut
Penglong Wu, BM, MS	Visiting PhD Student from Shanghai Jiao Tong University	6/22/2015 – 6/21/2017	Postdoctoral fellow, Guangzhou Medical University and USD Sanford School of Medicine.
Chao Suo, DDS	(PhD)	8/2015 – 5/2017	Taking a 2-year leave of absence for a Dentistry

			Licensure training program in University of Las Vegas, Las Vegas, NV.
Megan T. Lewno, BA	M.S.	8/22/2019-12/21/2021	PreClinical Applications Specialist, Scintica Inc. Webster, TX
Liuqing Yang, BS, MS	PhD	8/22/2017 – 8/21/2023	Postdoctoral fellow, University of Rochester, Rochester, NY
Samiksha Giri, BA	PhD	8/22/2017-8/21/2023	Postdoctoral fellow, USD
Mingqi Cai, MBBS	Visiting Graduate Student	1/22/2020 - 1/21/2021	USD PhD student
Mingqi Cai, MBBS, MS	(PhD)	1/06/2021 -	
MdSalim Ahammed, MS	(PhD)	1/06/2021-	
MdGiash Uddin, MS	(PhD)	8/24/2022-	
Ayisha Mahama, MS	(PhD)	8/24/2022-5/21/2024	Transferred to a different lab at USD
Jingyi Lin, BS	(PhD)	8/20/2023-	
Yifan Wang, BS	(PhD)	8/27/2024-	

2. Served as a Member of the Graduate Study Advisory Committees

2001-2003	James Kuzman, PhD Advisory Committee, BBS
2005-2006	Leah Callahan, MS thesis committee, BBS
2008-2010	Lili Guo, PhD Advisory/Dissertation Committee, BBS
2010-2011	Rui Du, PhD Advisory Committee, BBS
2010-2014	Shuai Li, PhD Advisory/Dissertation Committee, BBS
2013-2016	Lei Zhang, PhD Advisory /Dissertation Committee, BBS
2013-2017	Xianhua Meng, MS/PhD Thesis and Dissertation Committees, Dept. of Chemistry, USD
2015-2018	Hongbo Gao, PhD Advisory/Dissertation Committee, BBS
2020-2024	Katherine Aby, PhD Advisory/Dissertation Committee, BBS
2024-	Jin (Jason) Zhang, PhD Advisory/Dissertation Committee, BBS/BaTS
2025-	Sahas Pokharel, PhD Advisory/Dissertation Committee, BBS/BaTS

C. NON-CLASSROOM TEACHING/ADVISING

1. List of Junior Faculty Mentored

2008-2012	H. Su, PhD, Research Assistant Professor; currently R01-funded tenured Associate Professor at Medical College of Georgia of Augusta University, Augusta, Georgia
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- 2009-2015 H. Wang, PhD, Assistant Professor; currently R01-funded tenured Associate Professor at University of South Dakota Sanford School of Medicine, Vermillion, SD 57069
- 2011-2016 K. Rezvani, PhD, Assistant Professor; currently Tenured Associate Professor at USD Sanford School of Medicine, Vermillion, SD
- 2011-2016 J.S. Pattison, PhD, Assistant Professor
- 2013 -2015 C. Wang, MD, PhD, Research Assistant Professor; currently Professor and Chairman of the Dept. of Pathophysiology, Wuhan University Medical School, Wuhan, Hubei, China
- 2017- 2019 Nirmal Parajuli, PhD, Research Assistant Professor, currently Senior Research Associate at the Immunology Research Program, Henry Ford Health System, Detroit, MI.
- 2019 - 2022 Xing Liu, PhD, Assistant Professor, Department of Biochemistry, Purdue University, West Lafayette, IN, (secondary mentor for AHA CDA grant, funded on July 1st, 2020)
- 2021- William Chen, MD, PhD, Assistant Professor, Division of Basic Biomedical Sciences, USD Sanford School of Medicine. Primary mentor, including for his AHA CDA (funded in 2022).
- 2023- Jingrui Chen, PhD, Instructor, Department of Pharmaceutical Sciences, Washington State University College of Pharmacy, Spokane, WA (Secondary mentor for AHA CDA grant, funded).

2. List of Postdoctoral Trainees

Name of trainees	Training period	Current position
Quanhai Chen, MD	1/2003 - 11/2005	Senior Scientist, GlaxoSmithKline, Heart Failure (Development Performance Unit), King of Prussia, PA, USA
Hanqiao Zheng, MD, PhD	8/2003 - 5/2008	Pathologist, UMass Memorial Medical Center, Assistant Professor, UMass Medical School, Worcester, MA, USA
Jinbao Liu, MD, PhD	11/2003 - 10/2005	Professor and Vice President for Research, Guangzhou Medical University, Guangzhou, Guangdong, China
Huabo Su, PhD	11/2004 – 6/2008	Professor (tenured), Vascular Biology Center and Department of Pharmacology,

	7/2008 – 7/2012	Medical College of Georgia Augusta University, Augusta, GA, USA
Daoxiong Lei, MD, PhD	11/2005-10/2008	Professor, Tianjin 4 th Hospital, Tianjin, China
Youn-Chul Ryu, PhD	9/2006 – 4/2009	Professor, Division of Biotechnology, SARI, Jeju National University, Jeju 63243, Korea
Wei Huang, MD, PhD	10/2007-10/2008	Professor, Nanjing Medical University, Nanjing, Jiangsu, China
Jie Li, MD, PhD	1/2009 – 7/21/2012	Assistant Professor, Medical College of Georgia Augusta University, Augusta, GA, USA
Zongwen Tian, MD, PhD	8/2009 – 8/21/2012	Associate Professor & Chair, Dept. of Anatomy, Wuhan University Medical School, Wuhan, Hubei, China
Changhua Wang, MD, PhD	10/2010-10/2011	Professor & Chair, Dept. of Pathophysiology, Wuhan University Medical School, Wuhan, Hubei, China
Mark J. Ranek, PhD	6/1/2012-11/21/2012	Assistant Professor at Johns Hopkins University, Baltimore, MD
Hongxin Xu, MD, PhD	11/1/2012-11/21/2013	Associate Professor and Cardiologist, Renming Hospital, Wuhan University School of Medicine, Wuhan, Hubei, China
Chengjun Hu, MD, PhD	3/22/2012 – 3/31/2014	Associate Professor & Vice-Chair, Dept. of Anatomy, Wuhan University College of Basic Biomedical Sciences, Wuhan, Hubei, China
Yihao Tian, MD, PhD	3/22/2012 – 3/31/2014	Associate Professor, Dept. of Anatomy, Wuhan University College of Basic Biomedical Sciences, Wuhan, Hubei, China
Erin J. Terpstra, PhD	2/1/2012 – 6/30/2015	Medical Student, USD SSOM
Bo Pan, PhD	12/22/2014 – 6/21/2019	Senior Scientist, Zymeron Corporation, Research Triangle Park, NC, USA
Peng Xiao, PhD	1/22/2015 – 9/21/2018	Postdoctoral Fellow, The Wistar Institute, Philadelphia, PA 19104
Ammara Abdullah, PhD	6/22/2015 – 6/21/2017	Research Scientist II, ONC ODD/Oncology NIBR, Novartis Pharmaceuticals, 3000 Kent Ave. Ste. #1950, West Lafayette, IN 47906
Penglong Wu, MD, PhD	8/3/2017-6/21/2020	Physician Scientist, The Cardiovascular Institute of Xiamen University, Xiamen, Fujian, China
Mark J. Bouska, PhD	1/3/2021 – 8/9/2024	Assistant Professor, Dept of Biology, USD
Saima Ejaz, PhD	11/27/2022-3/21/2025	Assistant Professor of Physiology, Dept of Basic Biomedical Sciences University of Pikeville, Pikeville, KY 41501
Ana Cristina Mosena Tomoson, PhD	7/17/2023-12/28/2023	(resigned due to family relocation)

Samiksha Giri, PhD	8/22/2023-	
Neha Dagar, PhD	3/22/2025-	

3. List of Visiting Scientists

Name & Degrees	Training period	Parent Institution
Changhua Wang, MD, PhD	1/2014 ~ 8/21/2015	Professor & Chair, Dept. of Pathophysiology, Wuhan University College of Basic Medical Sciences, Wuhan, Hubei, China
Maggie Gong, MD, PhD	2/2014 ~ 1/21/2015	Professor, Harbin Medical University, Harbin, Heilongjiang, China
Feng Yao, MD, PhD	4/2009-11/2009	Professor & Chair, Dept. of Breast Surgery, Wuhan University Medical College, Wuhan, Hubei, China

4. Medical Students and Medical Resident Research

2002	Matt Mahowald, USD medical student of Class 2005, summer research
2002	Louis W. Lim, MD, Internal Medicine Chief Resident, research rotation
2004	Paul King, USD medical student of Class 2007, summer research
2005	Weitian Liu, MD, Internal Medicine Resident, research rotation
2007	Marius Vulcan, USD medical student of Class 2010, summer research
2011, 2012	Sigurd E. Hartnett, USD MD/PhD program student, summer research
2015	Nickolas Pekas, USD MD/PhD student, summer research
2021 – 2023	Andrew L. Guymon, USD medical student of Class 2025, scholarship pathway

5. Undergraduate Student Researchers

Name of trainees	School attended	Distinction	Training period
Mark List	Augustana College, Sioux Falls, SD	BRIN Summer Scholars	2005 & 2006 summer
Mark List	Augustana College	Part-time undergrad researcher	1/2005-12/2006
Lindsey Gerdes	Augustana College,	COBRE Summer Research Scholar	2005 summer
Andy Nelson	Augustana College	Undergrad Summer Researcher	2006 summer
Heath Eggleston	Dakota Wesley	BRIN Summer Scholar	2007 summer

Blake Alberts	USD	The Honors' Thesis Research	2008-2010
Blake Alberts	USD	NIH summer research scholarship	2009 summer
Morgan Hanson	USD	The Honors Thesis Research	2008-2010
Levi Froke	USD	NIH Summer Research Scholarship	2009 summer
Levi Froke	USD	Part-time undergrad. researcher and The Honors Thesis Research	2009-2011
Yun Zou	USD	Part-time undergrad. researcher	12/2009-5/2010
Michael Freitag	USD	Part-time undergrad. researcher	1/2010-4/2010
Michael Freitag	USD	Undergrad summer researcher	2010 summer
Jiwen Li	Rice University	Rice/Baylor Medical Scholar, NIH Summer Research Scholarship	2010 summer
Michael Freitag	USD	Undergrad summer researcher	2011 summer
Levi Froke	USD	Undergrad summer researcher	2011 summer
Lance M. Ranek	USD	Work study (undergrad research assist)	2012/2013 school year
Lance M. Ranek	USD	Work study (undergrad research assist)	2013/2014 school year
Lance M. Ranek	USD	Undergrad summer researcher	2014 summer

Casey A. Reihe	USD	Undergrad researcher	2015 Spring – 2017 Spring
Caleb Ray Wenz	USD	Undergrad researcher	2015 Spring-2016 Spring
Andrew V.Y. Yevugah	USD	Undergrad researcher	2016 Spring- 2017 Spring
Tanner James Redlin	USD	Undergrad researcher	2016 Fall-2017 Spring
Taylor Grace Faw	USD	Undergrad researcher	2016 Fall-2018 Summer
Kasha Merie Shear	USD	Undergrad researcher	2016 Fall-2018 Spring
Wyatt Windhorse	Mount Marty	BRIN Undergrad Scholar	2022 Summer
Katelin Stoebner	USD	Undergrad researcher	2024 fall-
Donnie Arens	USD	The honors thesis research	2024 fall-

6. Undergraduate Honors Thesis Advised

2008-2010 Blake Alberts, USD
 2008-2010 Morgan Hanson, USD
 2009-2011 Levi Froke, USD
 2014-2017 Casey A. Reihe, USD
 2017-2018 Taylor Grace Faw, USD
 2019-2019 Mary Ann Doom, USD

7. Research Technicians Mentored

2002-2003 Niels Harden, currently practicing physician
 2003-2005 Joseph W. Glasford, currently Research Operation Manager of Sanford Research/USD
 2004-2008 Kathleen M. Horak, currently homemaker
 2006-2008 Mingxin Tang, currently Director of Physiology Core of University of Hawaii, Honolulu, Hawaii, USA
 2007-2008 Amy J. Stephenson
 2007-2008 John R. Bosch, went to Osteopathic medical school at St Paul, MN
 2008-2010 Emily McDowell, currently Research Associate in USDSSOM
 2011-2012 Travis Bjordahl, went to dental school
 2009-2014 Suleman Said, Research Associate III
 2008-2015 Andrea Jahn, 2008-11/8/2015, Research Associate III; currently Assistant to the Dean of BBS.
 2016-2019 Megan T. Lewno, BS, Research Associate I and II.
 2018- Jack O. Sternberg, BS, Research Associate I (7/2018-6/2020), II (7/2020-6/2024), and III (7/2024 –).

- 2020 - 2023 Jose Lira, BS, Research Associate I (8/21/2020 – 2/2022) and II (3/2020-7/2023)
- 2021-2021 Renae Sieck, MS, Research Associate I (7/26/21 – 11/10/2021)
- 2022 - 2023 Addilyn Hillinger, BS, Research Associate I (6/1/2022-4/21/2023)
- 2023-2024 Jovani Gomez, BS, Research Associate I (8/28/2023 – 5/3/2024)

D. DEVELOPMENT OF TEACHING STRATEGIES, ASSESSMENTS, METHODS

- 2004-2005 Developed and directed a graduate course “Genetic Approaches”
- 2007 Chair, the Working Group on establishing a graduate course on Grant and Scientific Writing, USD Sanford School of Medicine Division of Basic Biomedical Sciences (2007).
- 2011 Member, Medical Curriculum Innovation (Skin and musculoskeletal system section)
- 2012 Developed and directed a graduate course “CPHD 740: Protein Quality Control and Degradation (PQCD)”
- 2013 Chair, Taskforce to develop the curriculum for the Cardiovascular Sciences Specialty of the Basic Biomedical Sciences graduate program
- 2014 Developed and directed a graduate course “CPHD 620: Foundation of Cardiovascular Sciences”
- 2021 Revitalized PQCD and Physiology Journal Clubs.

PRESENTATIONS

Invited Seminars/Presentations (National and International)

1. “Cardiac myocyte remodeling in pressure overloaded cardiac hypertrophy and failure”; The Institute of Muscle, Arthritis, and Skin Diseases, NIH, Bethesda, MD. April, 1998.
2. “Cardiac myocyte remodeling in chronic pressure overload-induced cardiac hypertrophy and failure”; Gladstone Cardiovascular Institute, University of California at San Francisco, CA, May, 1998.
3. “The alteration of intercalated disk-associated proteins during the progression from compensated cardiac hypertrophy to congestive heart failure in pressure overloaded guinea pigs”; Department of Pharmacology in University of Minnesota, Minneapolis, MN. March, 1998.
4. “Intercalated disk remodeling in pressure overloaded cardiac hypertrophy and failure”; Division of Molecular Cardiovascular Biology, Children’s Hospital Research Foundation, Cincinnati, OH. April, 1998.
5. “Cytoskeletal remodeling of cardiac myocytes in pressure overload hypertrophy and failure”; Department of Pharmacology, East Tennessee State University School of Medicine, Johnson City, TN, July, 1999.
6. “*In vivo* Modeling Desmin-related Cardiomyopathies with Transgenics”; the 4th Annual Scientific Meeting of Heart Failure Society of America, Boca Raton, FL, September

10-13, 2000.

7. "Transgenic Models of Desmin-related Cardiomyopathies"; South Dakota Health Research foundation-Cardiovascular Research Institute, University of South Dakota, Sioux Falls, SD, October 16, 2000.
8. "Desmin filaments and heart diseases"; Department of Biomedical Sciences, Florida Atlantic University, Boca Raton, FL, May 21, 2001.
9. "Intermediate Filaments and Cardiac Diseases: Cause and Effects"; Division of Cardiology, University of California at Davis, Davis, CA, May 25, 2001.
10. "Intermediate Filaments and Cardiac Diseases: Cause and Effects"; Department of Basic Biomedical Sciences, Mercer University Medical School, Macon, GA, June 14, 2001.
11. "Intermediate Filaments and Cardiac Diseases: Cause and Effects"; Center of Excellence in Genomics and Bioinformatics, University of Tennessee, Memphis, TN, June 25, 2001.
12. "Intermediate filaments and cardiac diseases: Cause and Effects"; Midwestern University, Glendale, AZ, June 29, 2001.
13. "Desmin in cardiac remodeling"; A Symposium on "Remodeling and Progression of Heart Failure" (an official satellite meeting of the 17th World Congress of International Society for Heart Research), Minneapolis, MN, July 12-15, 2001.
14. "Desmin filaments and cardiac diseases: cause and effects"; University of South Dakota School of Medicine, Vermillion, SD, July 16, 2001.
15. "Intermediate filaments and cardiac diseases: cause and effects"; Department of Physiology, University of Texas Health Science Center, San Antonio, TX, July 23, 2001.
16. "Ubiquitin-Proteasome System in Pathogenesis and Therapeutics"; Wuhan University College of Basic Medical Sciences, Wuhan, Hubei, China, September 20, 2002.
17. "Ubiquitin-Proteasome System and Cardiovascular Diseases"; South Dakota State University College of Veterinary Science, Brookings, SD, October 4, 2002.
18. "Intermediate filaments and cardiac disease: establish causality"; Wuhan University College of Medicine, Wuhan, Hubei, China, Oct. 29, 2002.
19. "Ubiquitin-Proteasome System in Pathogenesis and Therapeutics"; Guangzhou Medical College, Guangzhou, Guangdong, China, Nov. 1, 2002.
20. "Desmin filaments and cardiac diseases"; the VII Meeting of International Society for Heart Research: China Section, Guangzhou, China, November 1-5, 2002.
21. "Modulation of the ubiquitin-proteasome system by an alpha B-crystallin mutant"; The 1st Annual COBRE Symposium. Rapid city, SD, June 28-30, 2003.

22. “In Situ Monitoring Dynamic Changes in the Ubiquitin-Proteasome System in vitro and in vivo”; The 1st Symposium of the Academy of Cardiovascular Research Excellency (ACRE), Washington, DC, April 20, 2004.
23. “Trashmen and police on strike in Alzheimer’s disease of the heart”; The 2nd Annual COBRE Symposium. West Yellow Stone, MT, August 4-7, 2004.
24. “Trashmen on strike in a mouse model of cardiac Alzheimer’s”; Division of Cardiology, University of Utah, Salt Lake City, UT, November 2, 2004.
25. “A novel transgenic mouse model reveals deregulation of the ubiquitin-proteasome system in the heart by Doxorubicin”; The 2nd ACRE annual scientific meeting, Vancouver, Canada, July 15, 2005.
26. “The Ubiquitin-Proteasome System in Cardiac Remodeling and Failure”; Cardiovascular Distinguished Lecture Series, University of California at Los Angeles School of Medicine, LA, CA January 31, 2006.
27. “Dissecting the Ubiquitin-Proteasome System in the Heart with Genetic Approaches”; Long Island Jewish Medical Center, New Hyde Park, NY, March 7, 2006.
28. “The Ubiquitin-Proteasome System in Cardiac Remodeling and Failure” at the Department of Molecular and Cellular Pharmacology, University of Miami, Miami, FL, March 16, 2006.
29. “The Ubiquitin-Proteasome System in Cardiac Physiology and Pathophysiology”; The 5th International Ascona Workshop on Cardiomyocyte Cell Biology, Monte Verita, Ascona, Switzerland, April 2-6, 2006.
30. “Inadequate Protein Quality Control in Heart Failure”; Division of Molecular Medicine, UCLA School of Medicine, Los Angeles, CA, April 18, 2006.
31. “The Ubiquitin-Proteasome System in Cardiac Remodeling and Failure”; Department of Molecular Genetics, University of Cincinnati, Cincinnati, OH May 2, 2006.
32. “Inadequate Protein Quality Control in Heart Failure”. The Center for Translational Medicine, Jefferson Medical College, Philadelphia, PA, May 10, 2006.
33. “The Ubiquitin-Proteasome System in Cardiac Remodeling and Failure”; The Center of Cardiovascular Sciences, Albany Medical College, Albany, NY, May 12, 2006.
34. “The Ubiquitin-Proteasome System in Cardiac Remodeling and Failure”; Department of Pharmacology, Loyola University Medical Center, Maywood, IL, May 15, 2006.
35. “The COP9 Signalosome and Protein Quality Control”, ZOMES IV: The 4th International Symposium on COP9 Signalosome, Proteasome, and eIF3: at the interface between signaling & proteolysis. New Haven, CT, June 18-21, 2006.
36. “The Ubiquitin-Proteasome System in Cardiac Remodeling and Failure”; University of Texas Houston Medical School, Houston, TX, May 11, 2007.

37. “Protein quality control in cardiac remodeling and failure”; Wuhan University College of Basic Biomedical Sciences, Wuhan, China, June 4, 2007.
38. “The ubiquitin proteasome system in cardiac remodeling and failure”; Marie Curie Symposium on the Ubiquitin-proteasome System in Cardiovascular Disease, Hamburg, Germany, June 9, 2007.
39. “Ubiquitin-proteasome system dysfunction in cardiomyopathies”; Heart Failure 2007 (the annual meeting of Heart Failure Association of the European Society of Cardiology), Hamburg, Germany, June 10, 2007.
40. “Cardiac remodeling and protein quality control”; The 29th Meeting of the North American Section of the International Society for Heart Research (ISHR), Bologna, Italy, June 21-22, 2007.
41. “Proteasomal degradation”; The 4th Annual Symposium of the American Heart Association Council on Basic Cardiovascular Sciences. Keystone, CO, USA, July 30-August 2, 2007.
42. “The Proteasome and Cardiac Disease”; *Sunday Morning Program*, American Heart Association Scientific Sessions, Orlando, Florida, USA, November 5, 2007.
43. “Proteasomal degradation in cardiomyopathy”; *Cardiac Seminar*, American Heart Association Scientific Sessions, Orlando, Florida, USA, November 7, 2007.
44. “The ubiquitin-proteasome system for protein degradation”; *European Winter Meeting on Translational Cardiology*, organized by the Heart Failure Association (HFA) of the European Society of Cardiology (ESC), Garmisch-Partenkirchen, Germany, January 23-26, 2008.
45. “Proteasomes in cardiac remodeling and failure”; Late Breaking Sciences-ISHR-North America Section 2008 meeting, Cincinnati, OH, June 17-21, 2008.
46. “The role of the UPS in cardiac disease”; Sunday Morning Program Session on Protein Misfolding, Proteolysis, and Cardiac Disease, AHA Scientific Sessions, New Orleans, LA, November 8, 2008.
47. “COP9 Signalosome, Proteasome, and Lysosome”; The Graduate Seminar Series, Guangzhou Medical College, Guangzhou, Guangdong, China, December 18, 2008
48. “COP9 Signalosome, Proteasome, and Lysosome: All in the Same Zomes”; Wuhan University College of Basic Medical Sciences, Wuhan, Hubei, China, December 19, 2008.
49. “Protein Quality Control in Cardiac Remodeling and Failure”; University of British Columbia, Vancouver, BC, Canada, April 24, 2009.
50. “A molecular pathway underlying cardiac pathogenesis of inadequate PQC”; the Division of Basic Biomedical Sciences of Guangzhou Medical College, Guangzhou, Guangdong, China, June 19, 2009.

51. “Proteasome, lysosome, and signalosome: all in the same ZOME”; Wuhan University College of Medicine, Wuhan, Hubei, China, June 24, 2009
52. “COP9 signalosome in the heart”; the Sunday Morning Program on “Protein Quality Control in Heart Disease”, AHA Scientific Sessions, Orlando, FL, November 15, 2009.
53. “Ubiquitin-proteasome system in heart disease”; the Graduate School of Guangzhou Medical College, Guangzhou, Guangdong, China, December 17, 2009.
54. “The ubiquitin-proteasome system in cardiac proteinopathy”; Department of Cellular Physiology and Neurosciences, Loyola University, Maywood, IL, April 20, 2010.
55. “Proteasome functional insufficiency in cardiac proteinopathy”; The session on “The Role of the Ubiquitin Proteasome System in Cardiac Disease, Diabetes, and Aging” of the 2010 EB meeting, Anaheim, CA, April 24-28, 2010.
56. “The ubiquitin-proteasome system in cardiac proteinopathy”; The Department of Physiology of University of Oklahoma College of Medicine, Oklahoma City, OK, May 10, 2010.
57. “COP9 Signalosomes regulate proteolysis in the heart”; a state-of-the-art lecture given to the Symposium "Genes, Proteins, and Translational Medicine" hosted by UCLA in conjunction with the AHA BCVS 2010 meeting, Rancho Mirage, CA, July 18, 2010.
58. “The ubiquitin-proteasome system in cardiac remodeling and failure”; Department of Biology, San Diego State University, San Diego, CA, November 4, 2010.
59. “The Ubiquitin-Proteasome System in Cardiac Remodeling and Failure”; Department of Molecular and Integrative Physiology University of Illinois at Urbana-Champaign, Urbana, IL, April 28, 2011.
60. “Protein Quality Control and Heart Disease”; Molecular Biology and Biotechnology Seminar Series, The Center of Molecular Biology and Biotechnology and College of Medicine, Florida Atlantic University, Boca Raton, FL, November 16, 2011.
61. “The COP9 Signalosome Regulates Autophagy”; Sanford Research/USD, Sioux Falls, SD, November 18, 2011.
62. “Proteasome Functional Insufficiency in Cardiac Pathogenesis”; Lillehei Heart Institute Lecture, Lillehei Heart Institute at the University of Minnesota Medical School, Minneapolis, MN, December 7, 2011.
63. “Can we treat proteinopathy by upregulating 11S proteasomes?” A State-of-the-Art Lecture at the Conference on the Protein Degradation Pathways in Health and Diseases , San Diego, CA., January 23, 2012.
64. “The ubiquitin-proteasome system in cardiac pathogenesis”; Department of Pathology, University of Cincinnati, Cincinnati, OH, May 18, 2012.
65. “Proteasome functional insufficiency in cardiac pathogenesis”; Department of Cell

Biology and Molecular Medicine, UMDNJ – New Jersey Medical School, Newark, NJ, May 23, 2012.

66. “The ubiquitin-proteasome system in heart disease”; Department of Biomedical Sciences, New York College of Osteopathic Medicine at New York Institute of Technology, Old Westbury, NY, May 25, 2012.
67. “Protein Quality Control and Disease: Focus on the COP9 Signalosome”; the Educational Ministry Key Laboratory Seminar Series, Shanghai Jiaotong University, Shanghai, China. June 20, 2012.
68. “Intracellular Protein Quality Control and Pathogenesis: the COP9 signalosome”; Pathophysiology Invited Seminars of Wuhan University, Wuhan, Hubei, China. June 25, 2012
69. “Ubiquitination and Proteasomes: Mechanism of Heart Failure”; The 2012 Scientific Session of American Heart Association Council on Basic Cardiovascular Sciences (AHA-BCVS): Frontiers in Cardiovascular Science and Novel Therapy. New Orleans, LA, July 24, 2012.
70. “The COP9 Signalosome Polices the Heart”; Department of Biological Sciences, University of Illinois at Chicago, Chicago, IL, September 18, 2012.
71. “Proteasome Dysfunction in Cardiac Pathogenesis”; the Feinberg Cardiovascular Research Institute, Northwestern University, Chicago, IL, September 19, 2012.
72. “Proteasome Dysfunction in Pathogenesis”; the Biochemistry and Molecular Biology Seminar at Mayo Clinic in Rochester, Minnesota, October 2, 2012
73. “Protein Quality Control and Pathogenesis”; *University of Wisconsin Department of Pathology and Laboratory Medicine Seminar*, Madison, Wisconsin, October 10, 2012.
74. “UPS regulation and dysfunction in heart failure”, an invited lecture to a Session on Protein Quality Control and Homeostasis in Cardiac Physiology and Disease, AHA Scientific Sessions, Los Angeles, CA, November 4, 2012.
75. “Proteasome dysfunction in cardiac pathogenesis”; Keystone Symposium on Cardiac Remodeling, Signaling, Matrix and Heart Function (D4-2013), Snowbird, UT, April 9, 2013.
76. “Interaction of ubiquitin proteasome system and autophagy in the heart”; Cardiac Seminars on Dynamics of Protein Degradation Machinery in Cardiac Function. AHA Scientific Sessions, Dallas, TX, November 18, 2013.
77. “Loss of Function of an Extraproteasomal Ubiquitin Receptor Ubiquilin1 in Cardiomyocytes Exacerbates Cardiac Proteotoxicity”; The 35th International Society for Heart Research North American Section Meeting, Miami Beach, Florida, USA on May 12 -15, 2014.
78. “Protein Quality Control and Cell Death”; Department of Anatomy and Cell Biology,

University of South Carolina School of Medicine, Columbia, SC, USA, May 19, 2014.

79. “Inadequate Coupling between Ubiquitination and Proteasomal Degradation in Cardiac Pathogenesis”; Wuhan University College of Basic Medical Sciences, Wuhan, Hubei, China, June 13, 2014.
80. “Protein Quality Control and Disease”; the 2nd Affiliated Hospital of Zhongnan University Xiangya Medical School, Changsha, Hunan, China on June 20, 2014.
81. “Protein Quality Control and Degradation in Cardiac Disease”; the 2nd Affiliated Hospital of Zhejiang University Medical College, Hangzhou, Zhejiang, China, June 25, 2014.
82. “Protein Quality Control in Cardiac Pathogenesis”; the Institute of Molecular Medicine of Peking University, Beijing, China, July 1, 2014.
83. “Priming the proteasome by PKG: a novel cardioprotective mechanism of sildenafil”; The 19th World Congress on Heart Disease, Boston, MA, USA on July 28, 2014.
84. “Inadequate Protein Quality Control in Cardiac Pathogenesis”; the Invited Seminars at Molecular Medicine, University of Oklahoma Health Science Center, Oklahoma City, OK, August 7, 2014.
85. “Inadequate Protein Quality Control in Cardiac Pathogenesis”; the School of Veterinary Medicine and Biomedical Sciences, University of Nebraska, Lincoln, Nebraska, September 29, 2014
86. “Protein degradation and heart failure: The NRF2-p62 axis in the cross-talk between proteasomal and lysosomal degradation”; the 36th International Society for Heart Research North American Section (ISHR-NAS) Annual Meeting, Seattle, WA, June 9, 2015.
87. “Neddylolation/Deneddylolation, Protein Quantity & Quality Control, and Cardiomyocyte Necroptosis”; the Session on Protein Folding and ER Stress, AHA Scientific Sessions, Orlando, FL, November 9, 2015.
88. “The COP9 Coerces Lysosomes and Proteasomes to Police the Heart”; Department of Biomedical Sciences, New York Institute of Technology College of Osteopathic Medicine, Old Westbury NY, March 14, 2016.
89. “The Interplay between Autophagy and the Ubiquitin-Proteasome System in Cardiac Proteotoxicity”; American Society for Investigative Pathology (ASIP) 2016 Annual Meeting at Experimental Biology, San Diego, CA, April 2-6, 2016.
90. “Inadequate protein quality control and heart failure”; The 4th International Conference on Cardio-metabolic Science, Wuhan, Hubei, China, May 11-14, 2016.
91. “The COP9 signalosome in the heart”; Department of Pathophysiology at Guangzhou Medical University, Guangzhou, China, May 20, 2016

92. “The COP9 coerces lysosomes and proteasomes to police the heart”; College of Life Science at Shanghai Ocean University, Shanghai, China, May 23, 2016
93. “Proteasome functional insufficiency in cardiac pathogenesis”, the Division of Cardiology at the 6th People’s Hospital of Shanghai, Shanghai, China, May 24, 2016
94. “Cardiac protein quality control and necroptosis”; Department of Pathology and Translational Pathobiology, LSU at Shreveport, Shreveport, LA, May 31, 2016.
95. “The COP9 Signalosome: A Posttranscriptional Cop in the Heart”; the 2016 Scientific Sessions of American Heart Association and the Council on Basic Cardiovascular Sciences, Phoenix, Arizona, July 18-21, 2016.
96. “Cardiac protein quality control in health and disease”; the ADVS/CIB Seminar Series of Utah State University at Logan, UT, September 22, 2016.
97. “Proteasome functional insufficiency in pathogenesis”; the Molecular and Cellular Pathology Seminar Series of the Graduate Program of the Department of Pathology at University of Alabama at Birmingham, Birmingham, AL, October 11, 2016.
98. “The State-Of-The-Art in Cardiac Protein Misfolding”; Cardiac Seminars on Misfolded Proteins of the 2016 Scientific Sessions of American Heart Association, New Orleans, Louisiana, November 15, 2016.
99. “Ubiquitin and ubiquitin-like proteins in the heart: an overview”; to the Symposium entitled “Ubiquitin and ubiquitin-like proteins in cardiovascular physiology and disease” of the Experimental Biology meeting, Chicago, IL, April 22-26, 2017.
100. “Protein Degradation in Heart Failure”; the 36th Annual Conference of the North American Section of the International Society of Heart Research (NAS-ISHR), New Orleans, LA, May 30-June 2, 2017.
101. “The COP9 Signalosome and the Heart”, Wuhan University College of Basic Medical Sciences, Wuhan, Hubei, China, June 17, 2017.
102. “Proteasome and Heart Failure”, Guangzhou Medical University College of Basic Medical Science and College of Pharmacy, Guangzhou, Guangdong, China, June 20, 2017.
103. “Proteasome Functional Insufficiency in Cardiac Pathogenesis”, Invited Seminar Series of the Department of Physiology, Peking University Health Science Center, Beijing, China, July 7, 2017.
104. “The Pathophysiological Significance of Cardiac Proteasome Functional Insufficiency (PFI)”, Department of Pharmacology, Harbin Medical University School of Pharmacy, Harbin, Heilongjiang, China, July 13, 2017.
105. “The Ubiquitin-Proteasome System in Cardiac Pathogenesis”, The 7th Cold Region Cardiology Conference (CRCC) and the 3rd China-Russia Jointed Pharmacology Conference, Harbin, Heilongjiang, China, July 13-16, 2017.

106. “Targeting protein quality control to treat heart disease”, Department of Pharmacology and Toxicology, Medical College of Georgia, Augusta University, Augusta, GA, Jan 22 2018.
107. “Pathophysiology of cardiac protein quality control”, The Seminar Series for Advancing Scientific Research at the No. 1 Affiliated Hospital of Guangxi University of Traditional Chinese Medicine, Nanning, Guangxi, China, August 14, 2018.
108. “Pathophysiology of Cardiac Protein Quality Control”, Nebraska Physiological Society Annual Scientific Meeting, Omaha, NE, October 20, 2018.
109. “Proteinopathies and Heart Disease”, the Session entitled: “Proteostasis Meets Protein Trafficking in the Heart” in the AHA Scientific Sessions 2018 to be held in Chicago IL November 12, 2018.
110. “Priming the Proteasome to Treat Cardiac Proteotoxicity”, Invited Seminar Series of the Department of Cell and Molecular Physiology, Stritch School of Medicine, Loyola University Chicago, Maywood IL, April 18, 2019.
111. “Duo-activation of PKG and PKA by PDE Inhibition to Treat Heart Disease with Increased Proteotoxic Stress”, Distinguished Lecturer Seminar Series of The Institute of Biosciences & Technology (IBT), the Texas A&M University College of Medicine, in Houston TX, May 6, 2019.
112. “Priming the proteasome to treat heart failure”, Distinguished Medical Lecturer Seminar Series, Wuhan University School of Basic Medical Sciences, Wuhan, Hubei, China, May 22, 2019
113. “Priming the proteasome to treat heart failure”, Lectures by Oversea Chinese Medical Elites Session 8, The 13th Oriental Congress of Cardiology (OCC 2019), Shanghai, China, June 2, 2019.
114. “Aberrant Protein Aggregation in Cardiac Muscle”, a panelist for a Visual Keystone Symposium (VKS) “[Intracellular Aggregates: Across the Spectrum of Health and Disease](https://virtual.keystonesymposia.org/ks/live/290/page/1580)”, July 18, 2019. (<https://virtual.keystonesymposia.org/ks/live/290/page/1580>)
115. “Dual Activation of PKA and PKG by PDE1 Inhibition Facilitates Proteasomal Degradation of Misfolded Proteins and Protects against Proteinopathy-Based HFpEF”, 2019 AHA BCVS Scientific Sessions –Session 1A, Boston, MA, July 29, 2019.
116. “Phosphoregulation of the Proteasome”, an invited lecture to the Cardiovascular Seminars Session entitled “Maintaining Protein Integrity Under Stress” of 2019 AHA Scientific Sessions (November 18, 2019; Philadelphia, PA).
117. “Harness proteasome phosphoregulation to protect against proteotoxicity”, Invited Seminar Series, Department of Surgery, The Ohio State University College of Medicine, Columbus, OH, December 10, 2019.

118. “Interplay between the ubiquitin-proteasome system and autophagy”, International Society for Heart Research (ISHR) (Quarantine) Cardiovascular Webinar Series. May 22, 2020. <https://www.youtube.com/watch?v=xiys1qoCMjI&t=45s>
119. “Crosswalk between proteasomal and lysosomal degradation”, 14th Oriental Congress of Cardiology (OCC2020 Virtual Conference), Channel-10 Session 6 WACC/CNAHA Session: Novel Technologies and Translational Medicine in the Diagnosis and Treatment of the Cardiovascular Diseases; June 1, 2020. <https://occ.1mice.net/live/play/144818>.
120. “Priming the proteasome to protect against proteotoxicity”, a Keynote Lecture to the 7th ACRE-APS Scientific Symposium (virtual), Aug. 8th, 2020.
121. “Activation of the proteasome by PKA protects the heart under stress”, an invited lecture to BCVS@GW-ICC: Kinase Signaling and Cardiac Injury, Great Wall International Congress of Cardiology 2020 (GW-ICC 2020 virtual)/Asian Heart Society Congress 2020, October 19, 2020.
122. “Priming the proteasome to treat heart failure”, a virtual seminar to Translational Cardiovascular Research Center at the University of Arizona College of Medicine at Phoenix, February 22, 2021.
123. “Priming the proteasome to ameliorate cardiac proteotoxic stress”, a virtual seminar to the Department of Pathology at the University of Alabama at Birmingham, April 15, 2021.
124. “Priming the proteasome to protect against proteotoxic stress”, a virtual seminar to the Department of Physiology at the University of Tennessee Health Sciences Center School of Medicine, June 21, 2021.
125. “Catecholamine surges cause cardiomyocyte necroptosis via a RIPK1-RIPK3 dependent pathway”, an invited lecture to CNAHA@GW-ICC: Basic/Translational Cardiovascular Research and Novel Technologies, Great Wall International Congress of Cardiology 2020 (GW-ICC 2020 virtual)/Asian Heart Society Congress 2020, October 21, 2020.
126. “Priming the proteasome to protect against proteotoxic stress”, Virtual Seminar Series of the Center for Diagnostics and Therapeutics, Georgia State University, May 25, 2021.
127. “Cardiac UCHL1 protects against post-MI remodeling”, an invited lecture (virtual) to Session 1 of Chinese International Forum in the 15th Oriental Congress of Cardiology (OCC 2021): Translational Cardiovascular Research: from the bench-side to the bedside (virtual), May 29, 2021.
128. “Priming the proteasome to protect against proteotoxicity”, an invited lecture (in person) to the 40th ISHR-NAS Scientific Conference: “*Novel Mechanisms of Heart Failure: Advancing New Therapies*”. September 12-16th 2021 in Denver, Colorado.
129. “Priming the proteasome to treat heart failure”, an invited lecture (virtual) to BCVS-ACRE@GW-ICC: Molecular Mechanisms and Intervention of Cardiac Injury/Repair,

Great Wall International Congress of Cardiology 2021 (GW-ICC 2021)/Asian Heart Society Congress 2021, October 28, 2021.

130. “The proteasome in cardiac health and disease”, an invited seminar (virtual) to the Seminar Series of the McAllister Heart Institute at the University of North Carolina at Chapel Hill. November 10th, 2021.
131. “Priming the proteasome to protect against proteotoxicity”, an invited seminar (virtual) to the Seminar Series of the Department of Pharmacology at Johns Hopkins University School of Medicine, Baltimore MD. December 1st, 2021.
132. “Priming the Proteasome by Augmentation of cAMP and cGMP to protect against Proteotoxicity”, an invited seminar to the Department of Pharmaceutical Sciences at Washington State University College of Pharmacy and Pharmaceutical Sciences, Spokane, WA, March 30, 2022.
133. “The role of cardiomyocyte UCHL1 in post-MI cardiac remodeling and heart failure”, an invited lecture (virtual) to the 13th Cross-Strait Cardiovascular Symposium and the 7th China Wine-City International Congress of Cardiology, Luzhou, Sichuan, China; April 22-25, 2022.
134. “Catecholamine surges cause cardiomyocyte necroptosis”, an invited lecture (virtual) to Session 1 of Chinese International Forum in the 16th Oriental Congress of Cardiology (OCC 2022): Translational Cardiovascular Research: from the bench-side to the bedside (virtual), May 27, 2022.
135. “Genetic mimicry of the activation of 26S proteasomes by cAMP-dependent protein kinase protects against proteotoxicity in animals”, an invited lecture (virtual) to The Inaugural Symposium on Protein Modifications: Advances in Methodologies and Applications. Sept. 29 - Oct.1, 2022, Guangzhou, China.
136. “Assessing Autophagic Flux: Are we Using Right Methods?”, an invited lecture (virtual) to AHA/ACRE@GW-ICC: Building Bridges and Working Together to Fight Cardiovascular Diseases, The 33rd Great Wall International Congress of Cardiology 2022 (GW-ICC 2021)/Asian Heart Society Congress 2022, October 30, 2022
137. “Defect in PKA-mediated proteasome activation is a key pathogenic factor for cardiac proteinopathy”, an invited Rapid-Fire lecture to Heart Failure 2023, Prague-Czech Republic May 21, 2023.
138. “Phosphoregulation of the Proteasome in Proteotoxicity”, an invited lecture to “Session 9: Novel Strategies to Understand Cardiotoxicity and Proteotoxicity” at the 42nd International Society for Heart Research North American Section (ISHR-NAS) annual scientific meeting, Madison, WI, June 27-30, 2023
139. “Activation of the proteasome by cAMP protects against cardiac proteotoxicity”, an invited lecture to The 34th Great Wall International Congress of Cardiology (GW-ICC)/Asian Heart Society Congress 2023 (AHS.23), Beijing, China, September 5-9, 2023

140. “The COP9 signalosome in cardiovascular health and disease”, an invited seminar to the Department of Physiology, Peking University College of Basic Medical Sciences, Beijing, China September 11, 2023.
141. “Ser14-phosphorylated RPN6 mediates proteasome activation by PKA and alleviates proteinopathy”, an invited seminar to Wuhan University College of Basic Medical Sciences, Wuhan, China, September 14, 2023.
142. “Priming the Proteasome to Protect against Proteotoxicity”, an invited seminar to Department of Medical Pharmacology and Physiology, School of Medicine, University of Missouri, Columbia, MO, October 17, 2023.
143. “Proteasome functional insufficiency in cardiac pathogenesis”, an invited virtual seminar to Yale Virtual Myocardial Biology Seminar Series. Yale University School of Medicine, November 30, 2023.
144. “Ser14-phosphorylated RPN6 mediates proteasome activation by PKA and alleviates proteinopathy”, an invited lecture (virtual) to the 24th CAAC Saloon organized by Chinese American Academy of Cardiology (CAAC), December 4th, 2023.
145. “Priming the Proteasome to Protect against Proteotoxicity”, an invited seminar to Center for Biotechnology & Genomic Medicine, Augusta University, Augusta, GA, March 22, 2024.
146. “Cardiac Pathophysiology of Proteasome Activation by PKA”, an invited lecture to The 2nd Scientific Meeting of ACRE Canada, London, Ontario, Canada, July 5, 2024.
147. “Fatal Attraction: a novel pathway to proteotoxicity”, an invited seminar to New York Institute of Technology College of Osteopathic Medicine Dept. of Biomedical Sciences Seminar Series, Long Island, NY, July 26, 2024.
148. “Proteostasis and Heart Failure”, an invited seminar to University of Iowa François M. Abboud Cardiovascular Research Center (ACRC) Distinguished Seminar Series, Iowa City, IA, August 9th, 2024.
149. “Fatal Attraction: a novel pathway to proteotoxicity”, an invited lecture to the symposium of “Proteotoxicity and Proteomic Remodeling in the Healthy and Failing Heart” at the ISHR-NAS 43rd Annual Conference “Advancements in Translational Biomedical Sciences: Single Cell Omics and AI in CV Medicine” on August 20th-23rd, 2024.
150. “Protein Quality Control and Heart Failure”, an invited seminar to the Center for Cardiovascular Research (CCR) in the Department of Internal Medicine, Cardiovascular Division, at Washington University School of Medicine, St. Louis, MO, September 24-25, 2024.
151. “PKA-mediated proteasome activation is essential to proteostasis during cardiac hypertrophy”, an invited lecture to The International Forum (virtual) of the 35th the Great Wall International Congress of Cardiology (GWICC)/Asian Heart Society Congress 2024 (AHS.24), Nov 7-9, 2024.

152. “Aberrant protein aggregation intersects inflammation and proteostasis”, an invited lecture to the International Forum (Virtual) at The 9th China Wine City International Congress of Cardiovascular Medicine (第九届中国酒城国际心血管医学学术大会国际论坛), Luzhou, Sichuan, China, December 1st, 2024.
153. “The Proteasome Functional Insufficiency (PFI) Theory of Heart Failure”, an invited lecture to 2025 Taiwan Circulation Research Society (TCRS) Annual Meeting and the Stanford-Taiwan Symposium on Biomedical Advances, held at the Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan on March 14-15, 2025.
154. “Fatal Attraction: a novel mechanism for inflammation to impair proteostasis”, an invited seminar to the Dept of Biomedical Engineering, UAB School of Engineering and School of Medicine, Birmingham, AL, March 20-22.
155. “Fatal Attraction: a novel mechanism for inflammation to impair proteostasis”, an invited seminar to the College of Basic Biomedical Sciences, Wuhan University Health Science Center, Wuhan, Hubei, China May 23, 2025.
156. “Sustained but decoyed activation of the JAK-STAT pathway exacerbates proteotoxicity: a new mechanism intersecting inflammation and impaired proteostasis”, an invited seminar to the College of Basic Biomedical Sciences, Guangzhou Medical University, Guangzhou, Guangdong, China May 26, 2025.
157. “Targeting decoyed JAK-STAT signaling to treat heart failure with increased proteotoxic stress”, an invited lecture to the 19th Oriental Congress of Cardiology (OCC 2025) held in Shanghai, China, May 29-June 1, 2025.
158. “Probing cAMP/PKA signaling at Proteasome Nanodomains”, an invited seminar (virtual) to the Karen M. Swindler Department of Chemical and Biological Engineering, South Dakota School of Mines & Technology, Rapid City, South Dakota. September 9, 2025.
159. “Autophagy and cell death in senescence”, an invited lecture to the Session entitled “Molecular and Functional Insights in Cardiovascular Aging” during AHA Scientific Sessions 2025, New Orleans, LA, November 7-10, 2025 (invitation accepted).
160. “Priming the proteasome to treat heart disease” an invited lecture to “Frontiers in Cardiovascular Sciences” to be held in Honolulu, HI, January 2-6, 2026 (Invitation accepted).

Seminars Given in Employer Institutions

161. “Measurement of regional myocardial blood flow with unlabeled microspheres and Coulter Channelyzer” at University of South Dakota School of Medicine, Vermillion, SD. May 8, 1996.
162. “Dissecting desmin-related cardiomyopathy with mouse transgenesis”; Division of Pediatric Cardiology, Children’s Hospital, Cincinnati, OH, February 7, 2000.
163. “Ubiquitin-Proteasome System and Diseases”, Division of Basic Biomedical Sciences,

University of South Dakota School of Medicine, Vermillion, SD, September 17, 2002.

164. “The COP9 Signalosome: A New Initiative from Plants to Mammalian Hearts”, Faculty Seminar, Division of Basic Biomedical Sciences, University South Dakota School of Medicine, Vermillion, SD September 27, 2005.
165. “Protein turnover, cardiomyopathy and the young”; Pediatric Grand Rounds, Department of Pediatrics, University of South Dakota School of Medicine, Sioux falls, SD, March 17, 2005.
166. “Targeted proteolysis in conformational disease”; Faculty Seminar Series, Division of Basic Biomedical Sciences, USD Sanford School of Medicine, October 28, 2008.
167. “Protein quality control and degradation in the heart”; The Inaugural Symposium on Ubiquitin, Protein Quality Control and Molecular Pathogenesis hosted by Sanford School of Medicine of University of South Dakota, Vermillion, SD, June 22-24, 2011.
168. “Histopathology in the post-genomics era”, Faculty Seminar Series of Division of Basic Biomedical Sciences, Sanford School of Medicine of University of South Dakota, Vermillion, SD 57069, March 16, 2012.
169. “Can we boost cardiac proteasomes by stimulating PKG?” The 2nd Annual PQCD Symposium, Deadwood, SD, USA. June 14, 2012.
170. “The Ubiquitin-Proteasome System in Cardiac Pathogenesis: Beyond the Proteasome”, Faculty Seminar Series, USD Sanford School of Medicine, November 30, 2017.
171. “Protein quality control and degradation in the heart”, Faculty Seminar Series, Department of Biomedical Engineering, University of South Dakota, Sioux Falls, SD, USA, January 18, 2018.
172. “Pathophysiological significance of priming the proteasome by PKA”, Faculty Seminar Series, USD Sanford School of Medicine, Vermillion, SD, September 17, 2020
173. “Fatal attraction: a novel mechanism for inflammation to impair proteostasis. Faculty Seminar Series, USD Sanford School of Medicine, Vermillion, SD, December 5, 2024

INVITED MODERATOR (National/International)

- 2007 Co-chair, Sunday Morning Program-“Protein Conformation, Degradation and Cardiac Disease”, AHA Scientific Sessions 2007, Orlando, FL.
- 2008 Chair, the session on Genetic Models of Human Disease, AHA Scientific Sessions, Nov 8-10, 2008, New Orleans, LA.
- 2009 Co-Chair and invited speaker, Sunday Morning Program “Protein Quality Control in Heart Disease”, AHA Scientific Sessions, Orlando, FL Nov 14, 2009

- 2010 Co-Chair, the Symposium on "The Role of the Ubiquitin Proteasome System in Cardiac Disease, Diabetes, and Aging" for the Experimental Biology 2010 meeting. April 24-28 in Anaheim, CA.
- 2010 Co-Chair, Melvin L. Marcus Young Investigator Award in Cardiovascular Sciences. AHA Scientific Sessions, Nov. 15, 2010 in Chicago, IL
- 2014 Co-Chair, Session title: "Mitochondrial Biology and Protein Misfolding and/or Proteotoxicity" in the AHA BCVS 2014 "Pathways to Cardiovascular Therapeutics" conference July 14-17, 2014 in Las Vegas, Nevada.
- 2015 Co-Chair, Session Title: "Cellular Quality Control Mechanisms" in the AHA 2015 BCVS Scientific Sessions: Pathway to Cardiovascular Therapeutics. July 13-16, 2015 New Orleans, Louisiana.
- 2017 Co-Chair, a Symposium entitled: "Ubiquitin and Ubiquitin-Like Proteins in Cardiovascular Physiology and Disease" in 2017 Experimental Biology (EB) meeting, Chicago, IL, April 24, 2017.
- 2018 Co-Moderator, The Symposium 2 on Basic biomedical Science and Translational Medicine in the 11th Tongji Cardiovascular Disease Forum/2018China Precision Cardiology 2018/Central China International Congress of Cardiology, Wuhan, Hubei, China, August 11, 2018.
- 2018 Chair, the session entitled "Proteostasis Meets Protein Trafficking in the Heart" in AHA Scientific Sessions 2018, Chicago, IL November 12, 2018.
- 2019 Moderator, Concurrent Session 2B: Beyond Myocytes and Fibroblasts: Forgotten Cells of the Heart. BCVS 2019 Scientific Sessions - Integrative Approaches to Complex Cardiovascular Diseases, Boston, Massachusetts, July 29- Aug 1, 2019.
- 2020 Moderator, Channel-10, Session 6 WACC/CNAHA Session: Novel Technologies and Translational Medicine in the Diagnosis and Treatment of the Cardiovascular Diseases (June 1, 2020). The 14th Oriental Congress of Cardiology (OCC2020 Virtual Conference), May 31-June 2, 2020.
- 2021 Co-Chair, 2021 CAAC-ACRE-CNAHA Cardiovascular Research Symposium (virtual), November 12, 2021.
- 2022 Co-Chair, 2022 CAAC-ACRE-CNAHA Cardiovascular Research Symposium (virtual), November 19, 2022.
- 2022 Chair of the Organizing Committee for *The 2022 John H. Lawrence Biomedical Symposium and MSPS Annual Scientific Sessions*, October 7-8, 2022 Vermillion, SD

- 2023 Chair of the Organizing Committee for *The Inaugural ACRE@ISHR-NAS Preconference Symposium*, Madison WI, June 26, 2023.
- 2023 Co-Chair of the CNAHA/ACRE/CAAC Joint Symposium and Philly Night @ AHA Scientific Sessions, Philadelphia, PA, November 10, 2023.
- 2024 Co-Chair, Asian Cardiovascular Symposium (ACS)@BCVS-AHA, Chicago IL, July 21, 2024
- 2024 Chair, the Organizing Committee for *The 2nd ACRE@ISHR-NAS Preconference Symposium*, Long Beach CA, August 19, 2024.
- 2025 Moderator, Keynote Lecture, the 7th Asian Cardiovascular Symposium at BCVS Scientific Sessions. Baltimore MD, July 22, 2025.
- 2025 Co-Moderator, BCVS 2025 Session 14 – Pathophysiologic and Systemic Axes Beyond the Heart. Baltimore MD, July 26, 2025.

BIBLIOGRAPHY

NCBI Bibliography Link:

<https://www.ncbi.nlm.nih.gov/myncbi/xuejun.wang.1/bibliography/public/>

A. ORIGINAL ARTICLES IN SCHOLARLY JOURNALS

(A) In Peer-Reviewed Chinese Journals

1. Dong C, **Wang X**, Tu S, and Deng G. Alterations of plasma coagulation and extremity blood flow in erythralgia. *Natl Med J China* 1988; 68(5): 292-293.
2. **Wang X** and Dong C. A preliminary study on the relationship between epidemic erythralgia and El Niño. *Natl Med J China* 1988; 68(5): 266-268.
3. **Wang X**, Dong C, and Xiang J. Effects of ribavirin on coagulation-anticoagulation process in patients with epidemic hemorrhagic fever. *Natl Med J China* 1988; 68(12):699-701.
4. Dong C, **Wang X**, Xiang J, and Cosgraff T. The kinetic alterations of coagulation, anticoagulation and fibrinolytic system of patients with epidemic hemorrhagic fever and their significance. *Natl Med J China* 1988; 68(12): 678-681.
5. Dong C and **Wang X**. The alterations of coagulation, fibrinolysis, kinin, and complement system in epidemic hemorrhagic fever with DIC and its clinical Value. *Chinese J Pathophysiol* 1989; 5(5): 285-288.

6. Tu S, **Wang X**, Dong C, and Ling H. The significance of electrocardiogram on the estimation of myocardial infarction size induced by isoproterenol in rats. *Acta Academiniae Medicinae Hubei* 1989; 10(4): 306-308.
7. **Wang X**, Dong C, and Xiang J. Effects of ribavirin on hemorrhagic tendency and fatality rate of patients with epidemic hemorrhagic fever. *Acta Academiniae Medicinae Hubei* 1989; 10(3): 193-196.
8. **Wang X**, Dong C, and Ling H. The kinetic alterations of plasma prekallikrain and antithrombin 3 in rats following isoproterenol-induced myocardial infarction. *Chinese J Pathophysiol* 1990; 6(2): 100-103.
9. **Wang X**, Dong C, and Xiang J. Studies on the anion gap of epidemic hemorrhagic fever (I): The kinetic alterations of anion gap in EHF. *Acta Academiniae Medicinae Hubei* 1990; 11(12): 285-289.
10. Dong C, **Wang X**, and Xiang J. Studies on anion gap of epidemic hemorrhagic fever (II): The mechanism and clinical significance of the increase in anion gap in EHF. *Acta Academiniae Medicinae Hubei* 1990; 11(12): 289-293.
11. **Wang X**, Dong C, and Xiang J. Studies on anion gap of epidemic hemorrhagic fever (III): The mechanism and clinical significance of the decrease in anion gap in EHF. *Acta Academiniae Medicinae Hubei* 1991; 12(1): 1-4.
12. Dong C, **Wang X**, and Xiang J. Studies on the anion gap of epidemic hemorrhagic fever (IV): The significance of simultaneous changes in anion gap, urine volume, and serum concentration of Na⁺ on the estimations of EHF prognosis. *Acta Academiniae Medicinae Hubei* 1991; 12(1): 5-7.
13. **Wang X**, Dong C, and Ling H. Effects of Agkistrodon Halys on plasma coagulation in rats following isoproterenol-induced myocardial infarction. *Pace and Heart (Chinese)* 1991; 5(1): 29-31.
14. **Wang X**, Dong C, and Ling H. The kinetic alterations and pathophysiological significance of plasma coagulation in rats following isoproterenol-induced myocardial infarction. *Acta Academiniae Medicinae Hubei* 1991; 12(4): 299-303.
15. **Wang X**, Ouyang J, Liu J, and Dong C. A pathogenesis of isoproterenol-induced occlusion of cardiac microvasculature in rats. *J Microcirculation* 1992; 2(1):8-11.
16. Yu X, Dong C, Ouyang J, Li D, and **Wang X**. An experimental study on the protective modification of soybean phospholipid liposomes enclosed superoxide dismutase (SOD) on the membrane of ischemic and reperfused myocardium in rats. *Chinese J Pathophysiol* 1993; 9(7): 804.

17. Dong C, Chen X, Wang C, Zhong Y, and **Wang X**. Experimental studies of the effects of soybean phospholipid liposomes against the myocardial membrane injury by ischemia/reperfusion. *Acta Academiae Medicinae Hubei* 1993; 14(4): 323-329.
18. **Wang X** and Dong C. Studies on the anion gap of epidemic hemorrhagic fever: V. Effects of intravenous ribavirin therapy on the changes of anion gap of patients with EHF. *Acta Academiae Medicinae Hubei* 1994; 15(3):247-249.
19. Dong C, Yu X, and **Wang X**. Myocardial membrane injury of myocardial ischemia and lipoideamia in rats. *Prog Biochem Biophys* 1994; 21:347-350.
20. **Wang X**, Dong C, Tu S, Zhang Y, Ouyang J, and Liu Y. Effects of soybean phospholipids liposomes on the left ventricular function and infarct size of ischemic-reperfused hearts in rabbits. *Chinese J Pathophysiol* 1994; 10(6):583-585.
21. Huang W, Ma W-Z, and **Wang X**. Intercalated disc remodeling in a transgenic mouse model of desmin-related cardiomyopathy. *Chin J Cardiol* 2003; 31(11):859-864.

(B) In Peer-Reviewed English Journals

22. **Wang X**, Li F, Said S, Capasso JM, and Gerdes AM. Measurement of regional myocardial blood flow in rats by unlabeled microspheres and Coulter Channelyzer. *Am J Physiol* 1996; 271:H1656-1665.
23. Li F, **Wang X**, Capasso JM, and Gerdes AM. Rapid transition of cardiac myocytes from hyperplasia to hypertrophy during postnatal development. *J Mol Cell Cardiol* 1996; 28: 1737-1746.
24. Gerdes AM, Onodera T, **Wang XJ**, McCune SA, and Capasso JM. Myocyte remodeling during the progression to failure in rats with hypertension. *Hypertension* 1996; 28:609-614.
25. Li F, **Wang X**, Bunger PC, and Gerdes AM. Formation of binucleated myocytes in rat heart: I. role of actin-myosin contractile ring. *J Mol Cell Cardiol* 1997; 29:1541-1551.
26. Li F, **Wang X**, and Gerdes AM. Formation of binucleated myocytes in rat heart: II. Cytoskeletal organization. *J Mol Cell Cardiol* 1997; 29:1553-1565.
27. **Wang X**, Li F, and Gerdes AM. Chronic pressure overload cardiac hypertrophy and failure in guinea pigs: I. Regional hemodynamics and myocyte remodeling. *J Mol Cell Cardiol* 1999; 31(2):307-317.(cover illustration)
28. **Wang X**, Li F, Campbell SE, and Gerdes AM. Chronic pressure overload cardiac hypertrophy and failure in guinea pigs: II. Cytoskeletal remodeling. *J Mol Cell Cardiol* 1999; 31(2): 318-331. (cover illustration)

29. **Wang X** and Gerdes AM. Chronic pressure overload cardiac hypertrophy and failure in guinea pigs: III. Intercalated disk remodeling. *J Mol Cell Cardiol* 1999; 31(2): 332-343. (cover illustration)
30. Milner DJ[§], Taffet GE,[§] **Wang X**[§], Pham T, Tamura T, Hartley C, Gerdes AM, and Capetanaki Y. The absence of desmin leads to cardiomyocyte hypertrophy and cardiac dilation with compromised systolic function. *J Mol Cell Cardiol* 1999; 31(11):2063-76.
31. Sanbe A, Nelson D, Gulick J, Setser E, Osinska H, **Wang X**, Hewett TE, Klevitsky R, Hayes E, Warshaw D, and Robbins J. In Vivo Analysis of an Essential Myosin Light Chain Mutations Linked to Familial Hypertrophic Cardiomyopathy. *Circ Res* 2000; 87: 296-302.
32. Yang Q, Hewett TE, Klevitsky R, Sanbe A, **Wang X**, and Robbins J. PKA dependent phosphorylation of myosin binding protein C in transgenic mice. *Cardiovasc Res* 2001; 51(1): 80-88.
33. **Wang X**, Osinska H, Dorn 2nd GW, Nieman M, Lorenz JN, Gerdes AM, Witt S, Kimball T, Gulick J, and Robbins J. Transgenic mouse model of desmin related cardiomyopathy. *Circulation* 2001; 103(19): 2402-2407.
34. **Wang X**, Osinska H, Klevitsky R, Gerdes AM, Nieman M, Lorenz JN, Hewett T, and Robbins J. Expression of R120G-(-B-crystallin causes aberrant desmin and alpha-B-crystallin aggregation and cardiomyopathy in mice. *Circ Res* 2001; 89(1): 84-91. (with companion editorial)
35. Wu G, Yussman MG, Barrett TJ, Hahn HS, Osinska H, Hilliard GM, **Wang X**, Toyokawa T, Yatani A, Lynch RA, Robbins J, and Dorn 2nd GW. Increased Myocardial Rab GTPase Expression. A Consequence and Cause of Cardiomyopathy. *Circ Res* 2001; 89:1130-1137.
36. Yi XP, **Wang X**, Gerdes AM, and Li F. Subcellular redistribution of focal adhesion kinase and its related nonkinase in hypertrophic myocardium. *Hypertension* 2003; 41: 1317-1323.
37. **Wang X***, Klevitsky R, Huang W, Glasford JW, Li F, and Robbins J. α B-Crystallin Modulates Protein Aggregation of Abnormal Desmin. *Circ Res* 2003; 93: 998-1005. (*corresponding author)
38. Dong X, Liu J, Zheng HQ, Glasford JW, Huang W, Chen QH, Harden NR, Li F, Gerdes AM, and **Wang X***. In Situ Dynamically Monitoring the Proteolytic Function of the Ubiquitin-Proteasome System in Cultured Cardiac Myocytes. *Am J Physiol Heart Circ Physiol* 2004; 287:H1417-H1425.
39. Yi XP, Zhou J, Baker J, **Wang X**, Gerdes AM, and Li F. Myocardial expression and redistribution of GRKs in hypertensive hypertrophy and failure. *Anatomic Record* 2005; 282A: 13-23.

40. Gard JJ, Yamada K, Green KG, Eloff BC, Rosenbaum DS, **Wang X**, Robbins J, Schuessler RB, Yamada KA, and Saffitz JE. Remodeling of gap junctions and slow conduction in a mouse model of desmin-related cardiomyopathy. *Cardiovasc Res* 2005; 67(3): 539-547.
41. Kumarapeli ARK, Horak KM, Glasford JW, Li J, Chen Q, Liu J, Zheng H, **Wang X***. A novel transgenic mouse model reveals deregulation of the ubiquitin-proteasome system in the heart by doxorubicin. *FASEB J*. 2005 Dec;19(14):2051-3. doi: 10.1096/fj.05-3973fje. Epub 2005 Sep 27. PubMed PMID: 16188962.
42. Tang YD, Kuzman JA, Said S, Anderson BE, **Wang X**, and Gerdes AM. Low thyroid function leads to cardiac atrophy with chamber dilatation, impaired myocardial blood flow, loss of arterioles, and severe systolic dysfunction. *Circulation* 2005; 112: 3122-3130.
43. Chen Q, Liu J-B, Horak KM, Zheng H, Kumarapeli ARK, Li J, Li F, Gerdes AM, Wawrousek EF, and **Wang X***. Intracellular amyloidosis impairs proteolytic function of proteasomes in cardiomyocytes by compromising substrate uptake. *Circ Res* 2005; 97: 1018-1026. (with companion editorial)
44. Liu J-B, Chen Q, Huang W, Horak KM, Zheng H, Mestral R, and **Wang X***. Impairment of the ubiquitin-proteasome system in desminopathy mouse hearts. *FASEB J* 2006; 20: 362-364.
45. Yi XP, Zhou J, Huber L, Qu J, **Wang X**, Gerdes AM, and Li F. Nuclear compartmentalization of FAK and FRNK in cardiac myocytes. *Am J Physiol Heart Circ Physiol* 2006; 290: H2509-H2515.
46. Liu J-B, Tang M, Mestral R, and **Wang X***. Aberrant protein aggregation is essential for a mutant desmin to impair the proteolytic function of the ubiquitin-proteasome system in cardiomyocytes. *J Mol Cell Cardiol* 2006; 40(4): 451-454. (with companion editorial)
47. Lindsten K, Menendez-Benito V, Masucci MG, Dantuma NP, Kumarapeli AR, Horak KM, Zheng H, and **Wang X***. GFP reporter mouse models of UPS proteolytic function. *FASEB J* 2006; 20(7):1027-1028.
48. Zhou J, Qu J, Yi XP, Graber K, Huber L, **Wang X**, Gerdes AM, and Li F. Up-regulation of gamma-catenin compensates for the loss of beta-catenin in adult cardiac myocytes. *Am J Physiol Heart Circ Physiol*. 2007; 292(1):H270-276.
49. Kobayashi S, Mao K, Zheng H, **Wang X**, Patterson C, O'Connell TD, and Liang Q. Diminished GATA4 protein levels contribute to hyperglycemia-induced cardiomyocyte injury. *J Biol Chem* 2007; 282:21945-52.
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51. Powell SR, Samuel SM, Wang P, Divald A, Thirunavukkarasu M, Koneru S, **Wang X**, and Maulik N. Upregulation of myocardial 11S-activated proteasome in experimental hyperglycemia. *J Mol Cell Cardiol* 2008; 44(3):618-21.
52. Kumarapeli ARRK, Su H, Huang W, Horak MK, Tang M, Zheng H, Li M, and **Wang X***. Alpha B-Crystallin suppresses pressure overload cardiac hypertrophy. *Circ Res* 2008; 103(12): 1473-1482. (with editorial)
53. Liu J, Zheng H, Tang M, Ryu Y-C, and **Wang X***. A therapeutic dose of doxorubicin activate ubiquitin-proteasome system mediated proteolysis by acting on both ubiquitination apparatus and the proteasome. *Am J Physiol Heart Circ Physiol* 2008; 295 (6): H2541-2550.
54. Tydlacka S, Li S, **Wang X**, Li S, and Li X-J. Differential activities of the ubiquitin-proteasome system in neurons and glia may account for the preferential accumulation of misfolded proteins in neurons. *J Neuroscience* 2008; 28(49): 13285-13295.
55. Su H, Huang W, and **Wang X***. The COP9 signalosome negatively regulates proteasome proteolytic function and is essential to transcription. *Int J Biochem Cell Biol* 2009; 41(3):615-24.
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57. Kumarapeli AR, Horak KM, **Wang X***. Protein quality control in protection against systolic overload cardiomyopathy: the long term role of small heat shock proteins. *Am J Transl Res* 2010; 2(4):390-401.
58. Zheng H[§], Tang M[§], Zheng Q, Kumarapeli ARK, Horak KM, Tian Z, **Wang X***. Doxycycline Attenuates Protein Aggregation in Cardiomyocytes and Improves Survival of a Mouse Model of Cardiac Proteinopathy. *J Am Coll Cardiol* 2010; 56(17):1418-26. (with companion editorial)
59. Tang M[§], Huang W[§], Li J[§], Su H, Horak KM, Liang Q, Molkenstein JD, and **Wang X***. Proteasome Functional Insufficiency Activates the Calcineurin-NFAT Pathway in Cardiomyocytes and Mouse hearts. *Cardiovasc Res* 2010; 88(3):424-33. (with companion editorial)
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65. Huang H, Liu N, Zhao K, Zhu C, Lu X, Li S, Lian W, Zhou P, Dong X, Zhao C, Guo H, Zhang C, Yang C, Wen G, Lu L, Li X, Guan L, Liu C, **Wang X**, Dou QP, and Liu J. Sanggenon C decreases tumor cell viability associated with proteasome inhibition. *Front Biosci (Elite Ed)*. 2011; 3:1315-25.
66. Zheng Q, Su H, Ranek MJ, and **Wang X***. Autophagy and p62 in cardiac proteinopathy. *Circ Res* 2011; 109 (3): 296-308.
67. Li J, Horak KM, Su H, Sanbe A, Robbins J, and **Wang X***. Enhancement of proteasomal function protects against cardiac proteinopathy and ischemia/reperfusion injury in mice. *J Clin Invest* 2011; 121(9):3689-700.
68. Zheng Q, Su H, Tian Z, **Wang X***. Proteasome malfunction activates macroautophagy in the heart. *Am J Cardiovasc Dis* 2011; 1(3):214-226.
69. Su H, Li F, Ranek MJ, Wei N, **Wang X***. The COP9 signalosome regulates autophagosome maturation. *Circulation* 2011; 124(19): 2117-2128.
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52. Wang C, Tian Z, Zheng Q, Su H, Li J, Wang X. Interplay Between the Ubiquitin-Proteasome System and Autophagy in the Heart. AHA Basic Cardiovascular Sciences 2011 Scientific Sessions, New Orleans, LA July 18-21, 2011
53. Su H, Tian Z, Wang C, Said S, Ranek MJ, Wang X. Impaired Autophagosome Removal in Cardiomyocytes Triggers Programmed Necrosis in Mouse Hearts. AHA Basic Cardiovascular Sciences 2011 Scientific Sessions, New Orleans, LA July 18-21, 2011
54. Zheng Q, Su H, Ranek MJ, Wang X. The Role of p62 in Cardiac Protein Quality Control. AHA Basic Cardiovascular Sciences 2011 Scientific Sessions, New Orleans, LA July 18-21, 2011
55. Su H, Li F, Ranek MJ, Wei N, Wang X. The COP9 Signalosome Regulates Autophagy. AHA Basic Cardiovascular Sciences 2011 Scientific Sessions, New Orleans, LA July 18-21, 2011
56. Ranek MJ, Wang X. Protein Kinase G Regulates the UPS in Cardiomyocytes. Presented at the Protein Degradation Pathways in Health and Diseases, San Diego, CA, USA, January 2012.
57. Ranek MJ, Martin D, Kost C, Wang X. Activation of Protein Kinase G Enhances Proteasome-Mediated Degradation of Misfolded Proteins. Presented at the AHA Basic Cardiovascular Sciences Scientific Sessions, New Orleans, LA, July 22-24, 2012.
58. Ranek MJ, Terpstra EJM, Li J, Wang X. Protein kinase G regulates proteasome-mediated degradation of misfolded proteins. the AHA Scientific Sessions, Los Angeles, CA. November 3-8, 2012
59. Su H., Li J., Wei N., Wang X. The COP9 signalosome subunit 8 hypomorphism impairs deneddylation and exacerbates desmin-related cardiomyopathy. Poster presentation at Experimental Biology 2013, April 20-24, Boston, MA, USA.

60. Ranek MJ, Terpstra EJM, Li J, Kass DA, Wang X. Protein kinase G positively regulates proteasome-mediated degradation of misfolded proteins. Presented at the AHA Basic Cardiovascular Sciences Scientific Sessions, Las Vegas, Nevada, July 22-25, 2013.
61. Terpstra EJM, Ranek MJ, Callegari E, Wang X. The Proteasome is a Target of Protein Kinase G. Presented at the AHA Scientific Sessions, Dallas TX, November 16-20, 2013.
62. Day S M, Yob J, Davis F, Wang P, Converso K L, Wang X, Powell, S R. Selective Inhibition of the Immunoproteasome Attenuates Adverse Left Ventricular Remodeling, Improves Cardiac Function, and Prevents Heart Failure After Myocardial Infarction. Presented at the AHA Scientific Sessions, Dallas TX, November 16-20, 2013.
63. Ranek MJ, Terpstra EJM, Li J, Kass DA, Wang X. Protein kinase G positively regulates proteasome-mediated degradation of misfolded proteins. Presented at the AHA Scientific Sessions, Dallas TX, November 16-20, 2013.
64. Tian Z, Wang C, Hu C, Tian Y, Liu J, Wang X. Autophagic-Lysosomal Inhibition Compromises Ubiquitin-1 Proteasome System Performance in a p62 Dependent Manner in Cardiomyocytes. Presented at the 35th International Society for Heart Research North American Section Meeting: "NOVEL STRATEGIES TO COMBAT HEART FAILURE", Miami Beach, Florida, May 12 -15, 2014
65. Hu, C., Wang, X., Wang, H., Tian, Y. Inadequate Coupling between Ubiquitination and the Proteasome is a Major Pathogenic Factor of Myocardial Ischemia/Reperfusion Injury. Presented at the The First Annual ACRE/APS Symposium, Las Vegas, NV. (2014, July 13).
66. Wang, X., Hu, C., Tian, Y., Wang, H. Inadequate Coupling between Ubiquitination and the Proteasome is a Major Pathogenic Factor of Myocardial Ischemia/Reperfusion Injury. Presented at the Basic Cardiovascular Sciences 2014 Scientific Sessions: Pathway to Cardiovascular Therapeutics, Las Vegas, NV. (2014, July 16).
67. Wang, C., Jahn, A., Su, H., Wang, X. Duo-impairment of the Ubiquitin-Proteasome System and Autophagy by Ablation of COP9 Signalosome Subunit 8 Activates a Programmed Necrosis Pathway Mediated by RIP1-RIP3 Kinases but not Cyclophilin D-regulated Mitochondrial Membrane Permeability . Presented at the Basic Cardiovascular Sciences 2014 Scientific Sessions: Pathway to Cardiovascular Therapeutics, Las Vegas, NV. (2014, July 16).
68. Su, H., Li, J., Zhang, H., Wei, N., Wang, X. The COP9 signalosome controls the degradation of cytosolic misfolded proteins and protects against cardiac proteotoxicity. Presented at the 36th International Society for Heart Research North American Section (ISHR-NAS) Meeting, Seattle, WA. (June 8, 2015)
69. Li, J., Ma, W., Li, H., Hou, N. Wang, X., Kim I-M., Li, F., Su, H. NEDD8 ultimate buster-1 long (NUB1L) protein regulates atypical neddylation and protects against myocardial ischemia-reperfusion injury. Presented at the AHA Basic Cardiovascular Sciences 2015 Scientific Sessions: Pathway to Cardiovascular Therapeutics, New Orleans, LA. July 13-16, 2015.

70. Wang, X., Terpstra, E.J., Callegari, E., Hu, C., Zhang, H. Wang, X. Proteasome priming by protein kinase G protects against myocardial ischemia-reperfusion injury. Presented at the AHA Basic Cardiovascular Sciences 2015 Scientific Sessions: Pathway to Cardiovascular Therapeutics, New Orleans, LA. July 13-16, 2015.
71. Wang, X., Wang, C., Terpstra, E.J., Wang, Y., Wang, X. Activation of the p38 branch of mitogen activated protein kinase pathway stimulates proteasome proteolytic function. Presented at the AHA Basic Cardiovascular Sciences 2015 Scientific Sessions: Pathway to Cardiovascular Therapeutics, New Orleans, LA. July 13-16, 2015.
72. Wang C, Li J, Su H, Xiao P, Wang X. COPS8 inhibits cardiomyocyte necroptosis in mouse hearts via suppressing the RIPK1-RIPK3 pathway. Presented at American Heart Association (AHA) Scientific Sessions, Orlando, FL, November 9; 2015.
73. Zhang, Hanming, Wang, Xuejun. PDE1 inhibition improves cardiac protein quality control. Presented at the 3rd ACRE/APS symposium, Phoenix, AZ. July 17, 2016.
74. Wu, Penglong, Zhu, Wei, Li, Jinbo, Wang, Xuejun. Cathepsin D haploinsufficiency exacerbates post-MI cardiac remodeling and malfunction by impairing autophagosome removal. Presented at the 3rd ACRE/APS symposium, Phoenix, AZ. July 17, 2016.
75. Zhang, Hanming, Wang, Xuejun. PDE1 inhibition primes the proteasome. Presented at the AHA Basic Cardiovascular Sciences (BCVS) 2016 Scientific Sessions: Pathways to Cardiovascular Therapeutics, Phoenix, AZ. July 18, 2016.
76. Wu, Penglong, Zhu, Wei, Li, Jinbo, **Wang, Xuejun**. Cathepsin D haploinsufficiency exacerbates post-MI cardiac remodeling and malfunction by impairing autophagosome removal. Presented at the AHA Basic Cardiovascular Sciences 2016 Scientific Sessions: Pathways to Cardiovascular Therapeutics, Phoenix, AZ, July 19, 2016.
77. Abdullah, Ammara; Eyeter, Kathleen M; Bjordahl, Travis; Xiao, Peng; Zeng, Erliang; **Wang, Xuejun**. Cardiac transcriptome analysis reveals a critical role for the COP9 signalosome in transcriptional regulation of the substrate receptors of cullin-RING ligases in mice. Presented at The 12th International Conference on Pathways, Networks, and Systems Medicine, Aegean Conference, Crete, Greece, June 29 ~ Jul 4, 2017.
78. **Zhang, Hanming**; Wang, Xuejun. Inhibition of phosphodiesterase 1 confers striking therapeutic benefit to HFpEF in mice. Presented at the AHA Basic Cardiovascular Sciences 2017 Scientific Sessions. (New Investigator Travel Award), Portland, OR, July 10-13, 2017.
79. **Zhang, Hanming**, Rekhater, Mark D., Wang, Xuejun. Inhibition of Type 1 Phosphodiesterase Confers Therapeutic Benefit to Proteinopathy-based HFpEF in Mice. Presented at the 2018 Experimental Biology Meeting, San Diego, CA. (April 25, 2018)
80. **Wu, Penglong**, Wang, Yibin, Wang, Xuejun. EXCESSIVE BETA-ADRENERGIC RECEPTOR STIMULATION INDUCES CARDIOMYOCYTE NECROPTOSIS VIA A RIP3-DEPENDENT PATHWAY. Presented at the 2018 Experimental Biology Meeting, San Diego, CA. (April 22, 2018)

81. **Wang, Xuejun**, Wu, Penglong, Parajuli, Nirmal, Pan, Bo, Lewno, Megan, Liu, Jinbao. Proteasome phosphorylation and activation by PKA protects against cardiac remodeling in mice subjected to myocardial infarction. Presented at the 2019 Experimental Biology meeting, Orlando, FL. (April 9, 2019)
82. **Wu, Penglong**, Wang, Yibin, Liu, Jinbao, Wang, Xuejun. Necroptosis Resulting from Activation of a RIP3-dependent Pathway Contributes to Cardiomyocyte Death Induced by Isoproterenol. Presented at the 2019 Experimental Biology meeting, Orlando, FL. (April 8, 2019)
83. **Wu, Penglong**, Li, Yi-Fan, Liu, Jinbao, Wang, Xuejun. Post-MI Cardiac Remodeling and Malfunction in Mice Are Exacerbated by Cardiomyocyte-restricted Ablation of the Uchl1 Gene. Presented at the 2019 Experimental Biology meeting, Orlando, FL. (April 7, 2019)
84. Penglong Wu, Bo Pan, Megan Lewno, Nirmal Parajuli, **Xuejun Wang**. In vivo genetic interrogations establish unequivocally the pathophysiological significance of proteasome phosphoregulation by protein kinase A. *J Mol Cell Cardiol.* March 2020; 140:6. DOI: <https://doi.org/10.1016/j.yjmcc.2019.11.010> Presented at the 23rd World Congress of International Society for Heart Research (ISHR) held in Beijing, China (June 4, 2019).
85. Hanming Zhang, Bo Pan, Penglong Wu, Nirmal Parajuli, Mark D. Reikhter, Alfred L Goldberg, **Xuejun Wang**. Dual Activation of PKA and PKG by PDE1 Inhibition Facilitates Proteasomal Degradation of Misfolded Proteins and Protects Against Proteinopathy-Based HFpEF. Oral abstract presentation at Session 1A “HFpEF: Unraveling the Gordian Knot” of 2019 AHA BCVS Scientific Sessions (July 29, 2019; Boston, MA).
86. Penglong Wu, Nirmal Parajuli, Megan Lewno, Jinbao Liu, **Xuejun Wang**. Proteasome priming by cyclic AMP signaling protects stressed hearts in mice. Presented at American Heart Association (AHA) Scientific Sessions, Philadelphia, PA, November 16-18, 2019.
87. Hanming Zhang, Bo Pan, Penglong Wu, Nirmal Parajuli, Mark D. Reikhter, Alfred L Goldberg, **Xuejun Wang**. Dual Activation of PKA and PKG by PDE1 Inhibition Facilitates Proteasomal Degradation of Misfolded Proteins and Protects Against Proteinopathy-Based HFpEF. Presented at the Session entitled “Best of AHA Specialty Conferences: BCVS 2019 of 2019”, AHA Scientific Sessions, Philadelphia, PA, November 17, 2019.
88. **Penglong Wu**, Nirmal Parajuli, Megan Lewno, Liuqing Yang, Jinbao Liu, Xuejun Wang. RPN6-Ser14 Phosphorylation Is Responsible for Proteasome Activation by PKA and Protects against Pathological Cardiac Hypertrophy and Malfunction in Mice. *FASEB J* 17 April 2020; 34(S1): 03399. <https://doi.org/10.1096/fasebj.2020.34.s1.03399> (with this work, Dr. Wu won the Runner-up of APS-Cardiovascular Section Outstanding Postdoctoral Trainee Awards).
89. **Megan Lewno**, Xuejun Wang. Phenotypic Differences Among Mice with Induced Cardiomyocyte-Restricted Ablation of Cops5, Cops8, or Both. Presented at Iowa

Physiological Society (IPS) and Midlands Society of Physiological Sciences (MSPS) Scientific Sessions 2020 (virtual), October 30-31, 2020.

90. **Samiksha Giri**, Chao Suo, Megan T. Lewno, Douglas S. Martin, Xuejun Wang. Defining molecular mechanism promoting neointimal hyperplasia by CSN8 hypomorphism. Presented at *Iowa Physiological Society (IPS) and Midlands Society of Physiological Sciences (MSPS) Scientific Sessions 2020 (virtual)*, October 30-31, 2020.
91. **Liuqing Yang**, Nirmal Parajuli, Jack O. Sternburg, Xuejun Wang. Ser14-Psmd11/Rpn6 phosphorylation is required for activation of the 26S proteasome by PKA but is dispensable for cardiac responses to increased proteotoxic stress. Presented at *Iowa Physiological Society (IPS) and Midlands Society of Physiological Sciences (MSPS) Scientific Sessions 2020 (virtual)*, October 30-31, 2020.
92. **Mingqi Cai**, Xuejun Wang. Soluble guanylate cyclase activation increases proteasome activities and facilitates degradation of misfolded proteins in cardiomyocytes. Presented at *Iowa Physiological Society (IPS) and Midlands Society of Physiological Sciences (MSPS) Scientific Sessions 2020 (virtual)*, October 30-31, 2020.
93. **Samiksha Giri**, Chao Suo, Douglas S. Martin, Xuejun Wang. Defining Molecular Mechanism Promoting Neointimal Hyperplasia by CSN8 Hypomorphism. *FASEB J.* 14 May 2021; 35(S1):04143. <https://doi.org/10.1096/fasebj.2021.35.S1.04143> (with this work, PhD student Samiksha Giri won an APS-Cardiovascular Section Research Recognition Award).
94. **Megan Lewno**, Xuejun Wang. Phenotypic Differences Among Mice with Induced Cardiomyocyte-Restricted Ablation of Cops5, Cops8, or Both. *FASEB J.* 14 May 2021; 35(S1):05216. <https://doi.org/10.1096/fasebj.2021.35.S1.05216>
95. **Mingqi Cai**, Xuejun Wang. Soluble guanylate cyclase activation increases proteasome activities and protects against proteotoxicity in cardiomyocytes. *FASEB J.* 14 May 2021; 35(S1): 05087. <https://doi.org/10.1096/fasebj.2021.35.S1.05087>
96. **Samiksha Giri**, Chao Suo, Douglas S. Martin, Xuejun Wang. CSN5-mediated nuclear exclusion of p27 in vascular smooth muscle cells contributes to the exacerbation of neointimal hyperplasia by CSN8 hypomorphism. *FASEB J.* 2022, (accepted for presentation in EB meeting to be held in Philadelphia PA April 2-5, 2022.)
97. **Liuqing Yang**, Nirmal Parajuli, Penglong Wu, Jinbao Liu, Xuejun Wang. Ser14-Rpn6/PSMD11 Phosphorylation Mediates the Activation of 26S Proteasomes by cAMP and Protects against Cardiac Proteotoxic Stress in Mice. (For this work, graduate student Liuqing Yang was selected the first runner-up of **the 2022 APS CV Section Outstanding Graduate Student Trainee Award** during the oral presentation competition for the award during the EB meeting to be held in Philadelphia PA April 4, 2022).
98. **Mingqi Cai**, Xuejun Wang. Activation of the Soluble Guanylate Cyclase Increases 26S Proteasome Activities and Protects against Proteotoxicity in Cardiomyocytes. (For this work, graduate student Mingqi Cai has been selected as a winner for the **Research**

Recognition Awards during the EB meeting to be held in Philadelphia PA April 2-5, 2022).

99. **Wyatt Windhorst***, Jack Sternburg*, Daniel Finely, Xuejun Wang. Cardiomyocyte-restricted Overexpression of RPN6 Increases Myocardial Proteasome Peptidase Activities in Mice. Selected for **Undergraduate Student Oral Presentation Award** at *The 2022 John H. Lawrence Biomedical Symposium and MSPS Annual Scientific Sessions*, October 7-8, 2022 Vermillion, SD.
100. **Liuqing Yang**, Nirmal Parajuli, Jinbao Liu, Xuejun Wang. GENETIC MIMICRY OF THE ACTIVATION OF 26S PROTEASOMES BY CAMP-DEPENDENT PROTEIN KINASE PROTECTS AGAINST PROTEOTOXICITY. Selected for **Graduate Student Oral Presentation Award** at *The 2022 John H. Lawrence Biomedical Symposium and MSPS Annual Scientific Sessions*, October 7-8, 2022 Vermillion, SD.
101. **Samiksha Giri**, Chao Suo, Douglas S. Martin, Xuejun Wang. THE COP9 SIGNALOSOME PROMOTES NEOINTIMAL HYPERPLASIA THROUGH CULLIN DENEDDYLYATION DEPENDENT AND INDEPENDENT MECHANISMS. Selected for **Graduate Student Oral Presentation Award** at *The 2022 John H. Lawrence Biomedical Symposium and MSPS Annual Scientific Sessions*, October 7-8, 2022 Vermillion, SD.
102. **Mingqi Cai**, Bo Pan, Peng Xiao, Megan T. Lewno, Xuejun Wang. SUSTAINED BUT DECOYED ACTIVATION OF THE JAK1-STAT PATHWAY BY EXPRESSION OF MISFOLDED PROTEINS EXACERBATES PROTEOTOXICITY. Selected for **Graduate Student Oral Presentation Award** at *The 2022 John H. Lawrence Biomedical Symposium and MSPS Annual Scientific Sessions*, October 7-8, 2022 Vermillion, SD.
103. **Mark Bouska**, Mingqi Cai, Yu July Xing, Erliang Zeng, Xiang Gao, Xuejun Wang. RNA SEQUENCING ACROSS LIFESPAN OF THE CARDIAC SPECIFIC CRYABR120G PROTEOTOXIC STRESS MOUSE MODEL. Selected for **Postdoctoral Oral Presentation Award** at *The 2022 John H. Lawrence Biomedical Symposium and MSPS Annual Scientific Sessions*, October 7-8, 2022, Vermillion, SD.
104. **Samiksha Giri**, Chao Suo, Ruggero Pardi, Gregory Fishbein, Xuejun Wang. The COP9 Signalosome Promotes Neointimal Hyperplasia through Cullin Deneddylation Dependent and Independent Mechanisms. Oral Presentation at *the Inaugural ACRE@ISHR-NAS Preconference Symposium*, Madison, WI, June 26, 2023
105. **Md Salim Ahammed**, Penglong Wu, Liuqing Yang, Jack O. Sternburg, Huiyun Liang, Faqian Li, Jinbao Liu, Xuejun Wang. PKA-mediated Phosphoregulation and Activation of 26S Proteasomes Protects Against Cardiac Hypertrophy and Heart Failure Induced by Systolic Overload. Oral Presentation at *the Inaugural ACRE@ISHR-NAS Preconference Symposium*, Madison, WI, June 26, 2023
106. **Mark Bouska**, Mingqi Cai, Yu Xing, Erliang Zeng, Xiang Gao, Xuejun Wang. Ubiquitin Ligase Fbxo36 Dysregulation Under Cardiac Specific Proteotoxic Stress. Poster presentation at *the 42nd International Society for Heart Research North American Section (ISHR-NAS) annual scientific meeting*, June 27-30, 2023, Madison, WI.

107. **Md Salim Ahammed**, Penglong Wu, Liuqing Yang, Jack O. Sternburg, Huiyun Liang, Faqian Li, Jinbao Liu, Xuejun Wang. PKA-mediated Phosphoregulation and Activation of 26S Proteasomes Protects Against Cardiac Hypertrophy and Heart Failure Induced by Systolic Overload. Poster presentation at the *42nd International Society for Heart Research North American Section (ISHR-NAS) annual scientific meeting*, June 27-30, 2023, Madison, WI.
108. **Jose Lira**, Andrew Guymon, Liuqing Yang, Jack Sternburg, Samiksha Giri, Xuejun Wang. Myocardial Ubiquitin-proteasome System Performance is Impaired in a Mouse Model of Heart Failure with Preserved Ejection Fraction (HFpEF). Poster presentation at the *42nd International Society for Heart Research North American Section (ISHR-NAS) annual scientific meeting*, June 27-30, 2023, Madison, WI.
109. **Jack Sternburg**, Wyatt Windhorst, Daniel Finley, Xuejun Wang. Cardiomyocyte-restricted Overexpression of Rpn6/Psmd11 Increases Myocardial Proteasome Peptidase Activities in Mice. Poster presentation at the *42nd International Society for Heart Research North American Section (ISHR-NAS) annual scientific meeting*, June 27-30, 2023, Madison, WI.
110. **Liuqing Yang**, Nirmal Parajuli, Jose Lira, Jinbao Liu, Xuejun Wang. Genetic Correction of Impaired Ser14-RPN6 Phosphorylation Protects against Proteotoxicity in Mice. Poster presentation at the *42nd International Society for Heart Research North American Section (ISHR-NAS) annual scientific meeting*, June 27-30, 2023, Madison, WI. **(For this work, PhD Student Liuqing Yang won an ISHR-NAS Travel Award).**
111. **Mingqi Cai**, Bo Pan, Peng Xiao, Megan Lewno, Xuejun Wang. Sustained but Decoyed Activation of the JAK1-STAT Pathway by Expression of Misfolded Proteins Exacerbates Proteotoxicity. Poster presentation at the *42nd International Society for Heart Research North American Section (ISHR-NAS) annual scientific meeting*, June 27-30, 2023, Madison, WI.
112. **Samiksha Giri**, Chao Suo, Ruggero Pardi, Gregory Fishbein, Xuejun Wang. The COP9 Signalosome Promotes Neointimal Hyperplasia through Cullin Deneddylation Dependent and Independent Mechanisms. Poster presentation at the *42nd International Society for Heart Research North American Section (ISHR-NAS) annual scientific meeting*, June 27-30, 2023, Madison, WI.
113. **Mingqi Cai**, Bo Pan, Peng Xiao, Megan Lewno, Xuejun Wang. Sustained but Decoyed Activation of the JAK1-STAT Pathway by Expression of Misfolded Proteins Exacerbates Proteotoxicity. Poster presentation at the 2023 Annual Meeting of The Midlands Society of Physiological Sciences (MSPS), Oct 21, 2023, Omaha, NE.
114. **Md Salim Ahammed**, Penglong Wu, Liuqing Yang, Jack O. Sternburg, Huiyun Liang, Faqian Li, Jinbao Liu, Xuejun Wang. PKA-mediated phosphoregulation and activation of 26S proteasomes protects against cardiac hypertrophy and heart failure induced by systolic overload. Oral presentation at the 2023 Annual Meeting of The Midlands Society of Physiological Sciences (MSPS), Oct 21, 2023, Omaha, NE. **(Oral presentation award in the graduate student category)**

115. **Mark Bouska**, Mingqi Cai, Yu July Xing, Erliang Zeng, Xiang Gao, Xuejun Wang. DISSECTING THE ROLE OF SBK2 KINASE IN DESMIN RELATED CARDIOMYOPATHY. Poster presentation at the 2023 Annual Meeting of The Midlands Society of Physiological Sciences (MSPS), Oct 21, 2023 Omaha, NE.
116. **Md. Salim Ahammed**, Penglong Wu, Liuqing Yang, Jack O. Sternburg, Huiyun Liang, Faqian Li, Jinbao Liu, Xuejun Wang. RPN6-Serine14 Phosphorylation by PKA Protects Against Systolic Overload-Induced Cardiac Remodeling and Heart Failure. Poster presentations at ACS@BCVS and BCVS Scientific Sessions, July 21-25, 2024, Chicago, IL.
117. **Saima Ejaz**, Jack O. Sternburg, Hongmin Wang, Khosrow Rezvani, Xuejun Wang. Genetic blockade of PKA-mediated phosphoregulation of 26S proteasomes exacerbates pathology in both the brain and heart of an Alzheimer's disease model. Poster presentations at ACS@BCVS and BCVS Scientific Sessions, July 21-25, 2024, Chicago, IL.
118. **Samiksha Giri**, Chao Suo, Ruggero Pardi, Gregory A. Fishbein, Khosrow Rezvani, Yabing Chen, Taixing Cui, Xuejun Wang. Nuclear export by COPS5/CSN5/JAB1 mediates vascular smooth muscle cell dedifferentiation in neointimal hyperplasia. Poster presentation at the 2024 Annual Meeting of The Midlands Society of Physiological Sciences (MSPS), Oct 19, 2024, Vermillion, SD.
119. **Mingqi Cai**, Bo Pan, Peng Xiao, Mark Bouska, Megan T. Lewno, Yue Xing, Erliang Zeng, Huiyun Liang, Faqian Li, Xiang Gao, Xuejun Wang. Sustained but Decoyed Activation of the JAK1-STAT Pathway by Aberrant Protein Aggregation Exacerbates Proteotoxicity. Poster presentation at the 2024 Annual Meeting of The Midlands Society of Physiological Sciences (MSPS), Oct 19, 2024, Vermillion, SD.
120. **Md. Salim Ahammed**, Penglong Wu, Liuqing Yang, Jack O. Sternburg, Huiyun Liang, Faqian Li, Jinbao Liu, Xuejun Wang. The activation of 26S proteasomes by protein kinase A during systolic overload is a compensatory response. Poster presentation at the 2024 Annual Meeting of The Midlands Society of Physiological Sciences (MSPS), Oct 19, 2024, Vermillion, SD.
121. **Md. Giash Uddin**, Liuqing Yang, Xuejun Wang. PKA-mediated proteasome activation is required for PDE4 inhibition to slow down cardiac function deterioration in mice with desmin-related cardiomyopathy. Poster presentation at the 2024 Annual Meeting of The Midlands Society of Physiological Sciences (MSPS), Oct 19, 2024, Vermillion, SD.
122. **Saima Ejaz**, Jack O. Sternburg, Hongmin Wang, Khosrow Rezvani, Xuejun Wang. Genetic blockade of PKA-mediated phosphoregulation of 26S proteasomes exacerbates pathology in both the brain and heart of an Alzheimer's disease model. **Oral presentation award in the postdoc category** at the 2024 Annual Meeting of The Midlands Society of Physiological Sciences (MSPS), Oct 19, 2024, Vermillion, SD.
123. **Mingqi Cai**, Xuejun Wang. Jak1 kinase activity is required for dysregulated JAK-STAT pathway to impair proteostasis in mouse hearts. **Winner of the 2025 APS CV Section Outstanding Graduate Student Trainee Award** competition and also presented as a poster at the conference. Baltimore MD, April 24-27, 2025.

PATENTS and PROVISIONAL PATENTS

US 20210261936A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2021/0261936 A1**
Wang (43) **Pub. Date: Aug. 26, 2021**

(54) **COMPOSITIONS AND METHODS FOR ENHANCING THE UBIQUITIN PROTEASOME SYSTEM**

(52) **U.S. CL.**
 CPC *C12N 9/50* (2013.01); *A61K 47/6815* (2017.08); *A61K 38/00* (2013.01); *C07K 2319/33* (2013.01); *C07K 2319/10* (2013.01); *C12Y 304/24011* (2013.01)

(71) Applicant: **South Dakota Board of Regents,**
Pierre, SD (US)(72) Inventor: **Xuejun Wang,** Vermillion, SD (US)(57) **ABSTRACT**(21) Appl. No.: **17/184,187**(22) Filed: **Feb. 24, 2021****Related U.S. Application Data**

(60) Provisional application No. 62/980,654, filed on Feb. 24, 2020.

Publication Classification(51) **Int. Cl.**

Disclosed herein is a method of enhancing the ubiquitin proteasome system ("UPS") in a subject in need thereof, comprising administering an effective amount of a composition comprising neprilysin and a cell targeting moiety, wherein administration of the composition delivers the composition into the intracellular space of one or more cells of the subject and wherein the subject suffers from a condition associated with a UPS deficiency.

GRANT/CONTRACT SUPPORT**Current Grant Support**

2R01 HL153614-05

Wang

8/1/20-4/30/29

NIH/NHLBI

\$475,000 (annual direct)

Cardiac Pathophysiology of Proteasome Phosphoregulation

The goal of this project is to determine in vivo (patho)physiological significance of phosphoregulation of the 26S proteasome by PKA.

Role: PI

4R01AG072510-02 Wang H, Wang X (Contact)

7/1/2022 – 6/30/2027

NIH/NIA

\$342,000 (annual direct)

Priming the proteasome to protect against aging and Alzheimer's disease.

The goal of this project is to determine in vivo pathophysiological and pharmacological significance of phosphoregulation of the 26S proteasome by PKA in Alzheimer's disease

Role: Duo-PI, Contact PI

2R01 HL072166-18

Wang

7/1/03 – 6/30/2026

NIH/NHLBI

NCE

PKG and PKA Duo-Activation to Treat Cardiac Proteotoxicity

The goal of this project is to exploit proteasome activation by PKG and PKA duo-activation to treat cardiac proteinopathy.

Role: PI

(Competitive renewal application submitted, discussed but needs revision).

Pending

2R01HL072166-19 Wang 7/1/2026-6/30/2030
 NIH/NHLBI \$499,000 (annual direct)
 Proteasome Malfunction in HFpEF
 The goal of this project is to establish the pathogenic role of proteasome malfunction in HFpEF.
 Role: PI
 (IRG review completed, discussed/scored, but needs revision)

Previous Grant Support

AHA Postdoctoral Fellowship	Wang (PI)	7/1/2000 – 6/30/2002
American Heart Association (AHA) Ohio Affiliate		\$70,000 (total direct)
Dissecting Desmin-related Cardiomyopathy with Transgenesis		
Role: PI		
(Terminated upon assistant professor appointment on October 1, 2001)		
AHA 0235099N	Wang (PI)	7/1/2002 – 6/30/2007
American Heart Association (AHA) National Center SDG		\$260,000 (total direct)
Ubiquitin-Proteasome System in the Pathogenesis of Crystallinopathy		
Role: PI		
1P20RR17662-019003	Wang (PI)	9/20/2002 – 6/30/2007
NIH/NCRR		\$100,000 (annual direct)
Mechanisms of Cardiovascular Remodeling: Molecular Biology Core		
Role: Core Director		
1P20RR17662-010001	Wang (PI)	9/20/2002 – 6/30/2007
NIH/NCRR		\$200,000 (annual direct)
Mechanisms of Cardiovascular Remodeling: Project 1-Ubiquitin-Proteasome System		
Dysfunction in Cardiac Remodeling and Failure		
Role: PI of Project 1.		
Reference # 0740025N	Wang (PI)	1/1/2007- 12/31/2012
AHA Established Investigator Award		\$500,000 (total cost)
Inadequate Protein Quality Control in Heart Failure		
Role: PI		
R01HL068936-04~05	Powell (contact), Wang	12/1/2008-6/30/2014
NIH/NHLBI		\$280,000 (annual direct)
Proteasome, protein oxidation, and cardiomyocyte function		
Role: Duo-PI, PI #2		
AHA 0510069Z	Kumarapeli (PI)	1/1/2005-12/31/2006
AHA Predoctoral Fellowship		\$52,000 (total cost)
Alpha B-crystallin modulates cardiac hypertrophic response to mechanical overload.		
Role: Sponsor and Primary Mentor		
AHA 0620032Z	H. Zheng (PI)	1/1/2006-12/31/2007
AHA Postdoctoral Fellowship Grant		\$100,000 (total cost)

Genetic Inhibition of Proteasomal Function in the Heart.

Role: Sponsor and Primary Mentor

Postdoctoral fellowship Su (PI) 7/1/2006 – 6/30/2008

AHA Greater Midwest Affiliate \$100,000 (total cost)

Physiological Significance of COP9 Signalosome in Adult Hearts.

Role: Sponsor and Primary Mentor

Reference # 0815571G Q. Zheng (PI) 7/1/2008-6/30/2010

AHA Predoctoral Fellowship \$52,000 (total cost)

Autophagy is activated by and compensates for proteasome malfunction in desminopathy

Role: Sponsor and Primary Mentor

11PRE5730009 Ranek (PI) 1/1/2011-12/31/2012

AHA Predoctoral Fellowship \$52,000 (total cost)

The Role of PKG in the Stimulation of the UPS by the Muscarinic 2 Receptor

Role: Sponsor and Primary Mentor

11SDG6960011 Su (PI) 07/01/2011-06/30/2015

AHA Scientist Development Grant (National Center) \$280,000 (total direct)

The Ubiquitin Proteasome System in Diabetic Cardiomyopathy

Role: Collaborator and Mentor

1 F32 HL122045-01 Terpstra (PI) 07/01/2014 – 6/30/2017

NIH National Research Service Award (Postdoc Fellowship) \$162,000 (total direct)

Direct proteasomal enhancement contributes to PKG-triggered cardioprotection

Role: Sponsor and Primary Mentor;

(Terminated on 8/2015 upon the PI's matriculation to medical school)

16UFEL29640003 Reihe (PI) 06/01/2016 – 8/31/2016

AHA Undergraduate Student Research Program \$4000 (scholarship)

Effect of Neddylation Inhibition on Autophagic Flux in Cardiomyocytes

Role: Sponsor and Primary Mentor

16PRE27790059 Zhang (PI) Wang (Sponsor) 01/01/2016 – 12/31/2017

AHA Predoctoral Fellowship \$52,000 (total direct)

PDE1 inhibition improves cardiac protein quality control

Role: Sponsor and Primary Mentor

R01 HL085629-01~13 Wang 7/1/06 - 6/30/21

NIH/NHLBI \$4,684,110 (total cost)

The COP9 Signalosome in the Heart

Role: PI

R01 HL131667-04 Cui, Wang (Contact) 4/1/17 - 3/31/22

NIH/NHLBI \$1,414,250 (total cost)

The NRF2-p62 Axis in the Cross-Talk between Proteasomal and Lysosomal Degradation

The goal of this project is to test the role of the NRF2-p62 pathway in the impact of autophagy insufficiency on UPS performance.

Role: Duo-PI (contact PI)

1 R41 HL152919-01A1 Shaffer (Contact); Wang 2/16/21 -1/31/23
 NIH/NHLBI \$320,198 (\$251,774 to Wang lab)
 VAL-0914 Decreases PAO to Protect Against Cardiac Proteinopathies
 The goal of this STTR project is to test a novel proprietary compound (VAL-0914) in a mouse model of cardiac proteinopathy.
 Role: Duo-PI

3 P20GM103443-21S2 Huber (PI)/Wang X (PL) 9/1/2022 – 8/31/2024
 NIH/NIGMS/NIA \$250,000 (direct)
 AD Supplement to SD BRIN \$369,177 (total cost for this suppl)
 Role: Project Leader for the AD Supplement

23POST1018909 Bouska (PI) 1/1/2023 – 8/31/2024
 AHA Postdoc Fellowship \$140,558
 Defining the mechanistic role of SBK2 in proteotoxic cardiomyopathy progression
 Role: Mentor/Sponsor
 (Terminated because the postdoc took a faculty job).

20TPA35490091 Wang 1/1/21-12/31/24
 American Heart Association (AHA) \$300,000
 JAK1-STAT Pathway Promotes Cardiac Proteotoxicity
 This AHA transformative project award will support a research project to investigate the role of the JAK1-STAT signaling pathway in the pathogenesis of cardiac proteinopathy.
 Role: PI

23PRE1023108 Cai (PI) 1/1/2023 – 6/30/2025
 AHA Predoc Fellowship \$65,106
 JAK1 inhibition protects against cardiac proteotoxicity
 Role: Mentor/Sponsor

CONTRIBUTIONS TO SCIENCE

1. Discoveries of novel mechanisms by which proteasome function is regulated, establishment of their pathophysiological significance, and identification of new strategies to prime or activate the proteasome. It is well known that proteasome-mediated proteolysis requires ATP, but we have discovered that physiological levels of ATP above a relatively low threshold (50μM) suppress proteasome activity, serving to maintain a proteasome functional reserve for normal cells (Huang 2010). We also have discovered that protein kinase G (**PKG**) **activates or primes the proteasome** (Ranek 2013). PKG activation by either genetic or pharmacological (e.g., PDE5 inhibition) means promotes proteasome-dependent degradation of misfolded proteins in cardiomyocytes and slows down disease progression in a well-established mouse model of cardiac proteinopathy. This discovery has been confirmed recently by others in other cell types (PMID: 32513741, 34382059).

Our discovery that M2 receptor activation enhances cardiac proteasomal function in a PKG dependent manner was the first to unveil the physiological requirement of kinase-elicited proteasome activation (PMID: 24508699). In 2019, we demonstrated duo-activation of PKA and PKG by PDE1 inhibition confers striking therapeutic benefit in a mouse model of proteinopathy-based HFpEF. More recently, we have established for the first time in animals that Ser14-phosphorylated RPN6 mediates proteasome activation by PKA and ameliorates proteinopathy. These findings also demonstrate the feasibility of using pharmacological methods to enhance proteasomal degradation of misfolded proteins and thereby improve PQC in the heart.

- a. Yang L, Parajuli N, Wu P, Liu J, **Wang X***. S14-phosphorylated RPN6 mediates proteasome activation by PKA and alleviates proteinopathy. *Circ Res*. 2023;133(7):572-587. PMID: PMC10502926.
 - b. Zhang H, Pan B, Wu P, Parajuli N, Rekhter MD, Goldberg AL, **Wang X***. PDE1 inhibition facilitates proteasomal degradation of misfolded proteins and protects against cardiac proteinopathy. *Sci Adv*. 2019; 5(5):eaaw5870. PMID: [PMC6531002](#).
 - c. Ranek MJ, Terpstra EJ, Li J, Kass DA, **Wang X***. Protein kinase g positively regulates proteasome-mediated degradation of misfolded proteins. *Circulation*. 2013; 128(4):365-76. PMID: [PMC3761383](#).
 - d. Huang H, Zhang X, Li S, Liu N, Lian W, McDowell E, Zhou P, Zhao C, Guo H, Zhang C, Yang C, Wen G, Dong X, Lu L, Ma N, Dong W, Dou QP, **Wang X***, Liu J*. Physiological levels of ATP negatively regulate proteasome function. *Cell Res*. 2010; 20(12):1372-85. PMID: [PMC2996470](#).
2. Dissecting the crosstalk between UPS and ALP pathways in cardiac PQC. We have elucidated a pivotal role of the calcineurin-TFEB-p62/SQSTM1 pathway in this crosstalk. We have shown that proteasomal malfunction activates autophagy in the heart while ALP inhibition hinders the degradation of ubiquitinated proteins by the proteasome in a p62-dependent manner, contributing to the dark side of Nrf2 activation in both hypertensive and diabetic cardiomyopathies. We are the first to report the upregulation of p62 at both transcript and protein levels in proteinopathic hearts which are known to have UPS insufficiency and demonstrate that this upregulation plays an important role in promoting autophagic removal and aggresomal sequestration of toxic misfolded proteins. More recently we documented the mediating role of the calcineurin-TFEB axis in the upregulation of p62 by proteasome malfunction. These discoveries have improved our understanding of cardiac PQC mechanisms, helping devise new therapeutic strategies for heart disease with increased proteotoxic stress, a highly prevalent category of heart diseases.
- a. Pan B, Li J, Parajuli N, Tian Z, Wu P, Lewno MT, Bedford L, Mayer RJ, Fang J, Liu J, Cui T, Su H, **Wang X***. The calcineurin-TFEB-p62 pathway mediates the activation of cardiac macroautophagy by proteasomal malfunction. *Circ Res*. 2020; 127(4):502–518. PMID: [PMC7416491](#)
 - b. Zang H, Wu W, Qi L, Tan W, Nagarkatti P, Nagarkatti M, **Wang X**, Cui T. Autophagy inhibition enables Nrf2 to exaggerate the progression of diabetic cardiomyopathy in mice. *Diabetes* 2020;69(12):2720-2734. PMID: [PMC7679777](#).
 - c. Wang C, **Wang X***. The interplay between autophagy and the ubiquitin-proteasome system in cardiac proteotoxicity. *Biochim Biophys Acta*. 2015; 1852(2):188-94. PMID: [PMC4277934](#)
 - d. Zheng Q, Su H, Ranek MJ, **Wang X***. Autophagy and p62 in cardiac proteinopathy. *Circ Res*. 2011; 109(3):296-308. PMID: [PMC3142307](#).

3. Established the necessity of PFI and inadequate ubiquitination-proteasome coupling in pathogenesis. Although UPS malfunction was proposed first by neuroscientists to play a role in neurodegeneration, the necessity of PFI in pathogenesis was not demonstrated until 2011 when we published that genetic enhancement of the proteasome protects against proteinopathy and I/R injury in mice. Our discovery that PA28 α overexpression enhances proteasome function identifies the 1st method to achieve proteasome gain-of-function, allowing us to generate the first animal model of proteasome function enhancement. This also represents the first demonstration that the proteasome can also be a rate-limiting step in the UPS-mediated degradation of at least a subset of proteins. We also created the first cardiomyocyte-restricted proteasome inhibition (CR-PsmI) and ubiquitination-proteasome uncoupling (Ubiquilin1 conditional knockout) mouse models. These unique genetic tools are essential to, and have remarkably facilitated, defining the pathophysiological significance of cardiac UPS malfunction. Using them, we have established a major pathogenic role for PFI in I/R injury, pressure overloaded cardiac maladaptive remodeling, and diabetic cardiomyopathy, three major causes of heart failure. These studies are also strongly indicative of improving proteasome function as a potentially novel therapeutic strategy for a large subset of heart diseases, providing compelling rationale to study the regulation of the UPS.
 - a. Hu C, Tian Y, Xu H, Pan B, Terpstra EM, Wu P, Wang H, Li F, Liu J, **Wang X***. Inadequate ubiquitination-proteasome coupling contributes to myocardial ischemia-reperfusion injury. *J Clin Invest*. 2018; 128(12):5294-06. PMCID: [PMC6264645](#).
 - b. Li J, Ma W, Yue G, Tang Y, Kim IM, Weintraub NL, **Wang X**, Su H. Cardiac proteasome functional insufficiency plays a pathogenic role in diabetic cardiomyopathy. *J Mol Cell Cardiol*. 2017; 102:53-60. PMCID: [PMC5316366](#).
 - c. Tian Z, Zheng H, Li J, Li Y, Su H, **Wang X***. Genetically induced moderate inhibition of the proteasome in cardiomyocytes exacerbates myocardial ischemia-reperfusion injury in mice. *Circ Res*. 2012; 111(5): 532-42. PMCID: [PMC3426260](#).
 - d. Li J, Horak KM, Su H, Sanbe A, Robbins J, **Wang X***. Enhancement of proteasomal function protects against cardiac proteinopathy and ischemia/reperfusion injury in mice. *J Clin Invest*. 2011; 121(9): 3689-700. PMCID: [PMC3163952](#).
4. Elucidation of physiological roles of the COP9 signalosome (CSN) in the heart and liver. Ub ligases or E3s confer substrate specificity and attach Ub to substrate proteins. The Cullin-RING ligases (CRLs) are the largest family of Ub E3s, known to regulate a variety of cellular processes including cell cycle control. CRLs are activated by cullin neddylation, inhibition of which via MLN4924 is in clinical trials for treating cancers. The CSN holo-complex consisting of 8 unique protein subunits (COPS1 ~ COPS8) functions as a deneddylase for cullins, indispensable to CRLs catalytic dynamics. The CSN was rarely studied for its role in terminally differentiated organs of vertebrates. Through cardiac targeting *Cops8*, we demonstrate that COPS8/CSN is required for cardiomyocyte survival and functioning, COPS8/CSN regulates not only the UPS but also the ALP, the latter was not known before our discovery that COPS8/CSN is required for autophagosome fusion with lysosomes. More recently, our studies revealed for the first time that CRLs contribute to degradation of misfolded cytosolic proteins and that Cops8/CSN suppresses the RIPK1-RIPK3 mediated cardiomyocyte necroptosis in mice.
 - a. Xiao P, Wang C, Li J, Su H, Yang L, Wu P, Lewno MT, Liu J, **Wang X***. COP9 signalosome suppresses RIPK1-RIPK3-mediated cardiomyocyte necroptosis in mice. *Circ Heart Fail*. 2020; 13(8): e006996. [PMCID: PMC7438278](#).

- b. Su H, Li J, Zhang H, Ma W, Wei N, Liu J, **Wang X***. COP9 signalosome controls the degradation of cytosolic misfolded proteins and protects against cardiac proteotoxicity. **Circ Res**. 2015; 117(11):956-66. PMCID: [PMC4636927](#).
 - c. Su H, Li F, Ranek MJ, Wei N, **Wang X***. COP9 signalosome regulates autophagosome maturation. **Circulation**. 2011; 124(19):2117-28. PMCID: [PMC3211066](#).
 - d. Su H, Li J, Menon S, Liu J, Kumarapeli AR, Wei N, **Wang X***. Perturbation of cullin deneddylation via conditional Csn8 ablation impairs the ubiquitin-proteasome system and causes cardiomyocyte necrosis and dilated cardiomyopathy in mice. **Circ Res**. 2011; 108(1):40-50. PMCID: [PMC3017673](#).
5. Discovery of UPS functional insufficiency in mouse models of heart disease using innovative tools generated in my lab. UPS-mediated protein degradation, initially discovered in 1980s, had not attracted the attention of a broader spectrum of cell biologists until mid-1990s. The attention to the UPS from general biomedical scientists outside the cell biology field was drawn by the award of the 2004 Nobel Prize in Chemistry to 3 scientists for their contributions to the discovery of the UPS. As a pioneer for studying UPS dysfunction in cardiac pathogenesis, my lab has worked on the UPS since its inception in 2001. By then, research into health and disease of most organs/systems, including the heart, had emphasized primarily changes in gene expression at the transcription or, in some cases, protein synthesis level, although changes in protein degradation can have equal or even greater impact on the level and functioning of a protein. A major hurdle then was lacking tools to monitor UPS function *in vivo*. We first developed stable cell lines, adenoviruses, and stable transgenic (tg) mouse lines expressing a modified GFP (GFPu or GFPdgn) that is a proven surrogate substrate of the UPS, allowing monitoring the dynamics of UPS performance *in situ* and *in vivo*. These new tools are distributed to researchers around the world and enabled my lab to demonstrate in intact animals for the first time in the world that increases in misfolded proteins and resultant aberrant protein aggregation impair UPS function and cause proteasome functional insufficiency (PFI). Similarly, we were also the first to document cardiac UPS functional insufficiency in acute ischemia/reperfusion (I/R) injury, chronic pressure overload, and diabetic cardiomyopathy, which prompted investigations into the pathogenic role of cardiac UPS dysfunction. More recently, we have discovered that aberrant protein aggregation hijacks phosphorylated STATs into the aggregates, which decoys and sustains the activation of the JAK1-STATs pathway, forming a vicious circle. This discovery identifies the first mechanistic and druggable link between inflammation and proteostasis impairment in the cell (Cai M et al. 2024), unveiling a new pathogenic cause of proteotoxicity and PFI in common and lethal diseases.
- a. Cai M, Pan B, Xiao P, Bouska M, Lewno MT, Xing Y, Zeng E, Liang H, Li F, Gao X, **Wang X***. Sustained but decoyed activation of the JAK1-STAT pathway by aberrant protein aggregation exacerbates proteotoxicity. **Circulation**. 2024;150(16):1302-1305. PMCID: [PMC11483158](#).
 - b. Liu J, Chen Q, Huang W, Horak KM, Zheng H, Mestrlil R, **Wang X***. Impairment of the ubiquitin-proteasome system in desminopathy mouse hearts. **FASEB J**. 2006; 20(2):362-4. PMID: [16371426](#).
 - c. Chen Q, Liu JB, Horak KM, Zheng H, Kumarapeli AR, Li J, Li F, Gerdes AM, Wawrousek EF, **Wang X***. Intrascoplasmic amyloidosis impairs proteolytic function of proteasomes in cardiomyocytes by compromising substrate uptake. **Circ Res**. 2005; 97(10):1018-26. PMID: [16210548](#).
 - d. Kumarapeli AR, Horak KM, Glasford JW, Li J, Chen Q, Liu J, Zheng H, **Wang X***. A novel transgenic mouse model reveals deregulation of the ubiquitin-proteasome system in the heart by doxorubicin. **FASEB J**. 2005; 19(14):2051-3. PMID: [16188962](#).

*Corresponding author

Complete List of Published Work in My Bibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/xuejun.wang.1/bibliography/public/>

References (will be provided upon request)