

Yujiao Zu, Ph.D.

Curriculum Vitae

Yujiao Zu, Ph.D.

Research Assistant Professor

Nutrigenomics, Inflammation and Obesity Research Lab

Department of Nutritional Sciences, College of Human Sciences,
Texas Tech University, Lubbock, TX 79409.

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Lawful Permanent Resident

EDUCATIONS

- **Ph.D. Nutritional Sciences** Jul. 2014 - Dec. 2018
Texas Tech University (TTU)
- **M.S. Food Sciences** Sep. 2011- Mar. 2014
Tianjin University of Science and Technology, China
- **B.S. Biological Engineering (Microbiology)** Sep. 2007- Jun. 2011
Tianjin University of Science and Technology, China

PROFESSIONAL EXPERIENCES

- Research assistant professor** Oct. 2020 - Present
Department of Nutritional Sciences, TTU, TX
- Organizing Committee Member** Oct. 2020 - Dec. 2022
Obesity Research Institute, TTU, TX
- Postdoctoral research associate** Jan. 2019 - Oct. 2020
Department of Nutritional Sciences, TTU, TX
- Visiting scholar** Jul. 2016 - Aug. 2016
Department of Nutrition, The University of Tennessee, TN
- Research assistant** Jul. 2014 - Dec. 2018
Department of Nutritional Sciences, TTU, TX
- Research Technician** Jan. 2014 - Mar. 2014
Nestlé China Ltd, Tianjin, China
- Research Technician** Mar. 2014 - Jun. 2014
Tianjin Dairy Food Monitoring Center, Tianjin, China

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Research assistant

Tianjin University of Science & Technology, China

Aug. 2011 - Mar. 2014

TEACHING EXPERIENCES

Guest Speaker

Feb. 2022

Presbyterian College, School of Pharmacy, SC

- PHRM 9005 Dietary Supplement and Complementary Medicine.
Title: Omega-3 Fatty Acid and Chronic Diseases

Guest Speaker

Oct. 2021

Department of Nutritional Sciences, TTU

- NS 5000 Nutrition and Chronic Diseases/Obesity & Diabetes. *Title: Introduction of Nanotechnology and Nanomedicines*

Teaching Assistant

Department of Nutritional Sciences, TTU

- NS 5370 Carbohydrates, Proteins, and Lipids in Nutrition Jul. 2015 - Dec. 2018
- NS 5360 Guidelines for Written Assignments Jan. 2018 - May. 2018
- NS 6315 Genetic Regulation of Metabolism Jan. 2017 - Dec. 2017
- NS 5365 Vitamins and Minerals Jul. 2016 - Dec. 2016

ACADEMIC SERVICE

Reviewer

Feb. 2016

North America Chinese Society for Nutrition travel award program review committee

Presenter

Nov. 2015

Taste of Science Exhibition at Lubbock Science Spectrum

PUBLICATIONS

Journal articles

- **Zu Y**, Pahlavani M, Ramalingam L, Jayarathne S, Andrade J, Scoggin S, Festuccia WT, Kalupahana NS, Moustaid-Moussa N. Temperature-Dependent Effects of Eicosapentaenoic Acid (EPA) on Browning of Subcutaneous Adipose Tissue in UCP1 Knockout Male Mice. *International Journal of Molecular Sciences*. 2023 May 13;24(10):8708.
- Yavari M, Ramalingam L, Harris BN, Kahathuduwa CN, Chavira A, Biltz C, Mounce L, Maldonado KA, Scoggin S, **Zu Y**, Kalupahana NS. Eicosapentaenoic Acid Protects against Metabolic Impairments in the APPswe/PS1dE9 Alzheimer's Disease Mouse Model. *The Journal of Nutrition*. 2023 Feb 1. ISSN 0022-3166
- Pal A, Sun S, Armstrong M, Manke J, Reisdorph N, Adams VR, Kennedy A, **Zu Y**, Moustaid-Moussa N, Carroll I, Shaikh SR. Beneficial effects of eicosapentaenoic acid on the metabolic profile of obese female mice entails upregulation of HEPEs and increased abundance of enteric *Akkermansia muciniphila*. *Biochimica et Biophysica Acta (BBA)-Molecular and Cell Biology of Lipids*. 2022 Jan 1;1867(1):159059.
- **Zu Y**, Zhao L, Hao L, Mechref Y, Zabet-Moghaddam M, Keyel PA, Abbasi M, Wu D, Dawson

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- JA, Zhang R, Nie S. Browning white adipose tissue using adipose stromal cell-targeted resveratrol-loaded nanoparticles for combating obesity. *Journal of Controlled Release*. 2021 May 10;333:339-51.
- Goktas Z, **Zu Y**, Abbasi M, Galyean S, Wu D, Fan Z, Wang S. Recent advances in nano-encapsulation of phytochemicals to combat obesity and its comorbidities. *Journal of Agricultural and Food Chemistry*. 2020 Jul 7.
 - Zhang J, Nie S, **Zu Y**, Abbasi M, Cao J, Li C, Wu D, Labib S, Brackee G, Shen CL, Wang S. Anti-atherogenic effects of CD36-targeted epigallocatechin gallate-loaded nanoparticles. *Journal of Controlled Release*. 2019 Jun 10;303:263-73.
 - Hao L, Scott S, Abbasi M, **Zu Y**, Khan MS, Yang Y, Wu D, Zhao L, Wang S. Beneficial metabolic effects of mirabegron in vitro and in high-fat diet-induced obese mice. *Journal of Pharmacology and Experimental Therapeutics*. 2019 Jun 1;369(3):419-27.
 - **Zu Y**, Overby H, Ren G, Fan Z, Zhao L, Wang S. Resveratrol liposomes and lipid nanocarriers: Comparison of characteristics and inducing browning of white adipocytes. *Colloids and Surfaces B: Biointerfaces*. 2018 Apr 1;164:414-23.
 - Islam N, Hoque MN, **Zu Y**, Wang S, Fan Z. Carbon Nanofiber Aerogel Converted from Bacterial Cellulose for Kilohertz AC-Supercapacitors. *MRS Advances*. 2018;3(15-16):855-60.
 - Chung E, Mo H, Wang S, **Zu Y**, Elfakhani M, Rios SR, Chyu MC, Yang RS, Shen CL. Potential roles of vitamin E in age-related changes in skeletal muscle health. *Nutrition Research*. 2018 Jan 1;49:23-36.
 - Islam N, Li S, Ren G, **Zu Y**, Warzywoda J, Wang S, Fan Z. High-frequency electrochemical capacitors based on plasma pyrolyzed bacterial cellulose aerogel for current ripple filtering and pulse energy storage. *Nano Energy*. 2017;40:107-114.
 - Zhang J, **Zu Y**, Dhanasekara CS, Li J, Wu D, Fan Z, Wang S. Detection and treatment of atherosclerosis using nanoparticles. *Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology*. 2017 Jan;9(1):e1412.
 - Li C, Zhang J, **Zu Y**, Nie SF, Cao J, Wang Q, Nie SP, Deng ZY, Xie MY, Wang S. Biocompatible and biodegradable nanoparticles for enhancement of anti-cancer activities of phytochemicals. *Chin J Nat Med*. 2015 Sep 1;13(9):641-52.
 - Zhang Z, **Zu Y**. Optimum media composition and fermentation conditions for kasugamycin production by response surface methodology. *Chinese Journal of Antibiotics*. 1001-8689 (2014) 08-0584-06.

Abstracts

- **Zu Y**, Moustaid-Moussa N, Mikhael M, Scoggin S, Pal A, Shaikh SR. 8-Hydroxyeicosapentaenoic Acid Reduces Adipogenesis and Inflammation in 3T3-L1 Adipocytes. *Current Developments in Nutrition*. 2022 Jun;6(Supplement_1):1100-.
- Yavari M, Ramalingam L, Harris BN, Kahathuduwa C, **Zu Y**, Chavira A, Biltz C, Alers K, Mounce P, Moustaid - Moussa N. Mechanisms Mediating the Anti - inflammatory Effects of Eicosapentaenoic Acid in the APPswePS1dE9 Alzheimer's Mouse Model. *Alzheimer's & Dementia*. 2022 Dec;18:e066911.
- Razafimanjato F, Yavari M, Chavira A, Davis M, Ramalingam L, Harris BN, **Zu Y**, Moustaid - Moussa N. Effects of Eicosapentaenoic Acid Supplementation in obese Transgenic Mouse Model of Alzheimer' s Disease. *Alzheimer's & Dementia*. 2022 Dec;18:e068334.

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- **Zu Y**, Pahlavani M, Ramalingam L, Scoggin S, Moustaid-Moussa N. Temperature-Dependent Effects of Eicosapentaenoic Acid on Browning of Subcutaneous Adipose Tissue From UCP1 Knockout Mice. *Current Developments in Nutrition*. 2021 Jun;5(Supplement_2):1262-1262.
- Yavari M, Ramalingam L, Harris BN, Kahathuduwa C, Chavira A, Biltz C, Mounce P, Alers KA, Davis M, **Zu Y**, Moustaid - Moussa N. Protective effects of eicosapentaenoic acid on metabolic features and cognitive function in the APPswePS1dE9 Alzheimer's mouse model. *Alzheimer's & Dementia*. 2021 Dec;17:e054179.
- **Zu Y**, Wang S. Resveratrol-Loaded Liposomes: Browning Subcutaneous White Adipose Tissue for Combating Obesity in C57BL/6 J Mice. *Current Developments in Nutrition*. 2020 Jun;4 (Supplement_2):1709-1709.
- Goktas Z, Khan MS, **Zu Y**, Hao L, Wang S. Body Composition Changes in Female APOE*3Leiden. CETP Transgenic Mice After 5-week Injection of Resveratrol-encapsulated Liposomes to Inguinal White Adipose Tissue (P21-041-19). *Current Developments in Nutrition*. 2019 Jun;3(Supplement_1):nzz041-P21.
- **Zu Y**, Zhao L, Hao L, Wu D, Wang S. The anti-obesity effects of adipose stromal cell-targeted resveratrol-loaded nanoparticles in C57BL/6J mice. *Current Developments in Nutrition*. 2018 June.
- **Zu Y**, Wang S. Targeted delivery of resveratrol to mouse white adipose tissue using adipose stromal cells (ASC) targeted nanoparticles. *The FASEB Journal*. 2017 Apr 1;31(1 Supplement):646-27.
- Overby H, **Zu Y**, Wang S, Zhao L. Nanoparticles encapsulated with resveratrol induce browning of white adipocytes. *The FASEB Journal*. 2017 Apr 1;31(1 Supplement):44-3.
- **Zu Y**, Wang S. The physical stability comparison of two types of resveratrol nanocarriers. *The FASEB J* April 2016 vol. 30 no. 1
- **Zu Y**, Zhang J, Nie S, Wang S. The effect of EGCG and EGCG nanoparticles on body weight and body composition in LDL receptor null mice. *The FASEB J* April 2015 29:402.5.

PRESENTATIONS, POSTER AND EXHIBITS

Oral presentations at professional conferences

- **Zu Y**, Moustaid-Moussa N, Mikhael M, Scoggin S, Pal A, Shaikh SR. 8-Hydroxyeicosapentaenoic Acid Reduces Adipogenesis and Inflammation in 3T3-L1 Adipocytes. Nutrition 2022 - ASN's Annual Meeting, Virtual.
- **Zu Y**, Pahlavani M, Ramalingam L, Scoggin S, Moustaid-Moussa N. Temperature-Dependent Effects of Eicosapentaenoic Acid on Browning of Subcutaneous Adipose Tissue From UCP1 Knockout Mice. The 2nd Annual NACAN Summit (2021), Virtual.
- **Zu Y**, Zhao L, Hao L, Wu D, Wang S. The anti-obesity effects of adipose stromal cell-targeted resveratrol-loaded nanoparticles in C57BL/6J mice. Nutrition 2018 - ASN's Annual Meeting, Boston. MA. June 2018.
- **Zu Y**, Zhang J, Nie S, Wang S. The Effect of EGCG and EGCG Nanoparticles on Body Weight and Body Composition in LDL Receptor Null Mice. Experimental Biology Meeting, Boston, MA. March 2015.

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Posters presentations at professional conferences

- **Zu Y**, Mikhael M, Andrade J, Scoggin S, Moustaid-Moussa N. Beneficial Effects of Eicosapentaenoic Acid in Glycerol 3-Phosphate Dehydrogenase 2 Deficient Male Mice. ObesityWeek 2023, San Diego. CA. Nov. 2022.
- **Zu Y**, Pahlavani M, Ramalingam L, Scoggin S, Moustaid-Moussa N. Temperature-Dependent Effects of Eicosapentaenoic Acid on Browning of Subcutaneous Adipose Tissue From UCP1 Knockout Mice. Nutrition 2021 - ASN's Annual Meeting, Virtual.
- **Zu Y**, Zhao L, Hao L, Wu D, Wang S. The anti-obesity effects of adipose stromal cell-targeted resveratrol-loaded nanoparticles in C57BL/6J mice. Nutrition 2018 - ASN's Annual Meeting, Boston. MA. June 2018.
- **Zu Y**, Wang S. Targeted delivery of resveratrol to mouse white adipose tissue using adipose stromal cells (ASC) targeted nanoparticles. Experimental Biology Meeting, Chicago.IL. April 2017.
- **Zu Y**, Wang S. Targeted delivery of resveratrol to mouse white adipose tissue using adipose stromal cells (ASC) targeted nanoparticles. Annual Obesity Research Cluster, Organized by Texas Tech University Nutritional Sciences, Lubbock, TX, May 2017.
- **Zu Y**, Wang S. The physical stability comparison of two types of resveratrol nanocarriers. Experimental Biology Meeting, San Diego. CA. April 2016.
- **Zu Y**, Zhang J, Nie S, Wang S. The Effect of EGCG and EGCG Nanoparticles on Body Weight and Body Composition in LDL Receptor Null Mice. Experimental Biology Meeting, Boston, MA. March 2015.

Invited presentations

- **Obesity Research Institute Seminar: Sustainable Agriculture & Nutrition Security.** Title: Anti-inflammatory & Anti-obesity Mechanisms of Dietary Bioactive Compounds. Lubbock, TX. Oct. 2022
- **Honors Undergraduate Research Scholar Workshop.** Title: Healthy Fat to Fight Obesity. Lubbock, TX. Apr. 2022
- **The University of Texas at San Antonio.** Title: Browning white adipose tissue using nanotechnology and bioactive compounds for combating obesity. Sep. 2022

PATENT

- International Application Number: PCT/US19/19036. "Particles for targeted delivery of active agents into adipose stromal cells" January 2019.

FUNDING AND GRANTS AWARDED

Awarded

- **USDA-NIFA AFRI**, Title: Novel prebiotic nanoparticles to enhance tart cherry anthocyanin bioavailability and improve gut health in obesity Jun. 2023 - May 2025
\$300,000
Role: PI
Co-PI: Naima Moustaid-Moussa

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- **AHA AIREA**, Title: The Role of Glycolytic Beige Fat in Atherosclerotic Cardiovascular Disease Apr. 2023 – Mar. 2025
\$154,000
Role: PI
Co-PI: Naima Moustaid-Moussa
- **Undergraduate Research Experience grant from the College of Human Sciences TTU** Mar. 2022 – Aug. 2023
\$2,000
Role: PI
- **Cancer Grant from the College of Human Sciences TTU**, Title: Protective effects of shogaol in obesity-related breast cancer Mar. 2022 – Aug. 2022
\$7,500
Role: PI
- **Come N Go Grant from the College of Human Sciences TTU**, Title: Healthy fats that fight body fats Mar. 2022 – Aug. 2022
\$5,000
Role: PI
- **USDA-NIFA REEU** Title: Nutrition Bench-to-Community Scholars at Texas Tech (Nutrition BEST) REEU 2021-2026
\$500,000
Role: Research Mentor
PI: Naima Moustaid-Moussa
- **NSF Innovation-Corps**, Title: Burning fat by nanoparticles for obesity treatment (FatBuringNano™). This project is to explore the market potential of an adipose-targeted nanoparticles. Dec. 2018 - May. 2019
\$50,000
Role: Entrepreneurial Lead

Pending

- **NIH, R01 (NIH/FAPESP joint award)**, Title: Protective Metabolic Effects of Omega-3 Fatty Acids Independent of UCP1 2023-2027
Role: Collaborator
PI: Naima Moustaid-Moussa
- **NIH, R15**, Title: Thermoregulation of Beige Adipocytes via Myogenic Mechanisms 2023-2026
\$450,852
Role: PI
- **USDA SAS**, Title: GRow and EAT Leafy GREENS (GREAT GREENS): Sustainable Production of Leafy Greens for Health and Nutrition Security 2023-2028
\$10,000,000
Role: Collaborator
PI: Naima Moustaid-Moussa

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HONORS AND AWARDS

Fellowships and scholarships

- TTU human Science Desg Scholarship 2018
- TTU Pres Doc Exemption Teaching Assistant Scholarship 2018
- Margaret Chan Carter Scholarship 2016
- TTU Nutritional Sciences Gen Human Sciences Scholarship 2015
- TTU Incentive for Graduates Scholarship 2014

Honors

- Outstanding Faculty Mentor, TTU Center of Transformative Undergraduate Experiences (TrUE) 2023 Apr. 2023
- Selected as one of six finalists for the NUTRITION 2022 LIVE ONLINE Early Career Research Award Competition (ECRAC) Jun. 2022
- Winner in the American Society of Nutrition's (ASN) Graduate Student Research Award Competition, Nutrition 2018 - ASN's Annual Meeting, Boston Jun. 2018
- Awarded 2nd place in the ASN's 4th Emerging Leaders in Nutrition Science Poster Competition, Nutrition 2018- ASN's Annual Meeting, Boston Jun. 2018
- Received USANA Travel Award from North American Chinese Society for Nutrition, Nutrition 2018 - ASN's Annual Meeting, Boston Jun. 2018
- Graduate student of the month in college of human science, Texas Tech University Jul. 2017
- Finalist to participate ASN's 1st Emerging Leaders in Nutrition Science Poster Competition, Experimental Biology Meeting, Boston Mar. 2015

PROFESSIONAL MEMBERSHIPS

- American Heart Association 2021-present
- The Obesity Society 2020-present
- Member, North America Chinese Society for Nutrition 2014-present
- Member, American Society of Nutrition 2014-present

RECENT UNDERGRADUATES and GRADUATE STUDENTS

Graduate students:

- **Mohammad Yosofvand**, Ph.D. Mechanical Engineering, TTU Thesis: Developing Machine Learning Tools for Quantitative Analyses of Biomedical Images Graduated in 2023
- **Mahsa Yavari**, Ph.D. Nutritional Sciences, TTU Thesis: Metabolic and Central Effects of High Fat Diet and Fish Oil in an Amyloidogenic Mouse Model of Alzheimer's Disease Graduated in 2023
- **Sadique Abdallah**, Ph.D. student, Nutritional Sciences, TTU 2023-present
- **Ashti, Morovati**, Ph.D. student, Nutritional Sciences, TTU 2022-present
- **Maryam Seifishahpar**, Ph.D. candidate, Nutritional Sciences, TTU 2021-present
- **Shadab Nejat**, Ph.D. candidate, Nutritional Sciences, TTU 2020-present

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Undergraduate students:

• Jose Andrade , Pre-med	Graduated in 2023
• Ariana Aranda , Pre-med	Graduated in 2023
• Hoang Ho , TrUE Scholar	Graduated in 2023
• Hannah Petry , TrUE Research Scholar	Graduated in 2022
• Angela Chavira , TrUE Scholar	Graduated in 2022
• Caitlin Tayag , Honors College	Graduated in 2021
• Sarah Anjum , Honors College	Graduated in 2021
• Hanna Davis	Graduated in 2021
• Mckenna Davis	Graduated in 2021
• Mark Mikhael , Honors College	2021-present
• Tasnim Galalla , REEU Scholar	2021-present
• Olivia Iskander	2021-present
• Melody Paccione , Pre-dental	2021-present
• Yasmin Amin	2021-present
• Jorja Washington	2022-present
• Haley Walker	2022-present
• Bryan Estrada , REEU Scholar	2022-present
• Ana Rohde	2022-present

AREA OF EXPERTIES

- **Analytical chemistry:** high performance liquid chromatography (HPLC), liquid chromatography-mass spectrometry (LC/MS).
- **Cells and animal imaging:** *In vivo* imaging system, flow cytometer, fluorescent and confocal microscopy.
- ***In vitro* cell culture techniques:** standard and primary cell culture, maintenance, developing and conducting bioassays.
- **Animal models (mouse):** handling and care, genotyping, blood and tissue collection, adipose stromal cells isolation and collection.
- **Bench research techniques:** RNA extraction, PCR, Western blot, Seahorse, ELISA, immunohistochemistry (IHC).
- **Scientific software:** Image J, R (statistic).
- Nanoparticle preparation and characteristic measurement