

Mutations Affecting Cell Division :

(page 468)

A mutation is a permanent change to an organisms genetic material.

DNA change → gene changed → a protein changes

Mutations are caused by “mutagens” ...chemicals, radiation, even some viruses.

Somatic (body cell) mutations cannot be passed on to your children, but sex mutations (germ mutations) in sperm and egg can.

Mutations affecting genes controlling the speed of mitosis results in cancer. Mutated genes (oncogenes) cannot make proteins that stop mitosis. Cells divide uncontrollably to produce tumors.

Treating Cancer....

Radiation therapy and chemotherapy are methods designed to attack cells undergoing mitosis at high rates....both interfere with the normal mitosis story.

Radiation therapy -

- blasting specific body parts with X rays or gamma rays...internal or external radiation
- several times / week
- best for localized tumors...skin, breast, cervix, larynx
- causes fatigue, skin rashes, hair loss, sterility possible

Chemotherapy -

- 1 or several radioactive drugs are given on a “body wide” basis...perhaps along with radiation therapy...for widespread cancers...like leukemia.
- more impact on healthy cells as a side effect
- hair loss, nausea, diarrhea, for the duration of the treatment...as fast dividing cell types are most affected

The goal is to decide on a suitable course of treatment that minimizes damage to healthy cells. Targeting cancer only cells is the goal of modern research.

See Terry Fox and fundraising...page 469