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Cancer is a gradual process caused by the abnormal proliferation of cells in a certain region of the body through a series of alterations to one’s genetics. Cancer cells differentiate from normal cells by their ability to: Continue multiplyingNormal cells cease proliferation when enough cells are present. Cancer cells, on the other hand, contain mutated genes. Changes in a cell’s genes cause miscomprehension of instructions, and therefore abnormal proliferation.

On average, it takes about six mutations before a normal cell turns into a cancer cell. MatureNormal cells mature and specialize into differentiated cells. Cancer cells, however, remain undifferentiated because they reproduce rapidly before the cell have a chance to mature. The grade of cancer normally corresponds to the degree of cell maturity. With 1 being the least aggressive and 3 being the most aggressive.

CommunicateUnlike normal cells, cancer cells do not respond to signals from other nearby cells. Hence, they are unable to know when they’ve reached their boundaries and should stop growing. Avoid apoptosisWhen cells get damaged or old, they either get repaired or undergo apoptosis (cell death). Cancer cells however are missing or having an inactive or abnormal P53 protein which advises them on which to do. They are, therefore, allowed to multiply and reproduce as per normal. Evade the immune systemCancer cells are able to evade death either by escaping detection or through secretion of certain chemicals that inactivate immune cells that come to the scene. Normal cells, however, are susceptible to the detection of the immune system and can be removed. MetastasizeNormal cells create cell-cell contact

through the secretion of a sticky substance, Claudin-5, made of proteins on the surface of their cells.

These proteins make contact with similar proteins on other cells in order to stick together as a group. Cancer cells, however, can “ float away” to locations nearby or (through the bloodstream or lymphatic system) to distant regions in the body, due to their inability to make these sticky substances. There, they begin to grow and form new tumours far from the original tumour.

Influence normal cellsCancer cells are able to signal nearby normal cells through angiogenic factors to encourage the formation of blood vessels thereby supplying tumours with oxygen and nutrients, which they need to grow.