

## Vocabulary: Cell Differentiation and Gene Expression

- Differentiation – the process in which a cell becomes specialized.
  - Differentiation only occurs in multicellular organisms.
- Gene – a portion of DNA that codes for a particular trait.
- Gene expression – the process in which a gene is used as the instructions for synthesizing a protein.
- RNA – (ribonucleic acid) a nucleic acid that plays a role in protein synthesis.
  - The three main types of RNA are messenger RNA (mRNA), transfer RNA (tRNA), and ribosomal RNA (rRNA).
  - A fourth type of RNA, microRNA, plays a role in regulating gene expression.
- Stem cell – An undifferentiated cell that is able to produce more cells of the same type as well as specialized cells.
  - There are several different types of stem cells including totipotent stem cells and pluripotent stem cells.
  - Totipotent stem cells can give rise to any kind of body cell.
  - Pluripotent stem cells can give rise to only certain types of body cells.
- Transcription factor – A protein that binds to DNA to either promote or restrict gene expression.