

Keisa Mathis, PhD
Graduate School of Biomedical Sciences
Physiology & Anatomy
Email: Keisa.Mathis@unthsc.edu



Area of Expertise

Chronic inflammation has been implicated in the development of hypertension (high blood pressure). The primary focus of my research is to understand and enhance endogenous nervous and immune system interactions that control inflammation in order to halt the progression of hypertension. To investigate this, we use lupus as the disease model since chronic inflammation contributes to the prevalent hypertension and renal injury in this devastating autoimmune disease that primarily affects young women.

I am currently the PI of a federally-funded grant from the National Heart, Lung, and Blood Institute and a private grant from the Lupus Research Alliance. The federal grant will investigate the regulation of inflammation in the kidney that, if accumulated and left unchecked, can lead to hypertension and renal injury. The private grant will test the efficacy of a cholinergic agonist as an anti-inflammatory therapy in lupus mice and determine whether this drug has positive outcomes on behavior. Work in my lab will include integrative physiological approaches complimented with molecular, cellular, and immunological techniques. A goal of the lab is to take what is learned in the animal model of lupus hypertension and translate it into human studies that could benefit both lupus and hypertensive populations.

Qualifications

PhD in Physiology, LSU Health Science Center
MS in Physiology, LSU Health Science Center
MS in Applied Physics, Purdue University
BS in Physics, Southern University

Recent Publications

Mechanisms of Sex Disparities in Cardiovascular Function and Remodeling

Chaudhari, S., Cushen, S. C., Osikoya, O., Jaini, P. A., Posey, R., Mathis, K. & Goulopoulou, S., 13 Dec 2018, In : Comprehensive Physiology. 9, 1, p. 375-411 37 p.

Microrna-21 ablation exacerbates aldosterone-mediated cardiac injury, remodeling, and dysfunction

Syed, M., Ball, J. P., Mathis, K., Hall, M. E., Ryan, M. J., Rothenberg, M. E., Yanes Cardozo, L. L. & Romero, D. G., 1 Dec 2018, In : American Journal of Physiology - Endocrinology and Metabolism. 315, 6, p. E1154-E1167

Pharmacological potentiation of the efferent vagus nerve attenuates blood pressure and renal injury in a murine model of systemic lupus erythematosus

Pham, G. S., Wang, L. A. & Mathis, K., 1 Dec 2018, In : American Journal of Physiology - Regulatory Integrative and Comparative Physiology. 315, 6, p. R1261-R1271

Lipopolysaccharide challenge reveals hypothalamic-pituitary-adrenal axis dysfunction in murine systemic lupus erythematosus

Pham, G. S. & Mathis, K. W., 4 Oct 2018, In : Brain Sciences. 8, 10, 184.

Angiotensin receptor and tumor necrosis factor- α activation contributes to glucose intolerance independent of systolic blood pressure in obese rats

Rodriguez, R., Lee, A., Mathis, K. W., Broome, H. J., Thorwald, M., Martinez, B., Nakano, D., Nishiyama, A., Ryan, M. J. & Ortiz, R. M., 1 Oct 2018, In : American journal of physiology. Renal physiology. 315, 4, p. F1081-F1090

Buffering chronic kidney disease with sodium bicarbonate

Williams, E. N. & Mathis, K., 1 Sep 2018, In : Clinical Science. 132, 17, p. 1999-2001 3 p.

Complementing T Regulatory Cells to Combat Hypertension

Mathis, K. W., 30 Mar 2018, In : Circulation Research. 122, 7, p. 911-912 2 p.

Anti-CD3 antibody therapy attenuates the progression of hypertension in female mice with systemic lupus erythematosus

Mathis, K., Taylor, E. B. & Ryan, M. J., 1 Jun 2017, In : Pharmacological Research. 120, p. 252-257 6 p.

Cholinergic agonists reduce blood pressure in a mouse model of systemic lupus erythematosus

Fairley, A. S. & Mathis, K., 1 Apr 2017, In : Physiological Reports. 5, 7, e13213.

An impaired neuroimmune pathway promotes the development of hypertension in systemic lupus erythematosus

Mathis, K. W., 1 Jan 2015, In : American Journal of Physiology - Regulatory Integrative and Comparative Physiology. 309, 9, p. R1074-R1077

Sponsored Projects

Impaired Neuroimmune Mechanisms in Lupus Hypertension

Mathis, K.

Intramural Research(UNTHSC)

1/07/16 → 31/08/17

Neuroimmune control of renal inflammation in lupus hypertension (For: Shyam Vedantam)

Mathis, K.

Intramural Research(UNTHSC)

5/06/17 → 31/05/18

Neuroimmune Mechanisms Involved in the Pathogenesis of Hypertension and Renal Injury

Mathis, K.

NHLBI: Nat Heart, Lung & Blood Institute

1/01/18 → 31/12/22

Renal and Hypertension Outcomes Following Vagal Nerve Stimulation in Mice with Systemic Lupus Erythematosus (For: Charles Maloy)

Mathis, K.

Intramural Research(UNTHSC)

1/03/16 → 28/02/17

Targeting Nicotinic Receptors to Reduce Inflammation Associated with SLE

Mathis, K. & Uteshev, V.

Lupus Research Alliance

1/03/18 → 28/02/21

The Contribution of Vagal Tone to Hypothalamic-Pituitary-Adrenal Axis Activity in SLE-mediated Hypertension (For: Grace Pham)

Mathis, K.

American Heart Association - SouthWest

1/07/16 → 30/06/18

The Role of the Cholinergic Anti-Inflammatory Pathway in Renal Function and Hypertension

Mathis, K.

American Heart Association - National

15/07/14 → 31/12/17

Ultrasound as an Alternative Therapeutic Option for Lupus

Mathis, K.

Intramural Research(UNTHSC)

1/03/15 → 31/08/16

