

CELL DIVISION – Unit 3 – Part 2

- **Differentiation** - The normal process by which a less specialized cell develops or matures to become more distinct in form and function.
- **Interphase** - longest part of cell cycle; growth, metabolism, and preparation for division occurs, DNA replication.
- **Mitosis** - process by which a cell divides and two identical daughter cells are produced.
- **Meiosis** - process that consists of two cell divisions, but only one chromosome replication (sometimes called reduction division); occurs only in sex organs (gonads: testes and ovaries) to produce sex cells (gametes; sperm and eggs).
- **Cytokinesis** - division of plasma membrane resulting in two daughter cells; last phase of the cell cycle.
- **DNA Replication** - The process of making a copy of DNA.
- **Cell Cycle** - The process cells go through to create more cells. Includes: Interphase (G1, S, and G2), Mitosis, Cytokinesis; creates identical daughter cells; primarily for growth and repair in multicellular organisms.
- **Sexual Reproduction** - Pattern of reproduction that involves the fusion of haploid sex cells to produce a diploid zygote that develops into a multicellular organism.
- **Asexual Reproduction** - a single parent cell produces cells genetically identical to itself.
- **Binary Fission** - Cell division by which prokaryotes reproduce; each dividing daughter cell receives a copy of the single parental chromosome; type of asexual reproduction.
- **Cancer** - Malignant growth resulting from uncontrolled cell division.
- **Benign** - Cancerous cells that do not metastasize.
- **Malignant** - Cancerous cells that can move to areas other than the place of origin.
- **Gamete** - Haploid cells produced by an organism through meiosis used for sexual reproduction. The human gametes are the sperm and egg.
- **Crossing Over** - An exchange of genetic material from non-sister chromatids during prophase I of meiosis.

- **Tetrad** - Two pair of sister chromatids of a homologous pair of chromosomes. (Tetrads align at the equator of the cell during Metaphase I of meiosis.)
- **Diploid (2n)** - The normal number of chromosomes found in an organism's body/somatic cells. (For humans the diploid or 2n number is 46.)
- **Haploid (n)** - One half of the normal number of chromosomes found in an organism's gametes/sex cells. (The haploid (n) number of chromosomes in the human sperm and egg is 23.)
- **Sister Chromatid** - One half of a replicated chromosome. Sister chromatids migrate during Anaphase of mitosis and Anaphase II of meiosis.

PROTEIN SYNTHESIS

- **Protein Synthesis** - the process by which amino acids are linked together to form proteins; involves ribosomal RNA, transfer RNA, messenger RNA, and various enzymes.
- **Polypeptide Chain** - a protein; sequence of amino acids that are folded in a specific conformation to do cellular work.
- **Transcription** - The process by which messenger RNA is synthesized from a DNA template.
- **mRNA** - (messenger RNA) form of RNA that is produced from DNA during transcription; travels from nucleus to ribosome in protein synthesis.
- **Codon** - A sequence of three nucleotides that codes for a specific amino acid in protein synthesis.
- **tRNA** - (transfer RNA) form of RNA that brings amino acids to ribosomes during protein synthesis.
- **Anticodon** - A specialized base triplet on one end of a tRNA molecule that recognizes a particular complementary codon on an mRNA molecule.
- **Mutation** - A change in the DNA sequence within a gene or chromosome of an organism.
- **Mutagen** - An agent, such as a chemical, ultraviolet light, or a radioactive element, that can cause a mutation (change in DNA) in an organism.