

## Rosemary extract enhances 5-fluoracil antitumor effect and overcomes resistance to the drug: New complementary approach for colon cancer therapy

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Colorectal cancer constitutes one of the main causes of cancer death worldwide. The aim of this work was to determine the potential of a supercritical fluid rosemary extract (SFRE), recognized as a healthy component by the European Food Safety Authority (EFSA), as an adjuvant approach to synergize with chemotherapy and avoid resistance. SFRE was assayed for antitumoral properties alone and in combination with one of the most used chemotherapeutic agent in colorectal cancer, 5-fluorouracil (5-FU). Additionally, colon cancer cells resistant to 5-FU were used to assay the effects of SFRE on drug resistance, and a genomic approach was followed to ascertain the mechanism by which SFRE potentiates the effect of 5-FU. Our results show that SFRE displays specific and dose-dependent antitumor activities, exerts a synergistic effect in combination with 5-FU, and sensitizes 5-FU-resistant cells to the therapeutic activity of this drug by modulating the expression of key enzymes involved in 5-FU metabolism.

### Biography

Ana Ramirez de Molina is coordinator of research & development at IMDEA Food Institute and has developed her scientific career in the identification of new molecular targets for anticancer treatment within lipid metabolism-related pathways. Previous to joining IMDEA Food Institute as the head of the program of Molecular Oncology, she worked as an associated researcher in the Translational Oncology Unit CSIC-UAM-La Paz Hospital, performing postdoctoral research at the Cancer Research UK Centre for Therapeutics and the Sloan Kettering Cancer Center (New York). In the last years, she has published more than 30 articles in prestigious international journals of her research field, and is co-inventor of 7 patents in different phases of exploitation by a biotechnology company. Several of her patents helped and promoted the creation of a spin-off company focused on the development of new tumor markers and therapies in Cancer, TCD Pharma, in which she was former director of research, development and innovation for 3 years. Her expertise includes cancer genomics, new molecular targets, bioactive compounds, and lipid metabolism.

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