

PRESS RELEASE

Nut Molecules May Help Improve Inflammatory and Metabolic Profile of Fat Cells

August 2019. A recent INC-funded study, published in the journal *Communications Biology*¹, showed that some nuts such as walnuts and hazelnuts may help improve the metabolic profile of fat cells. The study also revealed novel anti-inflammatory functions of these nuts.

Obesity is an enlargement of adipose tissue to store excess energy intake. Excessive calorie intake may lead to the formation of fat cells, promoting their deterioration (aging) by increasing the production of proinflammatory molecules. Low grade inflammation is a key factor in the development of insulin resistance and type 2 diabetes in obesity.

This study characterized miRNAs (small nucleic acids involved in the regulation of gene expression) vehicled by nanovesicles (emerging players in cell-to-cell communication) isolated from walnuts and hazelnuts, and tested their effectiveness on inflammatory and metabolic profile in fat cells.

Researchers found that two conserved plant miRs (miR156c and miR159a) were able to limit inflammatory response and recover insulin sensitivity in obese mice (fed with a high fat diet). Results suggest that nut miRs improve metabolic profile of fat cells and reveal a novel anti-inflammatory function of plant foods (including nuts) as promising therapeutics to treat low-grade inflammation.

“Our research has identified nut nucleic acids that, thanks to their high bioavailability and anti-inflammatory action, are able to limit the development of metabolic diseases linked to obesity” states Dr. Lettieri Barbato, researcher at the University of Rome “Tor Vergata” and principal investigator of this study.

This study was supported by the INC.

About the International Nut & Dried Fruit Council

The INC is the international umbrella organization for the nut and dried fruit industry. Its members include more than 800 nut and dried fruit sector companies from over 80 countries. INC membership represents over 85% of the world’s commercial “farm gate” value of trade in nuts and dried fruit. INC’s mission is to stimulate and facilitate sustainable growth in the global nut and dried fruit industry. It is the leading international organization on health, nutrition, statistics, food safety, and international standards and regulations regarding nuts and dried fruit.

¹ Aquilano K., Ceci V., Gismondi A., De Stefano S., Iacovelli F., Faraonio R., ... & Lettieri-Barbato D. (2019). Adipocyte metabolism is improved by TNF receptor-targeting small RNAs identified from dried nuts. *Communications Biology*, 2:317.



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