Harnessing Apigenin's Therapeutic Power: A Natural Flavonoid in Cancer Prevention and Treatment

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Abstract:

Apigenin is a flavonoid that is found naturally in fruits, vegetables, and plants. Because it has a wide range of biological effects, including its antioxidant, anti-inflammatory, and anticancer qualities, it has become more and more interesting to scientists. Many preclinical investigations have shown that apigenin can selectively stop cancer cells from growing and spreading while having no effect on normal cells. This is different from many other flavonoids and standard chemotherapy drugs. This study focuses on the therapeutic potential of apigenin in preventing and treating cancer, especially its ability to control important carcinogenic signaling pathways including MAPK, PI3K/Akt, and NF-κB. These pathways are very important for many cellular processes that happen in different forms of cancer, include apoptosis, cell cycle progression, metastasis, and angiogenesis. Even if the current in vitro and in vivo results are encouraging, apigenin's use in medicine is still limited since there isn't enough pharmacokinetic data and translational research. Still, its good safety record and ability to target several cancer types make it a promising option for future cancer-fighting techniques. It is important to keep researching it through improved experimental models and clinical studies to confirm its effectiveness and figure out what function it plays in modern oncology.