**Version 12.5.2025**

**A: Download the sequence of the accession number NM\_003998.4**

1. What does this sequence encode?
2. Download the seventh exon of this sequence in FASTA format, how long is it?
3. Is there a restriction enzyme that would cut the sequence of the seventh exon exactly once?
4. Find corresponding protein, does it contain any transmembrane helices?
5. How many threonins (T) does the respective protein contain?

**B: Work with following peptide sequence:**

181 mdvitstsfg vnidslnnpq dpfventkkl lrfdfldpff lsitvfpfli pilevlnicv

241 fprevtnflr ksvkrmkesr ledtqkhrvd flqlmidsqn sketeshkal sdlelvaqsi

301 ififagyett ssvlsfimye lathpdvqqk lqeeidavlp nkapptydtv lqmeyldmvv

361 netlrlfpia mrlervckkd veingmfipk gvvvmipsya lhrdpkywte pekflperfs

1. Rewrite this sequence in FASTA format.
2. What is the molecular weight of this peptide?
3. To which human protein this peptide probably belongs (find reference sequence NP\_..)?
4. Find corresponding transcript sequence (mRNA), what is its accession number?
5. Manually design primers for PCR amplification of the **CDS**, so their Tm is not higher than 65°C.