## Student  Post- Activity Assessment of Flu Fighters Activity

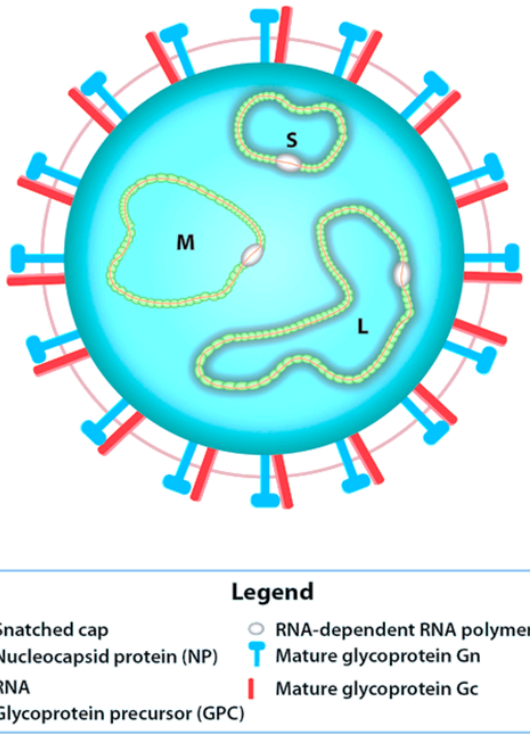
*You will need to either submit your answers on a separate document (as there isn't enough space here) or edit this document. Questions should not just be yes, and no. Several sentences of well thought out answers are expected.*

1. Based on what you have learned in the previous activity, review the alignment below

| | | | | |
|---|---|---|---|---|
| ☑ | ASM80851.1 | 84 | WSKPQCQITGFAPFSKDNSIRLSAGGNIWVTREPYVSCSLGKCYQFALGQGTTLKNKHSNGTTHDRTPHRTLLMNELGVP | 163 |
| ☑ | AAY88201.1 | 68 | WSKPQCKITGFAPFSKDNSIRLSAGGDIWVTREPYVSCDPDKCYQFALGQGTTLNNRHSNDTVHDRTPYRTLLMNELGVP | 147 |
| ☑ | AAG49327.1 | 78 | WSKPQCKITGFAPFSKDNSIRLSAGGDIWVTREPYVSCDPDKCYQFALGQGTTLNNRHSNDTVHDRTPYRTLLMNELGVP | 157 |
| ☑ | ASM80851.1 | 164 | FHLGTKQVCIAWSSSSCYDGKAWLHICVTGDDKNATASIIYDGMLVDSIGSWSKNILRTQESECVCINGTCAVVMTDGSA | 243 |
| ☑ | AAY88201.1 | 148 | FHLGTKQVCIAWSSSSCHDGKAWLHVCVTGHDENATASFIYGGRLVDSIGSWSKKILRTQESECVCINGTCTVVMTDGSA | 227 |
| ☑ | AAG49327.1 | 158 | FHLGTKQVCIAWSSSSCHDGKAWLHVCVTGHDENATASFIYDGRLVDSIGSWSKKILRTQESECVCINGTCTVVMTDGSA | 237 |
| ☑ | ASM80851.1 | 244 | SGKADTRILFIREGRIINISPLSGSAQHVEECSCYPRYPEVRCVCRDNWKGSNRPXLYINMADYSVDSSYVCSGLVGDTP | 323 |
| ☑ | AAY88201.1 | 228 | SGRADTKILFIEEGKIIHISQLSGSAQHVEECSCYPRYPGVRCVCRDNWKGSNRPIVDINVKDYSIVSSYVCSGLVGDTP | 307 |
| ☑ | AAG49327.1 | 238 | SGRADTKILFIEEGKIVHTSKLSGSAQHVEECSCYPRYPGVRCVCRDNWKGSNRPIVDINVKDYSIVSSYVCSGLVGDTP | 317 |
| ☑ | ASM80851.1 | 324 | RTDDSSSSSNCRDPNNERGAPGVKGWAFDDGNDVWMGRTIRNDSRSGYETFRVINGWTTANSKSQINRQVIVDSENWSGY | 403 |
| ☑ | AAY88201.1 | 308 | RKNDSSSSSHCLNPNNEEGGHGVKGWAFDDGNDVWMGRTISEKFRSGYETFKVIEGWSKPNSKLQINRQVIVDRDNRSGY | 387 |
| ☑ | AAG49327.1 | 318 | RKNDSSSSSHCLDPNNEEGGHGVKGWAFDDGDDVWMGRTISENSRSGYETFKVIEGWSKPNSKLQINRQVIVERGNMSGY | 397 |

   a. Currently some young scientists are thinking about designing a vaccine that targets the 244 to 323 amino acid part of the protein. Do you agree that this would be a good area to target for a vaccine? Why or why not?
   b. If you were choosing an area to target, just based on amino acid sequence, what area might you propose and why?
   c. Besides the amino acid sequence, what other factors should you consider when picking a part of a protein to design a vaccine against?

2. Crimean-Congo Hemorrhagic Fever Virus (CCHFV), a virus endemic to parts of Africa, Asia, and Europe, is initially transmitted to humans via a tick bite. Once a human becomes infected, person to person transmission can occur through infectious blood and other bodily fluids. Research has shown that the major cell types infected are monocytes and macrophages (immune cells), endothelial cells (cells lining blood vessels), and hepatocytes (liver cells). Infected individuals may experience mild, vague symptoms such as fever, fatigue, and vomiting, while others experience severe symptoms such as anemia, heart attack, or bleeding in the brain. Currently, there is no vaccine against CCHFV.




*Modified from: Zivec et al. (2016) Molecular Insights into Crimean-Congo Hemorrhagic Fever Virus. Viruses 8, 106; doi:10.3390/v8040106*

a. Explain how you would design a vaccine to CCHFV. In your response, explain what part of the virus you will target and the components of the immune system that you must trigger for effective immunity.
b. Using the information we have learned about bioinformatics, describe which tools you could use during the development of your vaccine and how you would use those tools.