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Unraveling the mechanism of actions for thymoquinone and EGCG on cancer cells

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Natural products like epigallocatechin gallate (EGCG) and Thymoquinone (TQ). EGCG is considered to be responsible for most of the healthy benefits associated with green tea. In particular, EGCG is a polyphenol, which helps with the production of certain proteins and alkaloids. TQ is a compound derived from the black seeds called Nigella sativa. TQ has been used for more years as a medicinal herb to fight disease and boost immunity. Our recent findings have shown that EGCG and TQ to be effective in interrupting the growth of many different types of cancer cells. The exact mechanism of action are currently unknown. We have investigated both compounds for their effectiveness in reducing cancer cell loads in numerous cell lines and each compound appears to an IC50 dose that is cell line specific as well as targets different signaling pathways. Overall, functional and histopathological evaluation of both compounds may be more effective in combination with other chemotherapeutic agents to ultimately arrest the invasiveness of neoplastic cells.

Biography

Michelle Tucci, Professor of Anesthesiology at the University of Mississippi Medical Center, has been heavily involved with teaching, research and services at the institutional, state, national and international levels. After completing undergraduate training at Seton Hill University, she completed a master's degree in Biology at the University of Dayton. Following her move to Mississippi, she completed her PhD in pharmacology in 2000. Aside from her work supervising and overseeing resident research in biomedical sciences, she has also mentored and supervised a number of undergraduate and graduate students from diverse disciplines. She has served on 38 doctoral dissertation committees (chair and member/see CV), has published over 209 full journal publications, and presented 327 abstracts over her career at state, regional, national and international meetings (Italy, France, Spain, Greece, Canada, and China). She served in leadership role at various societies such as Director and program chair at the Rocky Mountain Biomedical Engineering Society; Chair of Pathology Implant SIG at the Society for Biomaterials, Program Chair at Southern Bioengineering Conference to name a few. She served/serving in editorial boards in several journals as well as member of various NIH special review panels. She secured intramural research funding from American Cancer Society, Orthopedic Trauma Association, IsoTish Inc, Inplex Inc, Enzymatics and mentored several orthopedic residents training grants. She has tirelessly served the several biomedical engineering organizations with distinction in a number of capacities including division chair and vice-chair, poster session chair, the board of directors, and most recently as editor of the JMAS. Previously, she has been recognized for her work and services by many societies such Teacher of the year, Peeler Dudley service award, Walker outstanding research awards.

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