

FINDING ORFs IN A DNA SEQUENCE

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Python Code:

```
def find_orfs(dna_sequence):

    start_codon = 'ATG'
    stop_codons = ['TAA', 'TAG', 'TGA']

    orfs = []
    start_positions = []

    for i in range(len(dna_sequence)):
        codon = dna_sequence[i:i+3]
        if codon == start_codon:
            start_positions.append(i)

    for start_position in start_positions:
        orf = ''

        for i in range(start_position, len(dna_sequence), 3):
            codon = dna_sequence[i:i+3]
            if codon in stop_codons:
                orf += codon
                orfs.append(orf)
                break
            else:
                orf += codon

    return orfs

dna_sequence = input("Enter DNA sequence: ")

orf_list = find_orfs(dna_sequence)
if len(orf_list) > 0:
    print("ORFs :")
    for i, orf in enumerate(orf_list):
        print(f"ORF {i + 1}: {orf}")
else:
    print("No ORFs found in the DNA sequence.")
```

Output:

```
PS D:\S4- Niranjan\BIO\Lab-3> & C:/Users/niran/AppData/Local/Programs/Python/Python310/python.exe "d:/S4- Niranjan/BIO/Lab-3/orf.py"
Enter DNA sequence: ATGAAATAGTAGCTAGTAAATGAAATAGTAGATGCTAGTGA
ORFs :
ORF 1: ATGAAATAG
ORF 2: ATGAAATAG
PS D:\S4- Niranjan\BIO\Lab-3> & C:/Users/niran/AppData/Local/Programs/Python/Python310/python.exe "d:/S4- Niranjan/BIO/Lab-3/orf.py"
Enter DNA sequence: GTACCAGTAGTCACGCGTACGACTAGCA
No ORFs found in the DNA sequence.
PS D:\S4- Niranjan\BIO\Lab-3> 
```