**BIO380: Cancer Biology**

**Homework Assignment #4: EGF-R**

**50pt, Due Wednesday Feb 15**

Investigate the EGF receptor and answer the following questions. Please cite your sources.

1. What cancers are EGF-R mutations involved in? (2pt)
2. What type of receptor is EGF-R? (1pt)
3. Describe the mechanism (or draw a picture) of this type of receptor. (6pt)
4. How does this receptor change to cause cancer? Why does this cause it to be constitutively active? (4pt)
5. Is egfr an oncogene or tumor suppressor? (1pt)
6. What domains are found in EGF-R? (4pt)
7. What genes that we have learned so far interact with EGF-R? (2pt)
8. How does EGF-R activate different pathways? (4pt)
9. What are the mechanisms by which EGF-R is targeted by chemotherapy drugs? Give an example of a drug that uses each mechanism. (9pt)
10. The company Biodesix specializes in characterizing lung cancers and determining appropriate chemotherapies. (see <http://www.biodesix.com/>, specifically information on Genestrat and Veristrat).
	1. What other genes (besides) egfr does Biodesix screen for? Why? (3pt)
	2. Why is this information important to know before treatment? (2pt)
	3. They say they screen DNA, RNA and protein. What would they be looking for in each case? (6pt)
	4. Why do they recommend frequent screening throughout treatment? (2pt)
	5. Why might the oncologist want to order full pathology and sequencing in addition to these tests? (4pt)