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Advancing the role of tocotrienols in breast cancer: Unveiling novel molecular mechanism of tocotrienols using an *in vitro* model

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For many years now, scientists have understood that the onset of breast cancer is a gradual and stepwise process. Chemoprevention researches in recent days are focused on finding substances or components of natural sources that can prevent or inhibit carcinogenesis. Targeted cancer therapies using natural bioactive compounds in combination with chemoprevention drugs are also used to target specific characteristics of cancer cells, such as a gene or protein that allows the cancer cells to grow in a rapid or abnormal way. Therefore, chemoprevention of breast cancer, the attempt to use natural and synthetic compounds to intervene in the early precancerous stages of carcinogenesis before invasion begins, is undertaken as a measure to reduce breast cancer risk for women at high risk. A number of bioactive dietary components are of particular interest in the field of breast cancer. One such compound known as the sub-group of vitamin-E family, the tocotrienols display anticancer properties and may play a role in cancer prevention. To date, there are many studies, which show that tocotrienols can inhibit proliferation of human breast cancer cells *in vitro*. The inhibitory effects of four isoforms of tocotrienols on the human breast cancer cells appear to be different. The γ and δ -tocotrienols have been shown to have a more potent inhibitory effect on cell growth compared to α and β -tocotrienols. In this study, the effect of tocotrienol isomers (γ and δ) were used to postulate the mechanism of action of these compounds using an *in vitro* model. The integration of omics methodologies provided insights into functions and the mechanisms of tocotrienols action in breast cancer cellular and molecular environment.

Biography

Premdass Ramdas is a full time Lecturer at the International Medical University, Malaysia. His research interests involve: Breast cancer, vitamin-E, genomics, quantitative proteomics and cancer informatics. He is also actively involved in technology enhanced learning activities at his university. His career aim is to find a niche in nutrition research field and to evolve as a professional educationist.

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