Transcription and Translation

Practice Worksheet

Example:

DNA: 3' GTACGCCTATACCCGACATT 5'  
mRNA: 5' CAUGCGCAUAUGGCUGUAAG G 3'  
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: 3' ATACGAAATCGCGATCGCGCGGATTCG 5'  
mRNA: 5' UAAUCUUGUGCGCUAAGCGUAAAGCC G 3'  
Codon: AUG-CGU-UAG  
Anticodon: UAC-GAA-AUC  
Amino Acids: Met-Leu-STOP

2. DNA: 3' TTTACGGCCATCAGGCAATACTG 5'  
mRNA: 5' AAAUGGCGGUAGCCGURUWAUGACC G 3'  
Codon: AUG-CCG-GUA-GUC-CGU-VAU-GAC  
Anticodon: UAC-GGC-CAU-CAG-GCA-AUA-CUG  
Amino Acids: Met-Pro-Val-Val-Arg-Tyr-Asp
Transcribe the following DNA strand into mRNA and translate that strand into a polypeptide chain, identifying the codons, anticodons, and amino acid sequence.

DNA: 3'-TACGGGCTATACGCTACTACCTGATCGG-5'

mRNA: 5'-AUGCCCCGGAUAVGCGAUGAGUGUACCUGUAGCC-3'

Codon: AUG-CCC-GGA-UAU-GCU-AUG-AUG-AGU-ACC-UAG

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

Amino Acids: Met-Pro-Gly-Tyr-Ala-Ala-Met-Met-Ser-Thr-STOP

DNA: 3'-GTACGCTATACCGCATTC-5'

mRNA: 5'-CAUGCGCAUAUGGCGUGUAAG-3'

Codon: AUG-CGC-AUA-UAG-CUG-UAA

Anticodon: UAC-GCG-UUA-ACC-GAC-PUU

Amino Acids: Met-Arg-Ile-Trp-Pro-STOP

DNA: 3'-CGATAATGGACCCGATCGATCGTT-5'

mRNA: 5'-GCU[AUGVUACCUCGGCCCAUACGCUAUGAG-3'

Codon: AUG-CCA-CCU-GGG-CCA-UAC-GCU-AUA

Anticodon: UAC-HAV-GUA-CCC-GCA-AUG-CAU

Amino Acids: Met-Leu-Pro-Gly-Pro-Tyr-Ala-Ile