Cancer and aging have common ground

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Welcome to Issue 19 of Science Says! Our weekly newsletter where you'll learn the latest healthy aging and C15:0 research news that our team of doctors, scientists, and experts are most excited about—without having to go search for it.

Eric and Steph
Co-Founders, Doctors, Nerds

What Dr. Stephanie Venn-Watson, our co-founder and author of over 80 peer-reviewed scientific publications, is reading.

HEALTHY AGING

Aging and cancer

We all want to live our longest, healthiest lives. While aging involves the progressive breakdown of our bodies over time, it is the onset of chronic diseases that most compromise our quality of life. In the U.S., the most common cause of mortality is heart disease, followed closely by cancer. We have talked a lot about the most recent science around heart disease. This week, in support of Breast Cancer Awareness Month, let's turn our attention to cancer.

Why does cancer risk increase with age?

As we get older, the risk of cancer goes up. This is because damaged cells that occur with aging also increase the risk of triggering cancer. As described by Bhatia et al. in *Geriatric Oncology*, examples of cell damage that drive both aging and cancer include the following:

- **Damaged DNA.** While our cellular DNA is constantly damaged, we have natural mechanisms to repair DNA and keep our cells healthy. As we get older, however, our DNA repair shops don't work as well. This results in poorly functioning, renegade cells that contribute to both aging and cancer.
- **Epigenetic alterations.** Epigenetic alterations are basically wrenches thrown into our DNA that can change how our genes function, including accelerating cellular aging and turning off genes that suppress tumors.
- **Altered intercellular communication.** As we age, our cells can send mixed signals to each other (or stop communicating altogether), resulting in unbalanced metabolism and a chronic inflammatory state that is a pillar of aging-related breakdown. Similarly, Degboe et al. describe how cancer cells can become a signaling magnet for inflammatory cells (called macrophages), which can further promote tumor growth.

Cancer can accelerate aging.

The good news is that cancer survival rates are increasing due to advances in prevention, detection, and intervention. With growing populations of cancer survivors, Bhatia et al. review recent studies showing that cancer survivors, however, may age faster than the general population.

This means that cancer survivors may be more susceptible to other aging-related diseases at younger ages than the general population. As such, an increasing effort is being made on the science front to help cancer survivors live even longer and healthier lives.

So, how do I prevent cancer?

The American Cancer Society gives the following tips to help prevent cancer:

Actionable details for each of these tips is provided on the American Cancer Society's website.

The latest science on C15:0[+]

We want to be super clear here. **C15:0 supplements are not intended to prevent, manage, treat or cure any disease, including cancer.**

Understanding this important point, we wanted to share relevant C15:0 science that is emerging on the cancer front that goes beyond C15:0's role in slowing aging.

- In the journal *Nutrients*, To et al. demonstrated that C15:0 (pentadecanoic acid) stopped growth of breast carcinoma MCF-7/SC cells. In their studies, C15:0 also suppressed cancer cell migration and decreased the invasiveness of these cells.
- In addition, Ediriweera et al. showed that C15:0 is an HDAC-6 inhibitor that can help to repair DNA. In their studies, they conclude that C15:0 should be further investigated as a means to complement epigenetic-based cancer therapies.
- Consistent to the studies above, our peer-reviewed research showed that C15:0 decreased growth in human cell systems modeling tumors.

While all of these studies are early and much more needs to be done, they are certainly encouraging. We'll keep you updated on the latest C15:0 scientific developments on this and other important topics.

Have a wonderful week, everyone!

Dive deeper into the science

READ THESE STUDIES

- Leading causes of death in the U.S.
- Links between cancer and aging
- Macrophages in chronic inflammation and cancer
- American Cancer Society
- C15:0 decreases breast cancer cell proliferation
- C15:0 is an HDAC-6 inhibitor
- C15:0 slows cell proliferation in tumor models