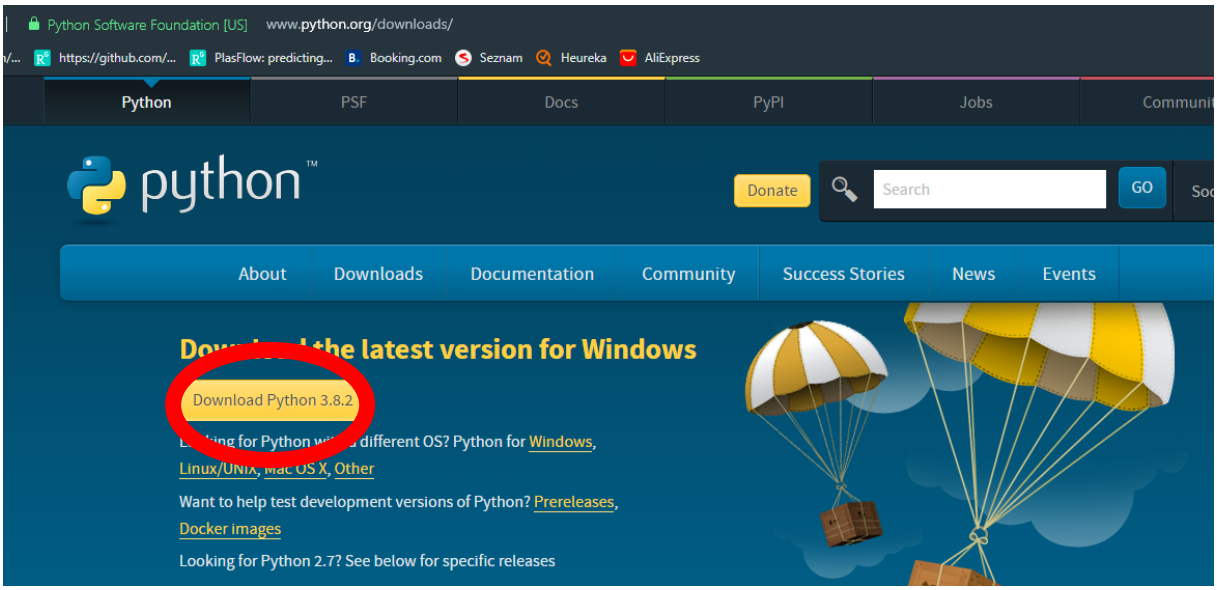
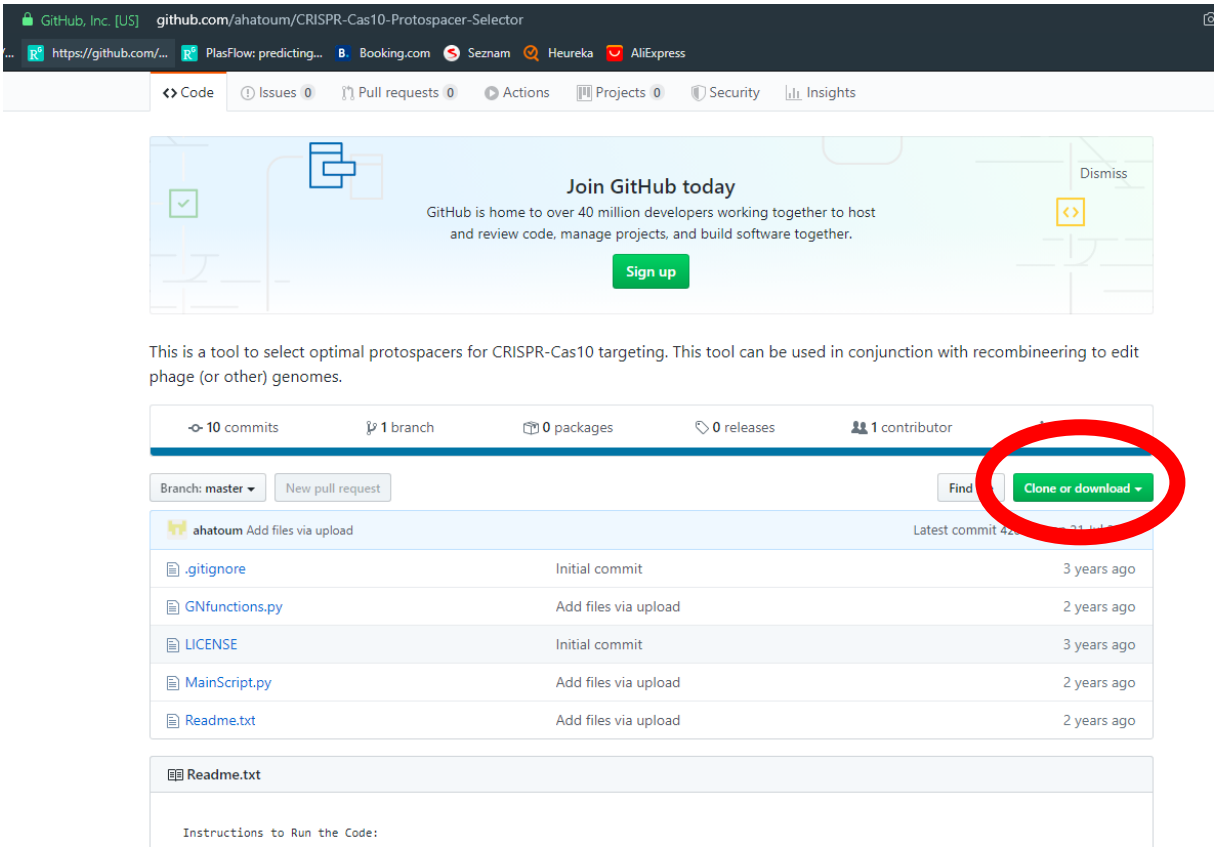
Návrh protospaceru pomocí skriptu

1. Instalace Pythonu
   Stáhněte si a nainstalujte verzi Pythonu vhodnou pro váš operační systém ze stránky: https://www.python.org/downloads/



2. Stažení skriptu
   Ze stránky https://github.com/ahatoum/CRISPR-Cas10-Protospacer-Selector si stáhněte skripty MainScript.py, GNfunctions.py. Oba skripty si uložte ve stejné složce.

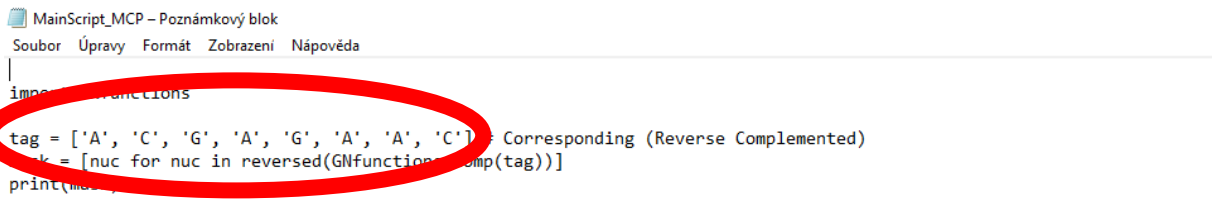


3. Stažení sekvence Major Capsid proteinu (MCP)

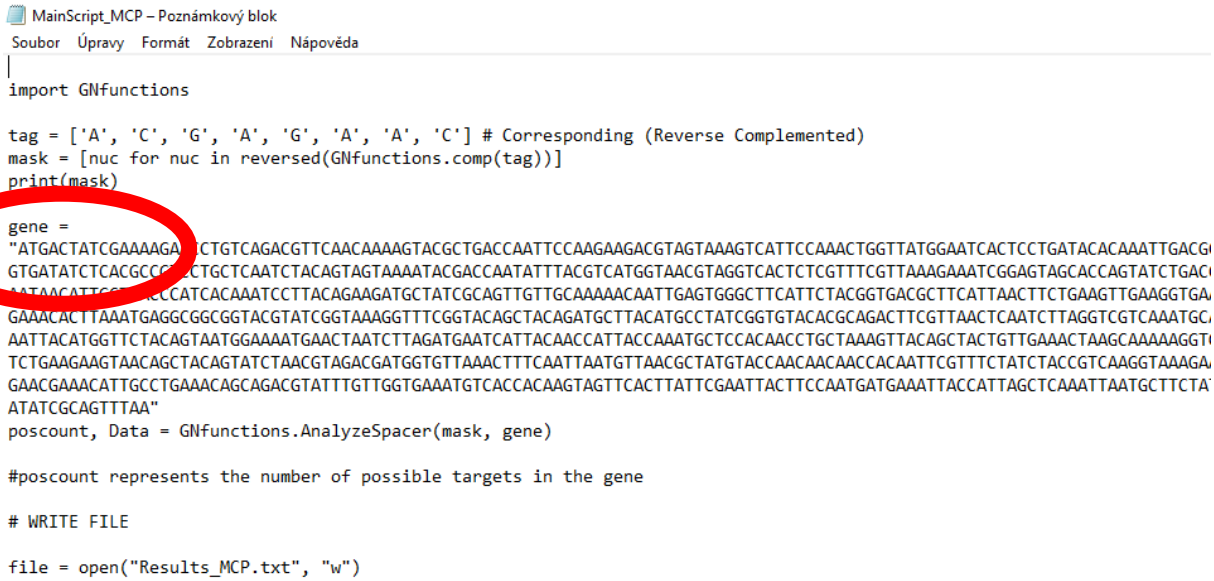
Na stránkách Genbank si pod přístupovým kódem MH844528 najděte sekvenci Major capsid proteinu. Uložte si kódující sekvenci proteinu spolu s 500 bp upstream a downstream ve Fasta formátu.

>MH844528_phi812_MCP_500upanddown
AATTTCTGAAATCCAAGCTGAAGATGTTTCTAAATCAGTAGACACTGATGAAGAAGCTGTAGAAAAAT
CAGTAACATCTACAAACGGAGAGCAAGAAAAAGTAGAAGGTTACGTTTCTAAATCAGTAGACACTGAA
GAACAAGCTGAAACTGGTGAAGCAAAATCAGAAGAAGCTGAAGAAGTACAAGAAGATAACACATTTA
AAGGATTAAGTCAAGAAGAACGAACTAAGTTCATGGATTCTTACAAAGCACAAGCTAAAGACCCTAGA
GCTTCTAAACATGACTTACAATCAGCTTACCAATCTTACTTGAACATTAACACTGACCCTACTAATGCAT
CAGAGAAAGATATTAAAACTGTAAAAGACTTTGCACAAATTTAATTAATGCACAAAGTTGTGTTATATT
ATACGGTGTAACTAAAGAATATAAATAGGGTACATTTTACTGTACCCTACATAAAATAAAAAGAACACA
AATGAAAGGTGATAAATTTATATGACTATCGAAAAGAACCTGTCAGACGTTCAACAAAAGTACGCTGA
CCAATTCCAAGAA

4. Otevřete skript MainScript.py ve vhodném editoru, můžete použít například Notepad. Upravte sekvenci tag, pokud využíváte jiný Cas editační systém a Váš tag se liší.



5. Dále vložte sekvenci MCP a okolního lokusu jako plain text do proměnné gene. Nezapomeňte ponechat uvozovky.



6. Uložte změny a spusťte skript.
7. Ve stejné složce jako jsou uloženy skripty by se vám měl zobrazit soubor Results.txt, ve kterém naleznete sekvence možných protospacerů.

```
Length of Sequence: 324

Possible Protospacers: 57

Tag Input: ACGAGAAC

Sequence Input:
ATGGCAGAAGAAGAAAAAATTATTAAAGAAGAACCAACGAATGAAGAAACAGAACAACCAGAAAAAATTGAAAGTGCAGAAGATGTTGTAACTGAAC
AGAAGAAAAATCAGAAGCTTTTGTACAATTAGAACAACGTATATCTTCTTTAGAACAAAGATTAAATAACTTAGAATCACAACCACAACCAACGCAA
ATTTTGAAGATAAAACAGTACCAACTGAAGTTGATGACAATCAAGAAACAGACGGTATTGAATCAAGTGAAGAAATTAAACAAATGTTAAATTTATA


1       ATGGCAGAAGAAGAAAAAATTATTAAAGAAGAACC AACGAATG GGTTCTTCTTTAATAATTTTTTCTTCTTCTGCCAT
7       GAAGAAGAAAAAATTATTAAAGAAGAACCAACGAA TGAAGAAA TTCGTTGGTTCTTCTTTAATAATTTTTTCTTCTTC
9       AGAAGAAAAAATTATTAAAGAAGAACCAACGAATG AAGAAACA CATTCGTTGGTTCTTCTTTAATAATTTTTTCTTCT
13      GAAAAAATTATTAAAGAAGAACCAACGAATGAAGA AACAGAAC TCTTCATTCGTTGGTTCTTCTTTAATAATTTTTTC
14      AAAAAATTATTAAAGAAGAACCAACGAATGAAGAA ACAGAACA TTCTTCATTCGTTGGTTCTTCTTTAATAATTTTTT
16      AAAATTATTAAAGAAGAACCAACGAATGAAGAAAC AGAACAAC GTTTCTTCATTCGTTGGTTCTTCTTTAATAATTTT
22      ATTAAAGAAGAACCAACGAATGAAGAAACAGAACA ACCAGAAA TGTTCTGTTTCTTCATTCGTTGGTTCTTCTTTAAT
23      TTAAAGAAGAACCAACGAATGAAGAAACAGAACAA CCAGAAAA TTGTTCTGTTTCTTCATTCGTTGGTTCTTCTTTAA
24      TAAAGAAGAACCAACGAATGAAGAAACAGAACAAC CAGAAAAA GTTGTTCTGTTTCTTCATTCGTTGGTTCTTCTTTA
25      AAAGAAGAACCAACGAATGAAGAAACAGAACAACC AGAAAAAA GGTTGTTCTGTTTCTTCATTCGTTGGTTCTTCTTT
28      GAAGAACCAACGAATGAAGAAACAGAACAACCAGA AAAAATTG TCTGGTTGTTCTGTTTCTTCATTCGTTGGTTCTTC
34      CCAACGAATGAAGAAACAGAACAACCAGAAAAAAT TGAAAGTG ATTTTTTCTGGTTGTTCTGTTTCTTCATTCGTTGG
40      AATGAAGAAACAGAACAACCAGAAAAAATTGAAAG TGCAGAAG CTTTCAATTTTTTCTGGTTGTTCTGTTTCTTCATT
43      GAAGAAACAGAACAACCAGAAAAAATTGAAAGTGC AGAAGATG GCACTTTCAATTTTTTCTGGTTGTTCTGTTTCTTC
46      GAAACAGAACAACCAGAAAAAATTGAAAGTGCAGA AGATGTTG TCTGCACTTTCAATTTTTTCTGGTTGTTCTGTTTC
55      CAACCAGAAAAAATTGAAAGTGCAGAAGATGTTGT AACTGAAC ACAACATCTTCTGCACTTTCAATTTTTTCTGGTTG
61      GAAAAAATTGAAAGTGCAGAAGATGTTGTAACTGA ACCTGAAA TCAGTTACAACATCTTCTGCACTTTCAATTTTTTC
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