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Opinion

Trichinella Spiralis Molecules in the Treatment of Obesity

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Summary

The prevalence of obesity has increased in most countries in recent decades with no signs of slowing down. This excessive accumulation of adipose tissue and its associated comorbidities (cardiovascular diseases, diabetes mellitus, and cancer), with an estimated prevalence of 4 billion people by 2025, is considered a major public health problem worldwide. Due to its multifactorial nature, numerous studies have been conducted to control this epidemic [1-4].

Trichinella spiralis is a zoonotic nematode parasite that infects a wide range of mammalian hosts, including humans (through the consumption of raw or undercooked meat), causing trichinellosis. This parasite employs sophisticated strategies to ensure its survival in the host, particularly by modulating the immune response, which for *T. spiralis* involves both innate and adaptive mechanisms within a complex and multifaceted reaction [5].

Specifically, *T. spiralis* generates a Th2-type immune response in the host that acts positively on regulatory T cells without affecting the helminth. This response also includes the activation of macrophages (M2) in adipose tissue, which is key to improving obesity, glucose metabolism, and lipid metabolism (perhaps through intracellular lipid accumulation mediated by CCAAT enhancer-binding protein alpha [C/EBPa] and peroxisome proliferator-activated receptor gamma [PPARγ]) [5-13].

Given that most anti-obesity drugs developed to date have been withdrawn from the market due to adverse effects, the need to develop new drugs arises. This opens the door to research on immunomodulatory effects with molecules derived from *T. spiralis* due to their anti-adipogenic action on adipocytes (3T3-L1). Undoubtedly, the landscape to be elucidated is diverse [14, 15].

Conflict of interests

The authors have no conflict of interest to declare. The authors declared that this study has received no financial support.

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