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Courses » Interactomics

Announcements

Course

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Unit 5 - Week 4

Course outline

How to access the portal ?

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Week 4

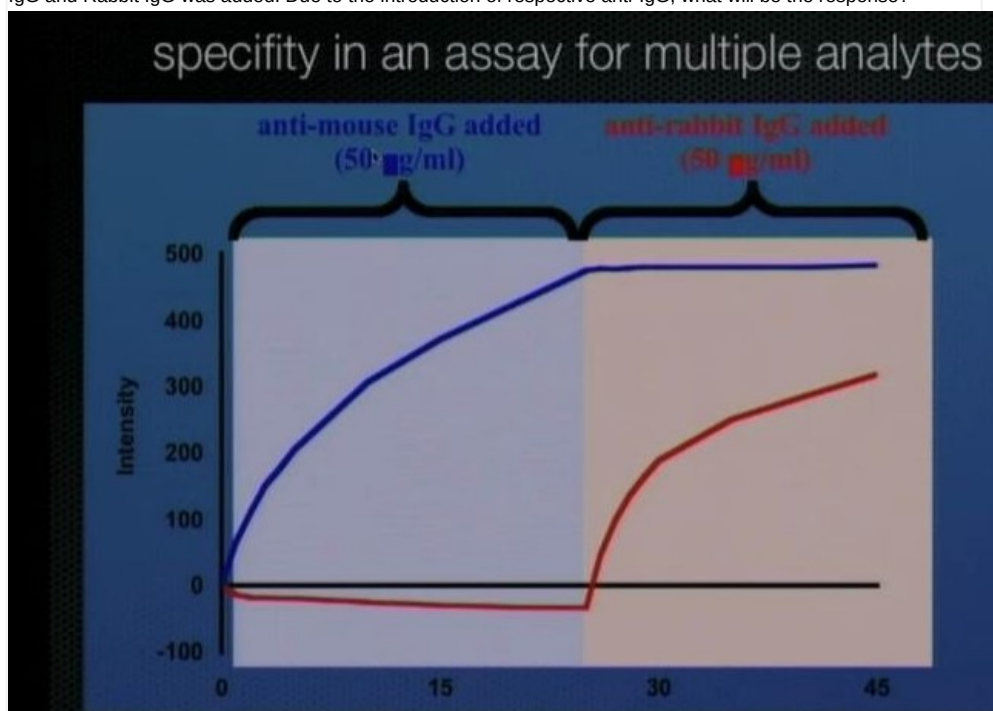
- Lecture 16 - Kinetic analysis of protein-protein interaction using BLI
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- Lecture 18 - Diffraction-based biosensors - I
- Lecture 19 - Diffraction-based biosensors - II
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Week 4 Assignment 4

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2018-09-26, 23:59 IST.

1) A diffraction-based biosensor experiment (below figure 1) was designed in which two analytes Mouse IgG and Rabbit IgG was added. Due to the introduction of respective anti-IgG, what will be the response? **1 point**



- Initially increase in signal was observed with the introduction of anti-mouse IgG in one of the part followed by no effect.
- Initially constant signal with the introduction of anti-Rabbit IgG followed by increase in signal in the other part.
- Both a and b are correct.
- None of this are correct.

No, the answer is incorrect.

Score: 0

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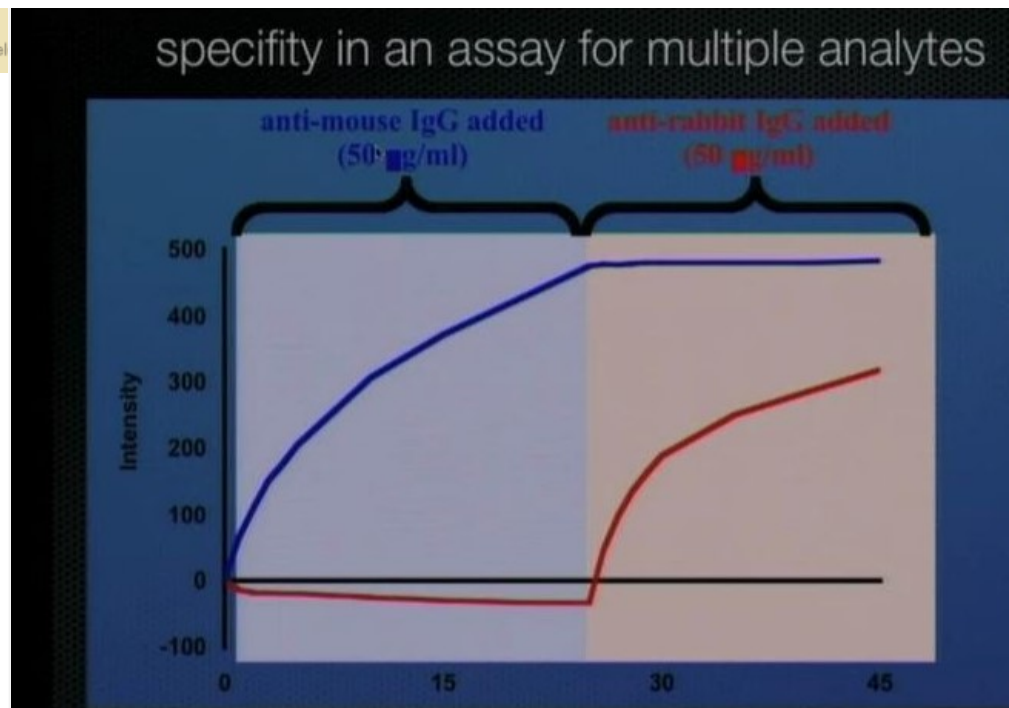


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- True
 False

No, the answer is incorrect.

Score: 0

Accepted Answers:

True

3) Which of the following statements regarding diffraction-based biosensors are correct? **1 point**

- Quantitative approach with little /no false positive, which are beneficial for diagnostics
 Small volume of sample is required (~ 20ul of sample volume)
 It is highly sensitive depending on the size of analyte and strength of binding
 All of the above

No, the answer is incorrect.

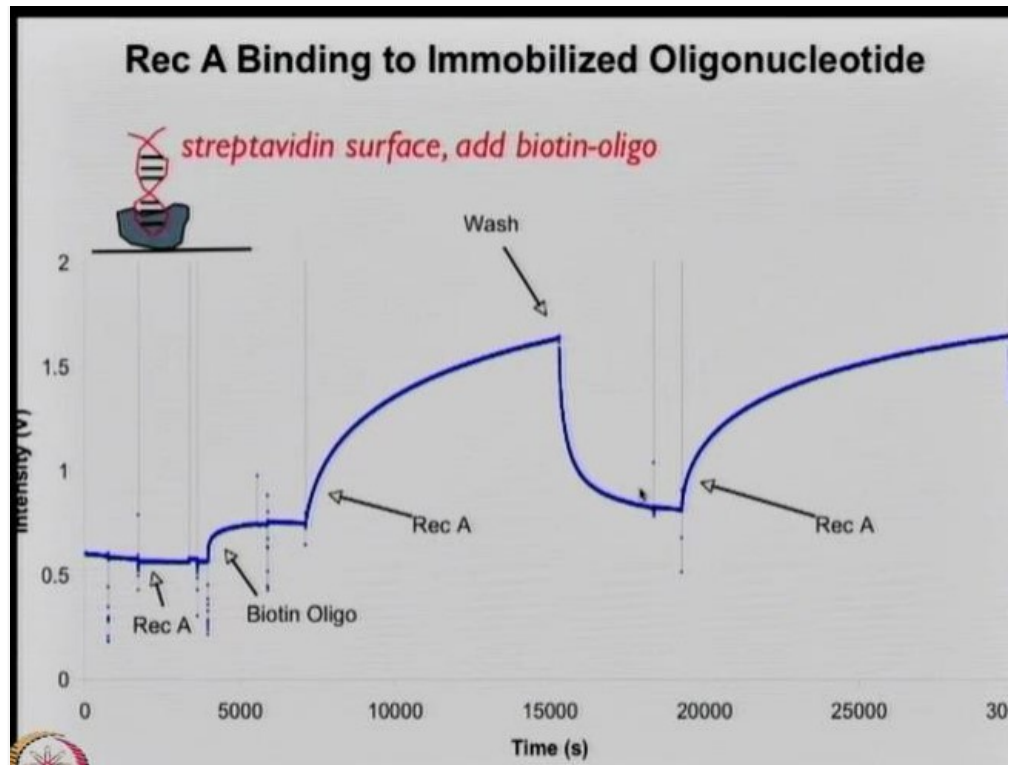
Score: 0

Accepted Answers:

All of the above

4) A diffraction based biosensor experiment (below figure 2) was designed in which kinetics of protein binding to the DNA was studied. **1 point**

Initially when start with a substrate (streptavidin), followed with the introduction of RecA, whether change in the signal is observed in Fig-2?



- True
- False

No, the answer is incorrect.

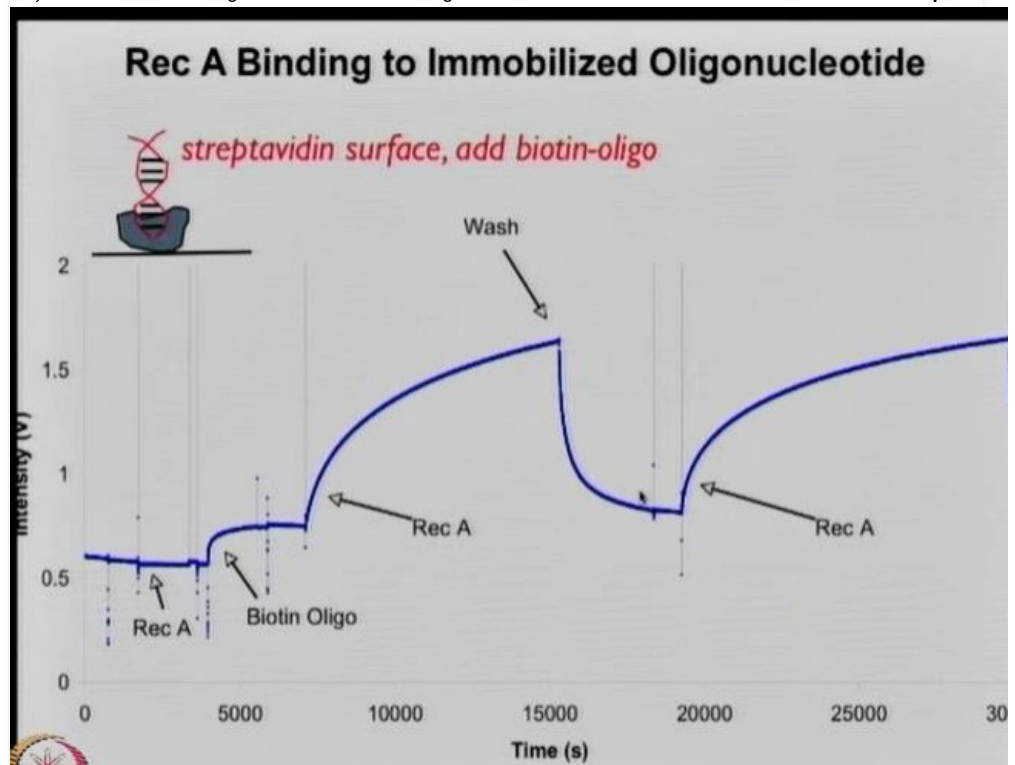
Score: 0

Accepted Answers:

False

5) Which of the following are true condition for Figure 2?

1 point



- In presence of Biotinylated oligonucleotides, Rec A protein and streptavidin, streptavidin promotes its

interaction between the biotinylated oligonucleotides, which further promotes interaction of RecA with the oligonucleotides.

- The interaction of biotinylated oligonucleotide-streptavidin complex and RecA protein increases the signal intensity.
- Washing with appropriate buffer result in decrease of signal because interaction between Rec A and DNA is weaker.
- Only options a and c are correct
- Options a, b, c are all correct

No, the answer is incorrect.

Score: 0

Accepted Answers:

Options a, b, c are all correct

6) Which of the following statements are best suited for CNTs?

1 point

- CNTs are hollow, cylindrical graphite sheets which shows high chemical stability and mechanical strength.
- There are two types of carbon nanotubes: SWNT and MWNT
- Single walled nanotubes are composed of single graphite layer having diameter of 0.5-2nm
- Options a, c is correct
- Options a, b, c is correct

No, the answer is incorrect.

Score: 0

Accepted Answers:

Options a, b, c is correct

7) About Silicon nanowire field effect transistors, which of the following is correct?

1 point

- Helps in real time measurement and multiplexing
- Are uniform and have reproducible detection with high specificity
- Suitable for systemic studies
- Options a & b are correct
- Options a, b, c is correct

No, the answer is incorrect.

Score: 0

Accepted Answers:

Options a & b are correct

8) Which of the following statements are NOT correct for Quantum dots?

1 point

- QDs are Nanocrystals or nanoparticles in size range of 1 to 10 nanometre, displaying unique photochemical and photo-physical properties.
- These are inorganic fluorophores that exhibit size-tunable emission, a strong light absorbance, bright fluorescence, narrow and symmetric emission bands and high photo stability.
- The fluorescence lifetime ranges between 10 to 100 milliseconds.
- QDs offer great potential in biological studies due to their remarkable photo-stability, which allows long term observation of biomolecules.

No, the answer is incorrect.

Score: 0

Accepted Answers:

The fluorescence lifetime ranges between 10 to 100 milliseconds.

9) Which of the following statements are correct for gold nanoparticles and nanocages?

1 point

- Shows strong scattering and absorption of peaks at 3kHz to 300GHz.
- Sensitive to photobleaching and quenching.

- Have wide spectral bandwidth.
- In-vivo molecular imaging is possible.

No, the answer is incorrect.

Score: 0

Accepted Answers:

In-vivo molecular imaging is possible.

10) In sensitive detection platforms, which of the following is correct abbreviated form of SERS?

1 point

- Shuttle Equipment Record System
- Special Emergency Radio Service
- Silver enhanced Ray stroke
- Surfaced Enhanced Raman Spectroscopy

No, the answer is incorrect.

Score: 0

Accepted Answers:

Surfaced Enhanced Raman Spectroscopy

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