

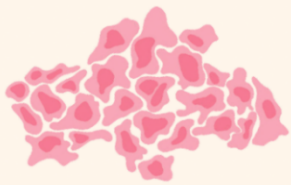
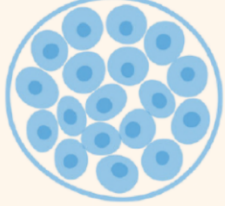
## CONCEPT: CANCER

● **Cancer:** a disease characterized by \_\_\_\_\_ cell division leading to development of *malignant tumors*.

□ **Tumors:** an \_\_\_\_\_ of cells (an abnormal mass of tissue) that can cause health complications.

1) **Malignant Tumors:** an overgrowth of *cancerous* cells that *migrate* (\_\_\_\_\_) to other organs.

2) **Benign Tumors:** an overgrowth of cells that do \_\_\_\_\_ migrate (remain at the same site).


Malignant Tumors		Benign Tumors	
	Cancerous _____-capsulated _____-growing Metastasize? _____		_____-Cancerous Capsulated _____-growing Metastasize? _____

**PRACTICE:** The difference between benign and malignant tumors is:

- |   |  |
|---|--|
| a) Malignant tumors do not spread to other sites. | c) Benign tumors have not spread to other sites. |
| b) Benign tumors have not lost growth control.    | d) Benign tumors have not spread to other sites. |

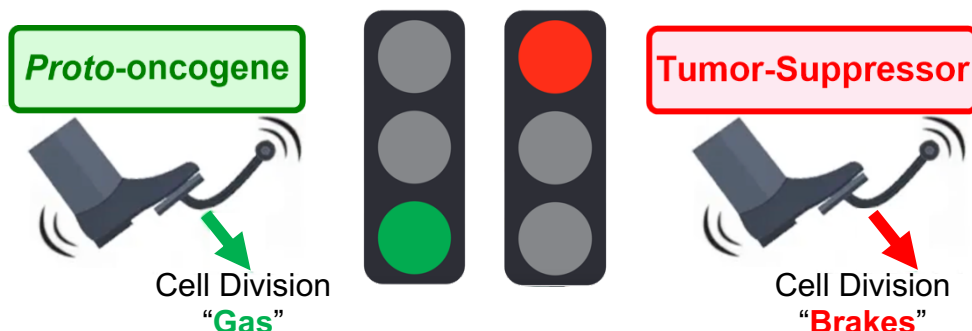
## Types of Genes Regulating Cell Growth

● In a healthy, normal cell, \_\_\_\_\_ types of genes regulate cell growth:

1) \_\_\_\_\_-*oncogene*: provide signals that promote appropriate cell division (green light for cell division). 

2) *Tumor*-\_\_\_\_\_ *Gene*: provide signals to inhibit cell division (red light for cell division). 

□ \_\_\_\_\_ serves as a tumor-suppressor gene.



● \_\_\_\_\_ in either of these types of genes can lead to the development of cancer.

□ Though proto-oncogenes are essential, they are susceptible to *mutations* that generate \_\_\_\_\_.

□ *Oncogene*: \_\_\_\_\_ gene that promotes unrestrained cell growth (*cancer*).

**CONCEPT: CANCER**

**PRACTICE:** Which of the following processes do normal proto-oncogenes typically exhibit?

- a) They normally suppress tumor growth.
- b) They enhance tumor growth.
- c) They stimulate normal cell growth and division.
- d) They are underexpressed in cancer cells.

**PRACTICE:** When activated by signals in the cell, Protein X can stop cells from growing and dividing into new cells. What type of gene codes for Protein X?

- a) Oncogene.
- b) Tumor-suppressor gene.**
- c) Protein kinase gene.
- d) Protein Vesicle gene.
- e) Proto-oncogene.