

Function Finders

Answer sheet



Translate the following sequences and find out what they do:

DNA Sequence 1: atg aag tca gct att tta acc ggt ttg ctt ttc gtc

Translated sequence: M K S A I L T G L L F V

Protein name: Antifreeze protein type III

Protein function: Prevents organisms such as the Atlantic wolffish from freezing in the icy seawater they live in.

DNA Sequence 2: atg agt aaa gga gaa gaa ctt ttc act gga gtc gtt

Translated sequence: M S K G E E L F T G V V

Protein name: Green fluorescent protein (GFP)

Protein function: GFP is used by organisms such as jellyfish to communicate with each other. It can also be used by biologists in genetic engineering research as a marker to indicate the successful insertion of genes.

DNA Sequence 3: gaa aac atg gag aac gat gaa aat att gtg tat ggt

Translated sequence: E N M E N D E N I V Y G

Protein name: Luciferase

Protein function: An enzyme used by fireflies to create light in a process called bioluminescence.

DNA Sequence 4: ggt tgg gct ttg cgg atc atg ttt cta cat ctg tac

Translated sequence: G W A L R I M F L H L G

Protein name: Odorant receptor protein OR1

Protein function: A special receptor which helps animals such as mosquitoes detect specific chemicals or smells in their environment.

DNA Sequence 5: atg gag ctg gcg gcc ttg tgc cgc tgg ggg tta ctc

Translated sequence: M E L A A L C R W G L L

Protein name: HER2

Protein function: Protein that acts like a molecular switch. When "on" it instructs cells to divide and grow.

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Translate the following sequences and find out what they do:

DNA Sequence 6: cct ggg gag aac cta tgc tat aga aag atg tgg tgc

Translated sequence: P G E N L C Y R K M W C

Protein name: Alpha-bungarotoxin

Protein function: A potent snake venom produced by the "many banded krait" from south east Asia.

DNA Sequence 7: ccc aga gag atc cag acc gcc gtg aga ctg tta ctc

Translated sequence: P R E I Q T A V R L L L

Protein name: Histone H2B

Protein function: Used to wind DNA up so it can be condensed into chromosomes allowing it to fit inside the nucleus of each cell.

DNA Sequence 8: cca ggt gga gaa aag gag act tcg gct acc cag aga

Translated sequence: P G G E K E T S A T Q R

Protein name: Mucin-1

Protein function: A large protein that forms a protective film on the surface of cells in our bodies for example in the intestines and nasal passages.

DNA Sequence 9: gag aag aga aag ctg ttt atc cgt tcc atg ggt gaa

Translated sequence: E K R K L F I R S M G E

Protein name: Caspase 1

Protein function: An enzyme that destroys cellular proteins leading to apoptosis or programmed cell death.

DNA Sequence 10: atg agt tct gac tct gag atg gcc att ttt ggg gag

Translated sequence: M S S D S E M A I F G E

Protein name: Myosin 1

Protein function: A key protein found in muscle fibres, that is essential for making muscles move.