**Lab 05:** Central Dogma I: Integrated pipeline for Building Web-based DNA Translation Tool

**Your Task**

To receive full credit for this lab, you must **answer** all following questions.

**Task 1: Get protein sequence for DNA sequence (**[**https://www.ncbi.nlm.nih.gov/nuccore/NM\_207618.2**](https://www.ncbi.nlm.nih.gov/nuccore/NM_207618.2)**), and compare it with sequence on NCBI website. Do you get same results?**

GGTCAGAAAAAGCCCTCTCCATGTCTACTCACGATACATCCCTGAAAACCACTGAGGAAGTGGCTTTTCAGATCATCTTGCTTTGCCAGTTTGGGGTTGGGACTTTTGCCAATGTATTTCTCTTTGTCTATAATTTCTCTCCAATCTCGACTGGTTCTAAACAGAGGCCCAGACAAGTGATTTTAAGACACATGGCTGTGGCCAATGCCTTAACTCTCTTCCTCACTATATTTCCAAACAACATGATGACTTTTGCTCCAATTATTCCTCAAACTGACCTCAAATGTAAATTAGAATTCTTCACTCGCCTCGTGGCAAGAAGCACAAACTTGTGTTCAACTTGTGTTCTGAGTATCCATCAGTTTGTCACACTTGTTCCTGTTAATTCAGGTAAAGGAATACTCAGAGCAAGTGTCACAAACATGGCAAGTTATTCTTGTTACAGTTGTTGGTTCTTCAGTGTCTTAAATAACATCTACATTCCAATTAAGGTCACTGGTCCACAGTTAACAGACAATAACAATAACTCTAAAAGCAAGTTGTTCTGTTCCACTTCTGATTTCAGTGTAGGCATTGTCTTCTTGAGGTTTGCCCATGATGCCACATTCATGAGCATCATGGTCTGGACCAGTGTCTCCATGGTACTTCTCCTCCATAGACATTGTCAGAGAATGCAGTACATATTCACTCTCAATCAGGACCCCAGGGGCCAAGCAGAGACCACAGCAACCCATACTATCCTGATGCTGGTAGTCACATTTGTTGGCTTTTATCTTCTAAGTCTTATTTGTATCATCTTTTACACCTATTTTATATATTCTCATCATTCCCTGAGGCATTGCAATGACATTTTGGTTTCGGGTTTCCCTACAATTTCTCCTTTACTGTTGACCTTCAGAGACCCTAAGGGTCCTTGTTCTGTGTTCTTCAACTGTTGAAAGCCAGAGTCACTAAAAATGCCAAACACAGAAGACAGCTTTGCTAATACCATTAAATACTTTATTCCATAAATATGTTTTTAAAAGCTTGTATGAACAAGGTATGGTGCTCACTGCTATACTTATAAAAGAGTAAGGTTATAATCACTTGTTGATATGAAAAGATTTCTGGTTGGAATCTGATTGAAACAGTGAGTTATTCACCACCCTCCATTCTCT

* Your Protein Sequence:

MSTHDTSLKTTEEVAFQIILLCQFGVGTFANVFLFVYNFSPISTGSKQRPRQVILRHMAVANALTLFLTIFPNNMMTFAPIIPQTDLKCKLEFFTRLVARSTNLCSTCVLSIHQFVTLVPVNSGKGILRASVTNMASYSCYSCWFFSVLNNIYIPIKVTGPQLTDNNNNSKSKLFCSTSDFSVGIVFLRFAHDATFMSIMVWTSVSMVLLLHRHCQRMQYIFTLNQDPRGQAETTATHTILMLVVTFVGFYLLSLICIIFYTYFIYSHHSLRHCNDILVSGFPTISPLLLTFRDPKGPCSVFFNC

* NCBI’s Protein Sequence:

MSTHDTSLKTTEEVAFQIILLCQFGVGTFANVFLFVYNFSPISTGSKQRPRQVILRHMAVANALTLFLTIFPNNMMTFAPIIPQTDLKCKLEFFTRLVARSTNLCSTCVLSIHQFVTLVPVNSGKGILRASVTNMASYSCYSCWFFSVLNNIYIPIKVTGPQLTDNNNNSKSKLFCSTSDFSVGIVFLRFAHDATFMSIMVWTSVSMVLLLHRHCQRMQYIFTLNQDPRGQAETTATHTILMLVVTFVGFYLLSLICIIFYTYFIYSHHSLRHCNDILVSGFPTISPLLLTFRDPKGPCSVFFNC

**Task 2: Get protein sequence for DNA sequence (**[**https://www.ncbi.nlm.nih.gov/nuccore/NM\_008220.5**](https://www.ncbi.nlm.nih.gov/nuccore/NM_008220.5)**), and compare it with sequence on NCBI website. Do you get same results?**

TTACGTTTGCTTCTGATTCTGTTGTGTTGACTTGCAACCTCAGAAACAGACATCATGGTGCACCTGACTGATGCTGAGAAGGCTGCTGTCTCTGGCCTGTGGGGAAAGGTGAACGCCGATGAAGTTGGTGGTGAGGCCCTGGGCAGGCTGCTGGTTGTCTACCCTTGGACCCAGCGGTACTTTGATAGCTTTGGAGACCTATCCTCTGCCTCTGCTATCATGGGTAATGCCAAAGTGAAGGCCCATGGCAAGAAAGTGATAACTGCCTTTAACGATGGCCTGAATCACTTGGACAGCCTCAAGGGCACCTTTGCCAGCCTCAGTGAGCTCCACTGTGACAAGCTGCATGTGGATCCTGAGAACTTCAGGCTCCTGGGCAATATGATCGTGATTGTGCTGGGCCACCACCTGGGCAAGGATTTCACCCCCGCTGCACAGGCTGCCTTCCAGAAGGTGGTGGCTGGAGTGGCTGCTGCCCTGGCTCACAAGTACCACTAAGCCCCTTTTCTGCTATTGTCTATGCACAAAGGTTATATGTCCCCTAGAGAAAAACTGTCAATTGTGGGGAAATGATGAAGACCTTTGGGCATCTAGCTTTTATCTAATAAATGATATTTACTGTCATCTCAAAAAAAAAAAAAAAAAA

* Your Protein Sequence:

MVHLTDAEKAAVSGLWGKVNADEVGGEALGRLLVVYPWTQRYFDSFGDLSSASAIMGNAKVKAHGKKVITAFNDGLNHLDSLKGTFASLSELHCDKLHVDPENFRLLGNMIVIVLGHHLGKDFTPAAQAAFQKVVAGVAAALAHKYH

* NCBI’s Protein Sequence:

MVHLTDAEKAAVSGLWGKVNADEVGGEALGRLLVVYPWTQRYFDSFGDLSSASAIMGNAKVKAHGKKVITAFNDGLNHLDSLKGTFASLSELHCDKLHVDPENFRLLGNMIVIVLGHHLGKDFTPAAQAAFQKVVAGVAAALAHKYH

**Task 3: Get protein sequence for DNA sequence (**[**https://www.ncbi.nlm.nih.gov/nuccore/NM\_025580.2**](https://www.ncbi.nlm.nih.gov/nuccore/NM_025580.2)**), and compare it with sequence on NCBI website. Do you get same results?**

CGACGGGGAGCGCAGTGAAGGGGGGTGGGACCCGAACATGGCGGCGGTGGTAGCTGCTACGGCGCTGAAGGGCCGGGGGGCGAGAAATGCCCGCGTCCTCCGGGGGATCCTCTCTGGAGCCACAGCTAACAAGGCTTCCCAGAACAGGACCAGAGCACTGCAGAGCCACAGCTCACCAGAATGCAAGGAGGAGCCCGAGCCCCTCTCCCCTGAGCTAGAATACATTCCCAGAAAGAGGGGCAAGAACCCCATGAAAGCCGTGGGGCTAGCCTGGGCCATCGGCTTCCCCTGTGGTATCCTCTTCTTCGTCCTCACCAAGCAGGAAGTGGACAAGGACCGATTGAAGCAGATGAAAGCTCGTCAGAACATGCGGGTGTCCAACACGGGCGAGTATGAGAGCCAGAGGTTCAGGGCTTCACCCCAACAAGCCCAGTTCCCTGAGGTTGGGTCTGGGGCCCAGACCTGAGTGAGGATCACTGCAACCTTGTGCTAGACTATTGACTGCCGTCTTGTGTGGCCATGGCTCCTGAGGCCCACCAGAGGGCGCAGGATGCCCAAGCTGCTGCCAGCACCCAACTCTTCCACACCGTGGAAGGAGCCAAATGCAAATAAAGTTATTAAGTACTGACACGGAAAAAAAAA

* Your Protein Sequence:

MAAVVAATALKGRGARNARVLRGILSGATANKASQNRTRALQSHSSPECKEEPEPLSPELEYIPRKRGKNPMKAVGLAWAIGFPCGILFFVLTKQEVDKDRLKQMKARQNMRVSNTGEYESQRFRASPQQAQFPEVGSGAQT

* NCBI’s Protein Sequence:

MAAVVAATALKGRGARNARVLRGILSGATANKASQNRTRALQSHSSPECKEEPEPLSPELEYIPRKRGKNPMKAVGLAWAIGFPCGILFFVLTKQEVDKDRLKQMKARQNMRVSNTGEYESQRFRASPQQAQFPEVGSGAQT

**Task 4: Get protein sequence for DNA sequence (**[**https://www.ncbi.nlm.nih.gov/nuccore/NM\_009735.3**](https://www.ncbi.nlm.nih.gov/nuccore/NM_009735.3)**), and compare it with sequence on NCBI website. Do you get same results?**

TTTCAGTGGCTGCTACTCGGCGCTTCAGTCGCGGTCGCTTCAGTCGTCAGCATGGCTCGCTCGGTGACCCTGGTCTTTCTGGTGCTTGTCTCACTGACCGGCCTGTATGCTATCCAGAAAACCCCTCAAATTCAAGTATACTCACGCCACCCACCGGAGAATGGGAAGCCGAACATACTGAACTGCTACGTAACACAGTTCCACCCGCCTCACATTGAAATCCAAATGCTGAAGAACGGGAAAAAAATTCCTAAAGTAGAGATGTCAGATATGTCCTTCAGCAAGGACTGGTCTTTCTATATCCTGGCTCACACTGAATTCACCCCCACTGAGACTGATACATACGCCTGCAGAGTTAAGCATGCCAGTATGGCCGAGCCCAAGACCGTCTACTGGGATCGAGACATGTGATCAAGCATCATGATGCTCTGAAGATTCATTTGAACCTGCTTAATTACAAATCCAGTTTCTAATATGCTATACAATTTATGCACGCAGAAAGAAATAGCAATGTACACATCACCTTCTTTATATCTTACTTTAAATATTTTATGCATGTTTTCAAAAAATTGGAAATATCCTAGATAGCTGAGCAATAAATCTTCAATAAGTATTTTGATCAGAATAATAAATATAATTTTAAGAACAATAGTTGATCATATGCCAAACCCTCTGTACTTCTCATTACTTGGATGCAGTTACTCATCTTTGGTCTATCACAACATAAGTGACATACTTTCCTTTTGGTAAAGCAAAGAGGCCTAATTGAAGTCTGTCACTGTGCCCAATGCTTAGCAATTCTCACCCCCAACCCTGTGGCTACTTCTGCTTTTGTTACTTTTACTAAAAATAAAAAAC

* Your Protein Sequence:

MARSVTLVFLVLVSLTGLYAIQKTPQIQVYSRHPPENGKPNILNCYVTQFHPPHIEIQMLKNGKKIPKVEMSDMSFSKDWSFYILAHTEFTPTETDTYACRVKHASMAEPKTVYWDRDM

* NCBI’s Protein Sequence:

MARSVTLVFLVLVSLTGLYAIQKTPQIQVYSRHPPENGKPNILNCYVTQFHPPHIEIQMLKNGKKIPKVEMSDMSFSKDWSFYILAHTEFTPTETDTYACRVKHASMAEPKTVYWDRDM

**Task 5: Get protein sequence for DNA sequence (**[**https://www.ncbi.nlm.nih.gov/nuccore/NM\_011662**](https://www.ncbi.nlm.nih.gov/nuccore/NM_011662)**), and compare it with sequence on NCBI website. Do you get same results?**

GTCACACCAGGTCCCACCAGCCCCTGGACTGTGGTGTCCAGTGCATATCTGGCCACCATGGGGGCTCTGGAGCCCTCCTGGTGCCTTCTGTTCCTTCCTGTCCTCCTGACTGTGGGAGGATTAAGTCCCGTACAGGCCCAGAGTGACACTTTCCCAAGATGCGACTGTTCTTCCGTGAGCCCTGGTGTACTGGCTGGGATTGTTCTGGGTGACTTGGTGTTGACTCTGCTGATTGCCCTGGCTGTGTACTCTCTGGGCCGCCTGGTCTCCCGAGGTCAAGGGACAGCGGAAGGGACCCGGAAACAACACATTGCTGAGACTGAGTCGCCTTATCAGGAGCTTCAGGGTCAGAGACCAGAAGTATACAGTGACCTCAACACACAGAGGCAATATTACAGATGAGCCCACTCTATGCCCATCAGCGGCCTGATGCCCGGATCCGGTCATTCCAGATGCCTACTCAACAAGCCCTCTCTGGGATCAGGACTCCCGTTGGAATACAGATCCACAGGGTACCTCCCTGAGATATCTGACATTGTACCATTTCTGTCCCCAAATAAAAGACAGAGCAAAAAAAAAAAAAAAAAAAAAA

* Your Protein Sequence:

MGALEPSWCLLFLPVLLTVGGLSPVQAQSDTFPRCDCSSVSPGVLAGIVLGDLVLTLLIALAVYSLGRLVSRGQGTAEGTRKQHIAETESPYQELQGQRPEVYSDLNTQRQYYR

* NCBI’s Protein Sequence:

MGALEPSWCLLFLPVLLTVGGLSPVQAQSDTFPRCDCSSVSPGVLAGIVLGDLVLTLLIALAVYSLGRLVSRGQGTAEGTRKQHIAETESPYQELQGQRPEVYSDLNTQRQYYR

**Task 6:** Give a brief overview of your work, discussing any thoughts, successes or challenges you faced.

First, I used my code from lab04 and manipulated the function I created to mold to the new variable and the new test DNA sequence. Once I verified that the function was running smoothly, I copied the HTML code into my notebook and opened the second link to view the webpage. Upon doing so, I pasted the DNA sequences to be translated and outputted the translated amino acids. After this, I verified with the NCBI publication to make sure the amino acid sequences matched up.