**Laborator 2**

**Cate ORF identificati in secventa de nucleotide care codifica proteina p53? Se va folosi ORF Finder.**

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Se ruleaza exemplele furnizate in documentatia functiilor de mai sus.

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**In care din secventele corespunzatoare inregistrarilor cu codurile: AC156455, NC\_012920, apare cuvantul GAGA si de cate ori?**

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In secventa AC156455 cuvantul “GAGA” apare de 239 de ori.

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In secventa NC\_012920 cuvantul “GAGA” apare de 239 de ori.

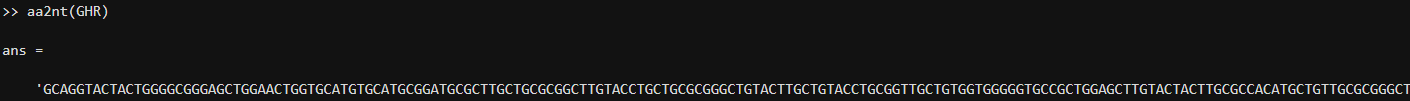
**Contorizati aparitiile nucleotidelor in gena umana GHR. Prezentati rezultatul si sub forma grafica. Convertiti aminoacizii din transcriptul genei de mai sus in reprezentarea lor cu 3 litere**

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**Contorizati aparitiile dimerilor din secventa de nucleotide ARNm p53 avand versiunea AB021961.1. Creati si un bar graph corespunzator.**

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**A graph of different colored cubes

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**Contorizati aparitiile 4-merilor in secventa corespunzatoare receptorului hormonului de crestere (cod PDB 1A22) (de pe lantul 2 al proteinei). Vizualizati in prealabil structura corespunzatoare.**

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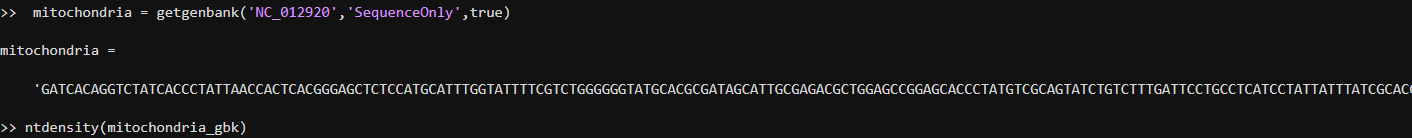
**Se cere contabilizarea aparitiilor codonilor pentru aceeasi secventa de mai sus. Rezultatul se va prezenta si grafic. Creati un heat map.**

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**A graph of different colored lines

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**Contorizarea nucleotidelor din cele sase RF (reading frames):**

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**Afisati graficele densitatilor de nucleotide pentru secventa corespunzatoare genei GHR. Repetati acelasi lucru pentru secventa cu codul GenBank AC156455.**

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**A graph of a number of nucleotides

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A graph of a number of nucleotides

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**A graph of different colored lines

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**Exista palindroame uzuale in gena GHR? Dar palindroame complementare? Cate dintre acestea au cel putin lungimea 50?**

Da, exista palindroame uzuale in gena GHR. Niciunul nu are o lungime de cel putin 50.

Da, exista palindroame complementare. Niciunul nu are o lungime de cel putin 50.

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**Rulati exemplele furnizate de Matlab pentru cele doua functii de mai sus.**

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**seqshoworfs**

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**Rezultatul este acelasi cu cel de la adresa NCBI prezentata.**

Aflam acum pozitia codonului de STOP pentru ORF care incepe la pozitia 4470 (gena ND2).

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Extrageti primele 48 de nucleotide ale genei ND2.

Determinati distributia in codoni pentru gena ND2 si realizati un heat map. Produceti transcriptul corespunzator genei ND2 de mai sus (ND2AASeq).

Comparati cu transcriptul publicat in NCBI, ce are codul de acces YP\_003024027.

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Folositi o functie Matlab corespunzatoare pentru a descarca acest transcript “oficial”. Pentru comparare, folositi cel putin 3 functii Matlab prezentate anterior.

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