

Name: _____

TRANSCRIPTION & TRANSLATION

The goal of this activity is to transcribe and translate this DNA sequence to a polypeptide (protein). This DNA sequence belongs to a zebrafish. Zebrafish are important to research because they share 70% of the genes with humans.

STEP 1: Transcribe DNA to RNA. (A > U; T > A; C > G; G > C)

STEP 2: Translate RNA to amino acids using the codon box below. Use the letter for each amino acid.

STEP 3: Use the table to decide which protein you made.

	U	C	A	G	
U	UUU } Phe - F UUC } UUA } Leu - L UUG }	UCU } Ser - S UCC } UCA } UCG }	UAU } Tyr - Y UAC } UAA Stop UAG Stop	UGU } Cys - C UGC } UGA Stop UGG } Trp - W	U C A G
C	CUU } Leu - L CUC } CUA } CUG }	CCU } Pro - P CCC } CCA } CCG }	CAU } His - H CAC } CAA } Gln - Q CAG }	CGU } Arg - R CGC } CGA } CGG }	U C A G
A	AUU } Ile - I AUC } AUA } AUG Met - M	ACU } Thr - T ACC } ACA } ACG }	AAU } Asn - N AAC } AAA } Lys - K AAG }	AGU } Ser - S AGC } AGA } Arg - R AGG }	U C A G
G	GUU } Val - V GUC } GUA } GUG }	GCU } Ala - A GCC } GCA } GCG }	GAU } Asp - D GAC } GAA } Glu - E GAG }	GGU } Gly - G GGC } GGA } GGG }	U C A G

D N A	TAC CAA CTC ACC TGT CTA CGG CTC GCG TGT CGG TAG GAA CCG GAC ACC CCT TTC GAG TTA
R N A	
A A	

Using the amino acid sequence provided above, refer to the table below to identify the corresponding protein. Once you have found the matching protein, draw a circle around it.

Protein Name	Amino Acid Sequence
Estrogen Receptor Alpha	MVMSAHDRNT AGPTRSP
Beta-globin	MVEWTDART AILGLWGKLN
T-Cell Receptor Alpha	XTNNVGRMIF GKGTKLIVDS
Connective Tissue Growth Factor	MFSGMTQSTVI ALLFLTFLRW

CONCLUSION:

The protein I translated is:

I researched this protein and discovered that its function is:

If there were a mutation in the original DNA sequence, how would that affect the protein?

Where in the cell does transcription occur?

Where in the cell does translation occur?
