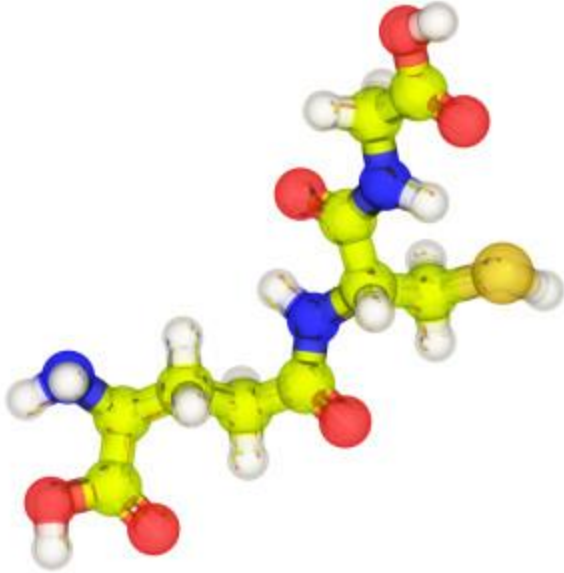


Glutathione And Cancer Cell Death



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One in three Americans will develop cancer. But a growing body of evidence shows that one in two people will get cancer in their lifetime and that cancer will outrun heart disease as the top killer of Americans. The common treatments for cancer include surgery, drugs, radiation therapy, and chemotherapy. And for those who have been diagnosed with cancer or know someone who has, these treatments also come with various side effects.

A nutrient called glutathione, however, has been shown in studies to attack cancer cells and even reduce the adverse effects of other cancer treatments. A study published in the *International Journal of Cancer* showed the effects of glutathione in ovarian cancer cells. The study's findings show that extracellular glutathione triggers DNA damage in cancer cells resulting in apoptosis (cell death).

What is Glutathione?

Glutathione is a powerful, abundant nutrient found in the body and is highly concentrated in the liver. The liver is the largest internal organ for a reason — it performs hundreds of functions, one of which is detoxification. The body is constantly under assault from toxic exposures in the environment to normal physiological processes like metabolism. During metabolism, food is broken down to produce energy, which also creates dangerous byproducts called free radicals. These free radicals frantically search for other molecules in the body to latch onto in an effort to stabilize itself — basically, one free radical begets another free radical. In doing so, a cascade of free radicals is generated that results in damaged tissues.

To neutralize these toxins, the liver is equipped with protective antioxidants that eliminate these harmful substances via a two-step process. In the liver, the first step involves enzymes that target the chemical bonds of specific toxins. The second step involves a different set of enzymes (glutathione being one of them) that attaches to the toxins broken up in the first phase. Of the enzymes involved in the liver's two-step detoxification process, glutathione is critical in stopping foreign substances from causing harm in the body. The liver is a breeding ground for toxic chemicals, which is why glutathione and other enzymes work hard to protect it.