

FUNCTION FINDERS

Answers 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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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.**