# TH1/TH2 PROFILE IN PATIENTS WITH HASHIMOTO'S HYROIDITIS BY FLOWCYTOMETRIC ANALYSIS OF CD4+ T LYMPHOCYTES

**IMMUNOLOGY**

Mourad Z, Elbasiony G, Elgendy W, Mansour A, Gamaleldin M

Department of Clinical and Chemical Pathology, University of Alexandria, Egypt

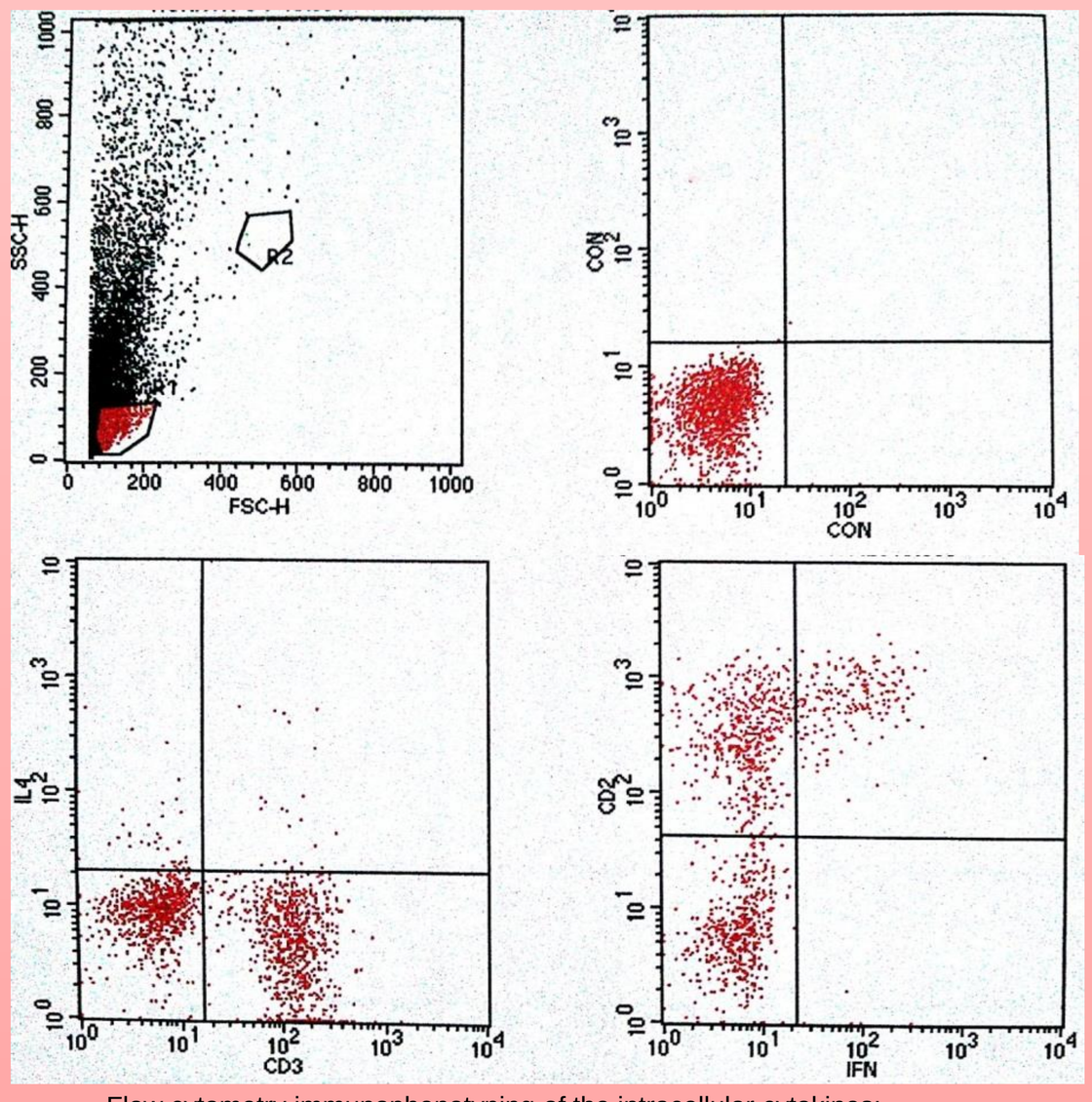
**Background**
Hashimoto's thyroiditis (HT) results from the parenchymal infiltration of the thyroid gland, by Th1 T cell clones that ultimately cause tissue destruction. In this study, we evaluated the cytokine profile in a group of patients with Hashimoto thyroiditis.

**Methods**
Blood samples were cultured for 4 hours, in the presence of phorbol myristate acetate (PMA), a potent mitogen for human peripheral blood lymphocytes, and Brefeldin A to inhibit the release of the cytokines from the cells. Cells were harvested and stained with fluorescently labeled anti- CD4 monoclonal antibodies to identify the T helper population as well as intracellular anti IFNγ and anti IL4 cytokine specific monoclonal antibodies in order to identify Th1 and Th2 respectively. By using flow cytometry and gating on the lymphocyte population, the percentages of Th1 and Th2 cells were identified as the proportion of IFNγ and IL4 positive cells respectively among the CD4+ T helper cells.

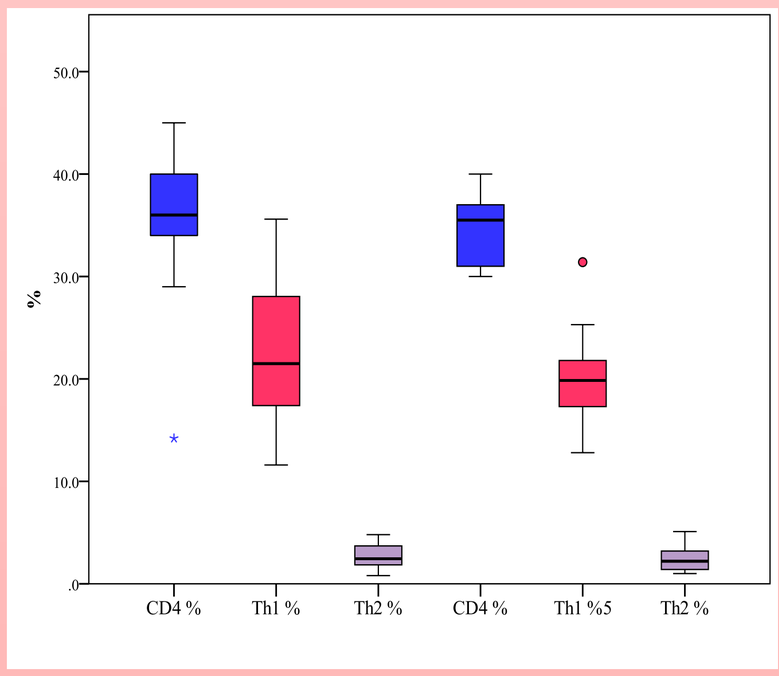
**Results**
20 adult female patients were selected based on the detection of serum anti thyroid peroxidase antibodies (Anti TPO) concentration equal to or higher than 600 IU/L. They were compared to 10 age and sex matched healthy control females with undetectable anti TPO antibodies. A significant difference in Th1 CD4+ and Th1/Th2 ratio was detected between both groups. This ratio was significantly higher in HT patients when compared to controls with a median of 20.22 versus 9.09 respectively (p =0.035).

**Conclusion**
Our data indicated that circulating Th1 CD4+ cells secreting IFNγ are significantly higher in the peripheral blood of HT patients.

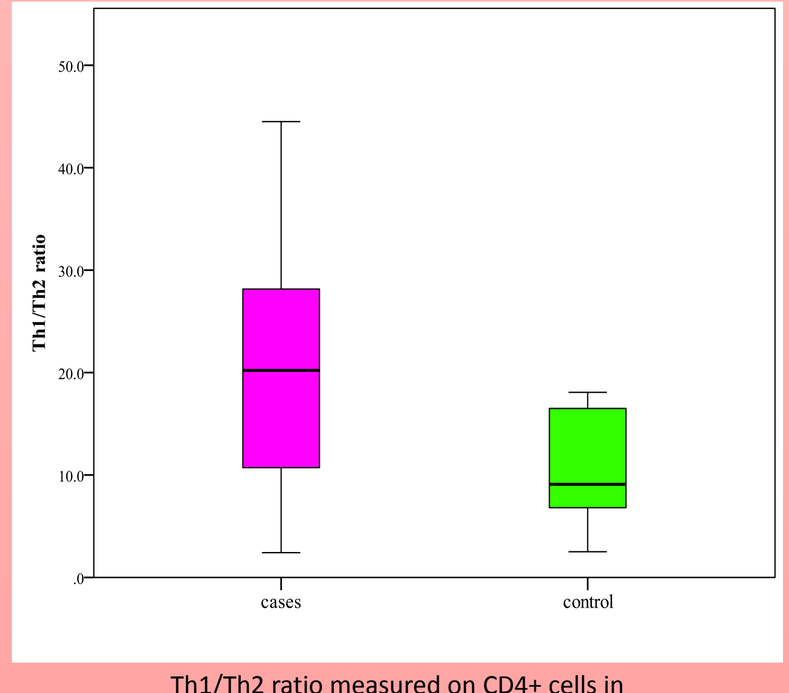
**Keywords**
Autoimmunity, Thyroid, Lymphocytes, Cytokines, Flow cytometry




Flow cytometry immunophenotyping of the intracellular cytokines; IL-4 and IFN-γ among the CD4+ lymphocyte population in a case of autoimmune hypothyroidism. SSC; side scatter, FSC; forward scatter




Percentage of CD4+, Th1 and Th2 cells among autoimmune hypothyroid patients and controls




Th1/Th2 ratio measured on CD4+ cells in autoimmune hypothyroid patients compared to a group of healthy control subjects.

**Contact:** Dr Marwa Gamaleldin marwa.gamal@alexmed.edu.eg