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.
Email: yujiao.zu@ttu.edu; yujiao.zu1230@gmail.com
Office: (806) 834-0392 Cell: (806) 773-5877
Lawful Permanent Resident

EDUCATIONS

- **Ph.D. Nutritional Sciences** — **Jul. 2014 - Dec. 2018**
  Texas Tech University

- **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

WORK EXPERIENCES

Research

Department of Nutritional Sciences, Texas Tech University — **Research assistant professor**

Investigate the beneficial effects of eicosapentaenoic acid (EPA) on obesity and aging-related disorders. Oct. 2020 – present

Department of Nutritional Sciences, Texas Tech University — **Postdoctoral research associate**

Title: Nanoparticle-mediated targeted delivery of protease inhibitors and nucleotide analogs to block SARS-CoV-2 replication. The purpose of this project is to develop nanoliposomes encapsulating SARS-CoV-2 inhibitors to epithelial cells in the respiratory tract, the main tissue where this virus replicates. Mar. 2020 – Oct. 2020

Title: Browning white adipose tissue inhibits atherosclerosis development (**AHA funded**). To study the effect and underlying mechanisms of browning of subcutaneous white adipose tissue on atherosclerosis development in APOE*3-Leiden.CETP mice. Dec. 2018 – Oct. 2020

Title: Browning white adipose tissue effect of metformin liposomes. The specific aims of the project are to develop browning of white adipose tissue using liposomes mediated delivery of metformin targeted to adipose tissue. June. 2019 – Dec.2019

Department of Nutritional Sciences, Texas Tech University **Research Assistant**

Title: Anti-obesity effects of adipose-targeting resveratrol nanocarriers. (Dissertation research, **NIH funded**). Determine the target specificity of adipose stromal cell-targeting resveratrol loaded nanocarriers (L-Rnano) *in vitro* and *in vivo*. L-Rnano enhanced white adipose tissue browning and fat loss, reduced body weight, and improved glucose and lipid homeostasis in mouse model of high fat diet-induced obesity. Jul. 2015 – Dec. 2018

Title: Transdermal delivery of anti-obesity compounds by hydrogel. To decrease the off-target effects of nanocarriers, we synthesized biodegradable hydrogel and mixed with nanocarriers to apply on the top of brown/white adipose tissue via subcutaneous injection in mice. Dec. 2017 – Dec. 2018

Title: Antiatherogenic effects of CD36-targeted epigallocatechingallate-encapsulated nanoparticles (L-Enano) (**NIH funded**). Determine the anti-atherogenic effects of Enano and L-Enano in LDL receptor null (LDLr−/−) mice. Jul. 2014 – Jul. 2015

Teaching

Department of Nutritional Sciences, Texas Tech University **Teaching Assistant**

- 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

Professional

Department of Nutrition, The University of Tennessee, TN — **Visiting scholar**
Participated in a program to investigate the therapeutic effects of mouse primary adipose stromal cells by phytochemicals. — Jul. 2016 - Aug. 2016

School of Food Engineering and Biological Technology, Tianjin University of Science & Technology, China
Participated in a product development internship program for Nestlé to develop a product to boost immune health. — **Intern** Jul. 2013 - Aug. 2013

Academic service

North America Chinese Society for Nutrition travel award program review committee — **Reviewer** Feb. 2016

Taste of Science Exhibition at Lubbock Science Spectrum — **Presenter** Nov. 2015

Industry

Tianjin Dairy Food Monitoring Center, China — **Staff scientist** Mar. 2014 - Jun. 2014

Nestle Tianjin Ltd, China — **Technical trainee** Jan. 2014 - Mar. 2014

PUBLICATIONS

Journal articles

[1] **Zu Y**, Zhao L, Hao L, Mechref Y, Zabet-Moghaddam M, Keyel P, Abbasi M, Wu D, Dawson J, Zhang R, Nie S, Moustaid-Moussa N, Kolonin M, Daquinag A, Brandi L, Warraich I, San Francisco S, Sun X, Fan Z, Wang S. Browning white adipose tissue using adipose stromal cell-targeted resveratrol-loaded nanoparticles for combating obesity. *Journal of Controlled Release.* (Under review)

[2] 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.

[3] 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.

[4] 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.

[5] **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.

[6] 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.

[7] 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.

[8] 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.

[9] 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.

[10] 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.

[11] 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

[1] **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.

[2] **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.

[3] **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.

[4] 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.

[5] **Zu Y**, Wang S. The physical stability comparison of two types of resveratrol nanocarriers. *The FASEB J* April 2016 vol. 30 no. 1

[6] **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

[1] **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.

[2] **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.

Posters presentations

[1] **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.

[2] **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.

[3] **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.

[4] **Zu Y**, Wang S. The physical stability comparison of two types of resveratrol nanocarriers. Experimental Biology Meeting, San Diego. CA. April 2016.

[5] **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.

PATENT

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

FUDNING SUPPORT

[1] **NSF Innovation-Corps**, Title: Burning fat by nanoparticles for obesity treatment (FatBuringNano™). Dec. 2018 - May. 2019
$50,000
This project is to explore the market potential of an adipose-targeted nanoparticles. Role: entrepreneurial lead

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

Conference awards

- 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
- Finalist to participate ASN's 1st Emerging Leaders in Nutrition Science Poster Competition, Experimental Biology Meeting, Boston Mar. 2015

Other awards

- Graduate student of the month in college of human science, Texas Tech University Jul. 2017

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

- American Society of Nutrition
- North America Chinese Society for Nutrition
- Graduate Nutrition Organization, Texas Tech University
- Obesity Research Cluster, Texas Tech University

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