J Clin Cell Immunol 2014, 5:5
http://dx.doi.org/10.4172/2155-9899.S1.019

OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference and Exhibition on
Clinical & Cellular Immunology
September 29-October 01, 2014 DoubleTree by Hilton Baltimore-BWI Airport, USA

Emerging paradigms in immunonutrition

Ebenezer Satyaraj
Nestle Research Center, USA

Nutritional immunology is an emerging discipline that evolved with the study of the detrimental effect of malnutrition on the immune system. While malnutrition still remains a worldwide problem, life-stage [neonate or old age] and natural stress are increasingly becoming the major causes of lowered immune status in both humans and animals. Unlike immunodeficiency caused by malnutrition, life-stage and natural stress need a more comprehensive strategy and cannot be addressed simply by correcting nutritional problems. Lowered immune status because of life-stage or natural stress is characterized by a reduced of antigen presenting cells [APC] function, resulting in a less efficient or altered immune response, leading to increased susceptibility to infections disease, increase in autoimmunity and cancers. Beyond providing essential nutrients, diet can actively influence the immune system. Over 65% of the immune cells in the body are located in the gut, technically making the gut the 'largest immune organ'. The immune receptors of the innate immune system present in the gut are the primary targets of strategies for immunomodulation via diet. Diet interacts with the immune system at multiple levels, starting with providing basic nutrients, moving on to providing higher levels of key nutrients such as protein, vitamins & minerals, leading to a more focused modulation of the immune system. A framework elaborating diet - immune system interaction, with relevant examples will be discussed along with specific examples of how an immune-enhancing ingredient is evaluated, tested and formulated into diets.

Biography

Ebenezer Satyaraj graduated with a Masters degree in Medical Microbiology from University of Madras, Madras, India in 1990. He completed his formal education by earning a Doctor of Philosophy degree in Immunology from the National Institute of Immunology, New Delhi, India in 1996. He continued his training at the University of Chicago, Illinois, as a Postdoctoral Fellow in Department of Molecular Genetics & Cell Biology doing research in Molecular Immunology. He subsequently accepted an Instructor's position at the Department of Medicine, Northwestern University Medical School, Chicago, where he taught Immunology and conducted research in the area of autoimmunity. He joined Nestle Purina in 2003 where he currently serves as Group Manager, Nutritional Immunology at the Nestlé Research Center in St Louis, MO, leading a team that focuses on research in the area of nutritional immunology & cytokine biology. He has authored numerous scientific papers in the areas of cellular/molecular immunology and cytokine biology, including a recent publication in the journal Science that explains size variations in dogs and lectures internationally in the area of Nutritional Immunology. He is a member of the American Association of Immunologist and the American Veterinary Immunology Association, serves on the Editorial Board of 'International Journal of Immunological Studies' and is a reviewer for several journals including British Journal of Nutrition, Arthritis & Rheumatism and Journal of Gerontology.

ebenezer.satyaraj@rd.nestle.com

Anti-inflammatory effects of neurotropic drugs at pneumofibrosis are associated with their inhibitory impact on regional hematopoietic stem cells and progenitor cells

Evgenii Skurikhin, Ekaterina Khmelevskaya, Natalia Ermakova, Olga Pershina, Vyacheslav Krupin, Alena Reztsova, Inna Stepanova and **Alexander Dygai**
Russian Academy of Medical Sciences, Russia

Pharmacological influence on the regional adult hematopoietic stem cells (HSC) and hematopoietic progenitor cells by neural-pharmacological agents may be a promising approach in the treatment of alveolar epithelium inflammation at the fibrotic diseases. We investigated neural-pharmacological agents (reserpine, ketanserine, spiperone) influence on the inflammatory reaction development in the lungs of mice C57BL/6 during bleomycin-induced pulmonary fibrosis. We conducted cytometric analysis of HSCs (Lin-, Sca-1+, c-Kit+, CD34-), progenitor hematopoietic cells (Lin-, Sca-1+, c-Kit+), pan-hematopoietic cells (CD45+) from bone marrow, blood and lung. We evaluated ability of stem cells and progenitor cells to self-maintenance, their clonal activity and differentiation. It was shown neural-pharmacological agents decreased bleomycin-induced alveolar interstitial infiltration by lymphocytes, neutrophils, monocytes and plasma cells. At the same time with the improvement of histopathological measures in lung reserpine, spiperone and ketanserine reduced not only by the number of HSCs and hematopoietic progenitor cells in bone marrow, blood and lung, but also their proliferation and differentiation decreased. We assume the anti-inflammatory effects of neurotropic agents may be associated with their inhibitory impact on HSCs and progenitor cells.

ovpershina@gmail.com