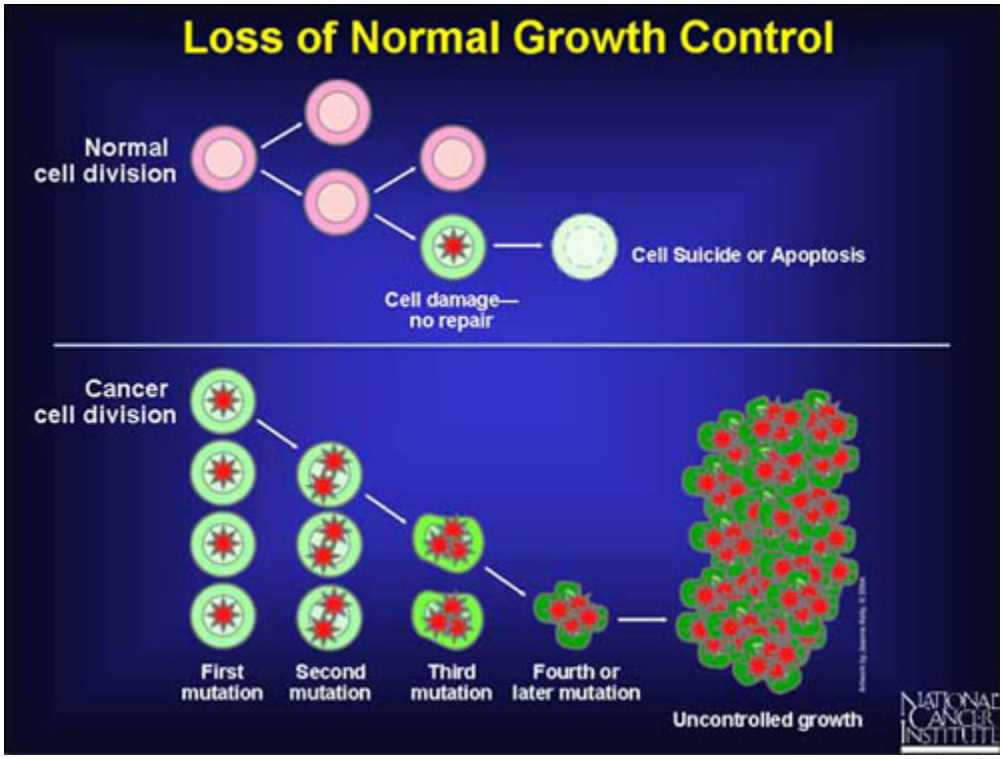
What is Cancer?

As you know, multicellular organisms are made up many different types of cells. These cells divide in a controlled way via mitosis and cytokinesis in order to keep the organism healthy and in homeostasis. When cells become old or damaged, they usually die and are replaced with new cells. However, this orderly, controlled process sometimes goes wrong. The DNA of a cell can become damaged producing mutations that affect normal cell growth and division. These cells do not die when they should and continue to divide in an uncontrolled fashion.



As these mutant cells continue to divide uncontrollably, they mass and may form a **TUMOR.**

Tumors can either be **BENIGN** or **MALIGNANT**.

Benign tumors are **NOT** cancerous. They can often be removed and in most cases, they do not come back. Cells in benign tumors do not spread to other parts of the body.

Malignant tumors are cancerous. Malignant cells have the ability to invade neighboring tissues and organs. It is also possible for cancerous cells to break free from the tumor and enter the blood stream or lymph tissue, spreading the cancer to other body tissues and organs. The spread of cancer from one part of the body to another is called **METASTASIS.** .

Although most cancers develop this way, diseases like **LEUKEMIA** do not. Leukemia is a blood cancer; it starts in the bone marrow where the blood cells are manufactured. Nonfunctional white blood cells (WBC) displace good WBCs, leading to infections. Over time, abnormal blood cells can crowd out good cells like red blood cells, leading to anemia and bleeding disorders. Leukemia cells can also spread to the lymph nodes and to neighboring tissues.

Questions:

1. Describe the relationship between mitosis and cancer.
2. How does a mutant cell develop in a tumor?
3. Differentiate between benign and malignant tumors.
4. Describe what happens when cancerous tumors cells metastasize.
5. How does leukemia differ from cancers that form malignant tumors?