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## Antileishmanial and immunomodulatory effect of oleuropein, an olive oil biophenol component

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Up today, no vaccine exists against any form of leishmaniasis; not safe, effective and inexpensive drugs. Until recently, a plethora of data showed that the existing anti-leishmanial drugs have numerous disadvantages such as systemic toxicity, development of resistance, long hospitalization and high cost. Thus, identifying new, effective and safer anti-leishmanial drugs is of paramount importance. To this end, much research effort has been focused on investigating new compounds derived from low-cost sources, such as natural products, for treating leishmaniasis. Oleuropein, which derives from numerous plants, particularly from the olive tree, *Olea europaea* L. (Oleaceae), is a biophenol with many biological activities. Our studies revealed that oleuropein exhibits *in vitro* inhibitory effect in both promastigotes and amastigotes of various *Leishmania* spp. Furthermore, when tested *in vivo* in an experimental visceral leishmaniasis model of *L. donovani* infected BALB/c mice, it was capable of reducing the parasitic burden. The exact mechanism that oleuropein uses in order to abrogate parasitic multiplication *in vitro* and *in vivo* has been investigated and the mode of oleuropein-driven cell death showed that is able to promote a ROS-independent cell death in promastigotes which is documented by typical features of apoptotic-like cell death. Moreover, the ability of oleuropein to promote a Th1 type immune response in *L. donovani*-infected BALB/c mice, points towards the candidacy of this bioactive compound as an immunomodulatory agent that may complement *Leishmania* therapeutic approaches.

## Biography

Eleni Dotsika is the Head of the Cellular Immunology Laboratory and responsible for the National Reference Centre of Leishmaniasis in Hellenic Pasteur Institute (HPI, Athens, Greece). She has received her DVM degree from the Aristotelian University of Thessaloniki, Greece, PhD in Immunology from the Medical School of the Bristol University, Bristol, UK and she undertook Postdoctoral training in Immunology of Parasites at National Institute for Medical Research, Mill Hill, London UK. Since 1988 she is working in HPI in the field of developing novel therapeutic approaches against infectious diseases. She has been a regular Reviewer in peer-reviewed scientific journals and has published over 43 refereed publications.

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