

# Jacob K. Meariman, PhD

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## Education

**Louisiana State University Health Sciences Center, New Orleans, LA**

MD: School of Medicine, 2024 (expected)

USMLE Step 1: 247

USMLE Step 2: 266

PhD: Pharmacology and Experimental Therapeutics, 2022

Department of Pharmacology and Experimental Therapeutics; PI: Daniel Kapusta, PhD

**Louisiana State University, Baton Rouge, LA**

BS: Biochemistry, 2017

BA: Philosophy, 2017

## Research Experience

**Graduate Research, PI: Daniel Kapusta, PhD**

06/19 -05/22

Investigating the neurohumoral mechanisms of kappa opioid receptor agonists, their effects on the cardiovascular and renal systems, and their potential as a novel cardiovascular therapy

Techniques: surgical implantation of intracerebroventricular, femoral, jugular, carotid, and bladder catheters, renal sympathetic nerve activity recording, urinalysis, and other surgical and physiological techniques

**Undergraduate Research, PI: Anne Grove, PhD**

01/15 - 05/17

Investigating a transcription factor from the plant pathogen *Pectobacterium atrosepticum* and understanding how this transcription factor regulates gene expression in response to ligand binding or changes in pH.

Techniques: polymerase chain reaction (PCR), western blot, gel electrophoresis, mutagenesis, fluorescence microscopy and other molecular biology techniques

## Journal Publications

Garcia, J., **Meariman, J.K.**, Cook, M.W., and Hudson, C.T. Robotic assisted Redo Heller Myotomy for achalasia, posterior approach with inadvertent esophageal perforation and repair. (2023). Submitted.

**Meariman, J.K.**, Zulli, H., Perez, A., Siddhartha, B., and Mohandas, R. Small vessel disease: connections between the kidney and the heart. (2023). *American Heart Journal Plus: Cardiology Research and Practice* 26, 100257.

**Meariman, J.K.**, Sutphen, J., Gao, J., Mercante, D., and Kapusta, D.R. Difelikefalin, a peripherally restricted KOR agonist, utilizes a central KOR pathway to elicit a diuresis. (2022). *Pharmacological Research* 185, 106740.

**Meariman, J.K.**, Sutphen, J., Gao, J., and Kapusta, D.R. Nalfurafine, a G-Protein-Biased KOR (Kappa Opioid Receptor) Agonist, Enhances the Diuretic Response and Limits Electrolyte Losses to Standard-of-Care Diuretics. (2022). *Hypertension* 79(2), 379-390.

Deochand, D., Pande, A., **Meariman, J.K.**, and Grove, A. Redox-sensing by PecS from the plant pathogen *Pectobacterium atrosepticum* and its effect on gene expression and the conformation of PecS-bound promoter DNA. (2019). *Biochemistry* 58(21), 2564-2575.

Sivapragasam, S., Deochand, D.K., **Meariman, J.K.** and Grove, A. Stringent response induced by phosphate limitation promotes purine salvage in *Agrobacterium fabrum*. (2017). *Biochemistry* 56(43), 5831-5843.

Deochand, D.K., **Meariman, J.K.** and Grove, A. pH-dependent regulation of gene expression by *Pectobacterium atrosepticum* PecS. (2016). *ACS Chemical Biology* 11(7), 2049-2056.

## Published Abstracts

**Meariman, J.K.**, Sutphen, J., Gao, J., and Kapusta, D.R. Difelikefalin, a peripherally restricted kappa opioid receptor agonist, evokes diuresis through a central kappa opioid receptor pathway. (2022). *The FASEB Journal* 36 (S1).

**Meariman, J.K.**, Sutphen, J., Gao, J., and Kapusta, D.R. Nalfurafine, an Orally Active, G Protein-biased Kappa Opioid Receptor Agonist, Increases the Diuretic Response to Loop and Thiazide Diuretics and Limits Electrolyte Losses. (2021). *Circulation* 144, A13956.

**Meariman, J.K.**, Sutphen, J., Gao, J., and Kapusta, D.R. Nalfurafine Combined with Standard-of-Care Diuretics Increases Diuresis and Limits Electrolyte Losses. (2021). *The FASEB Journal* 35 (S1).

**Meariman, J.K.**, Sutphen, J., Denys, I., Harrison, D.G., Kapusta, D.R., and Gao, J. Leukocytic Thy-1 Expression Differs in Kidney Cortex and Medulla in Spontaneously Hypertensive Rats. (2020). *The FASEB Journal* 34 (S1).

## Book Chapters

**Meariman, J.K.**, Kerut, C., Roig, R., Gould, H. Cancer and Pain. *Encyclopedia of the Neurological Sciences* (3). Submitted.

## Patents

**Meariman, J.K.**, Gao, J., Kapusta, D.R. Use of Kappa Opioid Receptor Agonists to Treat Cardiovascular Disease. Provisional Patent Application PCT/US2022/021165

Gao, J., Kapusta, D.R., Naljayan, M., **Meariman, J.K.** Compositions and Methods to Treat Polycystic Kidney Disease. Provisional Patent Application PCT/US2021/030445.

## Scientific Presentations

**Meariman, J.K.**, Richard, Z., Wolfe, R., Raj, M. Piriformis Syndrome Causing Lumbosacral Plexopathy Following a Fall: A Case Report. Poster to be presented at the American Academy for Physical Medicine and Rehabilitation's Annual Assembly 2023. 2023 November 15-19.

Richard, Z., **Meariman, J.K.**, Wolfe, R., Raj, M. Identifying Median Neuropathy at the Ligament of Struthers Using Ultrasound: A Case Report. Poster to be presented at the American Academy for Physical Medicine and Rehabilitation's Annual Assembly 2023. 2023 November 15-19.

**Meariman, J.K.**, Gao, J., Mercante, D.E., Kapusta, D.R. Difelikefalin, a peripherally restricted kappa opioid receptor agonist, evokes diuresis through a central kappa opioid receptor pathway. Poster presented at Kappa Therapeutics Conference 2023. 2023 March 30-31.

**Meariman, J.K.**, Sutphen, J., Gao, J., Kapusta, D.R. Difelikefalin, a peripherally restricted kappa opioid receptor agonist, evokes diuresis through a central kappa opioid receptor pathway. Poster presented at Experimental Biology 2022. 2022 April 2-5.

**Meariman, J.K.**, Sutphen, J., Gao, J., Kapusta, D.R. Nalfurafine, an Orally Active, G Protein-biased Kappa Opioid Receptor Agonist, Increases the Diuretic Response to Loop and Thiazide Diuretics and Limits Electrolyte Losses. Oral presentation at LSUHSC MD/PhD Forum. 2022 February 24.

**Meariman, J.K.**, Sutphen, J., Gao, J., Kapusta, D.R. Nalfurafine, an Orally Active, G Protein-biased Kappa Opioid Receptor Agonist, Increases the Diuretic Response to Loop and Thiazide Diuretics and Limits Electrolyte Losses. Oral presentation at American Heart Association Scientific Sessions 2021 (virtual). 2021 November 13-15.

**Meariman, J.K.**, Sutphen, J., Gao, J., Kapusta, D.R. Nalfurafine Combined with Standard-of-Care Diuretics Increases Diuresis and Limits Electrolyte Losses. Poster presented at Experimental Biology 2021 (virtual). 2021 April 27-30.

**Meariman, J.K.**, Sutphen, J., Gao, J., Kapusta, D.R. Nalfurafine Produces a Pertussis-Toxin Sensitive Water Diuresis via the Kappa Opioid Receptor. Poster presented at the 35<sup>th</sup> Annual MD/PhD National Student Conference (virtual). 2020 September 24.

**Meariman, J.K.**, Yi, B. and Xi, Y. A Novel NSAID Derivative Inhibits Tumorigenesis and Metastasis in Triple-Negative Breast Cancer PDX Model. Poster presented at LSUHSC Medical Student Research Day. 2019 October 19; New Orleans, LA.

**Meariman, J.K.**, Deochand, D. and Grove, A. pH-Dependent DNA Binding of the Transcriptional Regulator PecS from *Agrobacterium tumefaciens*. Poster presented at: 23<sup>rd</sup> Annual Summer Undergraduate Research Forum (SURF). 2016 July 29; Baton Rouge, LA.

**Meariman, J.K.**, Deochand, D. and Grove, A. In vivo Reporter Gene Assay for the Transcriptional Regulator PecS from *Pectobacterium atrosepticum*. Poster presented at: 22<sup>nd</sup> Annual Summer Undergraduate Research Forum (SURF). 2015 July 31; Baton Rouge, LA.

## Teaching

**Meariman, J.K.** Therapeutic Management of High Blood Pressure. Lecture during LSUHSC Traditional Nursing Pharmacology Course. 2022 January 27.

**Meariman, J.K.** Therapeutic Management of High Blood Pressure. Lecture during LSUHSC CARE Accelerated Nursing Pharmacology Course. 2022 January 20.

**Meariman, J.K.** Therapeutic Management of High Blood Pressure. Lecture during LSUHSC Traditional Nursing Pharmacology Course (virtual). 2021 September 2.

**Meariman, J.K.** Therapeutic Management of High Blood Pressure. Lecture during LSUHSC Dental Hygienist Pharmacology Course (virtual). 2021 August 27.

**Meariman, J.K.** Therapeutic Management of High Blood Pressure. Lecture during LSUHSC Dental Hygienist Pharmacology Course (virtual). 2020 September 11.

## Professional Memberships

American Academy of Physical Medicine and Rehabilitation  
 Association for Academic Psychiatrists  
 American Heart Association  
 American Society for Pharmacology and Experimental Therapeutics  
 American Physician Scientists Association  
 Phi Beta Kappa Honor Society  
 Phi Kappa Phi Honor Society

## Honors and Awards

Norman W. Robie Memorial Pharmacology Graduate Student Research Award, 2022  
 ASPET Annual Meeting at Experimental Biology Travel Award, 2021  
 Jesuit High School Investiture Ceremony Alumni Speaker, 2018  
 LSU Outstanding Senior in Biochemistry Award, 2017  
 M.D. Socolofsky Scholarship Award, 2016  
 LSU HHMI Research Scholar, 2016  
 LSU Nominee: Barry Goldwater Scholarship, 2015  
 LSU HHMI Research Scholar, 2015  
 LSU Academic Scholars Resident Award, 2013  
 TOPS Honors Award, 2013  
 PIPE Council Scholarship Award, 2013

## Leadership

LSUHSC MD/PhD Forum Planning Committee, Co-chair 2021-2023  
 LSUHSC SGA Executive Board, Intramural Sports Co-chair, 2018-2019  
 LSUHSC Camp Tiger Food Committee, May 2018  
 Jesuit High School New Orleans Class of 2013 Alumni Committee, 2017 -  
 LSU Men's Club Volleyball Vice President, 2016-2017  
 SMACYO Labor of Love Sites and Tools Coordinator, July 2014

## Extracurriculars

*Hypertension* Early Career Reviewer and Editor Program, 2023 -  
 APSA Undergraduate Mentorship Program, 2022 -  
 Jesuit High School Medical Society Guest Speaker, 2022  
 Ad Hoc Reviewer: *Frontiers in Neuroscience*, 2022 -  
 LSUHSC Traditional Nursing Pharmacology Course Tutor, 2021- 2022  
 LSUHSC Peer Advocate Liaison, Graduate Studies: Pharmacology, 2020 - 2022  
 Nichols State Pre-Professional Medical Group MD/PhD Presentation, November 2020  
 LSUHSC Pre-Med Day, January 2020  
 SMACYO Labor of Love Adult Volunteer, July 2019

LSUHSC Sci-Fly Mentoring Session Mentor, July 2018

Habitat for Humanity, September 2017

SMACYO Labor of Love Team Member, July 2017

Jesuit High School El Salvador Mission Trip Chaperone, June 2014