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NPTEL

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Unit 6 - Week 5

Course outline

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Week 5

◦ Lecture 22 - High throughputplatforms of interactomics: Protein arrays

◦ Lecture 23 - Conventional label based detection techniques for Protein microarrays

◦ Lecture 24 - Novel detection techniques for Protein microarrays

◦ Lecture 25 - Recombinational cloning and its application for Protein microarrays

Week 5 Assignment 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this   **Due on 2018-10-03, 23:59 IST.**
assignment.

1) Condition 1. A student is working on a gene which is potential protein drug target gene in   *1 point*
Acinetobacter baumannii. Student creates a knockout of the gene and subject this strain to the drug.
The bacteria still show drug resistance. Answer questions 1 to 5 based on this context.
What is the possible situation due to which the drug resistance was not affected, even after the
knockout was prepared?

○ Target site of the drug gets modified due to which interaction between drug and the target
was disrupted

○ Drug gets modified before it reaches to the target resulting in survival of the bacteria

○ Both of the above

○ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Both of the above

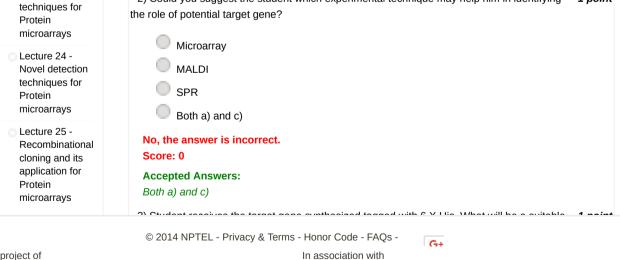2) Could you suggest the student which experimental technique may help him in identifying   *1 point*
the role of potential target gene?

○ Microarray

○ MALDI

○ SPR

○ Both a) and c)

No, the answer is incorrect.
Score: 0

Accepted Answers:
Both a) and c)

3) Student receives the target gene synthesized tagged with 6 X His. What will be a suitable   *1 point*

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○ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Peptide fusion tag

4) Student isolated RNA of A. baumannii and converted it to cDNA. He got good amount of   ***1 point***
cDNA. Can he validate the role of the gene by _____

○ Peptide fusion tag

○ Chemical linkage

○ NAPPA

○ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
NAPPA

5) As per the bioinformatics studies, student got to know that the target protein is a kinase   ***1 point***
substrate. What will be the best technique to identify such proteins?

○ Horseradish Peroxide labeling

○ Fluorescence labeling

○ Label free

○ Radioactivity labeling

No, the answer is incorrect.
Score: 0

Accepted Answers:
Radioactivity labeling

6) Condition 2. A researcher, Ram came across two samples, one was mixture of proteins   ***1 point***
while another was purified protein. He want to detect multiple proteins with high accuracy. Answer
questions 6 to 10 based on this context.
Will SWNT be a good choice to detect multiple targets with high accuracy?

○ True

○ False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

7) While preparing the solution of nanoparticles with the mixture of sample, some metal salts   ***1 point***
adulterated the solution. What will be the effect of this adulteration on the signals?

○ Signals will enhance while noise will reduce

○ Signal and noise will decrease

○ Signal and noise will remain unchanged

○ Signal will decrease while noise will increase

No, the answer is incorrect.
Score: 0

Accepted Answers:

Signal will decrease while noise will increase

8) Ram decides to label the antibodies using fluorescent labels for detecting two different   **1 point**
proteins from a cell lysate. He used two different labels, one label 'X', which has absorbance at 380nm
while emission at 520 nm, second label 'Y' which has absorbance at 520 nm and emission at 680 nm.
What is the expected labels he will see in the result file?

  ○ Both labels

  ○ Only X Label will be visible

  ○ Only Y label will be visible

  ○ None of the labels will be visible

No, the answer is incorrect.
Score: 0

Accepted Answers:
Only Y label will be visible

9) From Q8, what can be the possible reason for the outcome of the result?   **1 point**

  ○ Absorbance and emission wavelength of the fluorescent labels should be overlapping

  ○ Absorbance and emission wavelengths of the labels should never be overlapping

  ○ Absorbance and emission wavelength should be equal

  ○ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Absorbance and emission wavelengths of the labels should never be overlapping

10) Which of the following is not having property of cytotoxicity?   **1 point**

  ○ Quantum dots

  ○ Gold Nano particles

  ○ Both of the above

  ○ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
None of the above

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