



BRITE-A: Precision medicine for the treatment of obesity.

New anti-obesity treatment based on the use of a microRNA and drug targeting system to adipose tissue



Medical need

Obesity is considered the pandemic of the 21st century by the World Health Organization. It is characterized by a high BMI (>30) and is one of the main risk factors for other diseases such as diabetes, cancer, cardiovascular and musculoskeletal diseases.

However, the availability of treatments and their efficacy is limited, with decreased caloric intake and increased exercise currently being the most widespread therapy.

Opportunity

Prevalence



In 2022, 16% of adults worldwide were obese.

Market



Obesity treatment:
In 2022: \$15 billion.
Expected 2032: \$38 billion.
Expected CAGR of 10.0%.

Other solutions



Orlistat: Reduction of fat absorption.
Liraglutide: GLP-1 agonist
Bupropion/ Naltrexona: Increased energy expenditure.

Technology

A nanosystem consisting of a gold nanoparticle + surfactant + miRNA that acts as an anti-obesity drug and a nanosystem targeting system that allows its specific capture by adipose tissue (AT) in localized areas.

The miRNA acts on the white AT (energy storage) transforming it into beige AT (with thermogenic activity) while activating thermogenesis in both beige and brown AT (thermogenic activity).

Results

The nanosystem and the targeting system have been validated in an animal model of obesity, obtaining, among others, evidence of:

- Decreased weight gain in animals fed a high-fat diet.
- Overexpression of miRNA in tissue.
- Overexpression of the thermogenesis pathway.

Roadmap

IBIMA plataforma BIONAND is looking for a partner to further develop the technology through a co-development or licensing agreement.



Patent:

Two patent families
Priority: 15/02/2019 and 19/01/2024



Team:

IBIMA Plataforma BIONAND research group of Endocrinology and Nutrition, Diabetes and Obesity

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