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Immunohematopoietic modulation by the alga *Chlorella* in obese mice

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Purpose: Investigation of modulating effects of *Chlorella* on the medullar and extramedullar hematopoiesis and cytokine production of obese mice.

Methods: Interaction between stromal cells and hematopoietic progenitor cells by long-term bone marrow culture. Growth and differentiation of bone marrow and spleen progenitors (CFU-GM) were obtained by clonal culture and cytokines by ELISA.

Results: In obese mice we observed reduced capacity of stromal cell layer to support CFU-GM, decreased numbers of total non-adherent stromal cells, increased levels of IL-1, IL-6, TNF- α , TGF- β , reduced levels of IL-10, and extramedullar hematopoiesis. This latter finding is pioneer in the literature and might be related to the accumulation of macrophage in adipose tissue, a common feature in human and experimental obesity, which is considered responsible for the majority of complications observed in this disease. CV treatment restored all these changes to normal values.

Conclusion: Additional findings, already published, were also pioneer in literature showing that prevention by CV of high-fat diet-induced insulin resistance in obese mice is due to improvement in insulin signaling pathway by increasing phosphorylation levels of IR, IRS-1 and Akt and reducing phosphorylation levels of IRS-1ser307. We also found that CV prevents high-fat diet-induced dyslipidemia by reducing triglyceride, cholesterol and free fatty acid levels. Altogether our findings suggest that prevention by CV of the deleterious effects induced by high-fat diet is a good indicator for its use as a prophylactic agent against obesity-related complications.

Biography

Mary de Souza Queiroz has completed her PhD from the University of Manchester, England, and her postdoctoral studies from WEHI, Melbourne, Australia. She is Full professor, director of the Laboratory of Immunopharmacology, Medical Faculty, UNICAMP, Campinas, Brasil. She has published more than 80 papers in reputed journals and presented several pioneer and original results in the literature, starting with the focus of her studies on the modulation by medicinal plants of immunohematopoietic regulatory mechanisms, aiming to increase or restore the host's own defenses which can inhibit infectious and malignant processes.

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