

Transcription and Translation

Practice Worksheet

Example:

DNA: GTACGCGTATACCGACATTC

mRNA: CAUGCGCAUAUGGCUGUAAG

Codons: AUG-CGC-AUA-UGG-CUG-UAA

Anticodons: UAC-GCG-UAU-ACC-GAC-AUU

Amino Acids: METHIONINE-ARGININE-ISOLEUCINE-TRYPTOPHAN-LEUCINE

Using the example above, transcribe the following DNA strand into mRNA and translate that strand into a polypeptide chain, identifying the codons, anticodons, and amino acid sequence.

1. DNA: ATACGAAATCGCGATCGCGGCGATTCCG

mRNA: **UAUGCUUWAGCGCUAGCGCCGCUAAGCC**

Codon: **AUG CUU WAG CGC UAG CGC CGC UAA GCC**

Anticodon: **UAC GAA AUC GCG AUC GCG GCG AUU CGG**

Amino Acids: **Methionine - Leucine - Stop!**

2. DNA: TTTACGGCCATCAGGCAATACTGG

mRNA: **AAAUGCCGGUAGUCCGUUANGACC**

Codon: **AUG CCG GUA GUC CGU UAU GAC**

Anticodon: **UAC GGC CAU CAG GCA AUA CUG**

Amino Acids: **Methionine - Proline - Valine - Valine - Arginine - Tyrosine - Aspartic acid**

3. DNA: TACGGGCCTATACGCTACTACTCATGGATCGG

mRNA: AUGCCCGGAUAUGCGAUGAUGAGUACCUAGCC

Codon: AUG CCC GGA UAU GCG AUG AUG AGU ACC UAG

Anticodon: UAC GGG CCU AUA CGC UAC UAC UCA UGG AUC

Amino Acids: Methionine - Proline - Glycine - Tyrosine - Alanine - Methionine -
Methionine - Serine - Threonine - STOP

4. DNA: GTACGCGTATACCGACATTC

mRNA: CAUGCGCAUAUGGCUAAG

Codon: AUG CGC AUA UGG CUG UAA

Anticodon: UAC GCG UAU ACC GAC AUU

Amino Acids: Methionine - Arginine - Isoleucine - Tryptophan - Leucine - STOP

Transcribe the following DNA strand into mRNA and translate that strand into a polypeptide chain, identifying the codons, anticodons, and amino acid sequence.

DNA: CGATACAATGGACCCGGTATGCGATATCC