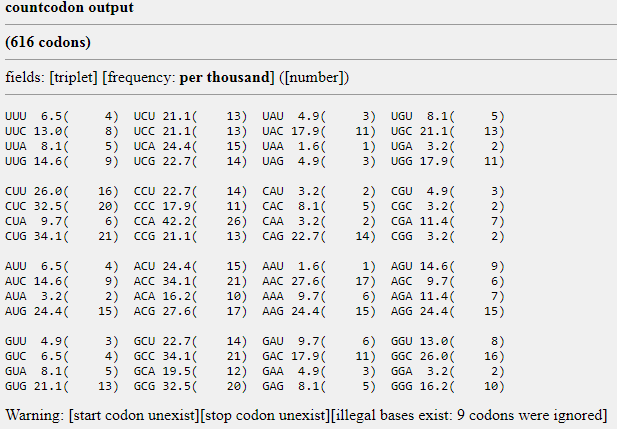
**Exercise 2**

**Mariyum Bashir**

(A).



(B).





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CLUSTAL O(1.2.4) multiple sequence alignment

NP\_064362.1 MSFGRDMELEHFDERDKAQRYSRGSRVNGLPSPTHSAHCSFYRTRTLQTLSSEKKAKKVR 60

NP\_001182468.1 ------------------------------------------------------------ 0

NP\_001104521.1 ------------------------------------------------------------ 0

NP\_064362.1 FYRNGDRYFKGIVYAISPDRFRSFEALLADLTRTLSDNVNLPQGVRTIYTIDGLKKISSL 120

NP\_001182468.1 ------------------------------------------------------------ 0

NP\_001104521.1 ------------------------------------------------------------ 0

NP\_064362.1 DQLVEGESYVCGSIEPFKKLEYTKNVNPNWSVNVKTTSASRAVSSLATAKGGPSEVRENK 180

NP\_001182468.1 ------------------------------------------------------------ 0

NP\_001104521.1 ------------------------------------------------------------ 0

NP\_064362.1 DFIRPKLVTIIRSGVKPRKAVRILLNKKTAHSFEQVLTDITDAIKLDSGVVKRLYTLDGK 240

NP\_001182468.1 ------------------------------------------------------------ 0

NP\_001104521.1 ------------------------------------------------------------ 0

NP\_064362.1 QVMCLQDFFGDDDIFIACGPEKFRYQDDFLLDESECRVVKSTSYTKIASASRRGTTKSPG 300

NP\_001182468.1 ------------------------------------------------------------ 0

NP\_001104521.1 ------------------------------------------------------------ 0

NP\_064362.1 PSRRSKSPASTSSVNGTPGSQLSTPRSGKSPSPSPTSPGSLRKQRISQHGGSSTSLSSTK 360

NP\_001182468.1 -------MLELIEVNGTPGSQLSTPRSGKSPSPSPTSPGSLRKQRISQHGGSSTSLSSTK 53

NP\_001104521.1 -------MLELIEVNGTPGSQLSTPRSGKSPSPSPTSPGSLRKQRISQHGGSSTSLSSTK 53

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NP\_064362.1 VCSSMDENDGPGEGDELGRRHSLQRGWRREESEEGFQIPATITERYKVGRTIGDGNFAVV 420

NP\_001182468.1 VCSSMDENDGPGEGDELGRRHSLQRGWRREESEEGFQIPATITERYKVGRTIGDGNFAVV 113

NP\_001104521.1 VCSSMDENDGPGE----------------EESEEGFQIPATITERYKVGRTIGDGNFAVV 97

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NP\_064362.1 KECIERSTAREYALKIIKKSKCRGKEHMIQNEVSILRRVKHPNIVLLIEEMDVPTELYLV 480

NP\_001182468.1 KECIERSTAREYALKIIKKSKCRGKEHMIQNEVSILRRVKHPNIVLLIEEMDVPTELYLV 173

NP\_001104521.1 KECIERSTAREYALKIIKKSKCRGKEHMIQNEVSILRRVKHPNIVLLIEEMDVPTELYLV 157

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NP\_064362.1 MELVKGGDLFDAITSTSKYTERDASGMLYNLASAIKYLHSLNIVHRDIKPENLLVYEHQD 540

NP\_001182468.1 MELVKGGDLFDAITSTSKYTERDASGMLYNLASAIKYLHSLNIVHRDIKPENLLVYEHQD 233

NP\_001104521.1 MELVKGGDLFDAITSTSKYTERDASGMLYNLASAIKYLHSLNIVHRDIKPENLLVYEHQD 217

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NP\_064362.1 GSKSLKLGDFGLATIVDGPLYTVCGTPTYVAPEIIAETGYGLKVDIWAAGVITYILLCGF 600

NP\_001182468.1 GSKSLKLGDFGLATIVDGPLYTVCGTPTYVAPEIIAETGYGLKVDIWAAGVITYILLCGF 293

NP\_001104521.1 GSKSLKLGDFGLATIVDGPLYTVCGTPTYVAPEIIAETGYGLKVDIWAAGVITYILLCGF 277

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NP\_064362.1 PPFRGSGDDQEVLFDQILMGQVDFPSPYWDNVSDSAKELINMMLLVNVDQRFSAVQVLEH 660

NP\_001182468.1 PPFRGSGDDQEVLFDQILMGQVDFPSPYWDNVSDSAKELINMMLLVNVDQRFSAVQVLEH 353

NP\_001104521.1 PPFRGSGDDQEVLFDQILMGQVDFPSPYWDNVSDSAKELINMMLLVNVDQRFSAVQVLEH 337

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NP\_064362.1 PWVNDDGLPENEHQLSVAGKIKKHFNTGPKPSSTAAGVSVIATTALDKERQVFRRRRNQD 720

NP\_001182468.1 PWVNDDGLPENEHQLSVAGKIKKHFNTGPKPSSTAAGVSVIATTALDKERQVFRRRRNQD 413

NP\_001104521.1 PWVNDDGLPENEHQLSVAGKIKKHFNTGPKPSSTAAGVSVIATTALDKERQVFRRRRNQD 397

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NP\_064362.1 VRSRYKAQPAPPELNSESEDYSPSSSETVRSPNSPF 756

NP\_001182468.1 VRSRYKAQPAPPELNSESEDYSPSSSETVRSPNSPF 449

NP\_001104521.1 VRSRYKAQPAPPELNSESEDYSPSSSETVRSPNSPF 433

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