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Myo-inositol in thyroid autoimmune disorders

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Myo-inositol has a determinant role in different metabolic pathways. Experimental data and clinical trials showed that myo-inositol and phosphatidylinositol(s) are involved in physiological and pathological conditions of the thyroid. Phosphatidylinositol is important in the intracellular signaling associated with thyroid-stimulating hormone (TSH) pathway in thyrocytes, and it is involved in thyroid autoimmunity. Recently it has been demonstrated the beneficial effects obtained by myo-inositol in association with seleno-methionine in patients affected by subclinical hypothyroidism. The myo-inositol effectiveness on TSH could be explained by its biological role in the TSH hormone signaling, as inositol regulates the H₂O₂-mediated iodination and the impairment of inositol-depended TSH signaling pathway can cause TSH resistance, and hypothyroidism. For this reason, the therapy can increase the amount of the second messenger, improving the TSH sensitivity. Moreover, it seems that myo-inositol could have promising therapeutic effects in insulin resistance, metabolic syndrome and their related disorders [diabetes, polycystic ovary syndrome (PCOS)], autoimmunity and certain malignancies, and their links. Further studies on the inositol pathways involved in certain disorders could lead to hypothesize additional therapeutic applications.

Biography

Silvia Martina Ferrari graduated in Biological Sciences *cum laude* in 2002 and specialized in Clinical Pathology in 2007 at the University of Pisa (Italy). Her principal areas of expertise are autoimmune thyroid disorders, chemokines and cytokines, type 1 diabetes, systemic autoimmune disorders, HCV-associated thyroid disorders and thyroid cancer. Her researches have been published in more than 140 articles in international journals (HI=37). She serves as an Editorial Board Member and is Referee and Reviewer of many scientific international journals.

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