



Newsletter

CANCER CONSULTANTS OF AMERICA

BRIDGING THE GAP BETWEEN CANCER AND UNDERSTANDING®

Cancer Answers

What is Cancer?

What is cancer? What makes cancer so deadly? Cancer originates from a healthy cell within the body that no longer functions properly and multiplies at a faster rate than its healthy counterparts. This unhealthy multiplication of cancer cells is unregulated within the body thereby allowing it to grow uncontrollably. Eventually these cancer cells form into a tumor within an organ. The healthy cells that were once in the organ are replaced with the cells of the tumor. As a result, the healthy cells are no longer available to serve the needs of the body. Over an extended period of time, the body experiences stress due to the lack of resources that was once supplied by the healthy cells. This stress within the body gradually worsens until the body can no longer function.

A common question that is asked, "how did the cancer cell come into existence?" In most cases, the gradual process of a healthy cell transforming into a cancer cell involves changes (mutations) within the DNA sequence. These DNA changes enable the cancer cell to divide rapidly which creates even more rapidly dividing cancer cells. The probability for this process of transformation is very low. The healthy cell needs to acquire a mutation within the right location of the DNA sequence that promotes the process of transforming into a cancer cell. One human cell contains about 20,000 genes that are encoded within the DNA sequence. Among these genes, there are about 1,000 tumor suppressor genes that prevent cancer development. Additionally, there are approximately 600 cancer driver genes that have the capacity to promote uncontrollable cellular growth. Thus, about 8% of human genes have a role in regulating cellular growth. The chance of a cell acquiring a mutation in the right location of these cellular growth genes is very small. Moreover, even if the single mutation happened in the right location within these 1,600 genes, this individual mutation is not enough to initiate cancer. For cancer to develop, multiple genes amongst this group of cellular growth genes must acquire mutations that also favor uncontrollable cell growth. Finally, all of these events must take place in a single cell. Despite this low probability, we know that cancer exists and therefore it is possible for these detrimental changes to occur in a single cell.

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So how does cancer cause death? This tragic event is the result of bodily systems shutting down. As mentioned earlier, the growing mass of cells known as a tumor occupies the space within the organ that once had healthy functioning cells. For example, the pancreas is an organ that functions to aid in the digestion of food. Within the pancreas are cells that secrete insulin into the blood. The body uses insulin to transport sugars within the bloodstream to cells throughout the body. These sugars serve as a source of energy for healthy cellular function. In the case of pancreatic cancer, the tumor cells replace the cells that once produced insulin. The absence of insulin causes the sugars to remain in the bloodstream because the sugars are no longer being transported to the cells throughout the body. The cells are deprived of sugar and eventually die because they no longer have a source of energy. When cells die, death of the tissues soon follows, and subsequently organs begin to fail. Organ failure typically results in death. This tragic end is due to the systems within the body no longer functioning properly because cancer cells replaced the healthy cells that once served the needs of the body.

Submit your **Cancer Answers** topics to info@CancerConsultantsOfAmerica.com

We Are Available to You

Please contact us today if you would like more information about how our services can benefit you and your family.

Services:

- Individual and Family Cancer Education
- Medical Appointment Liaison Services
- Information Seminars and Public Speaking Events

Fun Facts – April

Cancer Awareness Month:

- Testicular Cancer (Purple)
- Head & Neck Cancer (Burgundy & Ivory)
- Esophageal Cancer (Periwinkle)
- Minority Cancer (Lavender)



- April 4 – National Pillow Fight Day 🇺🇸
- April 13 – "Houston, we've had a problem" (Apollo 13, 1970) 🚀🌕
- April 15 – The sinking of the Titanic (1912) 🚢
- April 19 – First shots fired during American Revolution (1775) ✨🇺🇸
- April 22 – First Earth Day (1970) 🌍
- April 26 – Chernobyl nuclear explosion (1986) 🌟🌟🌟

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