Use the data in the three tables below to test your hypothesis in part B of the lab (in lieu of that mess we generated in lab; sorry.) The higher the number, the more similar the protein. For example, you might have bonobo and chimpanzee close on the tree, based on some aspect(s) of morphology. Look at the data below – does it correspond? Are the two highly similar for these three proteins? This molecular data is more accurate than our morphology comparisons – change you tree if this evidence warrants it. Cite the evidence.

**Table 3:** *protein sequence similarities*

**Beta Hemoglobin**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *Pan troglodytes*  XM\_508242.4 | 1151 |  |  |  |  |  |
| *Pan paniscus*  [XM\_003819029.2](http://www.ncbi.nlm.nih.gov/nucleotide/675751226?report=genbank&log$=nucltop&blast_rank=3&RID=4K79TWCG01R) | 1151 | 1382 |  |  |  |  |
| *Gorilla gorilla*  [XM\_004050547.1](http://www.ncbi.nlm.nih.gov/nucleotide/426367145?report=genbank&log$=nucltop&blast_rank=23&RID=4K79TWCG01R) | 852 | 1079 | 1088 |  |  |  |
| *Pongo abelli*  [XM\_002822127.3](http://www.ncbi.nlm.nih.gov/nucleotide/686737492?report=genbank&log$=nucltop&blast_rank=7&RID=4K79TWCG01R) | 1096 | 1310 | 1319 | 1044 |  |  |
| *Nomascus leucogenys*  [XM\_004090649.1](http://www.ncbi.nlm.nih.gov/nucleotide/441645792?report=genbank&log$=nucltop&blast_rank=8&RID=4K79TWCG01R) | 1085 | 1315 | 1325 | 1038 | 1303 |  |
| *Macaca mulatta*  [NM\_001164428.1](http://www.ncbi.nlm.nih.gov/nucleotide/256600241?report=genbank&log$=nucltop&blast_rank=36&RID=4K79TWCG01R) | 771 | 765 | 765 | 699 | 776 | 771 |
|  | *Homo sapiens*  NM\_000518.4 | *Pan troglodytes* | *Pan paniscus* | *Gorilla gorilla* | *Pongo abelli* | *Nomascus leucogenys* |

**Scroll down for two more**

**Insulin**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *-* | 693 |  |  |  |  |  |
| *Pan paniscus*  [XM\_008969096.1](http://www.ncbi.nlm.nih.gov/nucleotide/675736149?report=genbank&log$=nucltop&blast_rank=15&RID=4K8TK7D501R) | 688 | 710 |  |  |  |  |
| *Gorilla gorilla*  [XM\_004050428.1](http://www.ncbi.nlm.nih.gov/nucleotide/426366890?report=genbank&log$=nucltop&blast_rank=5&RID=4K8TK7D501R) | 804 | 697 | 699 |  |  |  |
| *Pongo abelli*  [XM\_003777677.2](http://www.ncbi.nlm.nih.gov/nucleotide/686735239?report=genbank&log$=nucltop&blast_rank=19&RID=4K8TK7D501R) | 640 | 560 | 562 | 645 |  |  |
| *Nomascus leucogenys*  [XM\_003281351.2](http://www.ncbi.nlm.nih.gov/nucleotide/441609414?report=genbank&log$=nucltop&blast_rank=9&RID=4K8TK7D501R) | 765 | 686 | 688 | 795 | 662 |  |
| *Macaca mulatta* | - | - | - | - | - | - |
|  | *Homo sapiens*  [NM\_000207.2](http://www.ncbi.nlm.nih.gov/nucleotide/109148525?report=genbank&log$=nucltop&blast_rank=1&RID=4K8TK7D501R) | *Pan troglodytes* | *Pan paniscus* | *Gorilla gorilla* | *Pongo abelli* | *Nomascus leucogenys* |

**Myoglobin**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *Pan troglodytes*  [XM\_009438263.1](http://www.ncbi.nlm.nih.gov/nucleotide/694982951?report=genbank&log$=nucltop&blast_rank=38&RID=4KA2918601R) | 1037 |  |  |  |  |  |
| *Pan paniscus*  [XM\_008974992.1](http://www.ncbi.nlm.nih.gov/nucleotide/675764466?report=genbank&log$=nucltop&blast_rank=7&RID=4KA2918601R) | 1812 | 1447 |  |  |  |  |
| *Gorilla gorilla*  [XM\_004063381.1](http://www.ncbi.nlm.nih.gov/nucleotide/426394282?report=genbank&log$=nucltop&blast_rank=3&RID=4KA2918601R) | 1930 | 1026 | 1796 |  |  |  |
| *Pongo abelli*  [NM\_001132084.1](http://www.ncbi.nlm.nih.gov/nucleotide/197101742?report=genbank&log$=nucltop&blast_rank=11&RID=4KA2918601R) | 1740 | 948 | 1620 | 1768 |  |  |
| *Nomascus leucogenys*  [XM\_003264687.2](http://www.ncbi.nlm.nih.gov/nucleotide/441617939?report=genbank&log$=nucltop&blast_rank=14&RID=4KA2918601R) | 1650 | 1330 | 2013 | 1657 | 1629 |  |
| *Macaca mulatta*  [XM\_001082215.2](http://www.ncbi.nlm.nih.gov/nucleotide/297260943?report=genbank&log$=nucltop&blast_rank=22&RID=4KA2918601R) | 1498 | 1236 | 1875 | 1526 | 1522 | 1897 |
|  | *Homo sapiens*  [NM\_005368.2](http://www.ncbi.nlm.nih.gov/nucleotide/44955876?report=genbank&log$=nucltop&blast_rank=1&RID=4KA2918601R) | *Pan troglodytes* | *Pan paniscus* | *Gorilla gorilla* | *Pongo abelli* | *Nomascus leucogenys* |