Cellular reproduction

Cell Reproduction (http www. medicinenet. com/cancer/article. htm) Virtual Lab Week 4 Interphase Prophase Metaphase Anaphase Telophase Percentage Ofcells Dividing Percentage Of cells at Rest Normal Lung 4 1 Cancerous Lung 2 1 2 Normal Stomach 3 2 Cancerous Stomach 1 3 1 Normal Ovary 4 1 Cancerous Ovary 1 1 3 1. Based on your data and observations, what are some of the differences between normal cells and cancer cells? Cancer cells are known to display an uncontrolled and abnormal cell division, moreover the cells formed as a result of cell division exhibit characteristics that are weird as they have incredibly large or quite small nuclei or they possess anomalous quantity of chromosomes. They divide constantly and with rapid pace without exhibiting any contact inhibition. As the data suggests, cancer cells outnumber normal cells at the later stages of cell division, indicating that cancer cells divide at the swift rate and complete their cell division faster than the normal cells. Normal cells follow the regulated time interval for cell division or reproduction with balanced signaling pathways while cancer cells do not reveal any kind of signal transduction. Moreover, cancer cells are capable of angiogenesis enabling capillary formation from a nearby blood vessel so as to feed the growing tumor cells. Normal cells cease their cell division after a certain time while the cancer cells proliferate in any order violating the rules of cell division. Although normal cells taken from different tissues as in the present case display different morphology but the cancer cells taken from different tissues do not flaunt their distinct tissue morphology as there is a loss of specialized function. The elevated rate of cellular division ceases them to execute their specialized function (Ginger) 2. Which type of cancer shows the most aggressive growth? Explain. The stomach cancer shows the most aggression

because it has a higher amount of cells in the anaphase stage and all cells recorded are at the end stages of cell reproduction as compared to the normal cells of stomach which are more in prophase stage. The fact lies in the anatomical position of stomach, it is connected to esophagus on one side and with jejunum at the other end, it receives remarkable blood supply from the celiac artery that is directly connected to aorta, furthermore there is a venous drainage of blood to the spleen and liver, all these factors contribute to the faster pace of cell division of the stomach cancer cells (Stomach Cancer Treatment Information). 3. When studying cell division in tissue samples, scientists often calculate a mitotic index, which is the ratio of dividing cells to the total number of cells in the sample. Scientists often calculate the mitotic index to compare the growth rates of different types of tissue. Which type of tissue would have a higher mitotic index, normal tissue or cancerous tissue? Explain. Cancerous tissue would have a higher mitotic index due to it lacks the ability to regulate mitotic division phases. Normal cells cease cell division as they mature while there is no such discipline in cancer cells, resulting in higher ratio of dividing cells and thus provides a higher mitotic index. MI=(P+M+A+T)* 100/N 4. How can cancer cells be recognized? (Understanding Cancer) Cancer proliferates when the cells close down restraints of normal cell cycle and follow any unusual discipline of division, thereby portraying improper cell proliferation, resulting in the formation of an anomalous mass of cells, which may be confined to the tissue of derivation (called in situ cancer) or it may move to other tissue(s) due to lack of tissue specificity (called invasive cancer) thereby displaying masses which are potentially capable of interrupting normal tissue/ organ functions(Understanding Cancer). The atypical masses of cells could be

detected radiologically. References Cancer. Available at http://www. medicinenet. com/cancer/article. htm. [Accessed on 2nd February 2011] Ginger, L. Normal Cells vs Tumor Cells. Available at http://ezinearticles. com/? Normal-Cells-vs.-Tumor-Cells&id= 111688. [Accessed on 2nd February 2011]. Stomach Cancer Treatment Information. Available at http://www. canceranswers. com/Stomach. Cancer. html. [Accessed on 2nd February 2011]. Understanding Cancer. Available at http://science. education. nih. gov/supplements/nih1/cancer/guide/understanding1. htm. [Accessed on 2nd February 2011].