



UNIT THREE STUDENT GLOSSARY

Apoptosis - programmed cell suicide, Example: cells die in the webbing between our fingers during development to create independently moving digits

Blastocyst - 5-14 day old embryo; the structure formed after the morula; it consists of about 100 cells, with pluripotent stem cells located in the inner cell mass. It is the stage at which stem cells are collected from donated embryos leftover from *in vitro* fertilization.

Differentiate - the transformation of an unspecific cell (stem cell) to a cell with a specified role in the microenvironment (skin cell, nerve cell, muscle cell, etc.).

Gene expression - the process by which DNA is transcribed into mRNA, then translated into protein.

Metastasis - spread of cancer cells to other locations in the body via lymph or blood, creating new tumors

Microenvironment – a cell's interface with the outside world, which influences its behavior through gene expression; soluble factors, extracellular matrix molecules, cell-cell contacts, and forces are components of the microenvironment.

Oncogene - an oncogene is said to be activated when the gene mutates, producing an abnormal protein with dysfunctional activity; it takes several oncogenic mutations to cause the cell to grow uncontrolled into a tumor.

p53 - the “Guardian Angel” of the cell, this gene regulates the production of other proteins and the transcription factors needed to express other regulatory genes; it activates DNA repairing enzymes/proteins and apoptosis if the DNA cannot be repaired. One of its many functions is to prevent DNA damage--which causes mutations--from being passed on to progeny cells.

Point mutation – a single nucleotide mutation; can be in the form of a deletion or insertion. Example: CAGTTGCT => CAATTGCT

Transcription factor - a type of protein which binds to a specific sequence on DNA and signals/aids RNA polymerase to start transcription. They are vital in regulating gene expression.