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&
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Targeting cancer with the anticancer molecule Thymoquinone: Potential for clinical translation

Statement of the Problem: Despite advances in cancer therapeutics, cancer is still the second leading cause of death worldwide. Chemotherapy resistance is implicated in the increased death rates among cancer patients.

Methodology & Theoretical Orientation: It is essential to adopt novel strategies for the discovery of anticancer agents that combat resistance mechanisms and are less toxic. There is growing interest in 'safe' molecules from plant sources that have anticancer activities against human cancers. One such molecule is Thymoquinone (TQ), the main bioactive component of black seed *Nigella sativa*.

Findings: Evidence-based research by numerous scientists including ours has shown that TQ targets many types of cancer. This small and relatively non-toxic natural molecule is capable of modulating key signaling pathways that cause cancer progression. TQ also increases the efficacy of clinically used anticancer agents such as 5-fluorouracil, cisplatin, and doxorubicin and decreases their *in vivo* toxicity when combined with these drugs.

Conclusion & Significance: Considering the potential of TQ to target cancer cells, my presentation will focus on its chemical, pharmacological and biological properties that make it an interesting molecule for clinical translation. I will also present recent advances in TQ nanoformulation and analog design and discuss the current state of our knowledge of TQ's adjuvant potential *in vivo* and highlight its ability to modulate the hallmarks of cancer.

Biography

Hala Gali-Muhtasib is Professor of Cell Biology at the American University of Beirut. She received her PhD from Kansas State University, USA in 1990. Her research interests are in cancer chemotherapy and anticancer mechanisms of plant-derived compounds. She has over 90 publications in peer-reviewed journals and is the recipient of four research achievement awards.

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