Nicholas Fehrer
01195688
Genetics Topic Assignment
Professor Rinehart
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Genome Assignment

1. Chromosome 1.
2. Over 3000 genes.
3. 240 million base pairs, around 90% determined.
4. PS2 – Alzheimer disease.
5. Formation of lesions made of fragmented brain cells surrounded by amyloid-family proteins.
6. Homo sapiens CFTR promoter region (LOC111674463) on chromosome 7.
7. Biological protomer region.
8. Regulates anion transport and mucociliary clearance in the airways, the citation is – Elborn J. S. (2016). Cystic fibrosis. *Lancet (London, England)*, *388*(10059), 2519–2531. https://doi.org/10.1016/S0140-6736(16)00576-6
9. Cystic fibrosis.
10. Chromosome 7.
11. Pongo abelii.
12. Sumatran orangutan.
13. No, since it is homo sapiens closest living relative.
14. Nomascus lecogenys, or the northern, white-checked gibbon.
15. None.
16. One or more amino acid residues have been deleted from the sequence.

17. TAR DNA binding protein, which enables RNA polymerase II cis-regulatory region sequence-specific DNA binding activity and pre-mRNA intronic binding activity and is expressed in several structures, including branchial arch; central nervous system; early conceptus; genitourinary system; and heart.
18. Ubiquilin 2, which encodes a ubiquitin-like protein that shares high degree of similarity with related products in yeast, rat, and frog, and contain a N-terminal ubiquitin-like domain and a C-terminal ubiquitin-associated domain.
19. FUS RNA binding protein, which encodes a multifunctional protein component of the heterogeneous nuclear ribonucleoprotein (hnRNP) complex, and the hnRNP complex is involved in pre-mRNA splicing and the export of fully processed mRNA to the cytoplasm.
20. Superoxide dismutase, the protein encoded by this gene binds copper and zinc ions and is one of two isozymes responsible for destroying free superoxide radicals in the body. The encoded isozyme is a soluble cytoplasmic protein, acting as a homodimer to convert naturally occurring but harmful superoxide radicals to molecular oxygen and hydrogen peroxide.
21. Amyotrophic lateral sclerosis (ALS) often called Lou Gehrig's disease.
22. An open access, annotated collection of all publicly available nucleotide sequences and their protein translations.
23. 100% for the partial HBB gene for hemoglobin beta chain.
24. MKLVVRPWA.
25. Parts of DNA sequences between start and stop codons.
26. Messenger RNA (mRNA).

27. Frame 2 since there are no reading frames on it, so it must be open.
28. Yes.
29. User sequence 1 had G and user sequence 2 on number 361.
30. User sequence 1 binds acidic and basic fibroblast growth hormone and plays a role in bone development and maintenance.
31. Craniosynostosis and multiple types of skeletal dysplasia.
32. Since I completed my research project for this class on cystic fibrosis and the CFTR, I did learn a bit more about that. But, honestly finding out that the sumatran orangutan was humanity's closest living relative was pretty awesome, I had no idea before this assignment.