

## Hands-On – ORF finder

We have to identify the Open Reading Frame in the different sequences below:

### Exercise 1:

>Sequence1

```
TCATAGCTCCGATCCGTTCCGTTCAATCAATGTACCTGGCGGCCATTTCGTTCAACGGACGTCCAACCGGG
AATATCACGACGAGTGGGTCCCTCGGTGCGCGTGGAAGGGAGATCGGCGTTCACCTCTGCGATGCTCGACC
GCACTCGAACCCCGTCAAAATGCTAGCCATAACCGTTTTGGCAATATCTCTCAACGTGGTTCCGCATGGC
GTGCCGAAGTGTCCCAAAGGCGAATGGGACACCAAGCTCCCGCAAAGTTGGAGTCAAAGCACCGACCGAG
TGAGCGATGCCCATTCGCTCCAGATCGGGCCGCACCGCGTATAAGCCCAGTTCAGCCACAAGGAGATCAG
TCTCACCAACCTTAATGAAACGGCGCAACACGCCCATGTGGCTTGCTATCCCGACCGAGTCGTAAGCAAT
TGCGCGGCGTTCGGTCTCGCGCCGGCCCAACTGCGGCCACCCTCAAATGGTTTTCGCGTGGAACGCTCCT
GTGGGCCCATAGGATTTTCGAAAAAATTCTGAGAGCTCCTGGTGGTCTGCACGTTCCAGCTGATTTTCCC
AGCATAGCTTCCACTGCACTTTTAAGGACAT
```

#### Procedure:

- Use the ORF finder from NCBI (go to <http://www.ncbi.nlm.nih.gov/gorf/gorf.html>)
- Paste the sequence 1 (Fasta or Not) in the ORF window
- Click on **ORF Find** button

#### Analyzing results:

- What does the diagrammatic representation displayed mean?
- How many ORF do you get?
- How long are proteins resulted from the different ORF?
- What is the longest protein that you get?
- Click to select the potential-Wright protein sequence
- Get the protein sequence and try to identify it

## Exercise 2:

>Sequence2

```
ATGGCAATGACTTACCACCTGGACGTCGTCAGCGCAGAGCAACAAATGTTCTCTGGTCTGGTCGAGAAAA
TCCAGGTAACGGGTAGCGAAGGTGAACTGGGGATCTACCCTGGCCACGCACCGCTGCTCACCGCCATTAA
GCCTGGTATGATTCGCATCGTGAACAGCACGGTCACGAAGAGTTTATCTATCTGTCTGGCGGCATTCTT
GAAGTGCAGCCTGGCAACGTGACCGTTCTGGCCGACACCGCAATTCGCGGCCAGGATCTCGACGAAGCGC
GAGCCATGGAAGCGAAACGTAAGGCTGAAGAGCACATTAGCAGCTCTCACGGCGACGTAGATTACGCTCA
GGCGTCTGCGGAACTGGCCAAAGCGATCGCGCAGCTGCGCGTTATCGAGTTGACCAAAAAAGCGATGTAA
```

- Use the ORF finder to identify the ORF of the sequence 2
- Interpret the result
- How many ORF do you find?
- Identify the sequence

## Exercise 3:

Use the ORF finder from NCBI to find the ORF of the sequence corresponding to the accession number: JQ780692

- Paste the accession number in the corresponding window and click ORf find button
- Interpret the result
- Go the page of the gene in NCBI, and see the gene structure (size of exons)
- How can you find the Wright protein of this sequence?