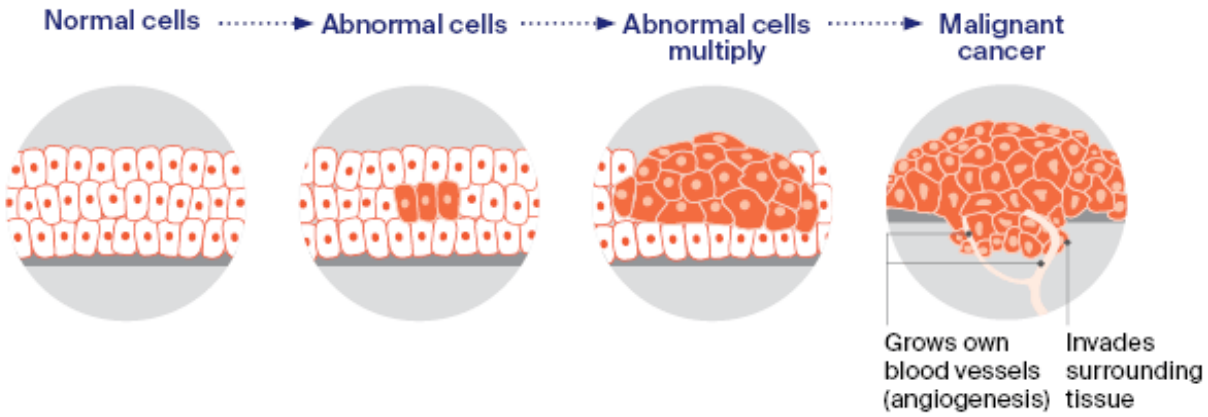
# *Understanding Cancer: From Terms to Types*

By Yashita Agarwal | 18-08-2025

## 1. Definition & Overview: What is Cancer?

"Cancer is a disease in which some of the body's **cells grow uncontrollably** and spread to other parts of the body (National Cancer Institute, 2021)." It can originate from anywhere in the human body, which is made up of trillions of cells.

Through the process of **cell division**, human cells normally grow and multiply to form new cells, based on the body's needs. When a cell grows old or gets damaged, they die and get replaced. However, when this orderly process breaks down, abnormal cells continue growing when they shouldn't. These cells **may form** tumors, which are lumps of tissues, and can lead to cancer.




## 2. Key Cancer Terms:

- **Types of Tumors** (CITY OF HOPE, 2023):
  - **Benign:** A non-cancerous growth of cells that usually grow slowly and do not spread to other parts of the body.
  - **Malignant:** A cancerous growth of cells that can invade nearby tissues and spread to other parts of the body.
- **Cancer stages** (Lee, 2015):
  - **In-Situ:** Earliest stage of cancer; abnormal cells are in place, and haven't spread to nearby tissues yet.
  - **Primary Tumor:** Cancer first develops; the main tumor may grow larger and invade nearby tissues, but it hasn't spread to distant parts of the body yet.

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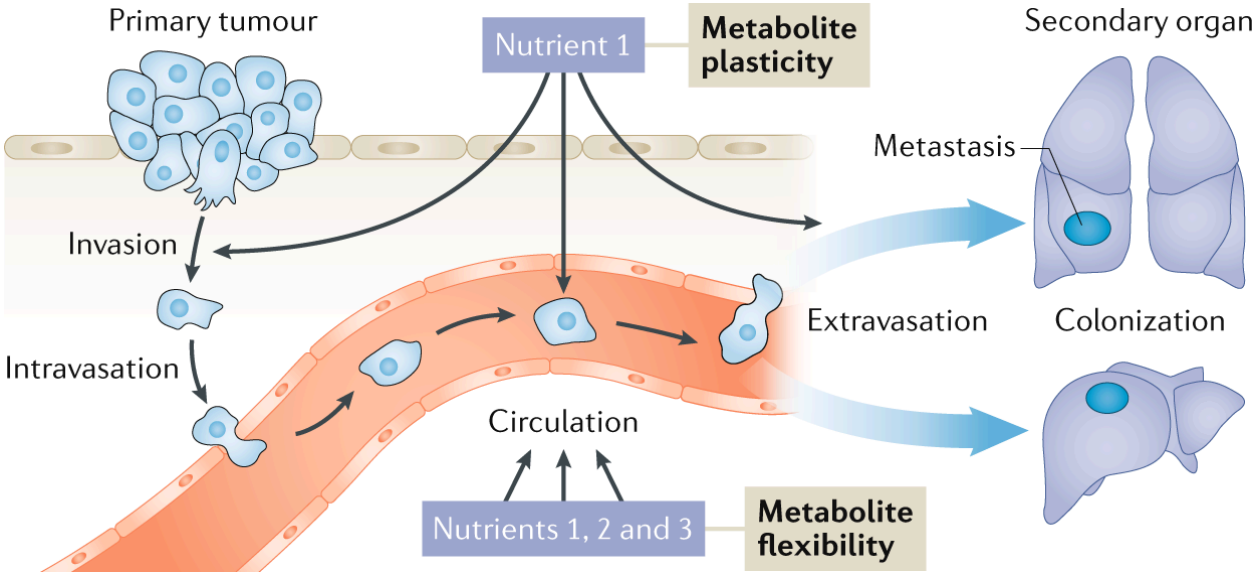
- **Secondary/Metastatic tumor:** Cancer has spread; cancer cells break away from the primary tumor and travel through the blood or lymphatic system to form new tumors in other parts of the body.

- **Other terms** (National Cancer Institute, 2024)**:**
  - **Neoplasm:** Another word for tumors; abnormal growth of tissue in some part of the body.
  - **Mutation:** A change in the DNA sequence of a cell.
  - **Oncogone:** A mutated gene that can trigger uncontrolled cell growth.
  - **Tumor-suppressor gene:** A gene that normally stops cells from growing too much.
  - **DNA repair gene:** A gene that fixes DNA mistakes. Without this gene, mutations can build up and lead to cancer.

## 3. Progression and Spread: Metastasis

Metastasis is the process by which cancer cells spread from the primary site to other parts of the body. It all starts off with cancer cells breaking away, and travelling through the bloodstream or lymphatic system (network of tubes, tissues, and organs). Then, they settle in a new part of the body and grow a new tumor, also known as the secondary tumor.

For instance, if breast cancer spreads to the lung, the cancer cells in the lung are breast cancer cells, not lung cancer cells (National Cancer Institute, 2024).



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## 4. Classification of Cancer: The Four Main Types (Cancer Research UK, 2023)

### Carcinoma:

- Cancers that start in epithelial tissues, including the skin, glands, and organs.
- They are the most common type of cancer, and include lung, breast, colon, and prostate cancer.
- **Types of Carcinoma:**
    - **Squamous Cell Carcinoma**: Starts in flat, surface cells (e.g., skin, throat, esophagus).
    - **Adenocarcinoma**: Starts in glandular cells that produce fluids to keep tissues moist.
    - **Transitional Cell Carcinoma**: Starts in stretchable transitional cells (e.g., lining of the bladder).
    - **Basal Cell Carcinoma**: Starts in basal cells, the deepest layer of skin cells.

### Sarcoma:

- Cancer that starts in connective tissues, including bones, cartilage, fat, muscle and blood vessels.
- They are less common, making up about 1% of cancer cases.
- **Types of Sarcoma:**
    - **Osteosarcoma (Bone):** Starts in bone cells.
    - **Liposarcoma (Fat):** Starts in fat cells.
    - **Leiomyosarcoma (Muscle):** Starts in muscle cells.

### Leukemia:

- Cancers of the blood and bone marrow, resulting in affecting white blood cells. The bone marrow makes too many abnormal white blood cells that don't work properly, causing them to build up in the blood.
- Make up about 3% of all cancers.

### Lymphoma:

- Cancers that start in the lymphatic system, mostly the lymph nodes. Like leukemia, they develop when lymphocytes (a type of white blood cells) grow abnormally and don't die when they should. This can build up, and eventually tumors.
- Makes up about 5% of cancers.

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