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2009 : October 2009 - Fast Breaking Papers : Sonia Ramos Talks About Cancer Chemoprevention

FAST BREAKING PAPERS - 2009

October 2009



Sonia Ramos talks with *ScienceWatch.com* and answers a few questions about this month's Fast Breaking Paper in the field of Agricultural Sciences.



Article Title: Cancer chemoprevention and chemotherapy: Dietary polyphenols and signalling pathways

Authors: Ramos, S

Journal: MOL NUTR FOOD RES

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SW: Why do you think your paper is highly cited?

Cancer is one of the most important causes of human deaths worldwide. Cancer is largely environmentally determined, diet being a major variable. Recently, dietary polyphenols have received much attention for their health benefits, including certain anticancer properties.

Cancer chemoprevention attempts to interfere in the progress of the disease by using natural or synthetic substances, and its prevention through dietary intervention has become an important issue.

Many potential chemopreventive polyphenols may interrupt or reverse the carcinogenesis process by acting on intracellular signaling network molecules involved in the initiation and/or promotion. Also, phenolic compounds may arrest or reverse the progression stage of cancer, although their molecular mechanism of action still remains unclear.

SW: Does it describe a new discovery, methodology, or synthesis of knowledge?

In this overview, recent studies on representative dietary polyphenols, dealing with their underlying molecular mechanisms associated with cancer are reviewed. However, it should be highlighted that, despite the many remarkable advances in this field, how polyphenols do regulate and induce these beneficial processes in cancer remains to be elucidated.

SW: Would you summarize the significance of your paper in layman's terms?

Cancer is one of the leading causes of death worldwide because of the still limited success in finding its cure. Dietary patterns, foods, nutrients, and other dietary constituents are closely associated with the risk for several types of cancer. Thus, an increased intake of fruits and vegetables represents one of the main preventing actions.

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Polyphenols are promising because they can interfere at the initiation, development, and progression of cancer through the modulation of different cellular processes alone or in combination with other natural or synthetic compounds (chemotherapeutic drugs).

Nevertheless, the underlying mechanisms of action of these compounds, up to now only studied in culture cells and animals, are largely unknown and further investigations are needed.

SW: How did you become involved in this research, and were there any problems along the way?

Many epidemiological and experimental studies have shown the effect of diet on health. The relation between the consumption of certain foods and a reduced risk of some chronic diseases, including cancer, is becoming obvious.

In the past few years, a number of studies have focused on polyphenols and their health-related properties. In this regard, many investigations in different cell lines, animal models, and human epidemiological studies have shown the potential of dietary polyphenols as anticarcinogenic agents. Our research focuses on the study of the mechanism of action of these natural compounds.

SW: Where do you see your research leading in the future?

Future research will help to define the molecular mechanisms underlying the biological activities of polyphenols and particularly the signaling pathways set in their potential anticarcinogenic effect.

SW: Do you foresee any social or political implications for your research?

Understanding the molecular mechanism of action of polyphenols will hopefully allow us (and others) to exploit the capacity of these compounds for exerting anticarcinogenic effects for preventive and/or therapeutic use, which may ultimately translate into the generation of novel cancer therapies.

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KEYWORDS: ANGIOGENESIS; APOPTOSIS; FOOD-DERIVED POLYPHENOLS; METASTASIS; PROLIFERATION; SURVIVAL PATHWAYS.

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