



Sulforaphane mechanisms for cancer prevention

Sulforaphane from broccoli slows or prevents cancer, via many mechanisms¹. Sulforaphane can increase the enzymes that metabolize foreign, toxic and carcinogenic compounds². The products of metabolism are then harmlessly excreted in the urine instead of starting a cancer. Research shows that sulforaphane is an anti-oxidant, but it does much more than that³.

Sulforaphane supports our natural anti-inflammatory system. This protects against cancer because if inflammation is uncontrolled, it supports cancer growth. Although there are many ways in which sulforaphane supports a healthy, cancer-free body, a major mechanism is by activating the Nrf2 pathway⁴. The Nrf2 molecule (its full name is the nuclear factor erythroid 2-related factor 2) controls enzymes and factors that maintain a balance between oxidation and reduction in each cell^{3,4}. By inhibiting inflammation and bringing oxidation under control, Nrf2 helps the body to slow cancer growth. More mechanisms are being studied and may be independent, or relate to these major systems. We don't yet know details of all the pathways involved in cancer prevention and how sulforaphane supports cancer prevention. But we do know sulforaphane slows and prevents cancers¹. It is clear from cell culture studies, animal studies and human studies (both epidemiological and controlled trials involving patients) that sulforaphane from broccoli can successfully slow cancer growth and prevent some cancers from starting. Stay healthy by eating broccoli 3 or 4 times a week.

1. Sulforaphane: a broccoli bioactive phytochemical with cancer preventive potential. Kaiser, A.E. et al. *Cancers* 2021: 13, 4796
2. Y. Zhang, P. Talalay, C. G. Cho, and G. H. Posner, "A major inducer of anticarcinogenic protective enzymes from broccoli: isolation and elucidation of structure," *Proceedings of the National Academy of Sciences of the United States of America*, 1992: 89. 2399–2403.
3. Houghton, CA. Sulforaphane: its coming of age as a clinically relevant nutraceutical in the prevention and treatment of chronic disease. *Oxidative Medicine and Cellular Longevity* 2019: 2716870
4. Kensler, Thomas W et al. "Keap1-nrf2 signaling: a target for cancer prevention by sulforaphane." *Topics in current chemistry* vol. 329 (2013): 163-77. doi:10.1007/128_2012_339