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## The effect of estrogen in combination with leptin on hypothalamus, and mitochondrial and in regulation of hormonal signaling and transcription factor in animal model lipoprotein disorders

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**Hypothesis:** Estrogen and leptin independently regulate neuroendocrine, leukocytes, and mitochondrial, along with cytokine function. I hypothesis that depending on the concentration of estrogen and leptin has synergetic effect in regulating hormonal signaling, and transcription factors and maintaining metabolic disorders.

**Objective:** The objective of this study was to determine the effective potential of estrogen in combination with leptin in T4, NADPH dependent cytochrome P450 monooxygenase (mixed function oxidases, MFO), glutathione-S-transferase, epoxide hydrolase, APCs (gilial, DC, M0), CD4 T cell subsets (Th1, Th17, Treg), CD8+ Sub sets (CD25+ (for Treg cells) response in animal models of lipoprotein disorders.

**Methods:** After encephalomyocarditis virus induction was done using 40 C57BL/6 mice; for experimental animal models of lipoprotein disorders in the presence of estrogen in combination with leptin on the 10 weeks old female mice, we analyzed the culture supernatant or serum levels to determining the level of NADPH dependent cytochrome P450 monooxygenase (mixed function oxidases, MFO), glutathione-S-transferase, epoxide hydrolase, IFN- $\gamma$ , IL-6, IL-1 $\beta$ , IL-10, IL-17 and TGF $\beta$ . ELISA method is performed according to the manufacturer's instructions. Tbet, ROR  $\gamma$ t, FOXP3, IFN  $\gamma$ , IL-17, IL-10, IL-1 $\beta$ , TGF $\beta$ , TNF $\alpha$ , IL-12, IL-6 and HPRT1, gene expressions analysis was done using Real time PCR method and perform according to the protocol of the manufacturer ER $\alpha$  and ER $\beta$ , Ca $^{++}$  influx, ATP, cytochromeoxidase subunits I, II, III, techniques such as immunohistochemistry, immunocytochemistry, and immunoblots using a wide range of antibodies

**Result/Conclusions:** Estrogen in combination with leptin exerts a dual effect (inhibition versus enhancement) in regulation and prevention of lipoprotein disorders; moreover, 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 immune-pathogenesis, molecular mechanism, and cytokine pathways, suggest that Estrogen in combination with leptin both prevention and therapeutically relevant in lipoprotein disorders and autoimmunity. However, while exciting discoveries have been made, further work is required to understand the diverse effect of Estrogen in combination with leptin in in regulation and prevention of lipoprotein disorders; moreover, maintaining tolerance and balance modifying in B cells, APCs, CD4+T cell subsets (Th1, Th17 and Treg), and CD8+ Sub sets.

### Biography

Zelalem Kiros Bitsue has completed his PhD in Immunology, MBBS Degree in Medicine and Surgery, a Bachelor's degree in Nursing and Health Administration, a Bachelor's degree in Theology and Leadership and a Diploma in advanced research proposal writing, research report writing, methods and grant proposal writing. He is an Assistant Professor at the Addis Ababa Institute of Technology. He is the Owner, Founder and General Director of the African Health Organization "US-AHO". He has made 120+ publications, is corresponding/first author of 112+ Publications as well as over 44,000 citations.

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