

<b>Started on</b>	Friday, 3 November 2023, 12:44 PM
<b>State</b>	Finished
<b>Completed on</b>	Sunday, 5 November 2023, 6:21 PM
<b>Time taken</b>	2 days 5 hours
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 10.00 out of 10.00

1 The aim of functional genomics is to explore the function of the whole organism's genes and gene products.

True



2 Functional genomic experiments generate... large amounts of data



3 Choose the appropriate description for the EMBL-EBI ArrayExpress resource:

- ☐ A database providing information about gene expression in different biological conditions
- ☒ A database of functional genomics experiments storing information about experiments and associated data
- ☐ Blank answer

Mark 1.00 out of 1.00

The correct answer is: A database of functional genomics experiments storing information about experiments and associated data

4 Choose the appropriate description for the EMBL-EBI Expression Atlas resource:

- ☒ A database providing information about gene expression in different biological conditions
- ☐ A database of functional genomics experiments storing information about experiments and associated data
- ☐ Blank answer

Mark 1.00 out of 1.00

The correct answer is: A database providing information about gene expression in different biological conditions

5 You should use the ArrayExpress...

- ☐ to submit histology experiments
- ☐ to submit microarray experiments
- ☐ to submit high-throughput sequencing experiments
- ☒ (b) and (c) are correct
- ☐ Blank answer

Mark 1.00 out of 1.00

The correct answer is: (b) and (c) are correct

6 You should use Expression Atlas...

- ☐ to retrieve sample annotation and raw data files for an experiment accession number you came across in a publication
- ☐ to search for gene expression in healthy, untreated human tissues
- ☐ to search for gene-condition information
- ☒ (b) and (c) are correct
- ☐ Blank answer

Mark 1.00 out of 1.00

The correct answer is: (b) and (c) are correct

7 Search for the gene *BRCA1* in humans in the Expression Atlas. What effect on the *BRCA1* gene expression has the treatment of A375 melanoma cells with Nutlin 5 micromolar compared to DMSO 0.065 percent, in GL2?

- ☐ The gene *BRCA1* is upregulated
- ☒ The gene *BRCA1* is downregulated
- ☐ The expression of the gene *BRCA1* is not altered
- ☐ Blank answer

Mark 1.00 out of 1.00

The correct answer is: The gene *BRCA1* is downregulated

8 Which GO term/s is/are enriched in the previous treatment?

- ☐ GO:0016363 – nuclear matrix
- ☐ GO:0006396 – RNA processing

- ☐ GO:0006310 – DNA recombination
- ☒ None of the above ✓
- ☐ Blank answer

Mark 1.00 out of 1.00

The correct answer is: None of the above

9 Go back to the Expression Atlas main page and search for the biological condition “*drought environment*” in the organism “*Arabidopsis thaliana*”. What is the effect of drought on the *LEA7* gene expression?

- ☒ The gene *LEA7* is upregulated ✓
- ☐ The gene *LEA7* is downregulated
- ☐ The expression of the gene *LEA7* is not altered
- ☐ Blank answer

Mark 1.00 out of 1.00

The correct answer is: The gene *LEA7* is upregulated

10 Lets assume you submit the complete list of genes from the previous result to the Gene Ontology Enrichment Analysis tool and find “*response to stress*” as one of the most significantly enriched “*biological process*” term. Choose the correct interpretation of this result:

- ☐ All the genes in the list are involved in response to stress in *Arabidopsis thaliana*
- ☒ Response to stress is statistically overrepresented as biological process term associated to the genes in the list ✓
- ☐ The genes in the list are only expressed under stress conditions in *Arabidopsis thaliana*
- ☐ Blank answer

Mark 1.00 out of 1.00

The correct answer is: Response to stress is statistically overrepresented as biological process term associated to the genes in the list