**Version 07/04/2022**

1. **Work with the following sequence obtained after sequencing (also in Moodle):**

TACTGTTTTCGTACAGTTTTGTAATAAAAAAACCTATAAATATTCCGGATTATTCATACCGTCCCACCAT

CGGGCGCGGATCTTTTTATCTAGCATAGCCAAAAAGAAAGAGCTTGCACATATGGAGAGATCAAACAGCA

CAGCTTCTATGGCCGTGCAAGAACTTCACCATGGAGCTATGGAGATTATGATAATTGCCAACAGGATCAT

GATTATCTTCTAGGGTTTTCATGGCCACCAAGATCCTACACTTGCAGCTTCTGCAAAAGGGAATTCAGAT

CGGCTCAAGCACTTGGTGGCCACATGAATGTTCACAGAAGAGACAGAGCAAGACTCAGATTACAACAGTC

TCCATCATCATCTTCAACACCTTCTCCTCCTTACCCTAACCCTAATTACTCTTACTCAACCATGGCAAAC

TCTCCTCCTCCTCATCATTCTCCTCTAACCCTATTTCCAACCCTTTCTCCTCCATCCTCACCAAGATATA

GGGCAGGTTTGATCCGTTCCTTGAGCCCCAAGTCAAAACATACACCAGAAAACGCTTGTAAGACTAAGAA

ATCATCTCTTTTAGTGGAGGCTGGAGAGGCTACAAGGTTCACCAGTAAAGATGCTTGCAAGATCCTGAGG

AATGATGAAATCATCAGCTTGGAGCTTGAGATTGGTTTGATTAACGAATCAGAGCAAGATCTGGATCTAG

AACTCCGTTTGGGTTTC

* Determine if this sequence is contaminated with vector, rewrite the purified sequence in FASTA format.

• Does the purified sequence encode a protein? How long is the longest open reading frame (ORF)?

• What organism does this sequence likely come from?

• Will the purified sequence be cleaved by the following enzymes: EcoRI, KpnI or MseI?

• What fragments are formed after cleavage by all these enzymes at once?

1. **Find a human protein sequence called FOX1**
* What is the accession number and function of this protein?

• Does this protein have any transmembrane regions?

* How many cysteines does the sequence have?

• Compare how similar the protein is to the respective mouse homologue?

* Design primers to amplify the CDS of respective gene.