

CURRICULUM VITAE**Zhen Yan, Ph.D.****I. PERSONAL DATA**

Phone Office: 540-526-2386

Email zhenyan1@vtc.vt.edu**II. EDUCATION**

1983-1986 B.S.Med. (M.D.) Medical Worker's College of Jiangsu Province

1978-1981 Certificate Nanjing Health School

1974-1977 High School Zhenjiang First High School

III. POST-GRADUATE EDUCATION

1995-1999 Post-doc UT Southwestern Medical Center at Dallas

1991-1995 Ph.D. Physiol. & Cell Biol. University of Texas Health Science Center at Houston

1989-1991 M.S. Kinesiology University of Illinois-Urbana-Champaign

IV. ACADEMIC APPOINTMENTS

2022-current Professor, Fralin Biomedical Research Institute; Director, Center for Exercise Medicine Research at Fralin Biomedical Research Institute at Virginia Tech Carilion; Department of Human Nutrition, Foods and Exercise (HNFE) at Virginia Tech

2017-2022 Professor, Departments of Medicine, Pharmacology and Molecular Physiology & Biological Physics, and Director, Center for Skeletal Muscle Research, the Robert M. Berne Cardiovascular Research Center, University of Virginia

2017-2021 Distinguished Visiting Professor, Tianjin University of Sport, Tianjin China

2009-2017 Associate Professor (tenured in 2012), Departments of Medicine, Pharmacology and Molecular Physiology & Biological Physics, and Director, Center for Skeletal Muscle Research, the Robert M. Berne Cardiovascular Research Center, University of Virginia

2013-2016 Distinguished Visiting Professor, Dalian Medical University First Affiliated Hospital

2008 Adjunct Principal Investigator, Singapore Institute for Clinical Sciences, Singapore

2007-2008 Associate Professor, Division of Cardiology, Department of Medicine, Duke University Medical Center

2006-2009 Visiting Professor, Wenzhou Medical University, China

2006-2008 Associate Professor, Duke-NUS Graduate Medical School, Singapore

2003-2013 Visiting Professor, Dalian Medical University, China

2003-2008 Adjunct Assistant Professor, Department of Cell and Molecular Physiology, University of North Carolina-Chapel Hill

2002-2007 Assistant Research Professor, Division of Cardiology, Department of Medicine, Duke University Medical Center

- 2000-2002 Assistant Professor and Lead Scientist, Department of Pharmacology and Internal Medicine and Alliance for Cellular Signaling, University of Texas Southwestern Medical Center at Dallas
- 1999-2000 Instructor, Department of Internal Medicine, University of Texas Southwestern Medical Center at Dallas
- 1986-1988 Lecturer, Department of English, Nanjing Workers' Palace Education Center, Nanjing, China
- 1982-1983 Surgeon, Nanjing First Hospital, Nanjing, China
- 1981-1988 Lecturer, Departments of Pharmacology and Surgery, Nanjing Health School, Nanjing, China

V. OTHER EMPLOYMENT PERTAINING TO CURRENT PROFESSIONAL APPOINTMENTS

Not applicable

VI. CERTIFICATION AND LICENSURE

A. Certification

Not applicable

B. Licensure

Not applicable

VII. HONORS AND AWARDS

To Zhen Yan:

- 2022 Novo Nordisk Foundation Jacobaeus Prize
- 2021 Distinguished Researcher Award, University of Virginia
- 2018 Induction into the MilliPub Club
- 2016 Addgene Blue Flame Award
- 2016 University of Virginia Department of Medicine Outstanding Research Award
- 2011 University of Virginia Department of Medicine Outstanding Research Award
- 2010 Outstanding Innovator Award, Duke-NUS Graduate Medical School, Singapore
- 2001-2003 American Heart Association Scientist Development Grant
- 1999-2000 American Heart Association Texas-Affiliate Beginning Grant-in-Aid
- 1995-1999 Appointed to NIH NRSA-Postdoctoral Fellowship at UT Southwestern Medical Center at Dallas
- 1991 8th International Conference of Exercise Biochemistry Travel Grant, Research Group of Biochemistry of Exercise at United Nations Educational, Scientific and Cultural Organization (UNESCO)
- 1990 Graduate School Thesis Award, University of Illinois-Urbana-Champaign

To Trainees:

- 2021-2022 RJ Shute (Post-doc), F32 Post-doctoral Fellowship, NIH/NIAMS
- 2020 Y Guan, AJP Cell Oral Presentation awards at the Integrative Physiology of Exercise Virtual Conference
- 2019 JC Drake, UVA SOM Annual K Symposium Award

- 2018- JC Drake, K99/R00 NIH/NIA, Role of Skeletal Muscle Mitophagy in Healthy Aging
- 2018 JC Drake, Second Prize Poster Presentation at the 10th International Conference on the AMP-activated protein kinase (AMPK): From Mechanisms to New Therapies
- 2018 RJ Wilson, 2018 Biochemistry and Molecular Genetics Outstanding Graduate Student award
- 2017 JC Drake, Best Oral Presentation Award at UVA Pharmacology Annual Retreat
- 2016 H Zhao (Post-doc), 9th Annual Friedreich's ataxia Symposium at the Children's Hospital of Philadelphia Young Investigator Travel Award
- 2016 RJ Wilson (PhD student), ASBMB Thematic Best Poster Award 2016
- 2016-2018 JC Drake (Post-doc), American Diabetes Association Post-doctoral Fellowship
- 2014-2015 JC Drake (Post-doc), F32 Post-doctoral Fellowship, NIH/NIDDK
- 2014 RC Laker (Post-doc), The Robert Haynes Award at University of Virginia Pharmacology Retreat
- 2014 RC Laker (Post-doc), 2013 Robert M. Berne CVRC Outstanding Trainee Award
- 2013 RC Laker (Post-doc), 2013 Endocrinology and Metabolism Section Research Recognition Award from of the American Physiological Society
- 2013-2016 RJ Wilson (PhD student), American Heart Association Pre-doctoral Fellowship
- 2013-2015 RC Laker (Post-doc), American Heart Association Post-doctoral Fellowship
- 2012 VA Lira (Post-doc), Best Poster Presentation at the UVa Muscle Club Inaugural Muscle Research Symposium
- 2012 M Okutsu (Post-doc), Best Poster Presentation at the UVa Muscle Club Inaugural Muscle Research Symposium
- 2012 RC Laker (Post-doc), Best Poster Presentation at the UVa Muscle Club Inaugural Muscle Research Symposium
- 2012 RC Laker (Post-doc), Best Oral Presentation at the UVa Muscle Club Inaugural Muscle Research Symposium
- 2012 RC Laker (Post-doc), Runners-up award for poster presentation at Robert M. Berne Cardiovascular Research Center 20th Anniversary Symposium
- 2012 VA Lira (Post-doc), Runners-up award for poster presentation at Robert M. Berne Cardiovascular Research Center 20th Anniversary Symposium
- 2012 RC Laker (Post-doc), The Robert Haynes Award at University of Virginia Pharmacology Retreat
- 2012-2014 JA Call (Post-doc), American Heart Association Post-doctoral Fellowship
- 2012 JA Donet Mostacero (Post-doc), second place for poster presentation at UVA Resident Research Day
- 2012-2013 NP Greene (Post-doc), F32 Post-doctoral Fellowship, NIH/NIDDK
- 2012 M Okutsu (Post-doc), Dr. Rigel Post-doctoral Investigator award for 2012 from the Environmental and Exercise Physiology (EEP) Section of the American Physiological Society
- 2011-2013 VA Lira (Post-doc), American Physiological Society (APS) Post-doctoral Fellowship in Physiological Genomics
- 2011-2013 VA Lira (Post-doc), American Heart Association Post-doctoral Fellowship (turn down to accept APS award)

- 2011 M Okutsu (Post-doc), Pharmacology Retreat Best Poster Award at University of Virginia
- 2011 Y Akhtar (Post-doc), The Virginia Chapter of the American College of Cardiology Outstanding Poster Award
- 2006-2008 P Li (Post-doc), American Heart Association Post-doctoral Fellowship
- 2006-2008 AR Pogozelski (Medical Student), HHMI Medical Research Fellow Program
- 2006 P Li (Post-doc), International Meeting of "Frontiers in Myogenesis" Travel award, Pine Mountain, GA
- 2006 O Ajijola (Medical student), Duke University School of Medicine Award for Best Research
- 2005 O Ajijola (Medical student), Finalist for Young Investigator Award, International Society for Heart Research
- 2004-2006 O Ajijola (Medical student), HHMI Medical Research Fellow Program
- 2004 T Akimoto (Post-doc), Research Recognition Award, the American Physiological Society (APS), Canadian Society for Exercise Physiology and American College of Sports Medicine Intersociety Meeting on "Integrative Biology of Exercise"

VIII. PROFESSIONAL AFFILIATIONS (INCLUDING OFFICES HELD)

- 2014-current American Heart Association
- 2010-current The American Society for Biochemistry and Molecular Biology (ASBMB)
- 2010-current Chinese American Diabetes Association (CADA)
- 2009-current Society on Cachexia and Wasting Disorders (SCWD)
- 2009-current The American Diabetes Association (ADA)
- 2005-current The American Physiological Society (APS)

IX. RESEARCH ACTIVITIES

A. AREAS OF RESEARCH INTEREST

Non-communicable diseases, also known as chronic diseases, such as cardiovascular, metabolic and neurodegenerative diseases and cancer, account for more than 60% of the death in America, engulfing more than 75% of health care costs. On the contrary, regular exercise has profound health benefits and is the most effective intervention in prevention and treatment of chronic diseases. I employ the state-of-the-art molecular and imaging technologies in a variety of animal models to elucidate the underlying molecular and signaling mechanisms of exercise training-induced adaptations and their impacts on health and disease. My overarching goal is to provide scientific evidence for development of interventions to prevent non-communicable disease and promote human health and wellbeing.

B. CURRENT PROJECTS

- 1. Machine learning-based multi-omics modeling and CRISPR/Cas9-mediated gene editing in elucidating molecular transducer of physical activity.** The NIH Common Fund project "Molecular Transducers of Physical Activity Consortium (MoTrPAC)" is a large-scale discovery study designed to understand the molecular responses to exercise training. we proposed to identify candidate molecular transducers of physical activity by machine learning-based multi-omics modeling, generate loss-of-function knock-in and tissue-specific, gain-of-function transgenic mice using CRISPR/Cas9-mediated gene editing and transgenesis, and elucidate the role of the candidate molecular transducers of physical

activity in health benefits of exercise. The findings will significantly improve the mechanistic understanding of exercise-induced adaptations with great potential impact on the future development of therapeutics for NCD exercise (Currently funded by NIH MoTrPAC 1U01AG070960).

- 2. Exercise-induced mitophagy and its role in contractile and metabolic adaptations.** I began to study p38 mitogen-activated protein kinase (MAPK) as a regulator of muscle contractile and metabolic functions with a focus on the molecular mechanism and functional role of p38 MAPK in cachexia and type 2 diabetes. The findings of these studies led me to investigate the importance of exercise-induced mitophagy and its impacts on metabolic disease (previously funded by ADA Basic Science Award, now funded by NIH R01AR050429 with 17 years of continuous funding). I now focus on a fundamental question in exercise science: how does endurance exercise improve mitochondrial function? I proposed a “cash for clunker” hypothesis that mitochondrial biogenesis and clearance are both important for mitochondrial quality control. I obtained evidence that endurance exercise training promotes autophagy gene expression and autophagy flux. Taking advantage of the state-of-the-art imaging, genetic and physiological exercise models in mice, I have gained significant insights into exercise-induced mitophagy and provided direct evidence that AMPK controls Ulk1 for activation of mitophagy under the condition of exercise. More recently, we have discovered physical association of a pool of AMPK with mitochondrial outer membrane (mitoAMPK) and obtained evidence of mitoAMPK activation in response to energetic stress and its functional role in control of mitophagy induced by exercise (Currently funded by a new NIH 1R01AR077440).
- 3. Exercise-induced mitophagy in hippocampal neurons against AD.** Alzheimer's disease (AD) is a devastating neurodegenerative disease with no cure that affects >50 millions of people worldwide. Emerging evidence supports that accumulation of damaged/dysfunctional mitochondria in the central nervous system is an early, central pathology. Reactive oxygen species (ROS) produced by dysfunctional mitochondria cause oxidative damages to proteins, lipids and DNA and exacerbate the key pathologies of amyloid- β ($A\beta$) accumulation and hyperphosphorylation of Tau protein in a vicious cycle. In stark contrast, endurance exercise (i.e., running) or resistance exercise (i.e., weightlifting) have significant preventive and therapeutic impacts on AD. However, the underlying mechanisms are poorly understood. We hypothesize that endurance and/or resistance exercise promotes AMPK-Ulk1 activation and mitophagy, hence removing damaged/dysfunctional mitochondria in adult hippocampal neurons and preventing neurodegeneration and cognitive decline in AD. We conduct research to determine whether AMPK-Ulk1 activation is required for exercise-mediated protection and whether AMPK activation is sufficient to protect against AD (Currently funded by NIH R01AG077783).
- 4. Exercise-induce mitophagy against HFpEF.** Heart failure is a clinical syndrome with dismal morbidity and mortality, affecting ~7 million Americans. Nearly half of the patients, particularly those with obesity and diabetes, have heart failure with preserved ejection fraction with hallmark symptoms of exercise intolerance and diastolic dysfunction. Increasing evidence supports that damaged/dysfunctional mitochondria, the power plants of cells, accumulate in HFpEF myocardium. Increased reactive oxygen species and loss of

mitochondrial respiratory function contribute to oxidative stress, inflammation, metabolic dysfunction, impaired Ca²⁺ handling and structural remodeling, leading to HFpEF. On the contrary, endurance exercise (often called aerobic exercise) has profound positive impacts on HFpEF with improvements of exercise capacity and diastolic function. However, the underlying mechanism of the benefit of exercise is poorly understood. We hypothesize that endurance exercise promotes mitophagy, hence mitochondrial quality, against HFpEF by activating mitoAMPK and Ulk1. We are conducting research to determine whether mitoAMPK-Ulk1 activation is required for exercise-induced mitophagy and whether mitoAMPK activation is sufficient to protect the heart against HFpEF (NIH R01 pending resubmission).

5. **Exercise-induced EcSOD in skeletal muscle in disease prevention.** The studies have focused on NO-dependent regulation of extracellular superoxide dismutase (EcSOD) by endurance exercise in skeletal muscle in protection against skeletal muscle catabolic wasting (previously funded by NIH R21), diabetic cardiomyopathy (previously funded by AHA post-doctoral fellowship to Dr. Jarrod Call) and multiple organ dysfunction syndrome (Previously funded by NIH R01). Current studies will ascertain if hemorrhagic shock plus sepsis results in an acute respiratory distress syndrome (ARDS) and if exercise-induced skeletal muscle EcSOD expression will render protection. Considering the importance of ARDS in Covid-19, we also propose studies to develop EcSOD mimetic for treatment of Coronavirus-induced ARDS (will be submitted as a future R01 or DoD application).
6. **A novel mitochondrial reporter gene, MitoTimer, for mitochondrial quantity and quality** (previously funded by Thelma R. Swortzel Award). This project focuses on the development and application of conditional MitoTimer reporter gene for assessing mitochondrial quantity and quality *in vivo*. The plasmid DNA construct pMitoTimer has been deposited at Addgene and has been requested and used by more than 500 laboratories worldwide. The transgenic reporter mice have been developed and are currently used by my laboratory and many other collaborating laboratories in the world.
7. **Epigenetic mechanism of maternal exercise-mediated protection against metabolic diseases in the offspring** (previously funded by Partners' Fund and Thelma R. Swortzel Award). The studies focus on the mechanism by which exercise during pregnancy modifies the epigenome and protects offspring from the metabolic syndrome. This is a new and important direction of the laboratory.
8. **Exercise impacts on mitochondria and muscle function in Friedrich's ataxia** (previously funded by FARA). We have had a comprehensive assessment of the impact of exercise on mitochondrial health in a mouse model of FRDA in response to acute and long-term exercise. Our findings have led to a focused clinical trial in humans. We are currently investigating the mechanism underlying exercise training-mediated prevention of the onset of symptomatic FRDA.
9. **Molecular mechanism of resistance exercise-induced contractile and metabolic adaptations.** I have developed a novel voluntary weightlifting model in mice. We have fully characterized this physiological model of resistance exercise and addressed some outstanding

questions in the field. Using this model, we have discovered some novel genes that are potentially important for the adaptive response of skeletal muscle to physiological resistance exercise training. We are currently using molecular genetics to dissect the mechanism(s) further.

C. RESEARCH COLLABORATION/TEAM SCIENCE

- 1. University of Virginia Healthspan Institute.** I have had the privilege to propose an initiative to establish a Pan-University institute to conduct research with novel, comprehensive approaches to address a fundamentally important question. This is a mega proposal involving at least 45 faculty at UVA from across the grounds, 4 local communities, 6 institutions in the country and 8 nations in the world. The mission of the University of Virginia (UVA) Healthspan Institute is to foster multidisciplinary research that supports delivering holistic, personalized interventions to promote human health and physical, mental and social wellbeing in a variety of contexts from clinics to workplace to classrooms. The overarching emphasis will be to maximize healthspan, the period in one's life during which a person is generally healthy and free from serious physical, mental, and social disorders, across the whole lifespan from pre-conception to the end of life care. This initiative was selected as one of the five finalists for full proposal and has received \$50,000 award, which supported 3 pilot projects.
- 2. Energy and Neural Circuit Excitability** (currently supported by NIH R56NS099586). This is a collaborative project with Dr. Mark Beenhakker. In this project, we aim to identify the mechanisms responsible for this heightened glucosensitivity, and to determine how these mechanisms promote hypoglycemia-associated epileptic seizures.
- 3. BLIMP-1 mediated regulation of CD8+ TIL** (Previously supported by NIH R01). Collaborating with Dr. Timothy N. Bullock, I work on assessing mitochondrial quantity and quantity in T lymphocytes. The proposed studies of the parent grant are to understand the impact of BLIMP1 expression on tumor infiltrating CD8+ T lymphocyte function.
- 4. The splenic CD4 T cells mediate myocardial ischemia reperfusion injury** (Previously supported by NIH R01). As a collaborating investigator of Dr. Zequan Yang, I contribute to this project conceptually about the importance of mitochondrial DNA release in the inflammatory responses in myocardial infarction. My laboratory provides the expertise in mitochondrial metabolism. This research project will determine that the splenic CD4+ T cells, not the circulating CD4+ T cells, mediate the myocardial post-ischemic reperfusion injury, and explore how substances released from damaged heart activate splenic CD4+ T cells, which amplify the inflammatory response and exaggerate myocardial infarction.
- 5. Mechanism of Action of an IncRNA for Directing Muscle Differentiation** (NIH R01 pending). As a co-investigator of Dr. Anyndia Dutta, I contribute to this project by working on functional and cellular aspects of skeletal muscle regeneration. The studies focus on MUNC in muscle differentiation and identification of new protein and DNA partners of MUNC to identify functions of MUNC independent of Myogenic transcription factors.

- 6. A Virtual Tai Chi Instructor** (NIH SBIR pending). As a subaward PI collaborating with Drs. Brian Clark at Barron Associates, Inc. and Jo, I contribute conceptually to this proposal. In addition, I will serve as a Tai Chi instructor for the studies. The studies focus on development of a virtual 3D tai chi instructor that uses a specialized 3D tracking methodology to provide personalized instruction and performance metrics.

X. TEACHING ACTIVITIES

A. Classroom, Seminar, or Teaching Laboratory

Year	Course title & number	Length	% Resp
2022	PHY 8052 Vascular Biology	2 h	100
2022	PHY 8040 and 8041 Graduate Physiology	51 h	10
2021	Faculty development program-grant writing	2 h	100
2021	PHY 8100 – Extreme Physiology	1 h	100
2021	Guest lecture at Rutgers University	1.5 h	100
2021	Faculty development program-grant writing	1.5 h	100
2021	PHY 8052 Vascular Biology	2 h	100
2021	BIMS 8320 - Graduate Physiology-Muscle	4 h	100
2020	Faculty development program-grant writing	1.5 h	100
2020	PHY 8052 Vascular Biology	2 h	100
2020	BIMS 8320 - Graduate Physiology-Muscle	4 h	100
2020	EDHS 8420 - Metabolic Adaptations to Exercise	1.5 h	100
2019	EGMT 1520	1 h	50
2019	PHY 8052 Vascular Biology	2 h	100
2019	EDHS 8420 - Metabolic Adaptations to Exercise	1.5 h	100
2019	BIMS 8320 - Graduate Physiology-Muscle	4 h	100
2019	Faculty development program-grant writing	1.5 h	100
2018	PHY 8100 – Extreme Physiology	2 h	100
2018	BIMS 8320 - Graduate Physiology-Muscle	4 h	100
2018	EDHS 8420 - Metabolic Adaptations to Exercise	1.5 h	100
2017	PHY 8052 Vascular Biology	2 h	100
2017	PHY 8100 – Extreme Physiology	2 h	100
2017	Faculty development program-grant writing	1.5 h	100
2017	BIMS 8320 - Graduate Physiology-Muscle	4 h	100
2017	EDHS 8420 - Metabolic Adaptations to Exercise	1.5 h	100
2017	Faculty development program-grant writing	1.5 h	100
2016	BIMS 8320 - Graduate Physiology-Muscle	4 h	100
2016	Supervision of research for undergraduate students	NA	100
2015	BIMS 8320 - Graduate Physiology-Muscle	4 h	100
2015	Supervision of research for undergraduate student	NA	100
2014	BIMS 6000 - Physiology and Endocrinology of Nutrient Metabolism	2 h	100
2014	PHY 8100 – Extreme Physiology	2 h	100
2014	Supervision of research for undergraduate students	NA	100
2014	EDHS 8420 - Metabolic Adaptations to Exercise	1 h	100

2014	BIMS 8320 - Graduate Physiology-Muscle	6 h	100
2013	BIMS 6000 - Physiology and Endocrinology of Nutrient Metabolism	2 h	100
2013	EDHS 8420 - Metabolic Adaptations to Exercise	1 h	100
2013	BIMS 8320 - Graduate Physiology-Muscle	4h	100
2013	Supervision of research for undergraduate students	NA	100
2012	PHAR 9020 - Molecular Characterization of Drug Targets	2 h	100
2012	EDHS 8420 - Metabolic Adaptations to Exercise	1 h	100
2012	BIMS 8064 - Special Topics in Cardiovascular Research Career Development	1 h	100
2012	Supervision of research for undergraduate students	NA	100
2012	BIMS 8320 - Graduate Physiology-Muscle	4 h	100
2012	MSI-Muscle Adaptation & Applied Muscle Metabolism	1.5 h	50
2011	Supervision of research for undergraduate students	NA	100
2011	PHAR 902 - Molecular Characterization of Drug Targets	2 h	100
2011	CELL 805 - Colloquium in Developmental Biology	2 h	100
2011	BIMS 8121 - Skeletal Health and Diseases	1 h	100
2011	BIMS 8320 - Graduate Physiology-Muscle	2 h	100
2011	EDHS 8420 - Metabolic Adaptations to Exercise	1 h	100
2010	Supervision of research for undergraduate students	NA	100
2010	The Leadership Alliance	NA	100
2010	BIMS 8122-Skeletal Health and Diseases	1 h	100
2010	BIMS 8320 - Graduate Physiology-Muscle	2 h	100
2010	Molecule to cells at Duke-NUS Graduate Medical School	8 h	100
2009	Supervision of research for undergraduate students	NA	100
2009	EDHS 8420 - Metabolic Adaptations to Exercise	1 h	100
2009	BIMS 853 - Modern Literature of Cardiovascular Research	1 h	100
2008	BN5104 - Quantitative Physiology Principles in Bioengineering- at National University of Singapore	1 h	100
2008	Course director for Molecule to cells at Duke-NUS Graduate Medical School	6.5 wk	100
2008	Molecule to cells at Duke-NUS Graduate Medical School	8 h	100
2007	Molecule to cells at Duke-NUS Graduate Medical School	8 h	100
2005	Summer on the Edge	6 wk	100

B. Clinical Teaching (in ward, clinic, OR)

Not applicable

XI. TEACHING ACTIVITIES OTHER THAN CLASSROOM OR CLINICAL, INCLUDING TEACHING OF UNDERGRADUATE (PRE-BACCALAUREATE), GRADUATE, POSTDOCTORAL STUDENTS AND CONTINUING EDUCATION MEDICAL STUDENTS.

Past Trainees

Name	Position	Duration	Current position
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1. Ethan Feng	Volunteer	2021-2021	Washington University
2. Abel Ruiz	BS Student	2019-2021	Technician, UVA
3. Lindsay Irwin	BS Student	2019-2021	Dermatology Scribe, UVA
4. Hannah Spaulding, PhD	Post-doc	2019-2021	Associate Group Leader, PPD
5. Sara Zargham	BS Student	2020-2021	Undergraduate Student, UVA
6. Sable Thompson	Med Student	2020-2021	Medical Student, UVA
7. Grace (Wenqin) Shen	PhD Student	2019-2020	Assistant Professor, Anhui Normal Univ
8. Huayu Shang, PhD	Post-doc	2019-2020	Lecturer, Chengdu Sport Institute
9. Jinyue Wang, PhD	Post-doc	2019-2020	Associate Professor, Foshan Univ
10. Casey Bauchle	PhD Student	2020-2020	PhD Student, UVA
11. Ira Rosner	Summer Student	2019	Undergraduate Student, Georgia Tech
12. Joshua C Drake, PhD	Post-doc	2014-2019	Assistant Professor, Virginia Tech
13. Kevin Wen	Summer Student	2019	Undergraduate Student, UVA
14. Kian Huang	Summer Student	2019	Undergraduate Student, UVA
15. Tatiana Coverdell	PhD student	2018	PhD student at UVA
16. Maya Dorn	BS student	2018	Technician, Regeneron
17. Alexander Baker	BS Student	2018	Unknown
18. Paul Girgis	BS Student	2018	Engineer, Virginia
19. Rebecca Wilson	PhD student	2011-2018	Post-doc at Duke Univ
20. Devrick Thomas	PhD student	2017	PhD student at Augusta University
21. Di Cui, MS	PhD student	2015-2018	Assistant Professor, Hunan Univ
22. Harrison Boyce	BS Student	2017	Medical Student, University of Maryland School of Medicine
23. Campbell Ross	MS Student	2017	High School Coach
24. Sara Prysi	BS Student	2017	Undergraduate Student, Washington Lee Univ
25. Matthew Ritger	MSTP Student	2017	MD/PhD Student, UVA
26. Baven Lowellen	BS Student	2014-2017	Pursuing graduate school
27. Carleigh Fisher	BS Student	2014-2017	Medical Student, Alabama College of Osteopathic Medicine
28. Lucia M Leitner, BS	PhD student	2016	Medical Science Liaison at Amgen
29. Henan Zhao, MD, PhD	Post-doc	2015-2016	UVA-DMU Alliances
30. Jiuzhi Zhang, MD	Visiting Scholar	2015-2016	Dalian Med Univ Scholarship
31. Patrick Talkington	BS student	2015-2016	RF Engineer at SRC
32. Hunter Bass	BS student	2015-2016	Unknown
33. Joshua Lambeth	BS student	2015-2016	Software Engineer at Harris Corp
34. Jiahuan Deng	BS student	2015-2016	Unknown
35. Bevan M Lewellen	BS student	2014-2016	PhD Student, East Carolina Univ
36. Rhianna C Laker, PhD	Post-doc	2011-2015	Senior Scientist, AstraZeneca
37. Xiaobin Chen, MD, PhD	Visiting prof	2014-2015	Chief of Cardiology, Xiangya Medical Univ Hospital
38. Dakota Lee	Summer Student	2015	Admission Coordinator, Pre-Med Advisor at Atlantis
39. Austin Tang	Summer student	2014	Associate at LEK Consulting

40. Jarrod A Call, PhD	Post-doc	2011-2014	Associate Prof (Tenured), Univ of Georgia
41. Kristopher H Chain, MS	MS student	2011-2014	Science Teacher, Peabody School
42. Peng Xu, PhD	Post-doc	2012-2014	Research Associate, UVA
43. Manish Bastakoti	BS Student	2012-2014	Resident, MedStar Washington Hospital Center
44. Michelle Mahoney	PhD student	2013	Unknown
45. Vitor A Lira, PhD	Post-doc	2009-2013	Associate Prof (Tenured), Univ of Iowa
46. Nicholas P Greene, PhD	Post-doc	2010-2013	Associate Prof (Tenured), Univ of Arkansas
47. Edie Pettiford	BS Student	2013	Unknown
48. Hajirah Ishaq	BS Student	2011-2012	Student at Liberty Univ College of Osteopathic Medicine
49. Jie Cai, MD	Visiting Prof	2012	Chief, Infectious Disease, Affiliated Hospital of Nanjing Med Univ
50. Jean Donet, MD	Post-doc	2011-2012	Assistant Professor, Univ of California, San Francisco
51. Mitsuharu Okutsu, PhD	Post-doc	2008-2012	Lecturer, Nagoya City University
52. Xiaoxi Liu, MS	PhD student	2011	PhD Student, UVA
53. Kate A. Moody	Summer Student	2011	Research Assistant, Brigham and Women's Hospital
54. James Eaton, BS	PhD Student	2011	Law Student, Univ of Richmond
55. Yasir N Akhtar, MD	Post-doc	2009-2011	Cardiologist, Knoxville, TN
56. Yasmien Kamel	BS Student	2010-2011	MS student, Georgetown Univ
57. Lindsey Myers	Summer Student	2010	Senior Drug Safety Associate, PRA Health Science
58. Tuoyu Geng, PhD	Post-doc	2007-2010	Assoc Prof, Yangzhou Univ
59. Helen Choi	BS Student	2009	Clinical Pharmacist, Johns Hopkins Hospital
60. Chongben Zhang, PhD	Post-doc	2008-2009	Res Associate, Univ of North Carolina-Chapel Hill
61. Joseph M McClung, PhD	Post-doc	2008	Associate Prof (Tenured), East Carolina Univ
62. Shruti G Ayyar	Medical Student	2008	Med Student, Univ of Cambridge
63. Naajia I Hajji, BS	PhD Student	2008	Nursing School Student, McGill Univ
64. James Lee	Summer Student	2008	Certified flight instructor, Sierra Academy of Aeronautics
65. Yingke He, MD	BS Student	2007-2008	Physician, Singapore General Hospital
66. Yuguang Guan, PhD	Visiting Scientist	2007-2008	Res Operation Manager, Duke-NUS Medical School, Singapore
67. Ying Li, MD, PhD	Post-doc	2006-2008	Research Instructor, Univ of Utah
68. Michael Koh	Summer Student	2007	Senior Consultant, Booz Allen Hamilton

69. Andrew R Pogozelski, MD	Med Student	2006-2007	Cardiologist, Cardiologist, Allegheny General Hospital
70. Ping Li, MD, PhD	Post-doc	2003-2007	Staff Scientist, NIH/NHLBI
71. Zengli Yu, PhD	Post-doc	2005-2007	Professor, Zhengzhou Univ
72. Han-Chow Koh, PhD	MS Student	2006	Post-doc, Washington Univ
73. Waynekid Kam, MD	Summer Student	2005	Instructor, Hospital Specialist, Duke Univ
74. Olu A Ajijola, BS	Medical Student	2004-2005	Assistant Professor, UCLA
75. Takayuki Akimoto, PhD	Post-doc	2003-2005	Professor (Tenured), Waseda Univ
76. Richard E Waters, MD	Fellow	2002-2004	Cardiologist, Stockton Cardiology Medical Group
77. Steven C Pohnert, PhD	Post-doc	2002-2004	Primary Examiner at USPTO
78. Svein Rotevatn, MD	Visiting Professor	2002-2003	Professor (tenured), Haukeland Univ
79. Xuebin Liu, MD, PhD	Post-doc	2000-2002	VP and Head of Immuno-Oncology at HD Bioscience Inc

Current Trainees

80. Yuntian Guan	PhD Student	2018-	UVA Graduate School
81. Robert (RJ) Shute, PhD	Post-doc	2019-	NIH CVTG Fellowship
82. Celeste Costa	BS Student	2020-	UVA
83. Idhaya Vasu	BS Student	2021-	UVA
84. William Tornel	BS Student	2021-	UVA
85. Muhammad Zulfiqar	BS Student	2021-	UVA
86. Edison de Guzman	BS Student	2022-	UVA
87. Kaitlin Blakeslee	BS Student	2022-	UVA
88. Joseph Kordziel	BS Student	2022-	UVA
89. Henry Hoyos	MD/PhD	2022-	UVA

A. Conferences, Grand Rounds, Journal Clubs, etc.

- 4/22 UVA Metabolic Interest Group: “Progress report for the PASS II project of MoTrPAC at UVA.”
- 2/22 UVA Department of Molecular Physiology and Biological Physics RIP
- 12/21 UVA Metabolic Interest Group: “AMPK-mediated metabolic regulation: location, location and location.”
- 4/21 UVA Cancer Center IDEA-Cancer Workshop: “Molecular transducer of physical activity”
- 2/20 UVA School of Medicine Faculty Retreat Cell Signaling in Disease Symposium: “mitoAMPK in control of mitophagy”
- 1/20 UVA Orthopedic Surgery Grand Round: “Exercise-induced adaptation in health and disease”.
- 4/19 UVA Physiology Faculty Research Talk Series “mitoAMPK in control of mitophagy: location, location and location!”
- 10/18 UVA One Day Symposium on Microscopy, “Visualization of AMPK activation in skeletal muscle”
- 5/17 Organizing committee of Annual Biochemistry & Molecular Genetics Symposium on “Understanding Mechanisms of Aging and Healthspan”

- 2/17 Exercise-induced mitophagy in cardiometabolic health at UVA School of Medicine Faculty Retreat, Boars Head, Charlottesville, Virginia
- 10/16 Removal of damaged mitochondria by mitophagy is critical for skeletal muscle remodeling at Stem Cells and Regeneration Seminar Series at Department of Cell Biology, University of Virginia, Charlottesville, Virginia
- 11/15 Population Health and Prevention Research Seminar Series, “Personalized healthspan care (PhC): the future of medicine” at Department of Public Health Sciences, University of Virginia, Charlottesville, Virginia
- 9/15 Symposium on Microscopy talk entitled: “Visualization of AMPK activation in skeletal muscle”, University of Virginia, Charlottesville, Virginia
- 3/15 Molecular Imaging & Biology Seminar entitled: “Molecular mechanism of exercise training and its impact on health and diseases in mice: dream models of in vivo imaging.” University of Virginia, Charlottesville, Virginia
- 3/15 Robert M. Berne Cardiovascular Research Center Grant Brewing: “Exercise-induced AMPK-Ulk1 in mitophagy”, University of Virginia, Charlottesville, Virginia
- 12/14 Pathology Seminar Series, Maternal exercise in mitigating the negative epigenetic impact of obese pregnancy to the offspring, University of Virginia
- 2/14 Rheumatology Grand Round, A “Cash for Clunkers” Story of Mitochondria in Skeletal Muscle”, University of Virginia
- 9/13 Nephrology and Center for Immunity, Inflammation & Regenerative Medicine Work in Progress, University of Virginia, Charlottesville, Virginia
- 9/13 Robert M. Berne Cardiovascular Research Center Seminar entitled: “More or better is better? A cash for clunkers story for mitochondria in skeletal muscle”, University of Virginia, Charlottesville, Virginia
- 3/12 UVA Muscle Club Inaugural Presentation “Cash for clunkers: A novel way to measure damaged mitochondria in skeletal muscle”. University of Virginia
- 2/12 Presentation of “Screen for drugs that affect mitochondrial quality” at AstraZeneca site visit, University of Virginia
- 2/12 Diabetes Endocrine Research Center (DERC) Research in Progress for “Muscle derived EcSOD in protection against multiple organ dysfunction syndrome (MODS)”, University of Virginia
- 01/11 AstraZeneca Diabetes Group Visit, Mitochondrial maintenance in insulin resistance: multisystem discovery of novel functional genes, University of Virginia
- 10/10 Diabetes Endocrine Research Center (DERC) Research in Progress, Mitochondrial quality in metabolic function in skeletal muscle: the importance of mitochondrial permeability transition and mitophagy, University of Virginia
- 09/10 Molecular Medicine (MOMD) Mentor Luncheon, Muscle plasticity and diseases, University of Virginia
- 08/10 Epigenetic Interest Group Meeting, Maternal exercise in pregnancy prevents offspring from type 2 diabetes, University of Virginia
- 05/10 Cardiovascular Research Center Grant Brewing, Diet-induced mitophagy in mitochondrial dysfunction and insulin resistance, University of Virginia
- 04/10 Department of Biology Clock Meeting, Molecular mechanism of skeletal muscle remodeling and its impact on diseases, University of Virginia

- 03/10 Translational Journal Club at Department of Medicine-Cardiovascular Medicine, Environment-gene interaction in cardiovascular and metabolic disorders, University of Virginia
- 03/10 Metabolic Interest Group Speaker on peroxisome proliferator-activated receptor γ coactivator 1-a (PGC-1a) and exercise-induced adaptation in skeletal muscle, University of Virginia
- 03/10 Fat Friday Seminar on Exercise and calorie restriction share a potent anti-inflammatory function in white adipose tissue, University of Virginia
- 10/09 Research in Progress at Diabetes Endocrine Research Center (DERC) at University of Virginia on Autophagy in Obesity and Diabetes, University of Virginia
- 05/09 Fat Friday Seminar on Mitophagy mediates mitochondrial degeneration and ectopic lipid accumulation in insulin resistance, University of Virginia
- 05/09 Cardiology Grand Round, Deciphering the molecular and signaling mechanisms of catabolic muscle wasting, University of Virginia
- 04/09 Pharmacology seminar on Mitophagy mediates mitochondrial degeneration and ectopic lipid accumulation in insulin resistance, University of Virginia
- 10/08 Invited Speaker for Deciphering the signaling and transcriptional control of skeletal muscle adaptation, AH/NUH Sports Medicine Teaching Program, Singapore
- 12/06 Duke-NUS Graduate Medical School Journal Club, Molecular & Signaling Mechanisms of Skeletal Muscle Plasticity: From Basic Research to Chronic Diseases, Singapore
- 12/05 All Things Muscle Journal Club, What does it take to maintain a muscle, Duke University
- 04/05 All Things Muscle Journal Club, A two-sided story of the p38 MAPK function in skeletal muscle, Duke University
- 03/05 Cardiology Grand Rounds, Skeletal muscle adaptation in response to exercise in mice, Duke University
- 08/04 Sarah Stedman Center Seminar, p38 MAPK signaling in skeletal muscle adaptation, Duke University
- 04/04 All Things Muscle Journal Club, The cellular and signaling mechanisms of skeletal muscle adaptation in response to exercise, Duke University
- 04/03 All Things Muscle Journal Club, A functional genomics study of physiological and pathological cardiac hypertrophy, Duke University
- 09/02 Molecular Cardiology Seminar, Understanding striated muscle adaptation: a functional genomic approach, Duke University
- 07/99 Cold Spring Harbor Laboratory Meeting on DNA Replication. A novel regulatory subunit of PP2A interacts with Cdc6 and modulates DNA replication in human cells, Cold Spring Harbor
- 10/95 Invited Speaker for Application of molecular biology methodology to exercise physiology, The 5th International Course and Conference on Physiological Biochemistry and Nutrition, Beijing, China

B. Teaching Committees

- 2007-2008 Duke-NUS Graduate Medical School 1st Year Curriculum Committee
- 2008 Duke-NUS Graduate Medical School Seminar Series Committee

2009 University of Virginia Medical School NxGen Curriculum Committee

C. Student Counseling

Not applicable

D. Formal Study to Improve Teaching Abilities

05/10 Test Item Writing Workshop by the National Board of Medical Examiners (NBME)

E. Current Research Concerning Teaching

Not applicable

F. Bibliography Concerning Teaching

Not applicable

G. Other, including development of curriculum or new teaching materials, methods of evaluation, program supervision, etc.

2022- Directing Graduate Physiology A and B

2017- Development of a course for junior faculty to improve grant writing.

2015 Development of a brand new, cross-ground, multi-disciplinary course in “Personalized Healthspan Care” listed as BIMS 8000 in 2016. Due to lack of publicity, this course will be open in 2017

2014 Development of interactive learning session in “Marathon running” in a course of “Extreme Physiology” PHY 8100

2013 Development of an active learning session for Physiology and Endocrinology of Nutrient Metabolism in the Core Course in Integrative Biosciences (CCIB) BIMS 6000.

2012 Development of an interactive learning session in “Metabolism Section of Core Course” focusing on the Insulin resistance in type 2 diabetes: Impact of exercise, calorie restriction and pharmacological intervention

2012 Development of an interactive session on BIMS 8064 Special Topics in Cardiovascular Research Career Development focusing on “Developing your Scientific Agenda as a PI”. This is a special course designed for trainees in cardiovascular research to develop their professional maturity for their career in either academic or pharmaceutical area.

2012 Development as a team effort of a team-based learning session on “Applied Skeletal Muscle Physiology”. See description above

2011 Development as a team effort of a team-based learning session on “Applied Skeletal Muscle Physiology”. This Team-based learning session is designed to provide the first year medical students with an opportunity to integrate the knowledge learnt through the review articles and slide presentations in the context of exercise, sports injury, nutrition

and chronic diseases for the for the Musculoskeletal/Integument System in the NxGen Curriculum.

- 2008 Service at the director of the course of “Molecule to cells” at Duke-NUS Graduate Medical School. I organize and facilitate the development of team-based learning materials and training faculty for this course (14 sessions) to the first-year medical students at Duke-NUS Graduate Medical School.
- 2007 Development of a 4-h team-based learning session on “Inter-relationship between Muscle Function” for the course of “Molecule to cells” for the course “Molecule to cells” at Duke-NUS Graduate Medical School

XII. OTHER PROFESSIONAL ACTIVITIES (BOARDS, EDITORSHIPS, ETC.)

Editorial Board

- 2021-current Editorial Board, Redox in Muscle Physiology, Exercise, and Sport
- 2018-current Associate Editor, Sports Medicine and Health Sciences
- 2013-current Editorial Board, Frontiers in Cell and Developmental Biology
- 2011-current Editorial Board, American Journal of Physiology-Regulatory, Integrative and Comparative Physiology
- 2011-2017 Editorial Board, the Journal of Biological Chemistry
- 1999-2002 Editorial Board, Journal of Applied Physiology

Grant Peer Review

- 2020-current Medical Research Program Musculoskeletal Health (PRMRP MSH-1) peer review panel
- 2020-current NIH CSR regular reviewer for SMEP study section
- 2020 FLDOH Biomedical Research Program Reviewer
- 2020 NIH Board of Scientific Counselors (BSC) for the Intramural Research Programs
- 2019 NIH/CSR ZRG1 MOSS-D (82) A Reviewer
- 2019 NIH/NIDDK MoTrPAC Ancillary Study Reviewer
- 2018 MRC Peer Review Reviewer
- 2018 FLDOH Bankhead-Coley Research Program Reviewer
- 2018 NIH/CSR ZDK1 GRB-N (O1) 1 Reviewer
- 2018 NIH/CSR ZRG1 CB-Z (50) R Reviewer
- 2014-2018 National Institute of Health CSR regular member of CMAD study section (Co-Chair, Feb. 2016)
- 2017 PADOH Formula Grants Final Performance Review 17-18 Cycle A
- 2016 Ad hoc reviewer for the VA Cellular and Molecular Medicine (CAMM) Merit review panel
- 2014 Academie Universitaire Louvain Concerted Research Actions (CRA) 2014 reviewer
- 2014 National Institute of Health CSR ad hoc reviewer for MOSS Q14 Skeletal Muscle SBIR/STTR
- 2012-2013 National Institute of Health CSR ad hoc reviewer for CMAD study section
- 2012 The Association Française Contre les Myopathies

2012 Swiss National Science Foundation invited reviewer for SNF grant applications
 2012-2014 National Institute of Health NIAMS ad hoc reviewer for SMEP study section
 2010-2014 Italian Ministry of Health Invited Reviewer for Young Italian Researcher Grant
 2011-2012 Ad hoc reviewer for AHA Basic Cell CSS 3 Study Section
 2010 Chinese Oversea Student Fellowship Selection Committee
 2009 National Institute of Health NHLBI Board of Scientific Counselors (BSC) for the intramural research programs
 2009 National Institute of Health NHLBI ad hoc reviewer for RFA study section
 2009 National Institute of Health NIAMS ad hoc reviewer for AMS study section
 2007 Alberta Heritage Foundation for Medical Research ad hoc reviewer
 2005-2008 National Institute of Health Study Section for R3 Grants
 2005-2007 American Heart Association Study Group on Basic Cardiovascular Sciences
 2003-2004 Muscular Dystrophy Campaign invited reviewer

Journal Peer Review

2021-current Redox Biology
 2019-current Journal of Cachexia, Sarcopenia and Muscle
 2019-current Nature Communication
 2019-current Proceedings of the National Academy of Sciences of the United States of America
 2018-current Scientific Report
 2015-current Experimental Physiology
 2015-current Molecular Medicine
 2013-current Diabetologia
 2013-current Autophagy
 2012-current Journal of Clinical Investigation
 2011-current Cell Biology and Toxicology
 2011-current Hypertension
 2010-current Molecular Endocrinology
 2010-current Diabetes
 2010-current Free Radical Biology and Medicine
 2010-current FEBS Letter
 2009-current PLoS One
 2009-current Journal of Muscle Research and Cell Motility
 2008-current Antioxidant & Redox Signal
 2008-current American Journal of Physiology-Heart and Circulatory Physiology
 2008-current Journal of Physiology
 2007-current Journal of Biological Chemistry
 2006-current American Journal of Physiology-Endocrinology and Metabolism
 2003-current Medicine & Science in Sports & Exercise
 2003-current Physiological Genomics
 2003-current American Journal of Physiology-Regulatory, Integrative and Comparative Physiology
 2002-current Circulation Research
 2002-current American Journal of Physiology-Cell Physiology
 2002-current Journal of Applied Physiology

XIV. CLINICAL ACTIVITIES**A. Inpatient**

Not applicable

B. Outpatient

Not applicable

XIV. SCHOOL, UNIVERSITY, UVA HOSPITALS, DEPARTMENTS, NATIONAL, AND STATE COMMITTEES & COUNCILS**A. School of Medicine**

2022 University of Virginia School of Medicine Division of Cardiovascular Medicine Academic Research Faculty Search Committee Chair

2020-current University of Virginia School of Medicine Research Advisory Committee

2013-2015 University of Virginia Graduate School Admission Committee

2009 University of Virginia Medical School NxGen Curriculum Committee

2009 University of Virginia Medical School Molecular Medicine Graduate Program Temporary Executive Committee

2008 Duke-NUS Graduate Medical School Seminar Series Committee

2007-2008 Duke-NUS Graduate Medical School 1st Year Curriculum Committee

2007-2008 Duke-NUS Graduate Medical School Cardiovascular and Metabolic Diseases Program Search Committee

2006-2008 Duke-NUS Graduate Medical School Admission Committee

2006-2008 Duke-NUS Graduate Medical School Recreation Club

B. University

2019 Curry School of Education Faculty Search Committee

2017 UVA Healthspan Institute Initiative Committee Chair

2017 UVA School of Medicine OBGYN Faculty Search Committee

2015 Curry School of Education Nutrition and Exercise Faculty Search Committee

C. UVA Hospitals

Not applicable

D. Department

2010-current Grant Preview "Grant Brewing Lunch" Coordinator at Robert M. Berne Cardiovascular Research Center

2013-2016 UVA-DMU Basic Research Program in Cardiovascular Medicine Associate Director

2011-2014 Vascular Biology Training Grant Executive Committee at Robert M. Berne Cardiovascular Research Center

2009 Vascular Biology Training Grant Executive Committee at Robert M. Berne Cardiovascular Research Center

E. National

2017 Advisory Program Committee of 2018 Integrated Physiology of Exercise (IPE)

Meeting
1999-2000 American Heart Association Council on Basic Cardiovascular Sciences

F. State

Not applicable

G. International

2012-current Vice-Chairman, International Research Group on Biochemistry of Exercise
2012-2018 Organizing committee for the 17th International Biochemistry of Exercise conference in 2018
2015 International Organizing Committee, the 2nd International Conference of Traditional and Complementary Medicine on Health 2015
2015 International Organizing Committee, the 6th International Conference on Nutrition and Physical Activity 2015
2015 International Organizing Committee of Integrative Medicine: Physical Activity is a Core Tip (IMPACT) 2015
2012-current Vice Chairman of the International Research Group on Biochemistry of Exercise
2012-current Executive Committee of the Asian Society of Exercise Science (ASES)
2012 Swiss National Science Foundation invited reviewer for SNF grant applications

XVI. FINANCIAL RESOURCES (GRANTS AND CONTRACTS)**A. Federal**

R01AR040849 Williams (PI) 07/01/01–03/31/07 **Completed**

NIH/NHLBI

Molecular Genetics of Muscle Specialization

The project intends to define the mechanisms of beneficial physiological adaptations in skeletal muscle following exercise training.

Role: Co-Investigator

Annual direct costs: \$250,000

20% effort

R01DK065954 Haystead (PI) 04/01/06–03/31/11 **Completed**

NIH/NHLBI

Calcium desensitization in smooth muscle

The goal of this study is to define the functional role of Chasm in muscle contractile function.

Role: Co-investigator

Annual direct costs: \$205,000

4% effort

R01 AR050429-01 Yan (PI) 07/01/05–6/30/11 **Completed**

NIH/NIAMS

Exercise-Induced Mitochondrial Biogenesis

This study was designed to ascertain the functional role of the p38 MAPK pathway in regulation of the Pgc-1 α gene in voluntary running-induced skeletal muscle adaptation in mice.

Role: PI

Annual direct costs: \$160,000

30% effort

R21AR060444-01 Yan (PI) 09/01/11–08/31/13 **Completed**

NIH/NIAMS

NO-dependent SOD3 protection against cachexia

The studies focus on NO-dependent regulation of SOD3 in protection against catabolic wasting in skeletal muscle.

Role: PI

Annual direct costs: \$135,000

15% effort

F32DK095559-01 Greene (PI) 07/01/12-06/30/13 **Completed**

NIH/NIDDK

Atg6 in Protection Against Insulin Resistance

Studies focused on potential of targeting autophagic degradation through Atg6/Beclin1 as a means to removed damaged cell materials in the protection against high fat diet-induced insulin resistance.

Role: Mentor

Annual direct costs: \$35,000

0% effort

R21HD068953-01 Lynch (PI) 11/1/11–10/30/13 **Completed**

NIH/NICHD

Mitochondrial Lipid Kinase

This project investigates the mechanisms whereby sphingolipids accumulate in mitochondria and their impact on mitochondrial reactive oxygen species production in the context of insulin resistance.

Role: Co-Investigator

Annual direct costs: \$125,000

5% effort

R01AR050429-07 Yan (PI) 07/01/11–06/30/17 **Completed**

NIH/NIAMS

p38 MAPK a regulator of muscle contractile and metabolic functions

The proposed studies focus on molecular mechanism and functional role of p38 MAPK in skeletal muscle metabolic and contractile function in cachexia and type 2 diabetes.

Role: PI

Annual direct costs: \$225,000

40% effort

3R01CA166458-03S1 Bullock (PI) 06/01/15-12/31/17 **Completed**

NIH

BLIMP-1 mediated regulation of CD8+ TIL.

The goals are to identify the mechanistic basis for defects in CD8+ TIL glycolytic activity; to ascertain whether metabolic manipulation of TIL improves their function; to define whether TIL

function can be regained by manipulating mitochondrial fission and fusion; and to delineate whether targeting tumor metabolism allows re-invigoration of TIL metabolism.

Role: Co-investigator

Annual direct costs: \$422,073

5% effort

K99AR067287-01 Call (PI) 09/01/14-08/31/19 **Received fundable score and rejected for accepting faculty position at Univ of Georgia.**

NIH/NIAMS

Mitophagy and muscle regeneration

The study focuses on the role of autophagy in mitochondrial and contractile apparatus remodeling during functional muscle regeneration.

Role: Mentor

Annual direct costs: \$170,000

0% effort

R01GM109473 Yan (PI) 04/01/15 - 03/31/19 **Completed**

NIH/NIGMS

Muscle-derived EcSOD in protection against multiple organ dysfunction syndrome

The study focuses on elucidating the role and mechanism by which muscle-derived EcSOD provides protection against multiple organ dysfunction syndrome in mouse models of sepsis.

Role: PI

Annual direct costs: \$171,000

30% effort

K99AG057825-01 Drake (PI) 08/15/18-07/31/20 **Completed**

NIH/NIA

Role of skeletal muscle mitophagy in healthy aging

The project focuses on the role of AMPK-Ulk1-mediated mitophagy in skeletal muscle during aging.

Role: Mentor

Annual direct costs: \$95,638

0% effort

1R01HL130082 Yang (PI) 04/01/16 - 03/31/21 **Completed**

NIH/NILBI

The splenic CD4 T cells mediate myocardial ischemia reperfusion injury

This research project will determine that the splenic CD4+ T cells, not the circulating CD4+ T cells, mediate the myocardial post-ischemic reperfusion injury, and explore how substances released from damaged heart activate splenic CD4+ T cells, which amplify the inflammatory response and exaggerate myocardial infarction.

Role: Co-Investigator

Annual direct costs: \$250,000

5% effort

F32AG074528-01 Shute (PI) 10/01/21-06/30/22 **Active**

NIH/NIA

Otud1-mediated prevention of sarcopenic obesity during resistance exercise training on high-fat diet

The project focuses on the role of Otud1 in mediating the benefit of resistance exercise against sarcopenic obesity.

Role: Mentor

Annual direct costs: \$95,638

0% effort

5R01AR050429-13

Yan (PI)

08/01/18–06/30/23

Active

NIH/NIAMS

AMPK-Ulk1 in exercise-induced mitophagy in skeletal muscle

The proposed studies focus on the regulation and functional role of AMPK-Ulk1-mediated mitophagy induced by endurance exercise in skeletal muscle adaptation.

Role: PI

Annual direct costs: \$298,237

40% effort

1 R01 AR077440

Yan (PI)

06/01/20 – 05/31/25

Active

NIH/NIAMS

mitoAMPK in exercise benefits

The proposal focuses on the role and regulation of mitochondria-associated AMPK in skeletal muscle adaptation in response to exercise training.

Role: PI

Annual direct costs: \$308,924/current year

30% effort

U01AG070960

Yan (PI)

09/01/20 – 08/31/23

Active

NIH/NIA

Machine learning-based multi-omics modeling and CRISPR/Cas9-mediated gene editing in elucidating molecular transducer of physical activity.

The project focuses on identifying candidate molecular transducers of physical activity by machine learning-based multi-omics modeling and elucidating the role of the candidate molecular transducers of physical activity in health benefits of exercise in genetically engineered mice using CRISPR/Cas9-mediated gene editing and transgenesis.

Role: PI

Annual direct costs: \$301,088/current year

15% effort

R01AG077783

Yan (PI)

05/15/22-01/31/27

Active

NIH/NIA

Exercise-induced mitophagy in hippocampal neurons against AD

We will test the hypothesis that endurance and/or resistance exercise promotes AMPK-Ulk1 activation and mitophagy, hence removing damaged/dysfunctional mitochondria in adult hippocampal neurons and preventing neurodegeneration and cognitive decline in AD.

Role: PI

Annual direct costs: \$353,381/current year
20% effort

R01HL162209 Yan (PI) 07/01/22 – 6/30/27 **Pending**
NIH/NHLBI
Exercise-Induced Mitophagy Against HFpEF
The proposal focuses on the regulation and functional role of exercise-induced mitophagy in protection against HFpEF
Role: PI
Annual direct costs: \$353,903/current year
15% effort
(Under submission)

B. State

Not applicable

C. Other

9960102Y Beginning Grant-in-Aid Yan (PI) 07/01/99–12/31/00 **Terminated**
for SDG
AHA Texas-Affiliate
Phosphorylation and dephosphorylation of human Cdc6 regulates DNA replication
The study focused on post-translational modification of human Cdc6 in control of DNA replication in mammalian cells.
Role: PI
Annual direct costs: \$50,000
100% effort

0130261N SDG Yan (PI) 01/01/01–12/31/04 **Completed**
American Heart Association
Phosphatase regulation of mammalian DNA replication
The goal of this study is to determine the role of PP2A in control of DNA replication through dephosphorylation of Cdc6 in mammalian cells.
Role: PI
Annual direct costs: \$65,000
30% effort

Medical Student Research Fellowship Ajijola (PI) 07/01/03-06/31/04 **Completed**
HHMI
Exercise on atherosclerosis
The proposed area of researched focused on role of exercise as modulator of systemic inflammation and atherosclerotic burden.
Role: Mentor
Annual direct costs: \$35,000
0% effort

0625518U Postdoctoral fellowship Li (PI) 07/01/06-06/30/07 **Completed**

AHA-Mid Atlantic Affiliate

IGF-1 receptor function in myofiber susceptibility to atrophy

The proposed study is to understand the role of muscle fiber type specific distribution of IGF-1 receptor in prevention of muscle atrophy caused by heart failure.

Role: Mentor

Annual direct costs: \$35,000

0% effort

0555426U

Yan (PI)

07/01/05–06/30/07

Completed

AHA Mid-Atlantic Affiliate

Skeletal Muscle Maladaptation in CHF

The study uses genetic approaches to enhance mitochondrial biogenesis or angiogenesis in fast-twitch skeletal muscles to test the possibility of preventing heart failure-induced exercise intolerance.

Role: PI

Annual direct costs: \$66,000

10% effort

Medical Student Research Fellowship Pogozelski (PI)

07/01/06-06/30/07

Completed

HHMI

IGF-1R in the Prevention of Skeletal Muscle Atrophy

The proposed study focuses on the role of IGF-1R in prevention of skeletal muscle atrophy.

Role: Mentor

Annual direct costs: \$36,000

0% effort

7-06-RA-165

Yan (PI)

07/01/06–12/31/09

Completed

American Diabetes Association

Exercise and diet-induced insulin resistance

The study focuses on the mechanism by which endurance exercise reverses skeletal muscle insulin resistance through enhancing mitochondrial function.

Role: PI

Annual direct costs: \$100,000

10% effort

Partners' Fund

Yan (PI)

07/01/09–6/30/10

Completed

The Robert M. Berne Cardiovascular Research Centers at the University of Virginia

Epigenetic influence of exercise on offspring's susceptibility to type 2 diabetes

This study determine if exercise in pregnancy reduces offspring's susceptibility to diet-induced insulin resistance in mice and identify candidate genes that are epigenetically regulated and potentially responsible for the protection by exercise in pregnancy.

Role: PI

Annual direct costs: \$25,000

0% effort

Thelma R. Swortzel Award

Yan (PI)

01/01/10–6/30/11

Completed

University of Virginia

Maternal exercise and calorie restriction on epigenomics of cardiovascular function

This study focuses on maternal exercise and calorie restriction in pregnancy on the epigenetic regulation of high-fat diet-induced cardiovascular dysfunction in the offspring.

Role: PI

Annual direct costs: \$50,000

0% effort

Postdoctoral Fellowship Lira (PI) 07/-01/11-06/31/13 **Completed**

American Physiological Society

Muscle autophagy and prevention against insulin resistance

The proposed project focus on the role of PGC-1alpha in regulating exercise-induced autophagy in skeletal muscle in the context of diet-induced insulin resistance.

Role: Mentor

Annual direct costs: \$74,000

0% effort

1-11-BS-181 (Yan) Yan (PI) 01/01/11-12/31/13 **Completed**

American Diabetes Association

Mitochondrial permeability transition and mitophagy in type 2 diabetes

The study focuses on the importance of mitochondrial maintenance in skeletal muscle in the development of type 2 diabetes.

Role: PI

Annual direct costs: \$100,000

10% effort

1-11-JF-17 Junior Faculty Award Hoehn (PI) 01/01/11-12/31/13 **Completed**

American Diabetes Association

The role of the mitochondrial permeability pore (mPTP) in the etiology of insulin resistance

This project tests the hypothesis that mitochondrial superoxide production modifies the mitochondrial permeability pore and increases its susceptibility to opening to drive insulin resistance

Role: PI

Annual direct costs: \$140,600

5% effort

12POST12030231 Call (PI) 07/01/12-06/30/14 **Completed**

AHA-Mid Atlantic Affiliate, Postdoctoral Fellowship

Skeletal muscle-heart crosstalk in prevention of diabetic cardiomyopathy

The proposed studies focus on the necessity and sufficiency of extracellular superoxide dismutase in exercise training prevention of diabetic cardiomyopathy.

Role: Mentor

Annual direct costs: \$40,000

0% effort

Thelma R. Swortzel Award Saucerman (MPI) 06/01/14-5/31/15 **Completed**

University of Virginia

MitoTimer reporter in human fibroblasts for diagnosis of mitochondrial diseases

This study focuses on using MitoTimer in human fibroblasts as a diagnostic tool for human mitochondrial diseases.

Role: MPI

Annual direct costs: \$50,000

0% effort

14POST20450061 Laker (PI) 07/01/14-06/30/16 **Completed**

AHA-Mid Atlantic Affiliate, Postdoctoral Fellowship

Epigenetic influence of maternal exercise on offspring metabolic and cardiovascular outcomes

The proposed studies focus on the impact of maternal exercise training on offspring from obese dams during pregnancy.

Role: Mentor

Annual direct costs: \$43,000

0% effort

14PRE20380254 Wilson (PI) 07/01/14-06/30/16 **Completed**

AHA-Mid Atlantic Affiliate, Predoctoral Fellowship

Protein S-nitrosylation Protects Against Ischemia-Reperfusion Injury in Skeletal Muscle

The proposed studies focus on the role of protein s-nitrosylation in protection against Ischemia-Reperfusion induced mitochondrial oxidative stress in skeletal muscle.

Role: Mentor

Annual direct cost: \$25,000

0% effort

FARA 183 Yan (PI) 12/15/14 – 12/14/16 **Completed**

FARA, General Research Grant

Exercise Impacts on Mitochondria and Muscle Function in Friedreich's Ataxia

The objective of this proposal is to elucidate how exercise affects mitochondria in skeletal muscle and the heart and their function in a mouse model of Friedreich's Ataxia.

Role: PI

Annual direct costs: \$125,000

20% effort

UVA CPH Pilot Grant Program Yan (MPI) 03/31/17-03/31/18 **Completed**

Combined Endurance and Resistance Exercise in Ovarian Cancer Prevention in Mice

The study focuses on the impact of combined endurance and resistance exercise on the development of ovarian cancer in novel MADM model in mice.

Role: Contact PI

Annual direct costs: \$45,000

0% effect

UVA-AZ Alliance Program Yan (PI) 04/01/17-09/30/17 **Completed**

Small molecule screen in MitoTimer flies and mice for diabetic cardiomyopathy

The project focuses on screening for small molecules in promoting mitophagy and mitochondrial health using cardiomyocytes from MitoTimer mice.

Role: PI

Annual direct costs: \$35,000

0% effort

FARA General Research Grant Yan (PI) 3/1/2017-12/31/2019 **Completed**
FARA

Endurance and resistance exercise mitigate Friedreich's ataxia

The overall objectives of this proposal are to determine if resistance exercise and endurance exercise are equally effective in preventing symptomatic FRDA in mice and to elucidate how endurance exercises exert the positive impact.

Role: PI

Annual direct costs: \$150,000

20% effort

UVA Pan-University Institute Yan (PI) 05/12/16- **Active**

UVA Healthspan Institute Initiative

This is to develop a pan-university institute to foster multidisciplinary research that supports delivering holistic, personalized interventions to promote research to maximize healthspan, the period in one's life during which a person is generally healthy and free from serious physical, mental, and social disorders, across the whole lifespan from pre-conception to the end of life care.

Role: PI

Annual direct costs: \$50,000

0% effort

XVI. PHYSICAL FACILITIES

Not applicable

XVII. PERSONNEL CURRENTLY SUPERVISED

- | | | | |
|---------------------------|------------------|--------------|-----------------------------|
| 1. M Zhang, BSMed | Sen Res Assoc | 2002-current | NIH R01 Grant |
| 2. Yuntian Guan, MS | Tech-PhD Student | 2017-current | UVA Graduate School |
| 3. Jane (Qing) Yu, MS | Res Assoc | 2019-current | NIH R01 Grant |
| 4. Robert J. Shute, Ph.D. | Post-doc | 2019-current | NIH T32 CVTA/F32 Fellowship |
| 5. Joshua Milstein, B.S. | PhD Student | 2021-current | UVA Presidential Fellowship |

XVIII. MASTER'S AND PH.D. THESES DIRECTED AND POSTDOCTORAL FELLOWS SUPERVISED

Past Trainees

Name	Position	Duration	Current position
1. X Liu, MD, PhD	Post-doc	2000-2002	Associate Director, GSK
2. SC Pohnert, PhD	Post-doc	2002-2004	Regional Administrator, US Patent and Trademark Office

3. RE Wasters, MD Medical Group	Fellow	2002-2004	Cardiologist, Stockton Cardiology
4. S Rotevatn, MD	Sabbatical	2002-2003	Professor, Haukeland University
5. T Akimoto, PhD Tokyo	Post-doc	2003-2005	Assistant Professor, the University of
6. P Li, MD, PhD	Post-doc	2003-2007	Fellow at National Institutes of Health (NIH)/National Heart Lung and Blood Institute (NHLBI)
7. OA Ajijola, BS	Medical Student	2004-2005	Cardiology Fellow and Ph.D. student, UCLA
8. Z Yu, PhD	Post-doc	2005-2007	Associate Professor, Henan University
9. AR Pogozelski, BS	Medical Student	2006-2007	Cardiol Fellow, University of Pittsburgh
10. Y Li, MD, PhD	Post-doc	2006-2008	Research Fellow, Duke-NUS Graduate Medical School, Singapore
11. KH Chow	MS Student	2006-2006	Singapore Institute for Clinical Sciences, Singapore
12. Y Guan, PhD	Scientist	2007-2008	Research Assistant, Duke-NUS Graduate Medical School, Singapore
13. T Geng, PhD	Post-doc	2007-2010	Post-doc, University of South Carolina
14. NNSM Isa, BS	PhD Student	2008-2008	Nursing School Student
15. SG Ayyar	Med Student	2008-2008	Med Student, University of Cambridge
16. JM McClung, PhD	Post-doc	2008-2008	Senior Research Associate, Duke University Med Center
17. C Zhang, PhD	Post-doc	2008-2009	Post-doc, University of North Carolina
18. YN Akhtar, MD	Post-doc	2009-2011	NIH T32 Training Grant
19. J Eaton, BS	PhD Student	2011-2011	PhD Student, University of Virginia
20. X Liu, MS	PhD student	2011-2011	Graduate School at UVa
21. M Okutsu, PhD	Post-doc	2009-2012	Ass Professor, Nagoya City Univ
22. J Donet, MD	Post-doc	2011-2012	Resident, Univ of Miami School of Medicine
24. J Cai, MD	Visiting Prof	2012-2012	Chief, Infectious Disease, Affiliated Hospital of Nanjing Med Univ.
25. NP Greene, PhD	Post-doc	2010-2013	Assis Prof, Univ of Arkansas
26. VA Lira, PhD	Post-doc	2009-2013	Assis Prof, Univ of Iowa
27. M Mahoney	PhD student	2013-2013	PhD student, UVa
28. M Bastakoti	BS Student	2012-2014	Undergraduate, UVA
29. P Xu, PhD	Post-doc	2012-2014	Post-doc, UVA
30. K Chain, BS	PhD student	2011-2014	Sci Teacher, Peabody School
31. JA Call, PhD	Post-doc	2011-2014	Assis Prof, Univ of Georgia
32. A Tang	High Sch Stu	2014	Rice Univ
33. X Chen, MD, PhD	Visiting scholar	2014-2015	Xiangya Medical Univ Hospital, Chief of Cardiology

34. RC Laker, PhD	Post-doc	2011-2015	Post-doc, Univ of Copenhagen
35. DM Lee	BS Student	2015-2015	Wake Forest Univ
36. BM Lewellen	BS Student	2014-2016	Internship in Northern Virginia
37. Lucia M Leitner, BS	PhD student	2016-2016	Düsseldorf University
38. C Fisher	BS Student	2014-2017	Internship in Northern Virginia
39. J Zhang, MD	Visiting scholar	2015-2016	Chief Physicain, Dalian Med Univ Hospital
40. H Zhao	Post-doc	2015-2016	Dalian Med Univ Lecturer
41. D Cui, MS	PhD student	2015-2017	PhD Student, East China Normal Univ
42. Harrison Boyce	BS Student	2017	BS Student, UVA
43. Campbell Ross	MS Student	2017	High School Sport Coach
44. Sara Prysi	BS Student	2017	BS Student, Washington & Lee Univ
45. Matthew Ritger	MSTP Student	2017	MD/PhD Student, UVA
46. RJ Wilson, BS	PhD Student	2012-2018	Post-doc, Duke University
47. M Dorn	BS Student	2018	BS Student, Wesleyan Univ
48. T Coverdell	PhD Student	2018	PhD Student, UVA
49. Kian Huang	Summer Student	2019	High Sch Student, James Madison
50. Kevin Wen	BS Student	2019	UVA Undergraduate Student
51. JC Drake, PhD	Post-doc	2014-2019	Assistant Professor, Virginia Tech
52. Casey Bauchle	PhD Student	2020-2020	PhD Student, UVA
53. Ira Rosner	Summer Student	2019-2020	Undergrad Student, Georgia Tech
54. Grace (Wenqin) Shen	PhD Student	2019-2020	PhD Student, China East Normal Univ
55. Shangyu Hua, PhD	Post-doc	2019-2020	Lecturer, Chengdu Sport Institute
56. Jinyue Wang, PhD.	Post-doc	2019-2020	Associate Professor, Foshan Univ
57. Sable Thompson	Med Student	2020-2021	Medical Student, UVA
58. Abel Ruiz	BS Student	2019-2021	Technician, UVA
59. Lindsay Irwin	BS Student	2019-2021	Dermatology Scribe, UVA
60. Hannah Spaulding, PhD	Post-doc	2019-2021	Associate Group Leader, PPD
61. Sara Zargham	BS Student	2020-2021	Undergraduate Student, UVA
62. Ethan Feng	Volunteer	2021-	Undergraduate Student, Washington University

Current Trainees

63. Y Guan, BS	PhD Student	2018-current	UVA BIMS Program
64. Robert Shute, PhD	Post-doc	2019-current	NIH T32 CVTG
65. Celeste Costa	BS Student	2020-current	Research
90. Idhaya Vasu	BS Student	2021-	UVA
91. William Tornel	BS Student	2021-	UVA
92. Muhammad Zulfiqar	BS Student	2021-	UVA
93. Edison de Guzman	BS Student	2022-	UVA
94. Kaitlin Blakeslee	BS Student	2022-	UVA
95. Joseph Kordziel	BS Student	2022-	UVA
96. Xuansong Mao	Post-doc	2022-	UVA
97. Henry Hoyos	MD/PhD	2022-	UVA

Student Dissertation Committees

2009-2011	Ph.D. Dissertation Committee for Monica Lee, University of Virginia
2009-2011	M.D./Ph.D. Dissertation Committee for Kisha Young, University of Virginia
2009-2013	Ph.D. Dissertation Committee for Jess Geisler, University of Virginia
2012-2012	Ph.D. Dissertation Committee for Jeffrey Gagan, University of Virginia
2012-2014	Ph.D. Dissertation Committee for Karen Ryall, University of Virginia
2013	M.S. Dissertation Committee for William Peterson, University of Virginia
2013-2016	Ph.D. Dissertation Committee for Ying Wang, University of Virginia
2009-2010	Ph.D. Dissertation Committee for Laura Shankman, University of Virginia
2013-2017	Ph.D. Dissertation Committee for Magda Cichewicz, University of Virginia
2014-2015	Ph.D. Dissertation Committee for Katarzyna Skorupka, University of Virginia
2014-2015	Ph.D. Dissertation Committee for Margaret Wierman, University of Virginia
2015-2016	Ph.D. Dissertation Committee for Kyle Martin, University of Virginia
2015-2017	Ph.D. Dissertation Committee for Philip Tan, University of Virginia
2015-2018	Ph.D. Dissertation Committee for Ana Estrada, University of Virginia
2015-2019	Ph.D. Dissertation Committee for Sarah Pollock, University of Virginia
2017-2020	Ph.D. Qualifying Exam Committee for Jack Dienes, University of Virginia
2017-2029	Ph.D. Qualifying Exam Committee for Bonnie Dougherty, University of Virginia
2017-2018	Ph.D. Dissertation Exam Committee for Kelley Virgilio, University of Virginia
2019-current	Ph.D. Dissertation Exam Committee for Matteo Ottolini, University of Virginia
2021	Ph.D. Dissertation Exam Committee for Shama Mohd, United Arab Emirates University
2020-2021	Ph.D. Dissertation Exam Committee for Sarah Dyer, University of Virginia
2020-2022	Ph.D. Dissertation Exam Committee for Xuansong Mao, University of Missouri
2020-2022	Ph.D. Dissertation Exam Committee for Benjamin A. Kugler, University of Massachusetts Boston
2022	Ph.D. Defense Opponent for Nicholas Jorgensen, University of Copenhagen

XX. PAPERS PUBLISHED OR IN PRESS**A. Peer Reviewed**Research Papers in Publication

Google Scholar: Citation 21938 and h-index 59

1. Spencer MK, **Yan Z**, Katz A. Carbohydrate supplementation attenuates IMP accumulation in human muscle during prolonged exercise. *Am. J. Physiol.: Cell Physiol.*, 261:C71-6, 1991
Contribution: assisted in human exercise experiments, edited the final manuscript
Cited 67 times, IF = 3.817, 16 of 77 *Physiology*; 74 of 177 *Cell Biology*
2. Katz A, Spencer MK, Lillioja S, **Yan Z**, Mott DM, Haller RG, Lewis SF. Basal and insulin-mediated carbohydrate metabolism in human muscle deficient in phosphofructokinase 1. *Am. J. Physiol.: Endocrinol. & Metab.*, 261:E473-8, 1991
Contribution: assisted in human exercise experiments, edited the final manuscript
Cited 5 times, IF = 4.686, 9 of 77 *Physiology*; 24 of 116 *Endocrinology & Metabolism*

3. Castillo CE, Katz A, Spencer MK, **Yan Z**, Nyomba BL. Fasting inhibits insulin-mediated glycolysis and anaplerosis in human skeletal muscle. *Am. J. Physiol.: Endocrinol. & Metab.*, 261:E598-605, 1991
Contribution: assisted in human exercise experiments, wrote part of the method section and edited the final manuscript
Cited 17 times, IF = 4.686, 9 of 77 *Physiology*; 24 of 116 *Endocrinology & Metabolism*
4. Spencer MK, **Yan Z**, Katz A. Effect of low glycogen on carbohydrate and energy metabolism in human muscle during exercise. *Am. J. Physiol.: Cell Physiol.* 262:C975-9, 1992
Contribution: assisted in human exercise experiments, wrote part of the method section and edited the final manuscript
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5. **Yan Z**, Spencer MK, Katz A. Effect of low glycogen on glycogen synthase in human muscle during and after Exercise. *Acta Physiol. Scand.*, 145(4):345-52, 1992
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6. **Yan Z**, Biggs RB, Booth FW. Insulin-like growth factor immunoreactivity increases in muscle after acute eccentric contractions. *J Appl Physiol.*, 74(1):410-4, 1993
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7. **Yan Z**, Spencer MK, Bechtel PJ, Katz A. Regulation of glycogen synthase in human muscle during isometric contraction and recovery. *Acta Physiol. Scand.*, 147(1):77-83, 1993
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8. **Yan Z**, Spencer MK, Katz A. No effect of carbohydrate feeding on glycogen synthase in human muscle during exercise. *Clin. Physiol.*, 13(3):265-70, 1993
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9. Katz A, **Yan Z**. Phosphofructokinase activity in human skeletal muscle: effects of euglycemic hyperinsulinaemia and fasting. *Scand. J. Clin. Lab. Invest.*, 53(8):853-8, 1993
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10. Carson JA, **Yan Z**, Booth FW, Coleman ME, Schwartz RJ, Stump CS. Regulation of the skeletal alpha-actin promoter in young chickens during hypertrophy caused by stretch overload. *Am. J. Physiol.: Cell Physiol.* 268:C918-24, 1995
Contribution: carried out gene expression experiments, wrote part of the method section and edited the final manuscript
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11. **Yan Z**, Salmons S, Jarvis J, Booth FW. Increased muscle carnitine palmitoyltransferase II mRNA after increased contractile activity. *Am. J. Physiol.: Endocrinol. & Metab.*, 268:E277-81, 1995.
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12. **Yan Z**, Salmons S, Dang YL Hamilton MT, Booth FW. Increased contractile activity decreases RNA-protein interaction in the 3'-UTR of cytochrome c mRNA. *Am. J. Physiol.: Cell Physiol.* 271:C1157-66, 1996.
Cited 22 times, IF = 3.817, 16 of 77 *Physiology*; 74 of 177 *Cell Biology*
13. Booth FW, Lou W, Hamilton MT, **Yan Z**. Cytochrome c mRNA in skeletal muscles of immobilized limbs. *J Appl Physiol*, 81(5):1941-5, 1996.
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15. **Yan Z**, DeGregori J, Shohet R, Leone G, Stillman B, Nevins JR, Williams RS. Cdc6 is regulated by E2F and is essential for DNA replication in mammalian cells. *Proc. Natl. Acad. Sci.*, 95:3603-8, 1998.
Cited 152 times, IF = 9.771, 3 of 57 *Multidisciplinary Sciences*
16. Leone G, DeGregori J, **Yan Z**, Jakoi L, Ishida S, Williams RS, Nevins JR. E2F3 activity is regulated during the cell cycle and is required for the induction of S phase. *Genes Dev.*, 12:2120-2130, 1998.
Contribution: carried out cell cycle experiments, wrote part of the method section and edited the final manuscript
Cited 216 times, IF = 12.889, 3 of 38 *Developmental Biology*, 7 of 156 *Genetics & Heredity*, 14 of 177 *Cell Biology*
17. **Yan Z**, Fedorov SA, Mumby MC, Williams RS. PR48, a novel regulatory subunit of PP2A, interacts with Cdc6 and modulates DNA replication in human cells. *Mol. & Cell. Biol.*, 20:1021-9, 2000.
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18. **Yan Z**, Serrano AL, Schiaffino S, Bassel-Duby R, Williams RS. Regulatory elements governing transcription in specialized myofiber subtypes. *J. Biol. Chem.*, 276(20):17361-6, 2001.
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19. Sambrano GR, Fraser I, Han H, Ni Y, O'Connell T, **Yan Z**, Stull JT. Navigating the signaling network in mouse cardiac myocytes. *Nature*, 420(6916):712-714, 2002.
Contribution: carried out experiments that led to the invited article, edited the final manuscript
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20. **Yan Z***, Choi S, Liu X, Zhang M, Schageman JJ, Lee SY, Hart R, Lin L, Thurmond FA, Williams RS*. Highly coordinated gene regulation in mouse skeletal muscle regeneration. *J.*

- Biol. Chem.*, 278(10):8826-36, 2003. (*Corresponding authors)
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21. Rybkin II, Markham DW, **Yan Z**, Bassel-Duby R, Williams RS, Olson EN. Conditional expression of SV40 T antigen in mouse cardiomyocytes facilitates an inducible switch from proliferation to differentiation. *J. Biol. Chem.*, 278(18):15927-34, 2003.
Contribution: carried out calcium imaging experiments, wrote part of the method section and edited the final manuscript
Cited 25 times, IF = 5.328, 50 of 286 *Biochemistry & Molecular Biology*
22. Akimoto T, Sorg BS, and **Yan Z**. Real-time imaging of peroxisome proliferator-activated receptor-gamma coactivator-1alpha promoter activity in skeletal muscles of living mice. *Am. J. Physiol. Cell Physiol.* 287(3):C790-6, 2004.
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23. Rosenberg PB, Hawkins A, Stiber J, Shelton JM, Hutcheson K, Bassel-Duby R, **Yan Z**, Shin DM, and Williams RS. TRPC3 channels confer cellular memory of recent neuromuscular activity. *Proc. Natl. Acad. Sci. U.S.A.* 101(25):9387-92, 2004.
Contribution: carried out voluntary exercise experiments in mice, edited the final manuscript
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24. Akimoto T, Ribar TJ, Williams RS, and **Yan Z**. Skeletal muscle adaptation in response to voluntary running in Ca²⁺/calmodulin-dependent protein kinase IV-deficient mice. *Am. J. Physiol. Cell Physiol.* 287(5):C1311-9, 2004.
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25. Waters RE, Rotevatn S, Li P, Annex BH, and **Yan Z**. Voluntary running induces fiber type-specific angiogenesis in mouse skeletal muscle. *Am. J. Physiol. Cell Physiol.* 287(5):C1342-8, 2004.
Cited 44 times, IF = 3.817, 16 of 77 *Physiology*; 74 of 177 *Cell Biology*
26. Zhu X, Hart R, Kim JW, Lee SY, Chang MS, Cao YA, Mock D, Ke E, Saunders B, Alexander A, Grosseohme J, **Yan Z**, Hsueh R, Fruman D, Subramaniam S, Sternweis P, Simon MI, Choi S. Analysis of the Major Patterns of B Cell Gene Expression Changes in Response to Short-Term Stimulation with 33 Single Ligands. *J. of Immunol.* 173(12):7141-9, 2004.
Contribution: carried out B cell isolation and stimulation experiments, edited the final manuscript
Cited 22 times, IF = 5.745, 20 of 134 *Immunology*
27. Akimoto T, Ushida T, Miyaki S, Akaogi H, Tsuchiya K, **Yan Z**, Williams RS, Tateishi T. Mechanical stretch inhibits myoblast-to-adipocyte differentiation through Wnt signaling. *Biochem Biophys Res Commun* 329(1):381-5, 2005.
Contribution: wrote part of the manuscript and edited the final manuscript
Cited 25 times, IF = 2.595, 38 of 73 *Biophysics*, 154 of 286 *Biochemistry & Molecular Biology*

28. Akimoto T, Pohnert SC, Li P, Zhang M, Gumbs C, Rosenberg PB, Williams RS, and **Yan Z**. Exercise stimulates PGC-1 α promoter in skeletal muscle through activation of the p38 MAPK pathway. *J. Biol. Chem.* 280(20):19587-93, 2005.
Cited 163 times, IF = 5.328, 50 of 286 *Biochemistry & Molecular Biology*
29. Koves TR, Li P, Akimoto T, An J, Slentz D, Ilkayeva O, Dohm GL, **Yan Z**, Newgard CB, Muoio DM. PGC-1 α -mediated metabolic remodeling of skeletal muscle mimics exercise training and reverses lipid-induced mitochondrial inefficiency. *J. Biol. Chem.* 280(39):33588-98, 2005.
Contribution: carried out high-fat diet feeding experiments, edited part of the final manuscript
Cited 140 times, IF = 5.328, 50 of 286 *Biochemistry & Molecular Biology*
30. Choi S, Liu X, Li P, Akimoto T, Lee SY, Gumbs C, Zhang M, **Yan Z**. Transcriptional profiling in mouse skeletal muscle following a single bout of voluntary running: evidence of increased cell proliferation. *J. Appl. Physiol.* 99(6):2406-15, 2005
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31. Li P, Akimoto T, Zhang M, Williams RS, **Yan Z**. Resident stem cells are not required for exercise-induced fiber type switching and angiogenesis, but required for activity-dependent muscle growth. *Am. J. Physiol. Cell Physiol.* 290(6):C1461-8, 2006.
Cited 13 times, IF = 3.817, 16 of 77 *Physiology*; 74 of 177 *Cell Biology*
32. Perrino C, Prasad SV, Mao L, Noma T, **Yan Z**, Kim HS, Smithies O, Rockman HA. Intermittent overload triggers hypertrophy-independent cardiac dysfunction and vascular rarefaction. *J. Clin. Invest.* 116(6):1547-60, 2006.
Contribution: carried out voluntary exercise experiments, wrote and edited part of the final manuscript
Cited 61 times, IF = 14.152, 3 of 106 *Medicine, Research & Experimental*
33. Li P, Waters RE, Redfern SI, Mao L, Annex BH, **Yan Z**. Oxidative phenotype protects myofibers from pathological insults induced by chronic heart failure in mice. *Am. J. Pathol.* 170(2):599-608, 2007.
Cited 17 times, IF = 5.224, 4 of 76 *Pathology*
34. Jeftinija DM, Hebert SL, Norris CM, Wang QB, **Yan Z**, Rich MM, and Kraner SD. The CaV 1.2 Ca²⁺ channel is expressed in the sarcolemma of type I and IIa skeletal muscle fibers. *Muscle & Nerve* 36(4):482-90, 2007.
Contribution: carried out muscle phenotypic analyses, wrote and edited part of the final manuscript
Cited 2 time, IF = 2.302, 81 of 185 *Clinical Neurology*, 149 of 237 *Neurociences*
35. Handschin C, Chin S, Li P, Liu F, Maratos-Flier E, LeBrasseur NK, **Yan Z**, Spiegelman BM, Skeletal muscle fiber-type switching, exercise intolerance and myopathy in PGC-1 α muscle-specific knockout animals, *J Biol Chem* 282(41):30014-21, 2007.

Contribution: carried out muscle phenotypic analyses, edited part of the final manuscript
Cited 96 times, IF = 5.328, 50 of 286 *Biochemistry & Molecular Biology*

36. Wooldridge AA, Fortner CN, Lontay B, Akimoto T, Nepl RL, Facemire C, Datto MB, Kwon A, McCook E, Li P, Wang S, Thresher RJ, Miller SE, Perriard JC, Gavin TP, Hickner RC, Coffman TM, Somlyo AV, **Yan Z**, Haystead TA. Deletion of the PKA/PKG target SMTNL1 promotes an exercise-adapted phenotype in vascular smooth muscle. *J Biol Chem* 2008; 283:11850-9, 2008. PMID: PMC2431077

Contribution: carried out muscle phenotypic analyses, edited part of the final manuscript
Cited 10 times, IF = 5.328, 50 of 286 *Biochemistry & Molecular Biology*

37. Davis AJ, **Yan Z**, Martinez B, Mumby MC. Protein phosphatase 2A is targeted to cell division control protein 6 by a calcium-binding regulatory subunit. *J Biol Chem.* 2008 Jun 6;283(23):16104-14. Epub 2008 Apr 8. PMID: PMC2414307

Contribution: participated in the experimental design, wrote and edited part of the final manuscript
Cited 5 times, IF = 5.328, 50 of 286 *Biochemistry & Molecular Biology*

38. Yu Z, Li P, Zhang M, Hannink M, Stamler JS, **Yan Z**. Fiber type-specific nitric oxide protects oxidative myofibers against cachectic stimuli. *PLoS One* 2008; e2086. PMID: PMC2361191

Cited 12 times, IF = 4.411, 12 of 85 *Biology*

39. Akimoto T, Li P, **Yan Z**. Functional interaction of regulatory factors with the *Pgc-1 α* promoter in response to exercise by in vivo imaging. *Am J Physiol* 2008; 295: C288 –C292. PMID: PMC2493547

Cited 18 times, IF = 3.817, 16 of 77 *Physiology*; 74 of 177 *Cell Biology*

40. Sun B, Youngi SP, Li P, Di C, Brown T, Salva MZ, Li S, Bird A, **Yan Z**, Auten R, Hauschka SD, Koeberl DD. Correction of Multiple Striated Muscles in Murine Pompe Disease Through Adenoassociated Virus-Mediated Gene Therapy. *Mol Therapy* 16:1366-71, 2008, PMID: PMC2670546

Contribution: carried out muscle phenotypic analyses, edited part of the final manuscript
Cited 19 times, IF = 7.147, 7 of 106 *Medicine, Research & Experimental*, 10 of 160 *Biotechnology & Applied Microbiology*, 5 of 156 *Genetics & Heredity*

41. Hazarika S, Angelo M, Li Y, Aldrich AJ, Odronic S, **Yan Z**, Stamler JS, Annex BH. Myocyte Specific Overexpression of Myoglobin Impairs Angiogenesis Following Hind-limb Ischemia. *Arterioscler Thromb Vasc Biol* 28:2144-50, 2008 Dec;28(12):2144-50. Epub 2008 Sep 25. PubMed PMID: 18818418.

Contribution: participated in the experimental design, provided the transgenic mice, edited part of the final manuscript
Cited 4 times, IF = 7.215, 3 of 66 *Peripheral Vascular Disease*, 6 of 65 *Hematology*

42. Ajjjola OA, Dong C, Herderick EE, Ma Q, Goldschmidt-Clermont PJ, **Yan Z**. Voluntary running suppresses proinflammatory cytokines and bone marrow endothelial progenitor cell

levels in apolipoprotein-E-deficient mice. *Antioxid Redox Signal*. 2009 Jan;11(1):15-23. PubMed PMID: 18837653; PubMed Central PMCID: PMC2933158.

Cited 4 times, IF = 8.209, 7 of 116 *Endocrinology & Metabolism*; 28 of 286 *Biochemistry & Molecular Biology*

43. Pogozelski AR, Geng T, Li P, Yin X, Lira VA, Zhang M, Chi JT, **Yan Z**. p38gamma mitogen-activated protein kinase is a key regulator in skeletal muscle metabolic adaptation in mice. *PLoS One*. 2009 Nov 20;4(11):e7934. PubMed PMID: 19936205; PubMed Central PMCID: PMC2775956.

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Cited 10 times, IF = 3.817, 16 of 77 *Physiology*; 74 of 177 *Cell Biology*

45. Geng T, Li P, Okutsu M, Yin X, Kwek J, Zhang M, **Yan Z**. PGC-1alpha plays a functional role in exercise-induced mitochondrial biogenesis and angiogenesis but not fiber-type transformation in mouse skeletal muscle. *Am J Physiol Cell Physiol*. 2010 Mar;298(3):C572-9. Epub 2009 Dec 23. PubMed PMID: 20032509.

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46. Huang P, Li S, Shao M, Qi Q, Zhao F, You J, Mao T, Li W, **Yan Z***, Liu Y*. Calorie restriction and endurance exercise share potent anti-inflammatory function in adipose tissues in ameliorating diet-induced obesity and insulin resistance in mice. *Nutr Metab (Lond)*. 2010 Jul 16;7:59. PubMed PMID: 20633301; PubMed Central PMCID: PMC2914080

(*Corresponding authors)

Cited 1 time, IF = 2.349, 30 of 70 *Nutrition & Dietetics*

47. Chen JF, Tao Y, Li J, Deng Z, **Yan Z**, Xiao X, Wang DZ. microRNA-1 and microRNA-206 regulate skeletal muscle satellite cell proliferation and differentiation by repressing Pax7. *J Cell Biol*. 2010 Sep 6;190(5):867-79. PubMed PMID: 20819939; PubMed Central PMCID: PMC2935565.

Contribution: carried out in vivo muscle regeneration experiments.

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48. Zechner C, Lai L, Zechner JF, Geng T, **Yan Z**, Rumsey JW, Collia D, Chen Z, Wozniak DF, Leone TC, Kelly DP. Total skeletal muscle PGC-1 deficiency uncouples mitochondrial derangements from fiber type determination and insulin sensitivity. *Cell Metab*. 2010 Dec 1;12(6):633-42. Erratum in: *Cell Metab*. 2011 Jan 5;13(1):114. PubMed PMID: 21109195; PubMed Central PMCID: PMC2999961.

Contribution: carried out fiber typing experiments and edited the final manuscript

Cited 6 times, IF = 18.207, 2 of 116 *Endocrinology & Metabolism*, 7 of 177 *Cell Biology*

49. Geng T, Li P, Yin X, **Yan Z**. PGC-1 α promotes nitric oxide antioxidant defenses and inhibits FOXO signaling against cardiac cachexia in mice. *Am J Pathol*. 2011 Apr;178(4):1738-48. PubMed PMID: 21435455; PubMed Central PMCID: PMC3078433.
Cited 0 time, IF = 5.224, 4 of 76 *Pathology*
50. Gagan J, Dey BK, Layer R, **Yan Z**, Dutta A. MicroRNA-378 targets the myogenic repressor MyoR during myoblast differentiation. *J Biol Chem*. 2011 Jun 3;286(22):19431-8. Epub 2011 Apr 6. PubMed PMID: 21471220; PubMed Central PMCID: PMC3103322.
Contribution: carried out in vivo muscle regeneration experiments, wrote and edited part of the final manuscript
Cited 0 times, IF = 5.328, 50 of 286 *Biochemistry & Molecular Biology*
51. Wada S, Kato Y, Okutsu M, Miyaki S, Suzuki K, **Yan Z**, Schiaffino S, Asahara H, Ushida T, Akimoto T. Translational suppression of atrophic regulators by miR-23a integrates resistance to skeletal muscle atrophy. *J Biol Chem*. 2011 Sep 18. [Epub ahead of print] PubMed PMID: 21926429.
Contribution: carried out experimental planning and edited part of the final manuscript
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52. Griffin TM, Huebner J, Kraus VB, **Yan Z**, Guilak F. Effects of Voluntary Running on Osteoarthritis Progression and Inflammation in High-Fat Diet-induced Obese Mice. *Arthritis Rheum*. 2011 Sep 27. doi: 10.1002/art.33332. [Epub ahead of print] PubMed PMID: 21953366.
Contribution: carried out in vivo high-fat feeding and exercise training experiments, wrote and edited part of the final manuscript
Cited 0 times, IF 8.435, 2 of 29 *Rheumatology*
53. Meher AK, Sharma PR, Lira VA, Yamamoto M, Kensler TW, **Yan Z**, Leitinger N. Nrf2 deficiency in myeloid cells is not sufficient to protect mice from high-fat diet-induced adipose tissue inflammation and insulin resistance. *Free Radic Biol Med*. 2012 Feb 24. [Epub ahead of print] PMID: 22370093
Contribution: carried out in vivo in skeletal muscle
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54. Baltgalvis KA, Call JA, Cochrane GD, Laker RC, **Yan Z**, Lowe DA. Exercise Training Improves Plantarflexor Muscle Function in mdx Mice. *Med Sci Sports Exerc*. 2012 Mar 28. [Epub ahead of print] PMID: 22460476
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D. Books and/or Chapters

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E. Publicity

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3. September 24, 2013. Live interviewed by 1070 WINA about the benefits of exercise on autophagy
4. September 26, 2013 1070 WINA: <https://wina.com/local/uva-researchers-find-new-benefit-of-exercise/>
5. September 26, 2013 Featured articles at [NEWSPLEX.COM](#), [UVA Health System](#), [UVAToday](#), [Majori Drugs](#).
6. January 20, 2014 Featured articles about the benefits of exercise during pregnancy at [Augusta Free Press](#), [PRWeb](#), [UVa Health System](#), [Digital Journal](#), [NBC29](#), [UVAToday](#), [UVA Connect](#), [Futurity](#), [Amwayhealthline](#), [kesehatan ibu dan anak](#), [CavalierDaily](#).
7. January 20, 2014 Live interviewed by NBC29 on the topic of exercise during pregnancy boosting baby health.

8. February 27, 2014 Recognized by the School of Medicine University of Virginia at the UVA women's basketball game vs. Miami
9. March 10, 2014 "Live Well" talk show at 1070 WINA
10. April 3, 2014 Science Daily:
<https://www.sciencedaily.com/releases/2014/04/140403102108.htm>
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<https://news.med.virginia.edu/medicinematters/uvasomrestriction/public/2014/05/06/zhen-yan-phd/>
13. April 8, 2014 PRWeb: <https://phys.org/news/2014-04-tool-cells-batteries.html>
14. Featured article about the benefit of exercise during pregnancy in 2014 Spring issue of Vitals of University of Virginia School of Medicine and UVA Innovation, vol 5, 2014.
15. December 15, 2014 Featured article at [UVAToday](#)
16. February 24, 2015 Live interview by NBC29 on the topic of exercise training in protection against heart disease
17. February 27, 2015 Radio interview by 1070 WINA
18. March 2, 2015 "Live Well" radio talk show at 1070 WINA
19. January 7, 2016 Speak at Westminster Canterbury on "Be active and live healthy — never too early and never too late" on
20. September 21, 2017 Radio interview by 1070 WINA
21. September 21, 2017 UVAToday: <https://news.virginia.edu/content/exercise-can-make-cells-healthier-promoting-longer-life-uva-study-finds>;
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<http://newsroom.uvahealth.com/2017/09/21/just-1-session-exercise-can-help-make-cells-healthier/>
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24. September 21, 2017 Augusta Free Press: <http://augustafreepress.com/just-one-session-exercise-can-help-make-cells-healthier-uva-finds/>; and <http://augustafreepress.com/uva-develops-tool-check-cells-batteries/>
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41. April 21, 2020 WHSV3: <https://www.whsv.com/content/news/New-UVA-study-shows-exercise-could-help-protect-against-deadly-COVID-19-complication-569820261.html>
42. April 27, 2020 Super Human Radio: <https://superhumanradio.net/shr-2509-covid-19-exercise-may-protect-against-deadly-complication>
43. April 29, 2020 Charlottesville WVTF Radio: <https://www.wvtf.org/post/exercise-may-protect-against-covid-19-damage#stream/0>
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45. May 5, 2020 The Conversation: <https://theconversation.com/exercise-may-help-reduce-risk-of-deadly-covid-19-complication-ards-136922>
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58. September 8, 2021 UVAToday: <https://news.virginia.edu/content/discovery-about-cells-batteries-boosts-battle-against-many-diseases>
59. September 8, 2021 UVAHealth Newsroom: <https://newsroom.uvahealth.com/2021/09/08/discovery-about-cells-batteries-to-boost-battle-against-many-diseases/>
60. September 9, 2021 SciTechDaily: <https://scitechdaily.com/discovery-about-cells-batteries-boosts-battle-against-many-diseases-from-alzheimers-to-diabetes/>
61. September 9, 2021 CBS19 News: <https://www.cbs19news.com/story/44702500/uva-health-researchers-discover-how-cells-sense-problems>
62. September 9, 2021 NBC29: <https://www.nbc29.com/2021/09/09/uva-research-suggests-frequent-exercise-could-prevent-treat-some-diseases/>
63. September 9, 2021 NBC12: <https://www.nbc12.com/2021/09/09/uva-research-suggests-frequent-exercise-could-prevent-treat-some-diseases/>
64. September 10, 2021 Genetic Engineering & Biotechnology News: <https://www.genengnews.com/news/mitochondrial-mysteries-solved-by-discovery-of-energetic-stress-sensors/>

XXI. TECHNOLOGY TRANSFER ACTIVITY

Patents

2009 Preventing the occurrence of obesity, US patent ZHEN3003PCT

2017 Animal voluntary weightlifting cage apparatus and related methods thereof, International patent WO2017/049301 A2

Inventions

- 2011 A disclosure to the University of Virginia Patent Foundation on the concept of “Tissue-specific Genotypic Switching in Animal Models”
- 2011 A disclosure to the University of Virginia Patent Foundation on the concept of “Systemic induction of SOD3 in protection against critical illness-induced multiple organ dysfunction”
- 2011 A disclosure to the University of Virginia Patent Foundation about DNA construct pMitoTimer
- 2012 A disclosure to the University of Virginia Patent Foundation about MitoTimer transgenic mice
- 2014 A disclosure to the University of Virginia Patent Foundation about exercise during pregnancy in preventing negative epigenetic influence of maternal obesity to the offspring
- 2015 A provisional patent by University of Virginia Patent Foundation about a novel weightlifting cage for mice.

Registered Copyrighted Materials

Not applicable

Licensing Activity

Not applicable

Other

Not applicable

XXII. INVITED LECTURES AND SYMPOSIUMS

- 07/99 Plenary Presentation at Cold Spring Harbor Laboratory Meeting on DNA Replication. A novel regulatory subunit of PP2A interacts with Cdc6 and modulates DNA replication in human cells, Cold Spring Harbor
- 10/03 Molecular Mechanism of Skeletal Muscle Regeneration and Adaptation, Beijing Sports University
- 10/03 Regeneration and Adaptation, Chinese Association of Rehabilitation Medicine 20th Annual Meeting, Beijing, China
- 11/03 Molecular Mechanism of Cardiac and Skeletal Muscle Adaptation, Nanjing Medical University
- 01/04 Exercise-induced adaptation in mice by voluntary running at Telemetry User’s Group Symposium, Durham

- 04/04 The cellular and signaling mechanisms of skeletal muscle adaptation in response to exercise, University of North Carolina
- 05/04 The cellular and signaling mechanisms of skeletal muscle adaptation in response to exercise, Nanjing University
- 05/04 “From gene chip to Olympics, International Forum on Post-Genome Technologies - Genomic Analysis and Bio-Nanoscience”, Nanjing, China
- 06/04 The cellular and signaling mechanisms for exercise-induced skeletal muscle adaptation, Osaka Taiiku University, Japan
- 10/04 Invited Speaker for Functional genomics and skeletal muscle adaptation, Integrative Biology of Exercise: 2004 APS Intersociety Meeting, Austin
- 11/04 From functional genomics to skeletal muscle adaptation, Albert Einstein College of Medicine
- 02/05 Exercise to Curb Obesity, Diabetes and Atherosclerosis: Perspectives of Functional Genomics and Metabonomics, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, China
- 03/05 Exercise to Curb Obesity, Diabetes and Atherosclerosis: the molecular basis, Nanjing Normal University, China
- 08/05 Skeletal muscle plasticity: from genes to diseases, Nanjing University, China
- 08/05 Myogenic stem cell function in skeletal muscle regeneration and adaptation, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, China
- 11/05 Skeletal muscle plasticity: from genomics to Olympics, National Institute of Biological Science, China
- 11/05 Skeletal muscle plasticity: from genomics to Olympics, Peking University Health Science Center
- 11/05 From genomics to Olympics: Exercise as a strategy to help China face the challenges in industrialization, The 16th Great Wall International Conference of Cardiology, Beijing, China
- 08/06 Oxidative phenotype protects myofibers from pathological insults induced by chronic heart failure in mice, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, China
- 09/06 Skeletal Muscle Mitochondrial Biogenesis in Whole Animal Models: From Genomics to Diseases, ACSM Conference on Integrative Physiology of Exercise, Indianapolis
- 10/06 Mitochondrial biogenesis in small animal models of chronic diseases and exercise training, Ajou University, South Korea
- 10/06 Exercise, PGC-1 and mitochondrial biogenesis, Biochemistry of Exercise 13th International Conference, Seoul, South Korea
- 10/06 Mitochondrial biogenesis in small animal models of chronic diseases and exercise training, The 5th Annual Conference of The Society of Chinese Scholars on Exercise Physiology and Fitness, Tianjin, China
- 11/06 Mitochondrial biogenesis in small animal models of chronic diseases and exercise training, The International Conference on Mitochondrial Biomedicine Chinese MiT' 2006, Wenzhou, China
- 12/06 Molecular Mechanisms of Skeletal Muscle Adaptation: From Genomics to Olympics, Beijing Sports University
- 04/07 Exercise induced muscle adaptation and its impact on health, SGH 16th Annual Scientific Meeting, Singapore

- 04/07 Optical imaging analysis of gene regulation in living mice, SGH 16th Annual Scientific Meeting, Singapore
- 08/07 Skeletal muscle steatosis in type 2 diabetes, Metabolic Diseases Research Symposium 2007, Singapore
- 09/07 Skeletal muscle plasticity: the molecular and signaling mechanisms and the importance in health. Sun Yet-Sen University
- 10/07 Skeletal muscle plasticity: the molecular and signaling mechanisms and the importance in health, University of Oxford
- 11/07 Skeletal muscle plasticity: the molecular and signaling mechanisms and the importance in health, University of Florida
- 11/07 Keynote Speaker for Mitochondria, mitophagy and insulin resistance: effects of exercise and caloric restriction, Exercise, Muscle & Metabolism 2007, Melbourne, Australia
- 01/08 Integrative studies of the molecular mechanisms of skeletal muscle plasticity, East Carolina University
- 01/08 Mitochondrial degeneration-mediated accumulation of lipid vacuoles in skeletal muscle is controlled by reactive oxygen species and autophagy, National University of Singapore
- 05/08 Skeletal muscle plasticity: the molecular and signaling mechanisms and the importance in health, University of Missouri
- 07/08 Exercise training on skeletal muscle mitochondrial degeneration in diet-induced insulin resistance, Physiology 2008, Cambridge, UK
- 06/09 Functional role of peroxisome proliferator-activated receptor γ coactivator 1- α (PGC-1 α) and upstream signaling in exercise-induced skeletal muscle adaptation, 14th International Conference Biochemistry of Exercise, Guelph, Canada
- 10/09 Muscle Plasticity and Diseases, GlaxoSmithKline, Durham
- 12/09 Muscle fiber type-specific nitric oxide protects against cachectic stimuli, 5th Cachexia Conference, Barcelona, Spain
- 03/10 “Molecular mechanism of skeletal muscle remodeling and its impact on diseases”, Physiological Sciences Seminar Series, Eastern Virginia Medical School, Norfolk
- 09/10 Exercise-induced addition and removal of mitochondria in skeletal muscle, ACSM Conference on Integrative Physiology of Exercise, Miami
- 09/10 Exercise-induced addition and removal of mitochondria in skeletal muscle, Aging and Rehabilitation Interdisciplinary Seminar Series, Institute on Aging at University of Florida, Gainesville
- 11/10 National Institute of Health (NIH) National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) Roundtable Discussion on Mechanism of Exercise Induced Health, Bethesda
- 04/11 Organizer of American Physiological Society (APS) Environmental and Exercise Physiology Section (EEPS) Symposium on “Autophagy in Skeletal Muscle”, Experimental Biology 2011, Washington DC
- 04/11 Maternal exercise in pregnancy provides protection to offspring in development of type 2 diabetes in mice. Epigenetics, Behavior and Reproduction, National Science Foundation Research Coordination Network, Charlottesville
- 06/11 Molecular and Integrative Physiology, University of Michigan-Ann Arbor, Exercise-induced mitochondrial maintenance in skeletal muscle: Cash for clunkers
- 09/11 “NO-dependent protection against cachexia” at the International Conference on Muscle Wasting 2011, Monte Verita, Ascona, Switzerland

- 09/11 “Molecular Mechanism of Exercise-induced Mitochondrial Remodeling in Skeletal Muscle: Cash for Clunkers “ at Institute of Heart and Circulatory Physiology, University of Dusseldorf, Germany
- 09/11 “Molecular Mechanism of Exercise-induced Mitochondrial Remodeling in Skeletal Muscle: Cash for Clunkers” at the Department of Exercise and Sport Sciences, University of Copenhagen, Denmark
- 10/11 “Molecular Mechanism of Exercise-induced Mitochondrial Remodeling in Skeletal Muscle: Cash for Clunkers” at Venetian Institute of Molecular Medicine, Italy
- 11/11 “Molecular and signaling mechanisms of skeletal muscle adaptation” at Biology Department, Williams College, Williamstown
- 11/11 Invited Speaker at Department of Human Nutrition, Foods, and Exercise Virginia Tech, Blacksburg
- 11/11 “Molecular Medicine in Exercise Science” at College of Life Sciences, Tsinghua University, Beijing
- 11/11 “Exercise induces autophagy in skeletal muscle and improves insulin sensitivity in mice” at the 15th Scientific Meeting of the Chinese Diabetes Society, Beijing
- 11/11 “Molecular Medicine in Exercise Science” at Institute of Molecular Medicine, Peking University, Beijing
- 11/11 “Mitochondrial dysfunction and modern diseases” at the First Affiliated Hospital of Nanjing Medical University, Nanjing
- 2/12 “Muscle derived EcSOD in protection against multiple organ dysfunction syndrome (MODS)” at “Advances in Skeletal Muscle Biology in Health & Disease Meeting” at University of Florida, Gainesville, Florida
- 3/12 “Molecular Medicine Seminar. Exercise-induced mitochondrial maintenance in skeletal muscle: cash for clunkers”. NIH, Bethesda, MD
- 3/12 Invited Speaker of Rutgers Colloquium on Exercise Biology. Rutgers University, NJ
- 7/12 “Exercise and Healthspan In Flies, Worms, and Rodents” at University of Michigan, Ann Arbor, MI
- 10/12 Invited Speaker of APS Intersociety Meeting of Integrative Biology of Exercise, Westminster, CO
- 10/12 “Muscle-derived EcSOD in prevention against catabolic muscle wasting and MODS” at Dalian Medical University, Dalian, China
- 10/12 “Exercise training-induced regulation of mitochondrial quality:Cash for clunkers” at Wuhan Sports University, Wuhan, China
- 10/12 “Exercise training-induced regulation of mitochondrial quality:Cash for clunkers” at Nutritional Institute of Chinese Academy of Sciences, Shanghai, China
- 10/12 “Exercise training-induced regulation of mitochondrial quality:Cash for clunkers” at Singapore Biological Imaging Consortium, Singapore
- 11/12 “Muscle-derived EcSOD in prevention against catabolic muscle wasting and MODS” by Duke-NUS Graduate Medical School, Singapore
- 11/12 “Muscle-derived EcSOD in prevention against catabolic muscle wasting and MODS” at the 9th Conference of the Asian Society of Mitochondrial Research and Medicine and the 5th Conference of Chinese Society of Mitochondrial Research and Medicine, Beijing, China
- 11/12 Keynote Speaker of 2012 KNSU International Conference, Seoul, Korea

- 4/13 “Impact of exercise training in ameliorating lipid overload-induced mitochondrial damage” at Experimental Biology 2013, Boston
- 5/13 “Mitochondrial quality in health and disease: from yeast to humans” at Dalian Medical University, Dalian, China
- 5/13 “Muscle-derived EcSOD in protection against cachexia and MODS” at School of Basic Medical Science Central South University, Changsha, China
- 5/13 “Mitochondrial quality in health and disease: from yeast to humans” at Nanjing Normal University, Nanjing, China
- 5/13 “Mitochondrial quality in health and disease: from yeast to humans” at Suzhou Health and Technology College, Suzhou, China
- 6/13 “Translation of Exercise to Neuromuscular Disease” at the 60th annual meeting of American College of Sports Medicine, Indianapolis, Indiana
- 7/13 Invited Speaker for FASEB Science Research Conference “Glucose Transport: Gateway for Metabolic Systems Biology”, Snowmass, Colorado
- 8/13 Invited Speaker for Abbott Nutrition Symposium on Muscle & Motility, Columbus, Ohio
- 11/13 Invited speaker for “Mitochondria dynamics” at the 2nd August Krogh Symposium entitled “*Metabolism in the extreme and extreme metabolism*”, University of Copenhagen, Copenhagen, Denmark
- 3/14 “SNO-mediated protection in skeletal muscle” at the 13th Biennial Conference "Advances in Skeletal Muscle Biology in Health and Disease", Gainesville, Florida
- 4/14 “Exercise training-induced mitophagy in skeletal muscle” at 2014 Spring Korean Conference of Exercise Physiology, Seoul, Korea
- 6/14 Invited speaker for Cellular Autophagy and Metabolism Symposium at ADA's 74th Scientific Sessions, San Francisco, CA
- 9/14 Chair the session of “Mitochondrial quality control in skeletal muscle: A role for mitochondrial clearance (mitophagy) at ACSM Conference on Integrative Physiology of Exercise, Miami Beach, FL
- 10/14 Invited discussant for NIH Common Fund Workshop (webinar) to explore research needs and opportunities related to the molecular mechanisms whereby physical activity prevents disease and improves health outcomes.
- 11/14 Co-chair the session of “Cellular Mechanism for Disease and Aging” at the 5th International Conference on Nutrition and Physical Activity on Aging, Obesity and Cancer, Xi'an, China
- 11/14 Invited speaker at Jiangsu University Oversea Research Forum, Zhenjiang, China
- 3/15 “Mitochondrial quality control in skeletal muscle: a “Cash for clunkers” story of mitophagy” at Barshop Institute for Longevity and Aging Studies at University of Texas Health Science Center at San Antonio, Texas
- 3/15 Invited speaker for featured topic sponsored by the Environmental and Exercise Physiology Section entitled *Autophagy in Muscle* for the EB 2015 meeting, Boston, MA
- 4/15 Invited speaker for “Mitochondria, the center of biological universe” at 2015 SNUCRI Cancer Symposium, Gwangju, Korea
- 4/15 “Exercise-mediated protection against chronic diseases” at Qinghai Medical University, Xining, China
- 5/15 Invited speaker for the symposium of “Mitophagy, and Mitochondrial Health” at ACSM Annual Meeting, San Diego

- 6/15 Invited speaker for “Impact 2015” on Integrative Medicine: Physical Activity is a Core Tip, Busan, South Korea
- 10/15 “Exercise training-induced skeletal muscle adaptation in health and disease” at Purdue University Center for Cancer Research Seminar Series
- 10/15 “Be a superior doctor: Exercise and its benefits” at University of Taipei, Taipei, Taiwan
- 10/15 “Exercise-induced mitophagy in mitochondrial adaptation and benefits to health” at the 6th International Conference on Nutrition and Physical Activity 2015, Taipei, Taiwan
- 11/15 “Be a superior doctor: Prevention of disease by regular exercise” at University of New South Wales, Sydney, Australia
- 11/15 “Be a superior doctor: Personalized healthspan care (PhC) is the future of medicine“ at Institute of Sport, Exercise & Active Living (*ISEAL*) of Victoria University, Melbourne, Australia
- 12/15 “Autophagy and exercise-induced adaptations” at Australia Physiological Society Conference at Hobart, Tasmania, Australia
- 6/16 Importance of mitophagy to optimize exercise-induced mitochondrial biogenesis at ACSM 63rd Annual Meeting and 7th World Congress on Exercise is Medicine and World Congress on the Basic Science of Energy Balance, Boston
- 6/16 Visualizing mitochondria dynamic at August Krogh Club Symposium by University of Copenhagen, Copenhagen
- 9/16 Exercise training-induced regulation of mitochondrial dynamics at the Saltin Symposium on Exercise and Integrative Physiology by Novo Nordik Foundation, Copenhagen
- 10/16 Multifaceted interventions for cardiometabolic health at Fostering Health Across the Lifespan: Shared Lessons and Opportunities in Oman and the U.S., University of Virginia, Charlottesville, Virginia
- 11/16 Cell physiology of muscle function at Advanced Biomanufacturing Pipeline for Regenerating Tissue Interfaces: Focus on Muscle Regeneration of Rehabilitation, University of Virginia, Charlottesville, Virginia
- 12/16 Mitophagy in exercise-induced adaptation in skeletal muscle at Department of Physiology Seminar at Wayne State University, Detroit
- 2/17 Profound benefits of exercise intervention on prevention of symptomatic FRDA in mice. FARA and University of Pennsylvania, Philadelphia
- 2/17 Exercise-induced mitophagy in skeletal muscle adaptation at Formal Research Seminar at Buck Institute, Novato
- 3/17 Organization of Exercise, Nutrition and Environment on Health and Aging at 2017 Boao Forum for Biomedical Sciences, Boao, China
- 3/17 Multi-faceted interventions to promote healthspan from animal to man at Exercise, Nutrition and Environment on Health and Aging at 2017 Boao Forum for Biomedical Sciences, Boao, China
- 9/17 Invited seminar speaker for the Department of Integrative Biology and Pharmacology at University of Texas Health Science Center at Houston
- 10/17 Invited speaker for the International Ataxia Research Conference: IARC 2017, Pisa, Italy
- 10/17 Taft Diabetes and ECDOI Seminar speaker at East Carolina University
- 11/17 Tianjin University of Sport Seminar Series, Tianjin, China
- 8/18 Invited speaker for FASEB Summer Research Conference: Nutrient Sensing and Metabolic Signaling, Snowmass
- 9/18 Invited speaker for Integrative Biology of Exercise, San Diego

- 10/18 Invited speaker for University of Georgia Department of Biochemistry and Molecular Biology Graduate Seminar
- 10/18 Invited speaker and organizer of the 17th International Biochemistry of Exercise Conference: Exercise is the future of medicine, Beijing, China
- 11/18 Invited speaker for the 7th Asian Society for Mitochondrial Research and Medicine Conference, Busan, Korea
- 2/19 Invited speaker for Virginia Tech Department of Human Nutrition, Food, and Exercise Seminar Series, Blacksburg, VA
- 3/19 Invited speaker for “Advances in Skeletal Muscle Biology in Health and Disease” Meeting at University of Florida, Gainesville, FL
- 3/19 Invited speaker for Rutgers University Department of Nutritional Science Seminar, New Brunswick, NJ
- 4/19 Invited speaker for Duke Molecular Physiology Institute Seminar, Durham, NC
- 5/19 Invited to present "Exercise Preconditioning" at International Anesthesia Research Society (IARS) annual meeting in Montreal, Canada
- 6/19 Invited speaker at the 2nd International Academic Forum on Sports Medicine and Health in Chengdu, China
- 6/19 Invited speaker at Nanjing University Model Animal Research Center (MARC), Nanjing, China
- 10/19 Invited speaker at University of Dusseldorf, Dusseldorf, Germany
- 10/19 Invited keynote speaker at the 18th Annual Meeting of the Society of Chinese Scholars on Exercise Physiology and Fitness (SCSEPF) in Xi’an, China
- 11/19 Invited speaker at Meakins-Christie Laboratories at McGill University, Montreal, Canada
- 11/19 Invited speaker at the 26th Annual Conference of the Society for Redox Biology and Medicine (SfRBM)
- 8/20 Invited speaker at Obesity Webinar Series by APS and InsiderScientific
- 10/20 Keynote speaker at 2020 International Conference of the Korean Academy of Kinesiology, Seoul, South Korea
- 11/20 Invited Speaker at UAB Center for Exercise Medicine Distinguished Lecture Series, University of Alabama at Birmingham
- 11/20 Invited Speaker at 14th Chinese National Conference of Exercise Physiology, Beijing, China
- 12/20 Visiting Scholar, University of Pennsylvania Institute on Aging, Philadelphia
- 1/21 Speaker at MoTrPAC Brainstorming Session
- 3/21 Invited Speaker at University of Houston College of Pharmacy Seminar, Houston
- 4/21 Invited Speaker at Webinar by the Society for Thermal Medicine (STM)
- 4/21 Host Symposium on Developmental Origins of Health and Disease: Exercise Metabolism at Experimental Biology 2021
- 5/21 Invited Speaker at Cells Webinars on Healthspan and Exercise
- 9/21 Invited Speaker at UVA Child Health Research Center, Charlottesville
- 10/21 Invited Speaker for the Institute of Molecular Medicine at UTHealth McGovern Medical School, Houston
- 10/21 MoTrPAC Journal Club presentation
- 11/21 MoTrPAC Report in Progress: “Computational identification of secreted molecules induced by endurance exercise in rodents from MoTrPAC data”.

- 11/21 Keynote speaker at the 3rd International Academic Forum on Sports Medicine and Health, Chengdu, China
- 12/21 Special Seminar at Fralin Biomedical Research Institute at Virginia Tech, Roanoke
- 2/22 Invited Speaker of Physiology Seminar at Wayne State University, Detroit
- 3/22 Invited Speaker for MCNHS Research Seminar at University of Massachusetts Boston, Boston
- 5/22 Special Seminar at University of Oklahoma Health Science Center, Oklahoma City
- 5/22 Invited Speaker for the 18th International Biochemistry of Exercise Conference (IBEC), Toronto, Canada
- 6/22 Keynote Presentation at IRTG 1902 Summer School 2022 at Heinrich Heine University Dusseldorf, Dusseldorf, Germany
- 6/22 Invited Speaker for Hungarian University of Sports Science, Budapest, Hungary
- 6/22 Invited Speaker for August Krogh Club, University of Copenhagen, Copenhagen, Denmark

B. Teaching Committees

- 2007-2008 Duke-NUS Graduate Medical School 1st Year Curriculum Committee
- 2008 Duke-NUS Graduate Medical School Seminar Series Committee
- 2009 University of Virginia Medical School NxGen Curriculum Committee

XXIII. COMMUNITY

- 2/12 Founder of “UVa Muscle Club”
- 11/12 Founder of Asian Society of Exercise Science (ASES)