1. **Work with this unknown nucleotide sequence:**

901 ctggagagca cgggtttgtt gtcttcactc tgggctccat ggtgtcacag ctacccgaag

961 ccaaagccag agagttcttt gaggcattta gacagatacc tcagagagtg ttgtggagat

1021 acactggacc agtcccagaa aatgcaccaa agaatgtcaa attaatgaaa tggctgccac

1081 agaatgacct cttgggccat cctaaggtta gggcttttgt tacacatggt ggatcacatg

1141 gaatctatga aggaatctgt aatggagtgc ctatggtgat gcttcctctg tttggagacc

1201 aaggggataa tgctcagcgt ttggtgtctc gaggagtcgc agaaagcctg actatctatg

1. Rewrite this sequence in FASTA format.
2. Identify what it encodes and which organism it originates from.
3. Manually design primers that will amplify the CDS of the identified sequence, ensuring that their Tm does not exceed 60°C.
4. Translate the CDS into protein and write down the sequece.
5. Does the corresponding protein contain any transmembrane regions?

**B)** **Download the protein sequence Q0VC44.**

1. What does this sequence encode, and from which organism does it come?
2. Downlaod the FASTA format of the protein sequence.
3. Compare the protein sequence with the corresponding human homolog—how similar are these proteins?
4. What is the length of the coding sequence (CDS) of the corresponding gene?
5. Will the corresponding nucleotide sequence (CDS only) be cleaved by the restriction enzymes BamHI, EcoRI, or KpnI?