



Wed 31 July 19
12pm – 1pm



NUS, Blk MD4,
Level 2 Seminar
Room @ 5 Science
Drive 2, S117545



[medicine.nus.edu.sg/
mbio/](http://medicine.nus.edu.sg/mbio/)

Immune Aging as a Consequence of Primary and Secondary Lymphoid Organ Failure



Professor Janko Nikolich-Žugich

Bowman Professor and Head,
Department of Immunobiology
Co-Director, University of Arizona Center on Aging
University of Arizona College of Medicine-Tucson

Abstract

Adaptive immune system is in charge of precise defense against a highly diverse array of microorganisms. For defense against new infections, the organism deploys naïve, previously antigen-unexposed, T and B lymphocytes, whose antigen-specific receptors recognize, and eventually orchestrate the removal of, the invading microorganisms. Naïve B, and even more so T, lymphocytes numerically diminish with aging. However, new data suggests that those that remain appear to have maintained their functional potential, contrary to an earlier dogma. These findings mandate refocusing of our attention on cell-extrinsic defects in immunity. Results will be presented on primary (thymus) and secondary (spleen, and even more, lymph node) aging, showing that thymic rejuvenation is not sufficient to improve/increase naïve T cell pool in the secondary lymphoid organs. We demonstrate that aging of lymph nodes, including alteration in their architecture and stromal cell integrity, as well as changes in circulating factors, critically modulate homeostasis and function of the aging immune system.

Recommended Readings

Nikolich-Žugich, J. 2018. The twilight of immunity – emerging concepts in aging of the immune system. *Nat. Immunol.* 19:10-19.

Thompson, H.L., M.J. Smithey, J.L. Uhrlaub, I. Jeftić, M. Jergović, S.E. White, N. Currier, A. M. Lang, A. Okoye, B. Park, L.J. Picker, C.D. Surh and J. Nikolich-Žugich. Lymph nodes as barriers to T cell rejuvenation in aging mice and non-human primates. *Aging Cell.* 2019;18:e12865.

Davies, J.S., H. L. Thompson, V. Pulko, J. Padilla Torres and J. Nikolich-Žugich, 2017. Role of cell-intrinsic and environmental age-related changes in altered maintenance of murine T cells in lymphoid organs. *J Gerontol A Biol Sci Med Sci*, 2018, Vol. 73, No. 8, 1018–1026. doi:10.1093/gerona/glx102