Diagnostics

Epigenetic biomarkers for diagnosis and prevention of obesity progression

A research group from the Public Health System of Andalusia (SAS), Málaga University and Networking Biomedical Research Centre (CIBER) has developed a new methodology for diagnosis and prevention of obesity progression.

Description

Nowadays, **obesity has reached epidemic proportions worldwide**, with around 2.8 million people dying because of obesity and overweight. According to data compiled by the World Health Organisation (WHO), the rate of obesity has been found to have almost tripled in the last 40 years.

Obesity is associated with an increased risk of developing metabolic syndrome, type 2 diabetes, and cardiovascular disease. However, all people with obesity do not have the typical pattern of metabolic complications, which has been termed **Metabolically Healthy Obesity (MHO)**, with a prevalence between 10 and 35% depending on the criteria and population studied. The MHO phenotype may progress to **Metabolically Unhealthy Obesity (MUO)**, although the is evidence to suggest that a significant percentage of individuals maintain the healthy state over time.

Work is underway to determine which factors relate that the MHO phenotype remains stable, among which increased insulin sensitivity, specific fat distribution, reduced immune call infiltration in adipose tissue or a metabolically beneficial pattern of cytokine and adipokine secretion have been considered beneficial.

Although there is a percentage of predisposition to obesity that has a genetic component, it is known to be low, so other factors, such as epigenetic modifications, are being analysed. Therefore, researchers have compared methylation patterns of MHO patients who have remained MHO over time, versus MHO patients who have evolved to MUO phenotype, and have determined **epigenetic biomarkers that can predict the progression from metabolically healthy obsessed subjects to metabolically obese patients and that have potential to prevent metabolic deterioration in MHO patients**.

Endocrinology and Nutrition, Diabetes and Obesity
Cellular and molecular endocrinology
Eioinformatic ECAI

Advantages

- It is a **beneficial contribution to precision medicine**, as it allows intensive and personalised monitoring and intervention in patients at risk of developing MOU.

- It is a diagnostic methodology that is **simple to use and interpret**, allowing the development of a commercial kit.

- It **prevents the development of metabolic pathologies associated with obesity.**

Intellectual Property

This technology is protected by a national patent application with possibility of international extension.

Aims

The researcher is looking for partnership and/or license agreement for the development and exploitation of the technology.

Classification

Area: Endocrinology and metabolism
Technology: Epigenetic biomarkers
Pathology: Obesity and cardiovascular diseases.