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Study contradicts belief that cancer protects against Alzheimer's

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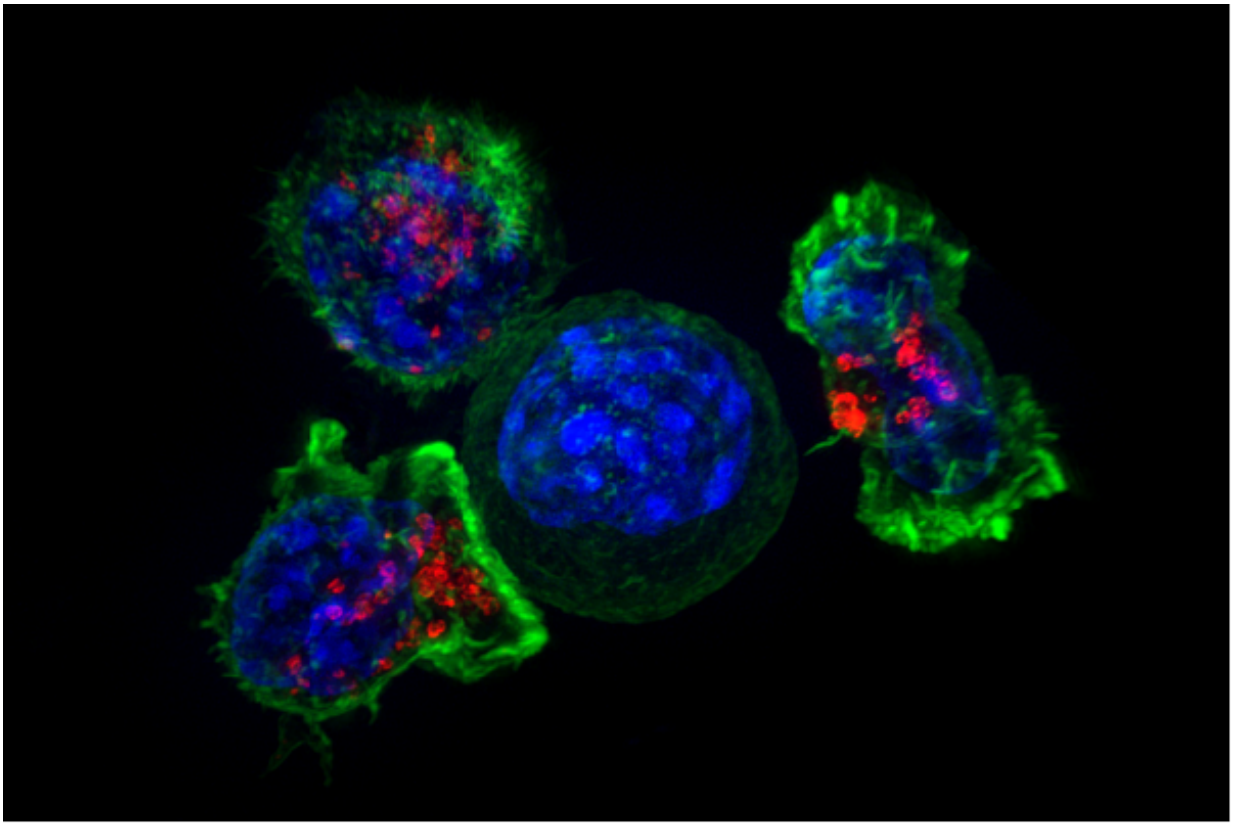

Killer T cells surround a cancer cell. Credit: NIH

Despite studies that claim people with cancer are less likely to develop Alzheimer's disease—raising the possibility that what triggers cancer also prevents the neurodegenerative disorder—a new investigation finds

a more somber explanation. Many cancer patients don't live long enough to get Alzheimer's. The research, led by investigators at Huntsman Cancer Institute at the University of Utah, was published in *The Journals of Gerontology: Series B*.

"Diagnosis of age-related diseases, such as Alzheimer's disease, depends on someone surviving to an age when disease onset can occur," explains lead author Heidi Hanson, Ph.D., M.S., a Huntsman Cancer Institute research associate and research assistant professor of family and preventive medicine at the University of Utah School of Medicine.

Illustrating the concept, Hanson and her colleagues examined data from pancreatic cancer patients, whose average age of death is 73, the same age at which Alzheimer's is typically diagnosed. While the rate of Alzheimer's diagnoses tripled as the cancer-free population aged from 75 to 89 years old (increasing from 25 to 75 per 1,000), it remained constant in patients with pancreatic cancer (20 per 1,000).

Concluding that pancreatic cancer protects against Alzheimer's disease is similar to saying that gunshots prevent Alzheimer's, says senior author and Huntsman Cancer Institute investigator Ken Smith, Ph.D., distinguished professor of family and consumer studies and population science. "People who are shot rarely get Alzheimer's because most of them die before they have the chance to. But no one would say that gunshot wounds protect against the disease."

He adds that analyses need to consider that as people age, they are more likely to be affected by any of a number of conditions. Those dying of lethal diseases simply lack the time to develop another illness.

With this in mind, the researchers conducted their own evaluation, examining data from 92,245 individuals with and without cancer from the Utah Population Database, a comprehensive set of demographic,

medical, and other records. The group was between the ages of 65 and 79 in 1992, and had no record of dementia. Their data was followed for at least 18 additional years to determine how many were later diagnosed with Alzheimer's disease, as indicated by Medicare claims data.

Contrary to previous studies, three different statistical methods showed that those with cancer did not have a decreased risk for Alzheimer's disease. Each method factored in higher rates of death among cancer patients in a slightly different way.

To test the idea further, the team tracked two groups of patients with prostate cancer. If cancer provides protection from Alzheimer's disease, says Smith, groups of patients with the same type of cancer would be equally likely to get the brain disorder. Yet they found that patients with a shortened life expectancy due to metastasized prostate cancer trended toward a decreased risk for Alzheimer's as compared to patients with early-stage prostate cancer. After adjusting for mortality, they determined that the observed difference was not statistically significant.

"These results call into question a protective association between cancer and Alzheimer's," says Hanson. "If we are going to understand aging-related diseases, we need to consider how other chronic diseases and conditions impact them."

More information: Heidi A. Hanson et al, Is Cancer Protective for Subsequent Alzheimer's Disease Risk? Evidence From the Utah Population Database, *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* (2016). DOI: 10.1093/geronb/gbw040

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