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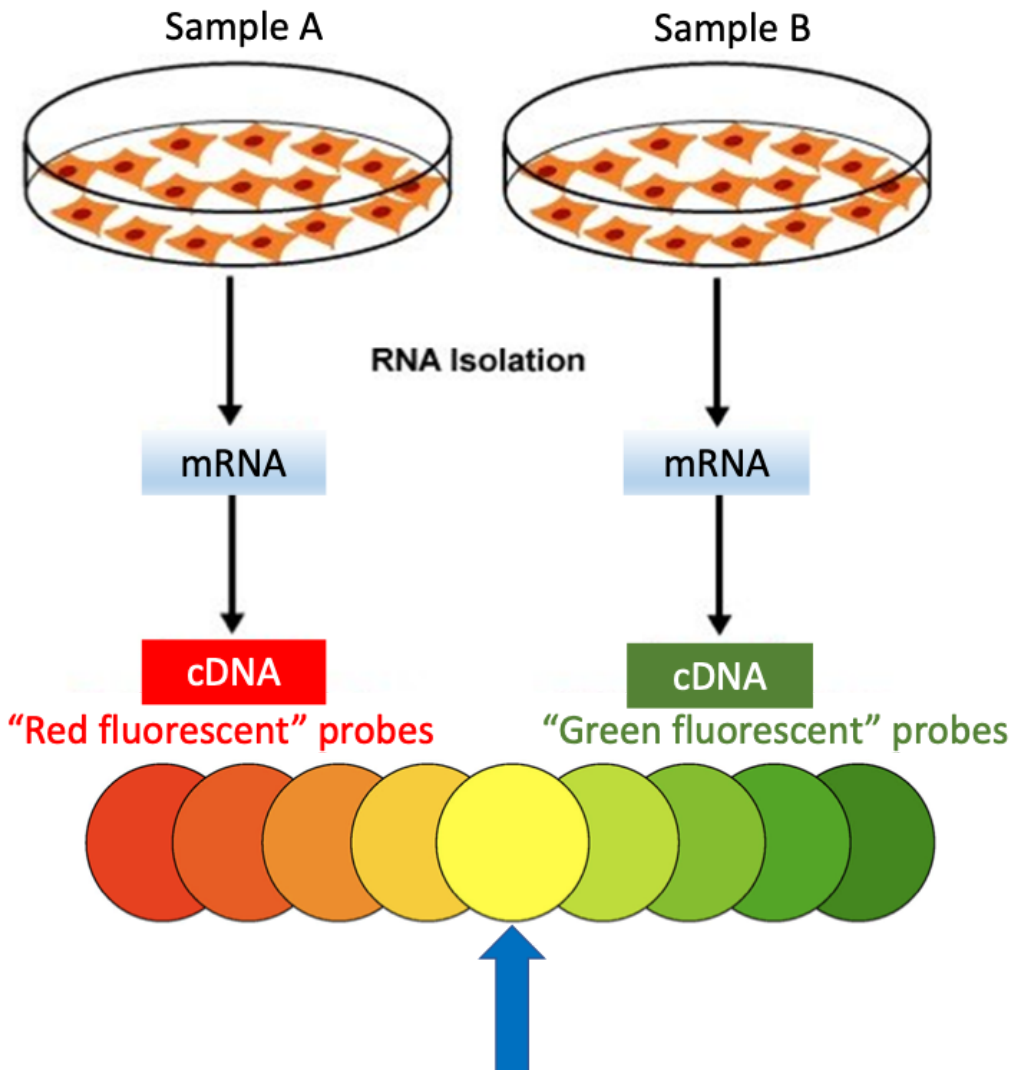
Unit 4 - Week 2: Genome Analysis (Part 1)

Assignment week 2

The due date for submitting this assignment has passed. **Due on 2019-09-11, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Following flow diagram depicts microarray-based whole genome expression technique. Here the yellow, red or green colour circles represent the level of expression of mRNA in a given sample. Here, the yellow circle identified by the blue arrow (bottom) mean that the expression level of the given mRNA species. ***1 point***

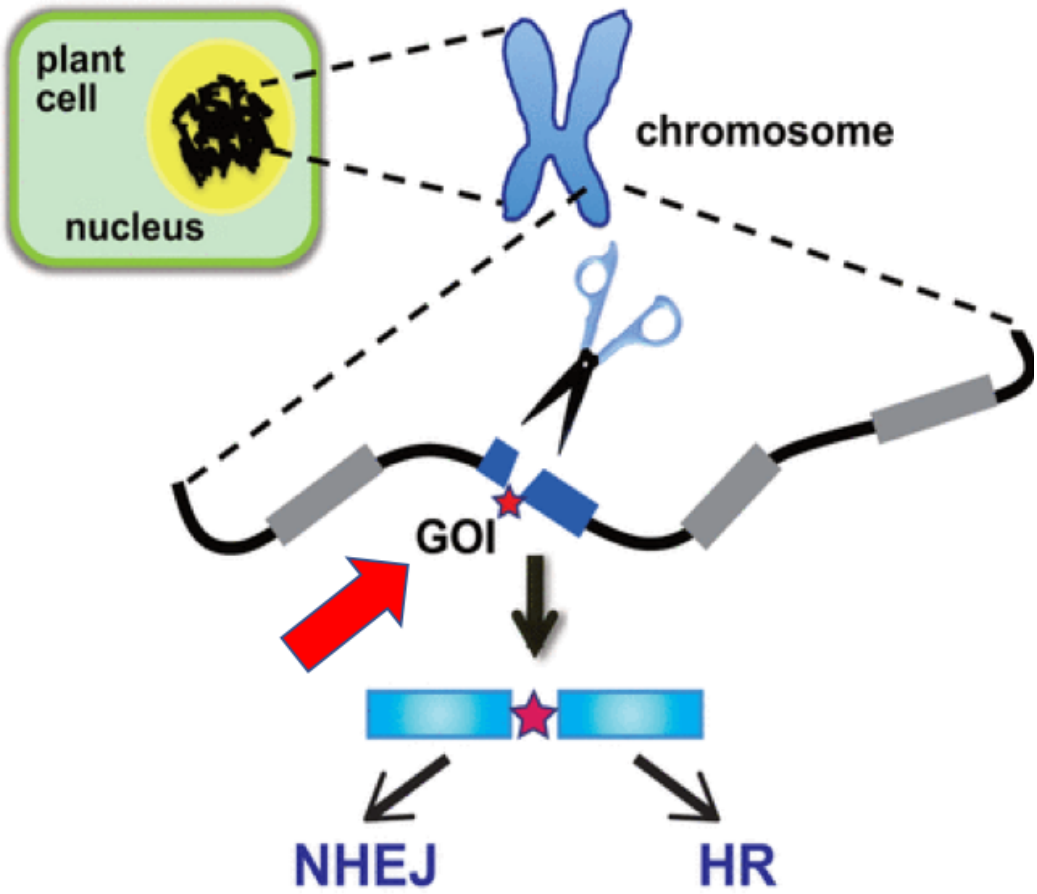


- is equal both in sample A and B
- is exclusively expressed in sample A
- is exclusively expressed in sample B
- is not expressed both in sample A and B

No, the answer is incorrect.
Score: 0

Accepted Answers:
is equal both in sample A and B

2) Given here is a schematic of a method for genome editing with engineered endonucleases (GEEN). Here the specificity of the restriction endonuclease to cut at the gene of interest (GOI), identified by red arrow, is guided by ***1 point***



- a protein localized on the GOI
- a complementary sequence to that of GOI being present as part of the endonuclease complex
- an antibody anchors the endonuclease to the GOI
- modified histones near the GOI show higher affinity for the endonuclease

No, the answer is incorrect.
Score: 0

Accepted Answers:
a complementary sequence to that of GOI being present as part of the endonuclease complex

3) Identify the name of the enzyme used in the CRISPR-Cas9 genome editing approach **1 point**

- Caspase 9
- Cas 9
- Crispase
- Cris 9

No, the answer is incorrect.
Score: 0

Accepted Answers:
Cas 9

4) Identify the functional genomics approach used to study the transcriptome: **1 point**

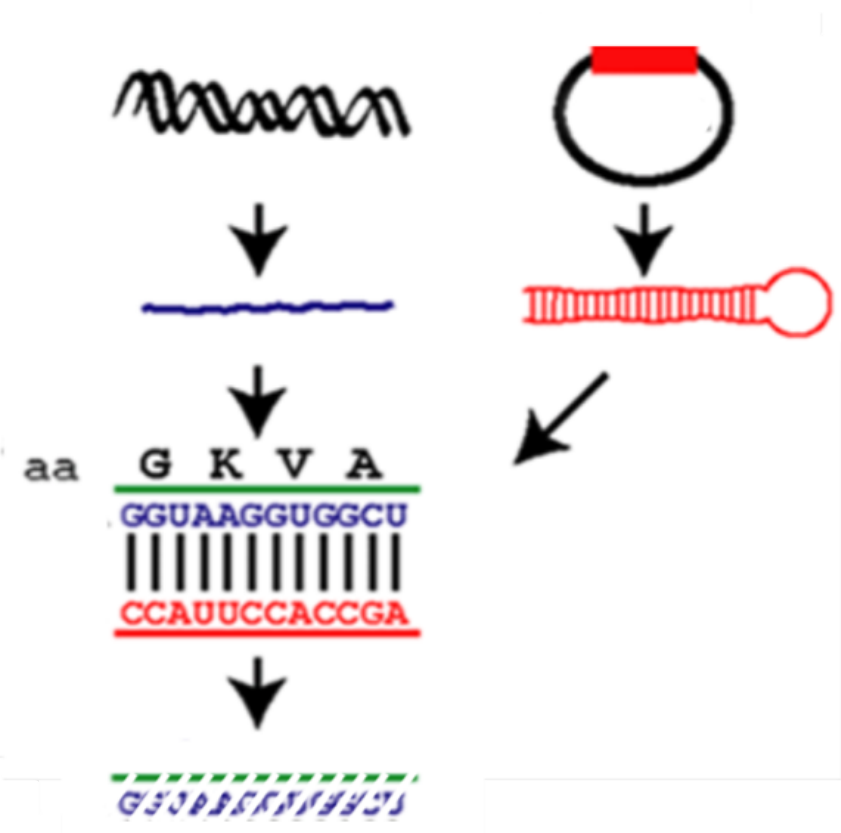
- RNA-Seq
- Microarray

- RT-PCR
- All of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of these

5) Which one of the following options correctly identifies the approach depicted in the schematic? **1 point**



- RNA interference
- Site directed mutagenesis
- CRISPR
- Translation arrest

No, the answer is incorrect.
Score: 0

Accepted Answers:
RNA interference

6) Northern blotting is one of the functional genomic approach to study transcriptomics. Identify the option which provides the limitations of the technique: **1 point**

- Only one gene can be analysed at a time
- Requires large amount of RNA for the analysis
- Time consuming
- All of these

No, the answer is incorrect.
Score: 0

Accepted Answers:

All of these

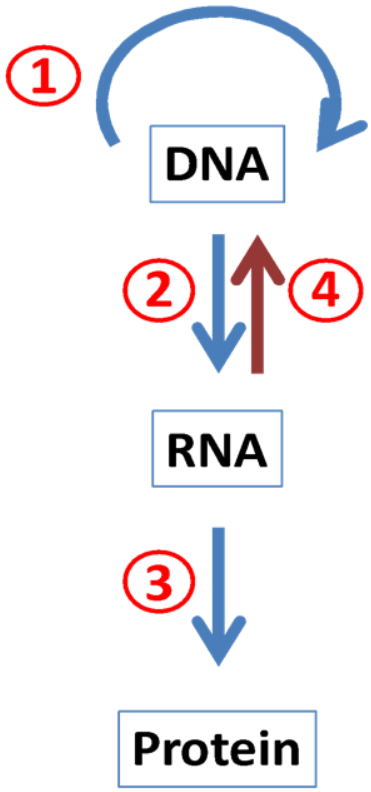
7) Which one of the following option correctly indicates the molecular function of Gene ontology tool: **1 point**

- Identification of upregulated transcripts
- Identification of downregulated transcripts
- Identification of cellular components
- All of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of these

8) The image shown here is a classical view of "Central dogma of molecular biology" and the different steps are marked with the numbers 1, 2, 3 and 4 in red color. Which of the following options correctly identify the step with the correct name of the processes? **1 point**



- 1 – Transcription; 2 – Translation; 3 - Reverse transcription, 4 – Replication
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- 1 – Reverse transcription; 2 – Transcription; 3 – Replication; 4 – Translation
- 1 – Replication; 2 – Transcription; 3 – Translation; 4 – Reverse Transcription

No, the answer is incorrect.
Score: 0

Accepted Answers:
1 – Replication; 2 – Transcription; 3 – Translation; 4 – Reverse Transcription

9) Polymerase chain reaction (PCR) is a widely used technique to amplify the target DNA. What would be the outcome of the PCR if the annealing temperature is higher than the extension temperature? **1 point**

- Primers will not be able to bind to the template
- Single-stranded amplification will take place
- PCR tubes will melt
- Amplicon will be smaller than the expected size

No, the answer is incorrect.
Score: 0

Accepted Answers:
Primers will not be able to bind to the template

10) In a polymerase chain reaction, how many DNA duplexes can be obtained from 4 DNA duplex after 4 cycles ***1 point***

- 48
- 32
- 16
- 64

No, the answer is incorrect.
Score: 0

Accepted Answers:
64