

A certain genetic condition in horses is caused by a single base mutation in a gene. Part of the gene sequence containing the mutation is shown.

TAG AAC CTG AAG

a. Determine the mRNA sequence.

The table shows mRNA codons and their corresponding amino acids.

mRNA	Amino Acid
AUC	Ile
AAG	Lys
CUG	Asp
CUC	Leu
GAC	Asp
UUC	Phe
UUA	Leu
UUG	Leu

b. Determine the amino acid sequence that is coded for by the mRNA sequence you determined in part (a).

The mutated gene codes for Leu instead of Phe.

c. Identify a single base change in the DNA sequence shown that would cause this genetic condition in horses. Explain your answer using amino acids, mRNA codons, and DNA triplets.