Ivon T C Novak, J Clin Cell Immunol 2017, 8:5 (Suppl)
DOI: 10.4172/2155-9899-C1-039

What about neutrophils and costimulatory molecules?

Ivon T C Novak
National University of Cordoba, Argentina

Human neutrophils not only limit their function to phagocytosis, production of reactive oxygen species and generation of neutrophil extracellular traps (NETs), but also modulate the immune response according to the microenvironment and the cell-cell interactions. As it is known, NETs are formed by chromatin and granular proteins which after stimulation are released to the extracellular environment. NETs have not only been involved as defence mechanisms, but they have also been linked to tissue damage, thrombosis, cancer immunoediting and autoimmunity. Poly morphonuclear neutrophils (PMNs) activated *in vitro* may express molecules normally associated with antigen presenting cells (APCs). T cell activation initiates with a first signal, the interaction of the antigenic peptide/major histocompatibility complex with the TCR, and a second signal, the "costimulatory signal". Costimulatory molecules B7-1 (CD80) and B7-2 (CD86), which can be performed in neutrophilic granules, can be expressed in the surface under certain stimuli. May NETs contain costimulatory molecules? Recently we found CD80 and CD86 colocalized in NETs in autologous leukocytes cultures, after lipopolysaccharide (LPS) or ovalbumin (OVA) stimulation. The costimulation can be stimulatory or inhibitory; this depends on the receptor. The B7-1/B7-2:CD28/CTLA-4 pathway is known to be critical for immune response initiation and regulation. The presence of costimulatory molecules in NETs would let them influence the cell environment and would allow PMNs to exert function as APCs and modulatory functions of various subpopulations of T cells. Future research regarding the impact of NETs on the role of T cells must be performed. The variability of neutrophil functions according to its environment, physiological or pathological condition, and the expression of different surface markers have allowed to characterize different phenotypes of neutrophils, but there are heterogenea descriptions in literature, because parameters, methods, specie, tissue and biomarkers, are different. Neutrophils are very interesting cells implicated in innate and adaptive immunity.

Biography

Ivon T C Novak studied Biology and performed a PhD thesis at Faculty of Exact, Physical and Natural Sciences of the National University of Cordoba, Argentina, in 2003. She is currently a full-time Adjunt Professor of Department of Cell Biology, Histology and Embryology at Faculty of Medical Sciences, National University of Cordoba and Director of Elective Module of Basic Immunology at Faculty of Medical Sciences, National University of Cordoba. She is Magister in University Teaching, Regional Cordoba Faculty, and National Technological University. Her main research interest has been on Immunology, Cell Biology and University Education.

inovak@cmefcm.uncor.edu

Notes: