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The anti-idiotypic antibody 1F7 stimulates monocyte interleukin-10 production and induces endotoxin tolerance

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Pathogens that establish chronic infection elicit immune responses with suppressive cytokines dominating over pro-inflammatory cytokines. Chronic hepatitis C virus (HCV) infection, human immunodeficiency virus (HIV) infection and simian immunodeficiency virus (SIV) infection are associated with high levels of antiviral antibodies expressing a common idiotype specifically recognized by the 1F7 monoclonal antibody (mAb). The 1F7 mAb is a murine IgMκ antibody raised against immunoglobulin pooled from the plasma of multiple HIV infected individuals. In this study, we investigated direct effects of the 1F7 mAb itself on peripheral blood mononuclear cells (PBMC).

We found that 1F7 mAb stimulated isolated human monocytes and CD36+ lymphocytes to produce IL-10 in a time and dose-dependent manner. The 1F7 enhanced IL-10 production by monocytes activated by TLR and NLR agonists, including bacterial LPS and peptidoglycans. Treatment of monocytes with 1F7 mAb also reduced their subsequent responsiveness to LPS stimulation.

Induction of antibodies expressing the 1F7 idiotype by chronic pathogens may facilitate IL-10 production and progression to chronic infection. Direct effects of IL-10 from human monocytes stimulated by 1F7-like antibodies, followed by monocyte transition to an alternatively activated phenotype illustrated by endotoxin tolerance, are two complementary features favoring a tolerogenic or non-responsive immunological environment.

Biography

Anna G. Sukiasyan has completed his Ph.D. in Biology at the age of 31 years from the Research Institute of Epidemiology MH RA, Yerevan, Armenia. She is scientific worker, senior research fellow in the Research Institute of Epidemiology and lecturer in Yerevan Medical Haybusak University. She worked as an internship student in the research group of Prof. M. Worm, Allergie-Centrum-Charite, Berlin, Germany. She has published more than 11 papers in reputed.

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