The effect of IL-2, IL-27 in combination of 9 (CIS) retinoic acid in B cell receptors (IgM, IgG), APCs (gilial, DC, Mθ), CD4 T cell subsets (Th1, Th17, Treg), CD8+ Sub sets (CD25+ (for Treg cells) in Experimental Autoimmune Encephalomyelitis model

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ABSTRACT

BACKGROUND:
Cytokines are critical players in the regulation of immune responses. With the help of these soluble factors, immune cells undergo proliferation, activation, differentiation, and inactivation or even cell death. Among various types of cells involved in immune responses, CD4 T cells play central roles in immune regulation. Immune-suppressive function and Differentiation of these T and B cell populations by Tregs, and B regs, cells is affected by various cytokines. These Tregs, and B regs, microenvironment interact in the process and context of Autoimmunity.

OBJECTIVE:
To determine the effective potential of IL-2, IL-27 in combination of 9 CIS retinoic acid in B cell receptors, (IgM, IgG,), APCs (gilial, DC, Mθ), CD4 T cell subsets (Th1, Th17, Treg), CD8 Tcell subsets Corrected as CD8+ Sub sets (CD25+ (for Treg cells) response in Autoimmune Encephalomyelitis model (EAE) model

METHODS:
After EAE induction using 40 C57BL/6 mice by immunization with an emulsion of MOG35-55 in complete Freund's adjuvant (CFA), followed by administration of pertussis toxin (PTX) in PBS; in the presence of IL-2 in combination with 9-cis-Retinoic Acid, IL-27 in combination with 9-cis-Retinoic Acid on the 10 weeks old female mice, we will be analyze the culture supernatant or serum levels to determining the level of IFN-γ, IL-6, IL-1β, IL-10, IL-17, TGFβ, IgG and IgM using ELISA method and will perform according to the manufacturer's instructions.

Tbet, RORγt, FOXP3, IFN γ, IL-17, IL-10, IL-1β, TGFβ, TNFα, IL-12, IL-6 and HPRT1, gene expressions will analysis using Real time PCR method. Will perform according to the protocol of the manufacturer

Flow Cytometer Analyses: FITC-, PE-, and PE-Cy5- conjugated mAbs against Th1 cells, Th17 cells, Tregs, B cell receptors, APCs and CD8 T cells (BD Bioscience), will be used to stain cells from spleen. Cells will incubated with antibodies for 20 min on ice, will wash twice in FACS media (FM; HBSS [BD Bioscience] plus 1% BSA [Sigma Chemical Co.] plus 1% azide [wt/vol; Sigma Chemical Co.]) and then will suspend in 0.3 ml of FM. Stained cells will be analyzed by FACScan™ (Becton Dickinson).

RESULTS/CONCLUSIONS:
IL-2 and IL-27 in-combination with 9-cis-Retinoic Acid exerts a dual effect (inhibition versus enhancement) in maintaining tolerance and balance modifying in B cells, APCs, CD4+T cell subsets (Th1, Th17 and Treg), and CD8+ Sub sets. Which are implicated in the immunopathogenesis, molecular mechanism, and cytokine pathways, suggest that IL-2 and IL-27 in-combination with 9 CIS retinoic acid both prevention and therapeutically relevant in Multiple autoimmunity.. However, while

exciting discoveries have been made, further work is required to understand the diverse effect of IL-2, IL27 in combination of 9 CIS retinoic acid in maintaining tolerance and balance modifying in in B cell receptors, (IgM, IgG,), APCs (gilial, DC, Mθ), CD4 T cell subsets (Th1, Th17, Treg), CD8+ Sub sets (CD25+)

Biography

Dr. Zelalem Kiros Bitsue, expertise in Infection, Inflammation, Immunotherapy and Prevention and specifically in molecular biology, gene transcription and expression, and signaling pathways to identify small molecules that induced immune cells, inhibit invasion, and suppress disease phenotypes and multiplications. He has made 120+ publication papers in an international scientific good journal, founded United States of African Health Organization, and have critical skills in leadership. He has discovered hard wares for vaccine development

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