

# ***Anti-Inflammatory Life Style for Prevention and Treatment of Cancer: Facts and Fiction***

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Chronic infections, obesity, alcohol, tobacco, radiation, environmental pollutants, and high-calorie diet have been recognized as major risk factors for the most chronic diseases including cancer. All these risk factors are linked to chronic diseases through inflammation. While acute inflammation that persists for short-term mediates host defense against infections, chronic inflammation that lasts for long-term can predispose the host to various chronic illnesses, including cancer. Linkage between cancer and inflammation is indicated by numerous lines of evidence; first, transcription factors NF- $\kappa$ B and STAT3, two major pathways for inflammation, are activated by most cancer risk factors; second, an inflammatory condition precedes most cancers; third, NF- $\kappa$ B and STAT3 are constitutively active in most cancers; fourth, hypoxia and acidic conditions found in solid tumors activate NF- $\kappa$ B; fifth, chemotherapeutic agents and gamma-irradiation activate NF- $\kappa$ B and lead to chemoresistance and radioresistance; sixth, most gene products linked to inflammation, survival, proliferation, invasion, angiogenesis, and metastasis are regulated by NF- $\kappa$ B and STAT3; seventh, suppression of NF- $\kappa$ B and STAT3 inhibits the proliferation and invasion of tumors; and eighth, most chemopreventive agents mediate their effects through inhibition of NF- $\kappa$ B and STAT3 activation pathways. Thus suppression of these proinflammatory pathways may provide opportunities for both prevention and treatment of cancer. We will discuss the potential of various dietary agents, also called nutraceuticals derived from spices, lentils, nuts, fruits, and vegetables; and agents from traditional medicine in suppression of inflammatory pathways and their role in prevention and therapy of cancer.

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