

3<sup>rd</sup> Global Summit on **PHYSIOLOGY AND METABOLISM OF THYROID**

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**Epigenetic Effects of Gluten-Free and Casein-Free Diets in Hashimoto's Thyroiditis****Gulsen Meral***Epigenetic Coaching Company, UK*

Hashimoto's thyroiditis (HT) is an autoimmune thyroid disorder characterized by inflammation and dysfunction of the thyroid gland, leading to hypothyroidism. This condition disrupts the production of thyroid hormones, resulting in symptoms of hypothyroidism. The development of HT involves complex interactions between genetic, environmental, and epigenetic factors. Treg cells, which are CD4+ T cells dependent on the expression of the foxp3 transcription factor for their development and differentiation, play a crucial role. Disruptions in these regulations can lead to an imbalance in the immune system and potential inflammatory responses. The recognition of foxp3 as a key regulator of Treg cell development and function has provided important insights into Treg cell biology. Changes in foxp3 expression or shifts in epigenetic patterns may contribute to Treg cell instability and abnormal behavior in autoimmune diseases. Environmental factors, such as diet, stress, and infections, can influence epigenetic changes like DNA methylation and histone modifications. These changes can alter the expression of foxp3, a critical gene in immune regulation. Studies have shown that increased methylation of FOXP3 is associated with higher thyroid-stimulating hormone (TSH) levels. Dietary habits are significant risk factors for the development of autoimmune diseases. This study aims to investigate how dietary interventions impact epigenetic changes in the foxp3 gene. Our research demonstrates that casein-free and gluten-free diets significantly reduce foxp3 gene methylation in HT patients, potentially enhancing immune regulation by improving the function of regulatory T cells (Tregs). This study supports the development of personalized dietary strategies for managing autoimmune diseases through epigenetic modulation.

**Biography:**

Associate Professor Gülsen Meral graduated from Istanbul University Cerrahpaşa School of Medicine in 1994. She became a specialist in paediatrics in 2001 and worked as a specialist as well as deputy chief physician and chief physician at several hospitals. She was the Rector's advisor between 2019-2021 at the Northern Cyprus ITU. She is also an Acupuncture instructor. She worked as a Nutrigenetics graduate course and lecturer and gave undergraduate and graduate courses on child development. She has many national and international publications, and worked on editorial boards and as reviewers. She has a Master's Degree in Hospital Management. She has a Turkish language literature undergraduate education. She completed PhD program in Molecular Biology and Medical Genetics. In addition to her scientific achievements, she is ambitious about poetry and has 5 poetry books. She is the Founder of the Nutrigenetics and Epigenetics Association, and has memberships in the Green Crescent and Rumelia Association, Istanbul Acupuncture Association, and International Society of Nutrigenetics & Nutrigenomics. She participated in the first and second International Epigenetic Congress as the president. She is still the organizer and educator of the Epigenetic Coaching Program. She is actively giving trainings on Nutrigenetic & Epigenetic Counselling to health professionals from all over the World as a certified CPD program. She continues research and training as the founder and manager of Epigenetic Coaching.