IMBBR 315 Quiz #5 Answer Key April 9, 2002

Name_____ Lab Section (day)_____

1. (6 points) Name <u>two</u> ways that double stranded RNA is introduced into worms.
A. Injection
B. Feeding
C. Soaking

2. A student decides to use RNAi to test if a gene that she is interested in is critical for embryonic development. The results of their RNAi experiment on *sem-2* worms are as follows:

Control – PTripleEX vector only – Bag of worms phenotype.
Control – PTripleEX vector with *pos-1* coding sequence – Bag of eggs phenotype.
The PTripleEX vector with the student's gene – Bag of worms phenotype.

A.(3 points) What can the student conclude about the function of their gene?
It is NOT required for embryonic development.

B.(3 points) Why is the PTripleEX vector with *pos-1* coding sequence control used?
To make sure that the RNAi is working so that the negative results can be trusted.

3. (6 points) Name the two types of antibodies that can be generated.
A. Polyclonal
B. Monoclonal

4. (3 points) If the protein you want to express in bacteria is toxic to bacteria, what is one modification that can be used to circumvent this problem?
You could incorporate an inducible promoter upstream of the translation start signals of your gene to be expressed. Thus you could induce high protein expression early, then isolate your protein before significant cell death occurs.

5. (4 points) A student wants to digest 1ug of a vector with 10 units *Xba* I restriction enzyme in a total volume of 20 ul. They have the following stock solutions: 1) Vector DNA 100 ug/ml. 2) *Xba* I 20 units/ul. 3) 10X *Xba* I buffer. How much of each of the stock solutions are required for this experiment?

Vector DNA _____10 □l_____

10X *Xba* I buffer _____2 □l_____

Xba I _____0.5 □l____

H_2O _____7.5 □l____