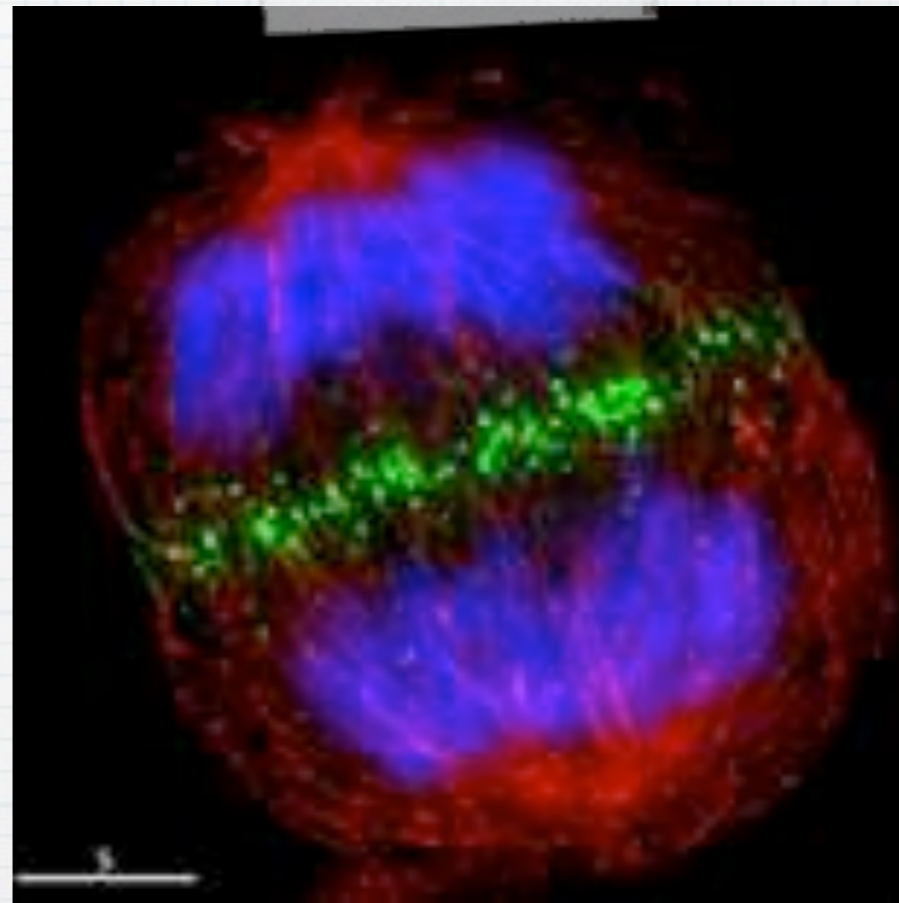


Cancer

Cell Division Gone Wrong

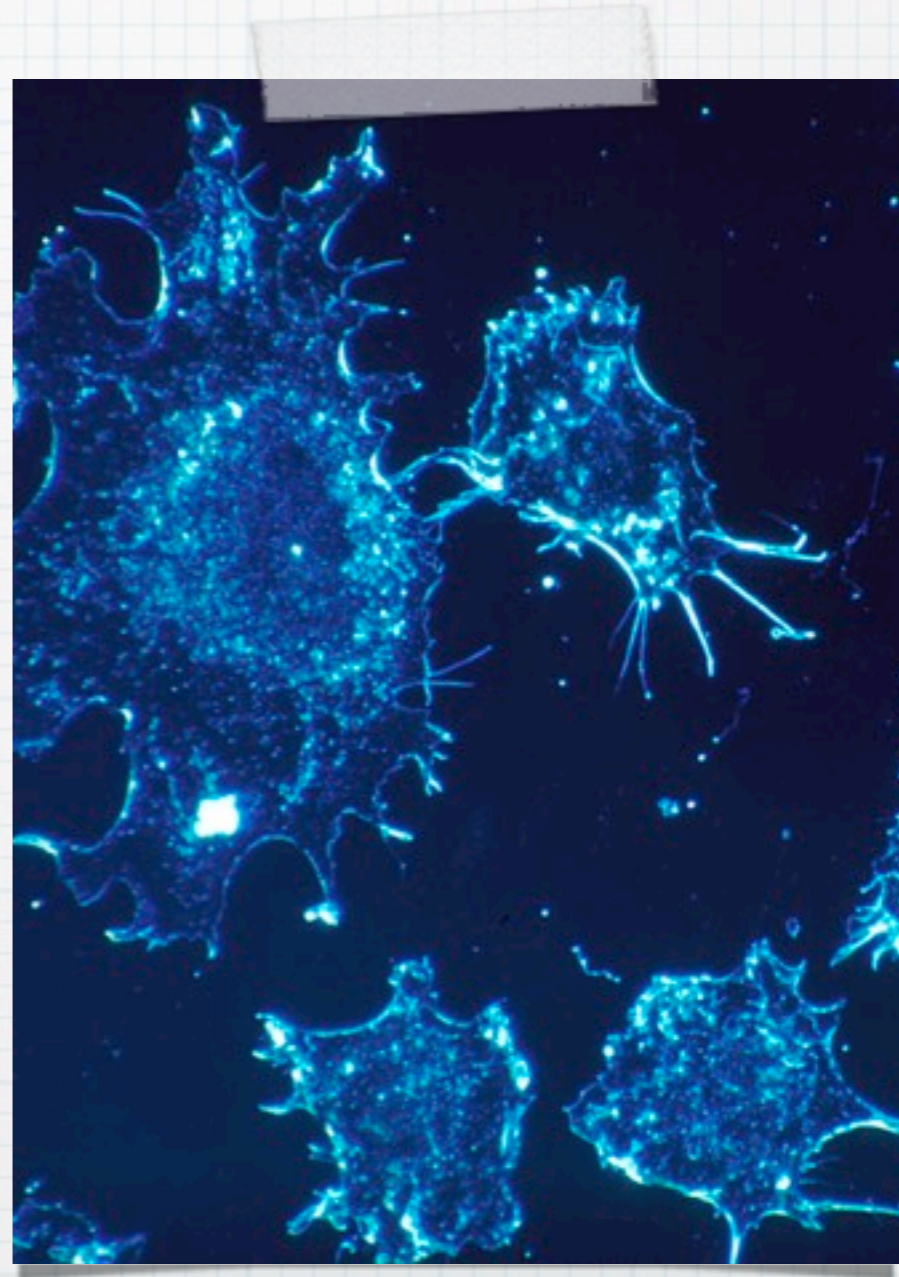
Mistakes Happen

- * Copying 46 chromosomes is equivalent to making a million copies of all the hard drives in the world.
- * However, although this is an amazing feat, it does sometimes go wrong. This can result in a cancerous growth.



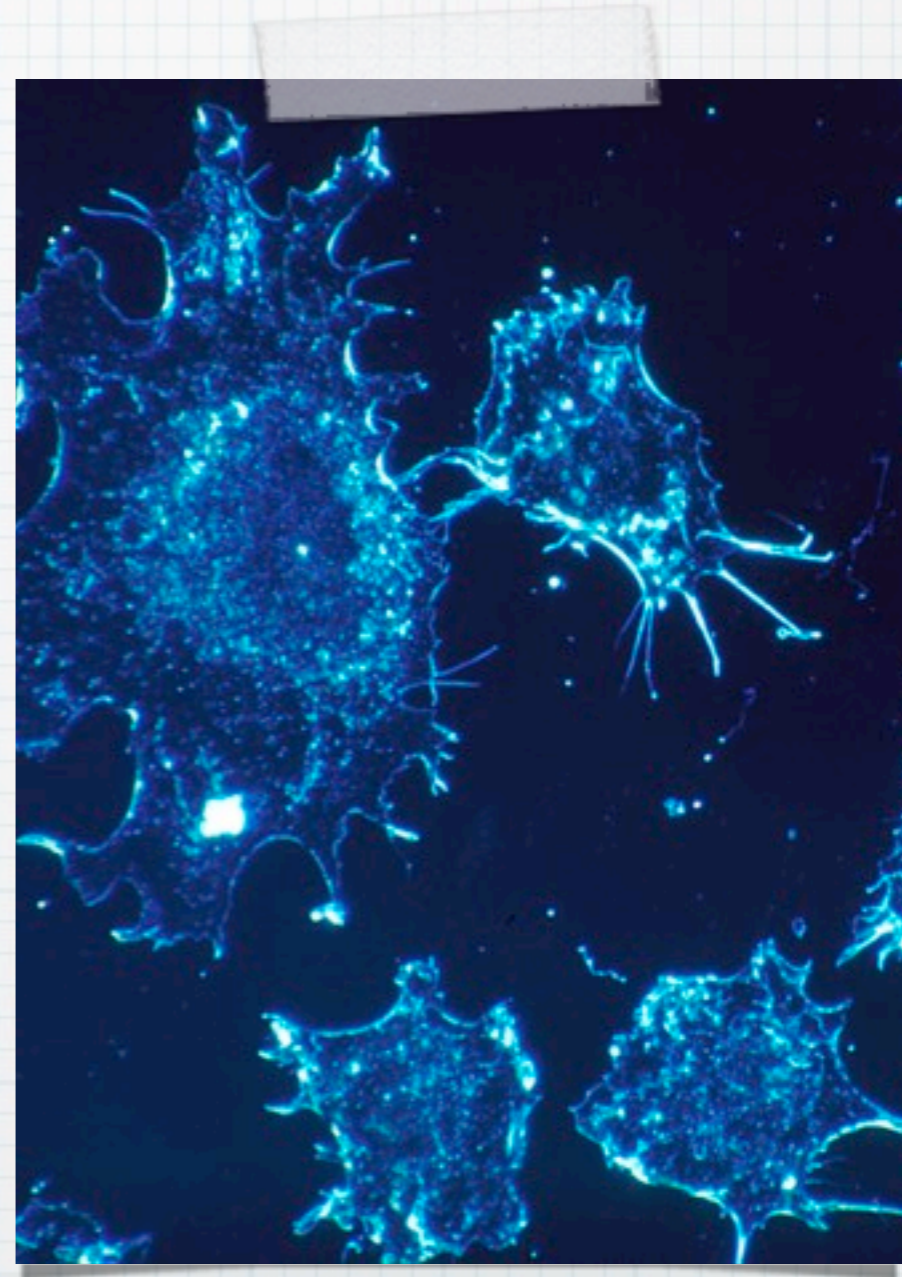
What is Cancer?

- * A cancer cell is one that continues to divide despite messages from the nucleus or surrounding cells that tell it to stop.



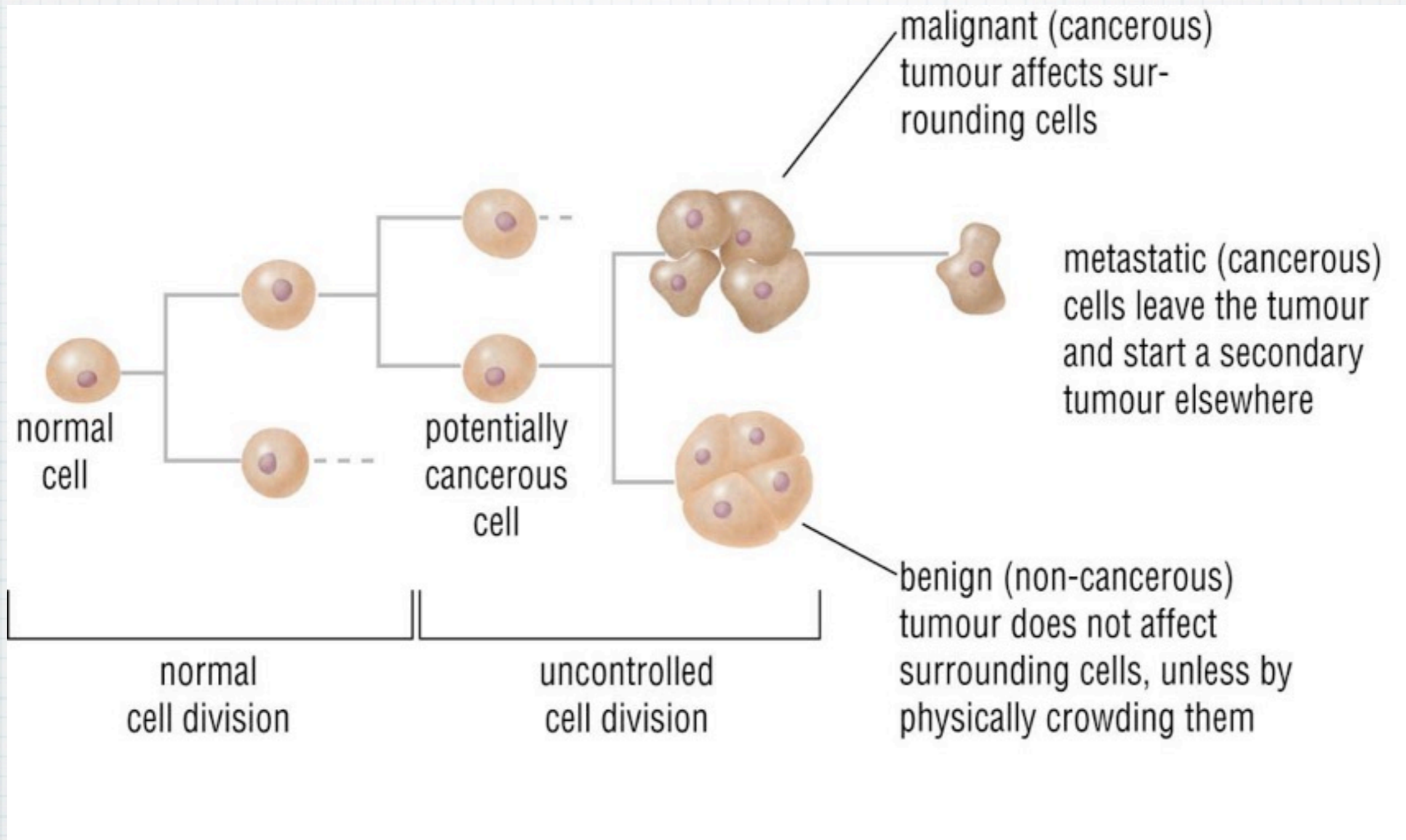
What is Cancer?

- * Cancers often occur in cells that are rapidly dividing such as skin, lung, breast and the cells that line the intestinal tract.



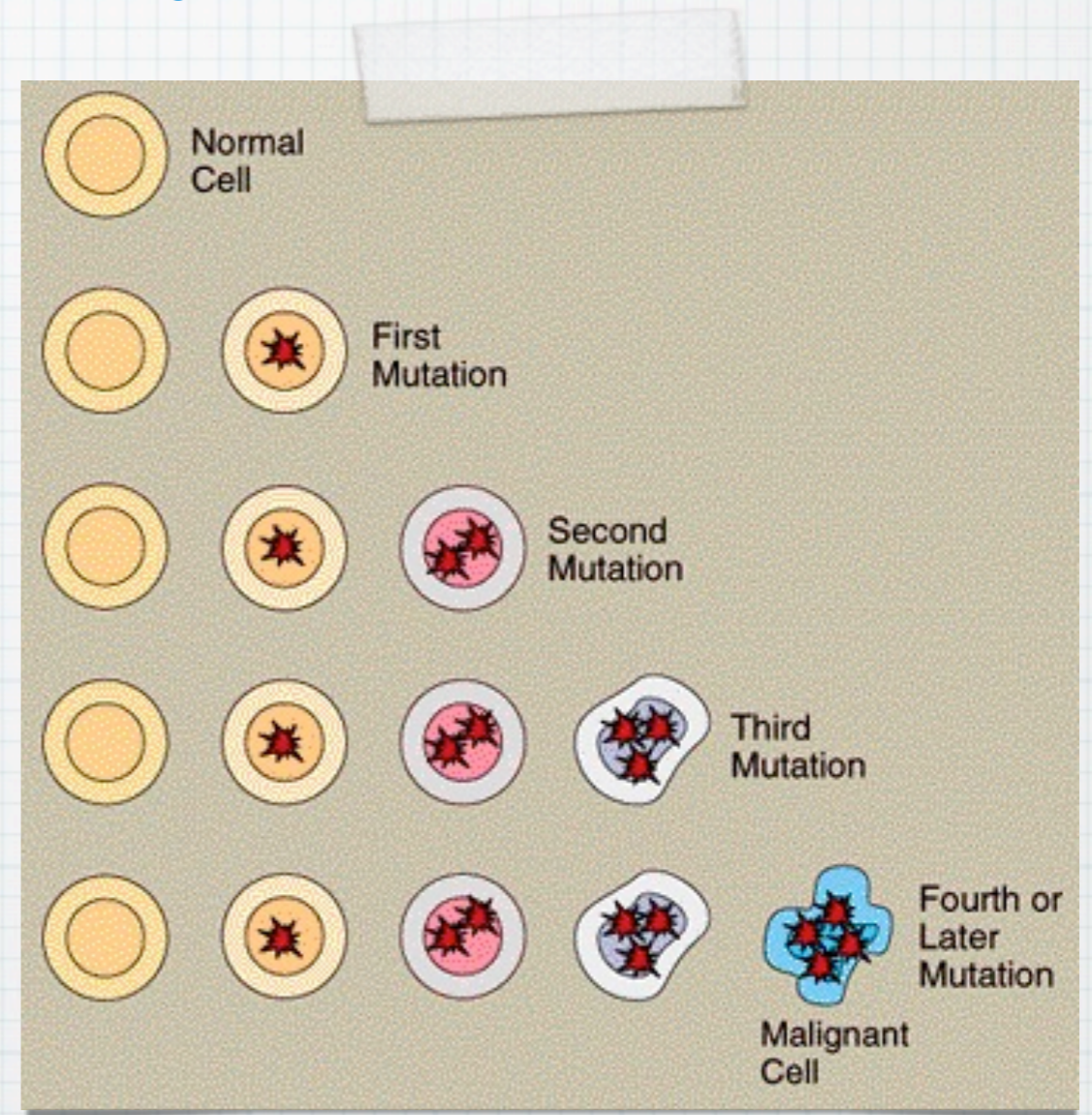
- * **Malignant: Cancerous tumor**
- * **Benign: Non-cancerous tumor**
- * **Metastasis: Cancer spreading to other areas of the body**

Fate of a Normal Cell



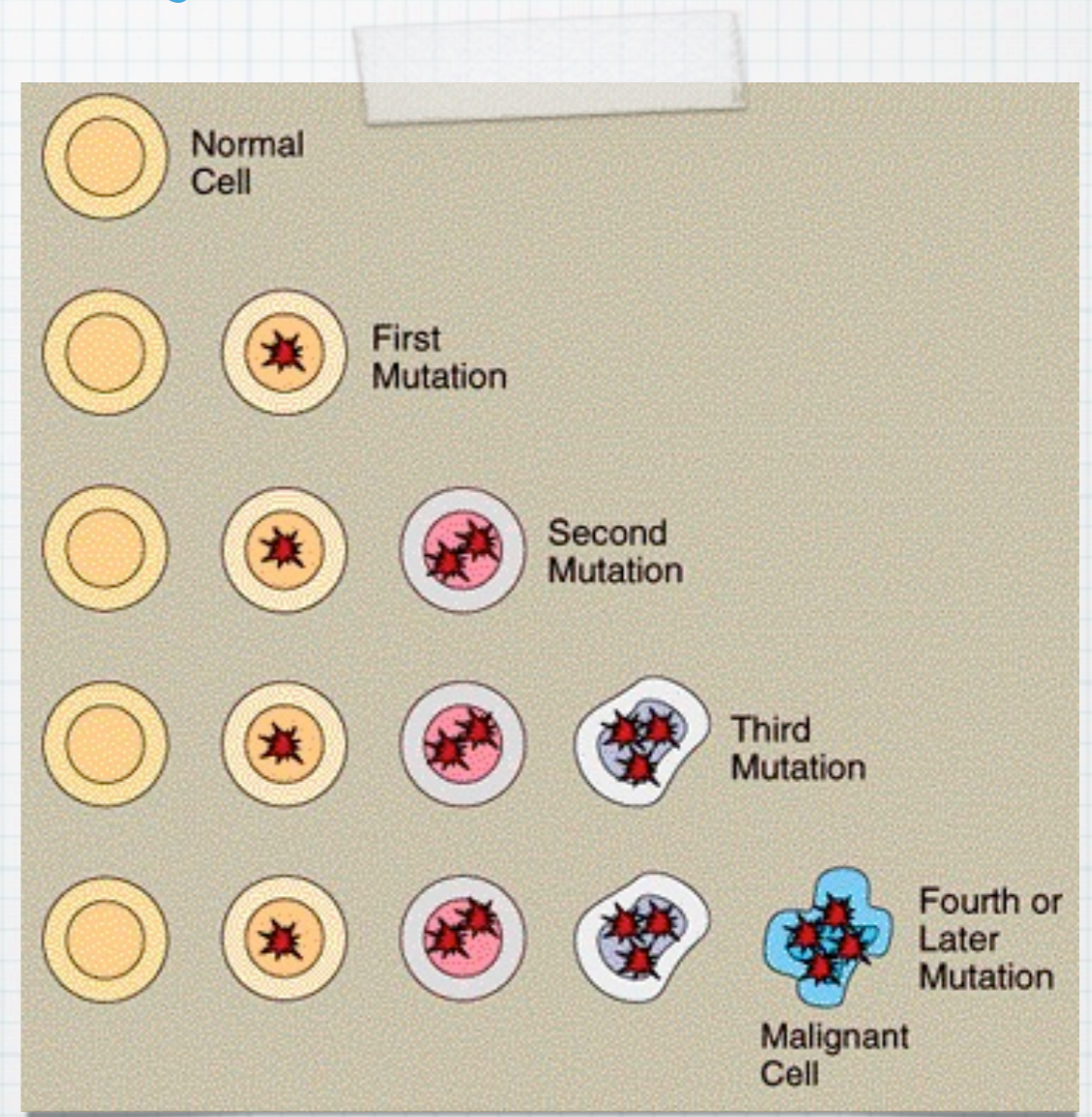
An Accumulation of Mutations

- * When cells divide random changes can occur, known as mutations.
- * Sometimes mutations occur in DNA that controls cell division.



An Accumulation of Mutations

- * Some scientists suggest at least 7 mutations are required to convert a normal cell to a cancer cell.



Mutagens and Carcinogens

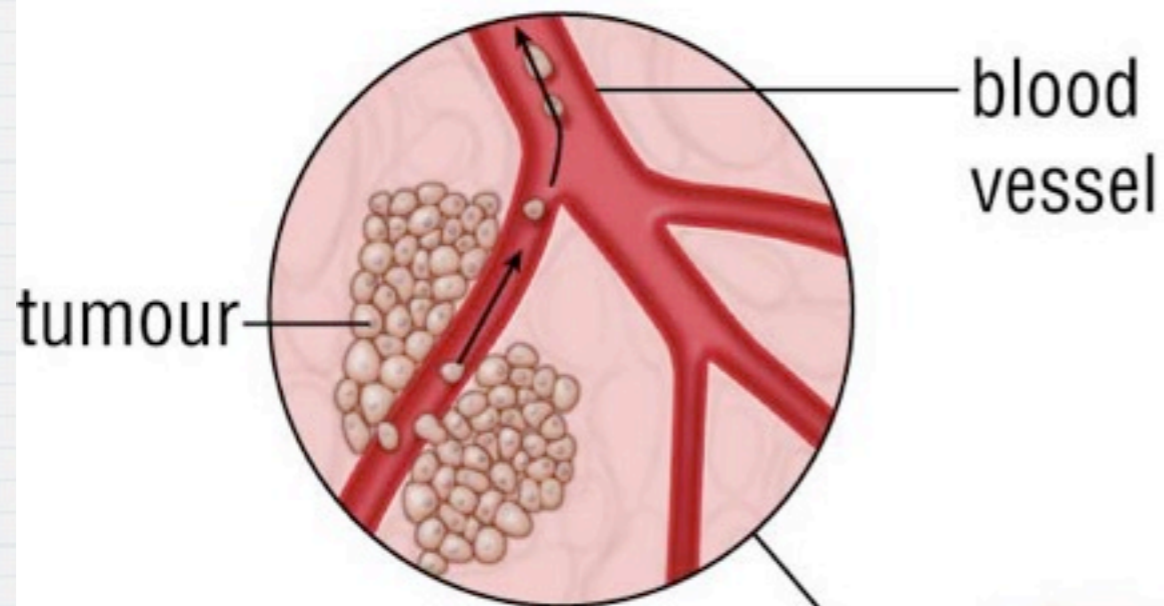
- * A mutagen is a substance or agent that induces heritable change in cells or organisms.
- * A carcinogen is a substance that induces unregulated growth processes leading to cancer
- * Some well known carcinogens are:
 - * X-rays
 - * UV radiation
 - * Smoking

Steps in Tumor Formation

- * **Step 1.** The primary tumour develops as a group of cells that are growing out of control.
- * **Step 2.** The tumour gets bigger and stimulates blood vessels to supply it from the surrounding tissues.

Steps in Tumor Formation

- * **Step 3.** Tumour cells squeeze into blood and lymph vessels and move to other parts of the body. **METASTASIS**
- * **Step 4.** Tumour cells reach other areas of the body, and begin to grow and form secondary tumours.



metastatic tumour is established by these migrating cells

cells from original tumour may break through blood vessel walls and travel to other areas of the body

