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Abstract:

Human endogenous retrovirus K102 (HERV-K102) is a replication competent protector foamy retrovirus located on chromosome 1 and is unique to humans. It appears to be a crucial component of the innate anti-viral response launched in macrophages in response to viruses which renders the activated macrophages foamy (FM). Various lines of evidence suggest the HERV-K102 innate defense system may be critical to host survival against emerging RNA viruses. However, the release of HERV-K102 particles from FM can be impeded by age or stress called immunosenescence (IMS). IMS is a well-established clinical risk factor for COVID-19 severity. It has been suggested IMS involves the reduced inactivation of alpha-fetoprotein (AFP) by declining levels of DHEA associated with age and/or stress. Newer evidence suggests SARS-CoV-2 may specifically target the innate anti-viral response and uniquely disrupts foam cell formation by blocking the mevalonate pathway, in addition to the deregulation of IL-6. The molecular pathways common to IMS and COVID-19 pathogenesis appear to converge on the glucocorticoid receptor (stress) regulatory network and the IL6ST (trans-signalling IL-6 receptor) inflammatory pathway both which involve active AFP and IL-6. On the other hand, CCR5 receptor blockade has shown promise clinically against COVID-19. Of relevance, AFP is known to interact with CCR5, to inhibit the pro-apoptotic effects of CASP3 while TGFB-1 is known to bind and activate AFP. In this regard, newer evidence by N Li et al (2020) suggests the antiviral ivermectin targets these SARS-CoV-2 interacting proteins. Moreover, ivermectin appears to have remarkable efficacy and effectiveness for the prevention and treatment of COVID-19. In conclusion, ivermectin may provide significant protection against emerging RNA viruses potentially by circumventing the adverse effects of active AFP in IMS and COVID-19 pathogenesis, allowing for the launch of the HERV-K102 innate protector system in FM.

Biography:

Dr. Laderoute is currently a voluntary consultant for ISM-Immune System Management in Ottawa. She was the Lab Director from 2011 to 2020 where she was inspired to publish the new immunosenescence paradigm. Prior to this she was Research Manager of the Blood Zoonotics Unit at the Public Health Agency of Canada when she discovered HERV-K102 as a protector foamy virus of humans (internationally patented but now abandoned). She obtained her Ph.D. in Medical Sciences-Immunology at the University of Alberta in 1991. She published a unified theory of cancer in 1994 based on her Ph.D. discovery of the 67 Kd AFP receptor/binding protein in tumors and macrophages, which attempted to explain how the malignant *phenotype* of tumors related to immunosuppression of the host via active AFP. While this was considered heretical at the time, new evidence with CCR5 blockers and knowledge of reversible EMT now suggests she may have been correct.

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