Stephen Mathew, PhD
Graduate School of Biomedical Sciences
Microbiology, Immunology & Genetics
Email: Stephen.Mathew@unthsc.edu

Area of Expertise

Dr. Stephen Mathew's research focuses on understanding the role of natural killer (NK) cell receptors in different disease models like cancer and lupus. Natural killer (NK) cells are cells of the immune system that form the first line of defense against cancer and viral infections. The molecular basis of NK cell recognition and activation by target cells is poorly understood. The research in the laboratory is concentrated toward unraveling the molecular basis of tumor cell recognition by the NK cell and its multiple receptor-ligand interactions. Specifically, in collaboration with pediatric oncologists and basic science researchers, Dr. Mathew is investigating the role of immune receptors in acute lymphoblastic leukemia (ALL) in children. This will provide important insights into the etiology of childhood leukemia as well as the development of new treatments that may improve the outcome of children with leukemia by modifying the function of immune cells in these patients.
The other projects in the laboratory deal with deciphering the role of immune receptors 2B4, CS1 and LLT1 in prostate cancer, breast cancer, Ewing sarcoma, and lupus.

Qualifications

BS in Biology, R.D. University

MS in Microbiology, R.D. University

PhD in Microbiology, R.D. University

Recent Publications

The many faces of innate immunity in SARS-CoV-2 infection
Hanan, N., Doud, R. L., Park, I. W., Jones, H. P. & Mathew, S. O., Jun 2021, In: Vaccines. 9, 6, 596.

Roles of nk cell receptors 2b4 (Cd244), cs1 (cd319), and llt1 (clec2d) in cancer
Buller, C. W., Mathew, P. A. & Mathew, S. O., Jul 2020, In: Cancers. 12, 7, p. 1-15 15 p., 1755.

Impact of the microbiome on the immune system
Lambring, C. B., Siraj, S., Patel, K., Sankpal, U. T., Mathew, S. & Basha, R., 2019, In: Critical Reviews in Immunology. 39 , 5, p. 313-328 16 p.

A novel ligand on astrocytes interacts with natural cytotoxicity receptor NKp44 regulating immune response mediated by NK cells
Bowen, K. E., Mathew, S. O., Borgmann, K., Ghorpade, A. & Mathew, P. A., Feb 2018, In: PLoS ONE. 13, 2, e0193008.

Blimp-1/PRDM1 regulates the transcription of human CS1 (SLAMF7) gene in NK and B cells
Kim, J. R., Mathew, S. O. & Mathew, P. A., Jan 2016, In: Immunobiology. 221, 1, p. 31-39 9 p.

Overexpression of LLT1 (OCIL, CLEC2D) on prostate cancer cells inhibits NK cell-mediated killing through LLT1-NKRP1A (CD161) interaction
Mathew, S. O., Chaudhary, P., Powers, S. B., Vishwanatha, J. K. & Mathew, P. A., 2016, In: Oncotarget. 7, 42, p. 68650-68661 12 p.

CS1 (SLAMF7) inhibits production of proinflammatory cytokines by activated monocytes
Kim, J. R., Horton, N. C., Mathew, S. O. & Mathew, P. A., Aug 2013, In: Inflammation Research. 62, 8, p. 765-772 8 p.

YY1 and a unique DNA repeat element regulates the transcription of mouse CS1 (CD319, SLAMF7) gene
Dongre, P., Mathew, S., Akopova, I., Gryczynski, I. & Mathew, P., Jul 2013, In: Molecular Immunology. 54, 3-4, p. 254-263 10 p.

Novel Interaction between Proliferating Cell Nuclear Antigen and HLA I on the Surface of Tumor Cells Inhibits NK Cell Function through NKp44
Horton, N. C., Mathew, S. O. & Mathew, P. A., 19 Mar 2013, In: PLoS ONE. 8, 3, e59552.

$2B4^+$ $CD8^+$ T cells play an inhibitory role against constrained HIV epitopes
Aldy, K. N., Horton, N. C., Mathew, P. A. & Mathew, S. O., 18 Feb 2011, In: Biochemical and Biophysical Research Communications. 405, 3, p. 503-507 5 p.

Sponsored Projects

CS1-Targeted Immunotherapy for Acute Lymphoblastic Leukemia (ALL) in Children
Mathew, S., Mathew, P. & Bowman, P.
Intramural Research(UNTHSC)
1/09/13 → 31/08/15

Molecular Characterization of NKp44 Ligand on Astrocytes
Mathew, P. & Mathew, S.
NINDS: Neurological Disorders & Stroke
1/02/17 → 31/01/19