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EDUCATION

2021-Present

UNIVERSITY OF TEXAS AT EL PASO | EL PASO, TX

Degree: *Doctor of Philosophy (PhD) in Interdisciplinary Health Sciences*
Specialized Coursework in Pharmaceutical Sciences
Committee Chair: Dr. Md Nurunnabi
Committee Co-chairs:

2019-2021

TEXAS A&M UNIVERSITY | COLLEGE STATION, TX

Degree: *Master of Science (M.S) in Kinesiology*
Specialized Coursework in Exercise Physiology
Committee Chair: Dr. Christopher Woodman
Committee Co-chairs: Dr. Cristine Heaps & Dr. James Fluckey

2015-2019

TEXAS A&M UNIVERSITY | COLLEGE STATION, TX

Degree: *Bachelor of Science (B.S) in Kinesiology*
Specialized Coursework in Motor Behavior and Exercise Physiology

RESEARCH EXPERIENCE

JANUARY 2023 – PRESENT | UNIVERSITY OF TEXAS AT EL PASO

Laboratory of Bioengineered Therapeutics – PI: Dr. Md Nurunnabi

- Investigate the potential of the PLGA nanoparticle system in preventing cardiac fibrosis caused by chemotherapy and gastric cancer.
- Develop a PLGA nanoparticle system to effectively deliver anti-fibrotic drugs, targeting cardiac fibrosis protection.
- Understanding the molecular interactions and efficiency of the anti-fibrotic drug within the nanoparticle system.
- Understand the broader implications of nanoparticle-based drug delivery in safeguarding cardiovascular health against various pathogenic challenges.
- Examine the potential of this therapeutic approach to mitigate the adverse effects of oncology treatments on cardiac health and explore the clinical application of nanoparticle-encased anti-fibrotic drugs for future patient care.

JUNE 2021 – JANUARY 2023 | UNIVERSITY OF TEXAS AT EL PASO

Muscle Molecular Physiology Laboratory – PI: Dr. Kisuk Min

- Understand the signaling pathways responsible for myopathy in cardiac and skeletal muscle.

- Investigate the effects of exercise interventions on chemotherapy-induced side effects on cardiac and skeletal muscle in cancer patients.
- Understanding the molecular mechanisms of exercise that can protect cardiac and skeletal muscle against muscle diseases.
- Understand the role of mitogen-activated protein kinases and phosphatases in cardiac and skeletal muscle following injury, disease and exercise using genetically modified mouse and cell culture models.

AUGUST 2019 - JUNE 2020 | TEXAS A&M UNIVERISTY

Vascular Physiology Laboratory – PI: Dr. Christopher Woodman

- Investigate the interactive effects of aging and exercise training on muscle vascular beds.
- Understand how the structure and function of arteries change with age and how these changes increase cardiovascular disease risk.
- Determine the mechanisms by which exercise training attenuates the detrimental effects of aging on vascular function.

PROFESSIONAL EXPERIENCE

AUGUST 2022 | UNIVERSITY OF TEXAS AT EL PASO

Pharmaceutical Sciences School of Pharmacy

Graduate Research Associate

Bioengineered Therapeutics Laboratory – PI: Dr. Md Nurunnabi

JUNE 2022 – JULY 2022 | UNIVERSITY OF TEXAS AT EL PASO

College of Health Sciences, Department of Kinesiology

Graduate Teaching Associate

KIN 4312 Exercise Physiology – Dr. Kisuk Min

JUNE 2021 - PRESENT | UNIVERSITY OF TEXAS AT EL PASO

College of Health Sciences, Department of Interdisciplinary Health Sciences

Graduate Research Associate (GRA)

Muscle Molecular Physiology Laboratory – PI: Dr. Kisuk Min

AUGUST 2019 - JUNE 2020 | TEXAS A&M UNIVERISTY

College of Education and Human Development, Department of Kinesiology

Graduate Research Associate (GRA)

Vascular Physiology Laboratory – PI: Dr. Christopher Woodman

ASSISTANTSHIPS / GRANTS

Graduate Assistantship Award Recipient – University of Texas at El Paso

- Interdisciplinary Health Science Program – College of Health Sciences

Dodson Research Grant Spring 2022 Recipient – University of Texas at El Paso

- Understanding the role of MAP kinase phosphatase-5 (MKP-5) in chemotherapy-induced heart damage.

- Status: Awarded
- Amount: \$3,000

Graduate Research Assistantship –Texas A&M University

- Understanding the influence of genetic background on vascular endothelial function.
 - Funded from August 2019 – June 2020 by TAMU T3 Triads for Transformation Grant.

PUBLISHED REVIEWS

Gaytan, S. L., Lawan, A., Chang, J., Nurunnabi, M., Bajpeyi, S., Boyle, J. B., ... & Min, K. (2023). *The beneficial role of exercise in preventing doxorubicin-induced cardiotoxicity*. *Frontiers in Physiology*. <https://doi.org/10.3389/fphys.2023.1133423>

Gaytan, S. L., Beaven, E., Gadad, S. S., Nurunnabi, M., *Interdiscip. Med.* 2023, e20230018. <https://doi.org/10.3389/fphys.2023.1133423>

PUBLISHED ABSTRACTS

Holly, D., Kim, H., **Gaytan, S.**, Woodman, C., & Massett, M. (2021). *Genetic Background Influences Endothelium-dependent Vasomotor Function in Large Arteries*. *The FASEB Journal*, 35.

Holly, D. S., Massett, M., **Gaytan, S.**, Kim, H., Shin, S., & Woodman, C. (2020). *Genetic Background influences Endothelial Function along the Mouse Vascular Tree*. *The FASEB Journal*, 34(S1), 1-1.

LABORATORY AND TECHNICAL SKILLS

ANIMAL TRAINING

- Mice handling
- Rat handling
- Injections
 - Tail intravenous (IV) injection
 - Intraperitoneal (IP) injection
- Dissect and isolate mouse/rat arteries
- Catheterize and infuse vessels
- Mouse tissue dissecting/harvesting
- Blood collection
- Biosafety and bloodborne pathogens training
- IACUC laboratory safety training

GENERAL LABORATORY TRAINING

- Effectively utilize standard laboratory equipment
 - pipettes, centrifuge, pH meters and plate readers
- Wire myography – DMT myograph
 - Mounting vessels to measure vasomotor function
- DNA, RNA and protein extraction from biological samples
- BCA protein assay
- All Taq mice genotyping

- Quantitative polymerase chain reaction (qPCR) – QuantStudio 7
- Real time PCR
- Blot techniques: western blot
- Polyacrylamide gel electrophoresis – BioRad MiniProtean Tetra Cell
- Tissue homogenization
- Cell culture
- Nanoparticle conjugation

SOFTWARE TRAINING

- SPSS statistical analysis
- JMP statistical analysis
- Microsoft Excel Specialist certification
- Microsoft Word Specialist certification