

BLAST uygulama (Lab)

Bu PDF AVESIS sayfasından indirilebilir.

Soru 1

A ile B, global olarak hizalandığında hangi hal ortaya çıkar? (diziler döküman sonundadır)

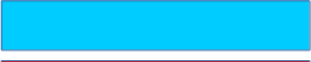

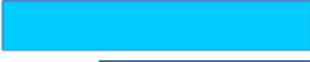





- a)
- Query 
- Subject 
- b)
- Query 
- Subject 
- c)
- Query 
- Subject  

Soru 2

E dizisi için BLAST yapıldığında sonuç listesinde en tepede olan *E.coli*K-12 NEB genomunda kaç farklı bölgeye benzerik göstermiştir? (E dizisi döküman sonundadır)

Soru 3

Hangi durumlarda *query coverage* %100 olur? (birden fazla doğru cevap olabilir)

- a)
- Query 
- Subject 
- b)
- Query 
- Subject 
- c)
- Query 
- Subject 
- d)
- Query 
- Subject 

Soru 4

Bilinmeyen bir bakteriden bir klon aşağıdaki gibi dizilenmiştir. Hangi bakteriden ve hangi gene ait olduğunu bulunuz.

```
ATTCGTTCCAACACTTTTTGTTGCGGAAGTCAAAGGCAACA  
GCCAGGCGAAGTTGAAAGTGCCGGTTATTGGCGGTCCTCTG  
GTGTTACCACTTCTGCCGCTGCTGTACAGGTTCTGGCGTTA  
GTTTTACCAGCAGGAAGTGGCTGATCTGACCAAACGTATC  
CAGAACGCAGGTAAGTGGTTGAAGCGAAAGCCGGTG  
GTGGGTCTGCAACCCTGTCTATGGGCCAGGCAGCTGCACG  
TTTTGGTCTGTCTCTGGTTCGTGCACTGCAGGGCG
```

Soru 5

Jurassic Park örneğinin devamı olarak, aşağıdaki dizi düzeltilmiş haldedir. Blastx kullanarak, aşağıdaki dizide gizlenmiş mesajı bulunuz.

```
>DinoDNA from THE LOST WORLD p. 135  
GAATTCGGAAGCAGCAAGAGATAAGTCCGGCATCAGATACAGTTGGAGATAAGGACG  
GACGTGTGGCAGCTCCCGCAGAGGATTCAC TGGAAAGTGCATTACCTATCCCATGGGAGCC  
ATGGAGTTCGTGGCGCTGGGGGGGGCCGGATGCGGGCTCCCCACTCCGTTCCCTGATGAA  
GCCGGAGCCTTCTGGGGCTGGGGGGGGGCAGAGGACGGAGGCGGGGGGGCTGCTGGCC  
TCCTACCCCCCTCAGGCCGCGTGTCCCTGGTGCCGTGGGCAGACACGGGTACTTTGGGG  
ACCCCCCAGTGGGTGCCGCCGCCACCCAAATGGAGCCCCCCTACTACTGGAGCTGCTG  
CAACCCCCCGGGGCGAGCCCCCCCCATCCCTCCGGGGCCCTACTGCACTCAGCAGC  
GGGCCCCCACCTGCGAGGCCCGTGAAGTGCATGGCCAGGAAGAAGTGGGAGCGACG  
GCAACGCCGCTGTGGCGCGGGACGGCACC GGGCATTACCTGTGCAACTGGGCTCAGCC  
TGGGGCTTACCACCGCTCAACGGCCAGAACCGCCGCTCATCCGCCCCAAAAAGCGC  
CTGCTGGTGAAGTAAGCGCAGGCACAGTGTGCAGCCACGAGCGTGAAAAGTGGCAGACA  
TCCACCACCACTCTGTGGCGTCCAGCCCCATGGGGGACCCCGTCTGCAACAACATTAC  
GCCTGCGGCTCTACTACAACTGCACCAAGTGAACCGCCCCCTCACGATGCGCAAAGAC  
GGAATCCAAAACCCGAAACCGCAAAGTTTCTCCAAGGGTAAAAAGCGGCCCCCCGGGG  
GGGGGAAACCCCTCGCCACCGCGGGAGGGGGCGCTCTATGGGGGAGGGGGGACCC  
TCTATGCCCCCCCCCGCCCCCCCCCGGCCGCCCCCCCTCAAAGCGACGCTCTGTAC  
GCTCTCGGCCCGTGGTCTTTCCGGGCCATTTCTGCCCTTTGGAAAAGTCCGGAGGGTTT  
TTTGGGGGGGGGGCGGGGGGTTACACGGCCCCCCCCGGGGCTGAGCCCGCAGATTTAAATA  
ATAACTCTGACGTGGGCAAGTGGGCCTTGTGAGAAGACAGTGAACATAATAATTTGCA  
CCTCGGCAATTGACAGAGGTCGATCTCCAC TTTGGACACAACAGGGCTACTCGGTAGGAC  
CAGATAAGCACTTTGCTCCCTGGACTGAAAAAGAAAGATTTATCTGTTTGCTTCTGCT  
GACAAATCCCTGTGAAAGTAAAAGTCGGACACAGCAATCATTATTTCTCGCTGTGTG  
AAATTACTGTGAATATTGAAATATATATATATATATATATATATATATATATATAGAACGCC  
TCGGAGCGGCATGGACCCAGCGTAGATCATGCTGGATTTGTACTGCCGGAATTC
```

Soru 6

Aşağıdaki protein dizisi Drosophila'ya ait bir genin 4. ekzonunu translate ederek üretilmiştir. Bu protein hakkında bilgi edinmek için, blastp ile SwissProt indeksinde arama yapınız. Hangi gene aittir?

```
MSLTVEIVATKPYEQKPGTSLRKKVKVFTQPNYTENFVQAILEANGAALAGSTLVVGG  
DGRFYCKEAAELIVRLSAANGVSKLLVQNGILSTPAVSSLIRHNKALGGIVLTASHNPG  
GPEPDFGIKFCENGPPADFTNHIYKITEIKEYKLVRLQIDISKVGVTSFDIAGKP  
FTVEIDSVANYVRHMEEIFDFAKLKDFVSGKATGKPLKMRIDAMNGVTGSYVREIFLNR  
LGATESSVVHTTPLPDFGLHPDNLTYAKDLVDTVAQGDYDIGAAFDGDRNMIIGSK  
AFFVTPSDSLAVIAHYLEAIPYFQKNGVQGFARSMPTASAVDLVGRKLGKEVFEVPTGWK
```

```
YFGNLM DAGRLCLCGEESFGTGSNHIREK DGIWAVLAWISVMQHTGKGI EDILKQHWSVY
GRNYFTRYDYEECASDPCNEMVATMEKTITAPEFVGKSYSSGGKTYKVKEADNFSYTD PV
DKSVATKQGLRIVFEDGSRIVVRLSGTGSSGATVRLYIDSYEKENVLGQASVMLKPLIDI
ALEISQLPKFTGRNAPTVITMSLTV EIVATKPYEGQKPGTSGLRKKVKVFTQP NYTENFV
QAILEANGAALAGSTLVVGGDRFYCKEAAELIVRLSAANGVSKLLVGQNGILSTPAVSS
LIRHNKALGGIVLTASHNPGGPE NDFGIKFCENG GPAPDAFTNHIYKITTEIKEYKLVR
NLQIDISKVGVTSFDIAGKPFTVEVIDSVANYVRHMEEIFDFAKLKDFVSGKATGKPLKM
RIDAMNGVTGSYVREIFLNRLGATESSVH TTPLPDFGGLHPDNLTYAKDLVDTVAQGD
YDIGAAFDDGDRNMIIGSKAFFVTPSDSLAVIAHYLEAIPYFQKNGVQGFARSMPTASA
VDLVGRKLGKEVFEVPTGWKYF GNLMDAGRLCLCGEESFGTGSNHIREK DGIWAVLAWIS
VMQHTGKGI EDILKQHWSVYGRNYFTRYDYEECASDPCNEMVATMEKTITAPEFVGKSY S
SGGKTYKVKEADNFSYTD PVDKSVATKQGLRIVFEDGSRIVVRLSGTGSSGATVRLYID S
YEKENVLGQASVMLKPLIDIALEISQLPKFTGRNAPTVIT
```

Soru 7

Aşağıda, HIV virüsüne ait bir proteinin dizisi bulunmaktadır. Çerçeve kayması hangi nükleotidde gerçekleşmiştir.

```
ATGAGAGTGAAGGAGAAATATCAGCACTTGTGGAGATGGGGCACCATGCTCCTTGGGTTG
TTGATGATCCGTAGTGTGCGACACCAATTGTGGGT CACAGTCTATTATGGGGTACCTGTG
TGGAAAGAAGCAACCACCACTCCATTTTGTGCATCAGATGCTAAAGCATATGATACAGAG
GTACATAATGTTTGGGCCACACACGCCTGTGTACCCACAGACCCCAACCCACAAGAGTA
GTATTGGCAAATGTGGCAGAAAATTTAACATGTGGGATAATAACATGGTAGAACAGATG
CATGAGGATATAATCAGTTTATGGGATCAAAGCCTAAAGCCATGTGTTAAATTAACCCCA
CTCTGTGTTACTTTAAACTGCACTGATAAGATTAATAATACCAAACTACTCCTAATAAT
ACCGTACTACTCCCCCTACCACTGTTACTCCTACTAGTAATAGCAGCATGACAGGAGAA
GGAGAAATAAAAACTGCTCTTTCAATATCACCACAGCCATAAGAGATAAGGTGCAGAGA
GGATATGCATTGTTAGTAACTTTGATATAGTACCAATAGATAATGATAGAAATGATAG
TACCAGCTATAGGTTGCTAAGTTGTAACACCTCAGTCATTACACAAGCCTGTCCAAAGGT
ATCCTTTGAACCAATCCCATACATTATTGTGCCCCAGCTGGTTTTGCGATTCTAAAGTG
TAACAATAAGACGTT CAGTGGAACAGGACCCTGTACAAATGT CAGCACAGTACAATGTAC
ACATGGAATTAGGCCAATAGTATCAACTCAACTGCTGTTAAATGGCAGTCTAGCAGAAGA
AGGGATAGTAATTAGATATGAAAATATCACAGACAATGCTAAAAGCATAATAATACAGCT
GAATGAACTGTACAAATTAATTGTACAAGCCCAACAATAATACAAGGAAAAGTATACC
TATAGGACCAGGAAAGAGCATT TATGCAACAGGAGATATAATAGGAGATATAAGAAAAGC
ATATTGTAACATTAGTGGAGCAAAATGGAATAACAC TTTAAAAAGGATAGCTTACAAAT
AAAAGAACAATTTCTAATAAAAACAATAGTCTTTAAGCCCTCCTCAGGAGGGGACCCAGA
AATTGTAATGCACAGTTTTAATTGTAGAGGGGAATTTTTCTACTGTAATACAACAAACT
GTTTGATAGTAGTTGGGATAATACTAATTTGAATAAAACTTGGAAATAATACCTGGAATAA
AAATAACTCTATCATACTCCATGCAGAATAAAAACAATCATAAACATGTGGCAGGAAGT
AGGAAAAGCAATGATGCCCTCCCATCGAAGGACCACTTTACTGTTTATCAAATATTAC
AGGGCTAATTTTAAACAAGAGATGGTGGGAACGAAACTGATGGGAACAACACTGATGGGAA
TGAGACCTTCAGACCTGGAGGAGGGAATATGAGGGACAATTGGA
```

Soru 8

Fare protocadherin beta homologlarını bulunuz (fare genomuna karşı blast). Aşağıda mRNA dizisi ve protein dizisi verilmişken, hangisi maksimum sayıda homolog bulmaya yarar? (Hangi blast programı kullanılmalıdır?)

```
mRNA sequence AY013770
protein sequence AAK26059
```

Soru 9

Aşağıdaki dizi bir genin ekzon bölgesine aittir. Ekzonun iki ucundan intron dizileri de mevcuttur. Ekzonun başlangıç ve bitiş koordinatını bulunuz. Başlangıç kodonunun koordinatını bulunuz.

```
TTTGATTATTCTAAAACCTTCAAATCTTAAATTTACTTTATTTTAAAATGATAAAATG
AAGTTGTCATTTTATAAACCTTTTAAAAGATATATATATATGTTTTCTAATGTGTAA
AGTTCATTGGAACAGAAAGAAATGGATTTATCTGCTCTTCGCGTTGAAGAAGTACAAAAT
GTCATTAATGCTATGCAGAAAATCTTAGAGTGTCCCATCTGGTAAGTCAGCACAAAGAGTG
TATTAATTTGGGATTCTATGATTATCTCCATGCAAATGAACAGAATTGACCTTACATA
CTAGGGAAGAAAAGACATGCTAGTAAGATTAGGCTATTGTAATTGCTGATTTTCTTAAC
TGAAG
```

Sorularda kullanılacak diziler

>A

```
AGCTTTTTCATTCTGACTGCAACGGGCAATATGTCTCTGTGTGGATTAAAAAAGAGTGTC
TGATAGCAGCTTCTGAACCTGTTACCTGCCGTGAGTAAATTTAAATTTTATTGACTTAGG
TCACTAAATACTTTAACCAATATAGGCATAGCGCACAGACAGATAAAAATTACAGAGTAC
ACAACATCCATGAAACGCATTAGCACCACCATTACCACCACCATCACCATTACCACAGGT
AACGGTGCGGGCTGACGCGTACAGGAAAACACAGAAAAAAGCCCGCACCTGACAGTGCGGG
CTTTTTTTTTCGACCAAAGTAACGAGGTAACAACCATGCGAGTGTTGAAGTTCGGCGGT
ACATCAGTGGCAAATGCAGAACGTTTTCTGCGTGTTGCCGATATTCTGGAAAGCAATGCC
AGGCAGGGGCGAGTGGCCACCGTCTCTCTGCCCCCGCAAATCACCACCACCTGGTG
GCGATGATTGAAAAAACATTAGCGGCCAGGATGCTTTACCCAATATCAGCGATGCCGAA
CGTATTTTTGCCGAACTTTTGACGGGACTCGCCGCCGCCAGCCGGGGTTCCCGCTGGCG
CAATTGAAAACCTTTCGTCGATCAGGAATTTGCCCAAATAAAACATGTCCTGCATGGCATT
AGTTTGTTGGGGCAGTGCCCGGATAGCATCAACGCTGCGCTGATTTGCCGTGGCGAGAAA
ATGTCGATCGCCATTATGCGCGGCTATTAGAAGCGCGCGGTCAACGTTACTGTTATC
GATCCGGTCAAAAACTGCTGGCAGTGGGGCATTACCTCGAATCTACCGTGCATATTGCT
GAGTCCACCCGCGTATTGCGGCAAGCCGCATTCCGCTGATCAGTGGTGGTGGTGGTGGT
GGTTTACCAGCCGTAATGAAAAGGCGAACTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT
TACTCTGCTGCGGTGCTGGCTGCCTGTTTACGCGCCGATTGTTGCGAGATTTGGACGGAC
GTTGACGGGGTCTATACCTGCGACCCGCGTCAAGGTGCCGATGCGAGGTTGTTGAAGTCG
ATGTCCTACCAGGAAGCGATGGAGCTTTCTACTTCCGGCGCTAAAAGTCTTACCCCCGC
ACCATTACCCCATCGCCAGTTCAGATCCCTTGCCTGATTAATAATACCGGAAATCCT
CAAGCACCAGGTACGCTCATTGGTGCCAGCCGCGTGAAGACGAATTACCGGTCAAGGGC
ATTTCCAATCTGAATAACATGGCAATGTTACGCGTTTCTGGTCCGGGGATGAAAGGGATG
GTCGGCATGGCGGCGCGCTTTGAGCGATGTCACGCGCCGATTTCCGTTGGTGGTGGTGGT
ATTACGCAATCATTTCCGAATACAGCATAGTTTTCTGCGTTCCAAAGCGACTGTGTG
CGAGCTGAACGGGCAATGCAAGGAAGGTTTACCTGGAACGAAAAGAGGCTTACTGGAG
```

>B

```
AGCTTTTTCATTCTGACTGCAACGGGCAATATGTCTCTGTGTGGATTAAAAAAGAGTGTC
TGATAGCAGCTTCTGAACCTGTTACCTGCCGTGAGTAAATTTAAATTTTATTGACTTAGG
TCACTAAATACTTTAACCAATATAGGCATAGCGCACAGACAGATAAAAATTACAGAGTAC
ACAACATCCATGAAACGCATTAGCACCACCATTACCACCACCATCACCATTACCACAGGT
AACGGTGCGGGCTGACGCGTACAGGAAAACACAGAAAAAAGCCCGCACCTGACAGTGCGGG
CTTTTTTTTTCGACCAAAGTAACGAGGTAACAACCATGCGAGTGTTGAAGTTCGGCGGT
ACATCAGTGGCAAATGCAGAACGTTTTCTGCGTGTTGCCGATATTCTGGAAAGCAATGCC
AGGCAGGGGCGAGTGGCCACCGTCTCTCTGCCCCCGCAAATCACCACCACCTGGTG
GCGATGATTGAAAAAACATTAGCGGCCAGGATGCTTTACCCAATATCAGCGATGCCGAA
CGTATTTTTGCCGAACTTTTGACGGGACTCGCCGCCGCCAGCCGGGGTTCCCGCTGGCG
CAATTGAAAACCTTTCGTCGATCAGGAATTTGCCCAAATAAAACATGTCCTGCATGGCATT
AGTTTGTTGGGGCAGTGCCCGGATAGCATCAACGCTGCGCTGATTTGCCGTGGCGAGAAA
ATGTCGATCGCCATTATGCGCGGCTATTAGAAGCGCGCGGTCAACGTTACTGTTATC
TACTCTGCTGCGGTGCTGGCTGCCTGTTTACGCGCCGATTGTTGCGAGATTTGGACGGAC
```

GTTGACGGGGTCTATACCTGCGACCCGCGTCAGGTGCCCGATGCGAGGTTGTTGAAGTCG
ATGTCCTACCAGGAAGCGATGGAGCTTTCCTACTTCGGCGCTAAAGTTCTTCACCCCGC
ACCATTACCCCATCGCCAGTTCAGATCCCTTGCCTGATTAATAACCGGAAATCCT
CAAGCACCAGGTACGCTCATTGGTGCCAGCCGTGATGAAGACGAATTACCGGTCAAGGGC
ATTTCAATCTGAATAACATGGCAATGTTCAAGCGTTTCTGGTCCGGGGATGAAAGGGATG
GTCGGCATGGCGGC GCGCGTCTTTGCAGCGATGTCACGCGCCCGTATTCCGTGGTGCTG
ATTACGCAATCATCTTCCGAATACAGCATCAGTTTCTGCGTCCACAAAGCGACTGTGTG
CGAGCTGAACGGGCAATGCAGGAAGAGTTCTACCTGGAAGTAAAGAAAGGCTTACTGGAG

>E

CTTATCAGGCCTACGTTAATTCTGCAATATATTGAATCTGCATGCTTTTGTAGGCAGGAT
AAGGCGTTCACGCCGCATCCGGCAT