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Effect of Medicinal Plant on Interferon-gamma and Tumor Necrosis Factor-alpha-induced Thyroid Cell Growth and Ia Antigen Expression

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The effects of medicinal plant that constitute Gam-du-tang and Gung-gui-tang on interferon (IFN)- γ and tumor necrosis factor (TNF)- α -induced cytotoxicity and thyroid major histocompatibility complex (MHC) class II (Ia) antigen expression in FRTL rat thyrocytes were investigated. No effect on cell growth was found with IFN- γ . However, TNF- α was cytotoxic, and this was increased by preincubation with IFN- γ . Ethanol extract of Glycyrrhizae Radix, black beans, Angelicae Radix, and Cnidii Rhizoma (15~150 mg/ml) in both regimens significantly inhibited IFN- γ and TNF- α -mediated cytotoxicity of rat thyroid cells ($p < 0.05$ and $p < 0.01$). In addition, IFN- γ (0~100 U/ml) treatment induced class II antigen expression in up to 60% of FRTL cells, as detected by a murine monoclonal antibody to rat MHC class II antigen (FITC-OX6). Aberrant thyroid cell MHC class II antigen expression induced by IFN- γ is suppressed by the extract of herbal medicines. These results indicate that medicinal plant inhibit cytokine-induced thyroid cell destruction, therefore, may have therapeutic potential in the treatment of autoimmune thyroid disease.