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A Mini-Review on the Insight into the Effect of Natural and Synthetic alpha,beta-Unsaturated Carbonyl-Containing Compounds on PI3K/AKT/mTOR Signaling Pathways to Treat Breast Cancer

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Abstract

Breast cancer, which has been one of the most frequently diagnosed cancers worldwide for decades, continues to defy treatment. While researching a remedy to this problem, it was discovered that mTOR has a strong association with breast cancer. Uncontrolled activation of mTOR is shown in a variety of different cancer, making it a critical target for cancer treatment. Inhibition of the mTOR protein kinase can cause autophagic cell death. It is known that covalent inhibitors have become a prominent issue in drug discovery, with covalent inhibitors focusing on alpha, beta-unsaturated carbonyl molecules. Structural modifications to alpha, beta-unsaturated carbonyl may be one of the finest avenues for developing the best breast cancer medication. This review article discusses recent research on natural and synthetic alpha, beta-unsaturated carbonyls and their anti-cancer properties targeting on mTOR, with SAR to showcase the efficacy of synthetic natural products compared to parental compounds using both biological assays and in silico studies.

Keywords

Author Keywords: [alpha, beta-unsaturated carbonyl](#); [breast cancer](#); [mTOR pathway](#); [molecular docking](#); [SAR](#)

Keywords Plus: [CELL-CYCLE PROGRESSION](#); [BIOLOGICAL EVALUATION](#); [MOLECULAR DOCKING](#); [MTOR](#); [APOPTOSIS](#); [RAPAMYCIN](#); [INHIBITORS](#); [AUTOPHAGY](#); [TARGET](#); [PHOSPHORYLATION](#)

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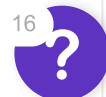
Dumont, FJ; Bischoff, P;

[Disrupting the mTOR Signaling Network as a Potential Strategy for the Enhancement of Cancer Radiotherapy](#)

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