

PRECISION MEDICINE FOR THE TREATMENT OF OBESITY

A research group from the Andalusian Public Health System (SAS), in collaboration with the University of Malaga (UMA) and the Consorcio Centro de Investigación Biomédica en Red (CIBER), have developed a nanosystem that would turn white fat into beige fat.

The Need

Currently there are only two drugs approved by the Ministry of Health, Consumption and Social Welfare for the treatment of obesity and other related diseases. Likewise, there is also a special need for improvement in this field due to the limitation of the pharmacological treatment of obesity since the efficacy is not sufficient. Moreover, there is a risk of suffering adverse effects and weight regain occurs normally once the treatment is suspended.

The Solution

The solution proposed is based in a nanosystem consisting of microRNA and nanoparticles linked by means of surfactants that will be applied directly to white adipose tissue with the aim of converting white fat into beige fat. This process (browning) allows cells to change from their energy storage role to a thermogenic energy consuming role.

Innovative Aspects

The main innovative aspect of the method is that it is based on the capacity of the nanosystem to selectively promote energy expenditure by inducing browning in a channelled manner. In this way, cells can be transformed in a directed manner without touching other organs, thus enhancing its effect, and minimizing its accumulation in other areas.

The method also determines if patients might be suffering from CRC and/or precancerous stage. Consequently, the method clearly helps in prioritizing individuals and in reducing the number of necessary colonoscopies, being cost-effective for the detection of both colorectal cancer and colorectal adenomas.

- It constitutes a totally new, effective and directed therapy against obesity, with low toxicity for the body (both free consumption and occasional falls), as well as liver fat deposits (protection of the body itself against alcohol damage).
- The gemini surfactants included in the system are known to be biodegradable and with lipophilic characteristics
- Preparations for use at a therapeutic level can be obtained at a reduced time and cost because nanoparticles are required in very small concentrations.
- There is stability of the particles for at least 30 days.
- Specific delivery into the adipose tissue ensures greater efficiency and lower risk of developing side effects.

Intellectual Property:

- Priority European patent application filed (January, 2023).

Aims

Looking for a partner interested in a license and/or a collaboration agreement to develop and exploit this asset.

Contact details