

HOW DO I ANALYZE MY SEQUENCE?

NOTE: This is a quick help guide with the sole purpose of filling in answers on DSAP. To fully understand everything, please read through the Analysis Transcript/Notes at least ONCE! If you skip that and use this directly, you may be very confused.

First: Review

1. The 5' end is all the bases from the first base to the base right before the ORF
2. The ORF is given to you (from toolbox)
3. The 3' end is all the bases from the base after the last ORF base to the end of the sequence.
4. You can find these on the DNA box above the question.

Now: Analysis!

1. Literature Search: Search it up on Google! Use ONE source from wikipedia and ONE source from a legitimate source: research paper, NCBI, PubMed, textbook. This should help you determine the function of the protein.
2. The Human Search: Search if there's a related protein in humans. To do this:
 - a. Go back to Blastp
 - b. Click on your first result.
 - c. Click on "Identical Proteins"
 - d. On the results page, click on "Related sequences" under the first result.
 - e. On the side bar, change the filter settings to search in humans only
 - i. Click on "More"
 - ii. Start typing "Homo sapiens" to filter for human beings.
3. Cn3D: The structure.
 - a. Go to Blastp
 - b. Click on that banner at the very top; it should have your protein name in it.
 - c. Scan through the list of domains that it gives you. Select the one with the 3-D structure in its thumbnail.
 - d. On the right you'll see a "Structure" menu. Click to expand it; download Cn3D if you have not done so.
 - e. Open the 3-D structure by clicking on "View Structure".
 - f. If a pop-up comes up, click dismiss. If not, ignore this step.
 - g. In the small window underneath that protein window, you will see a pink accession number on the left. Click on it-that will give you the organism this specific structure came from.
 - h. Click "Style": In this menu you will find "Rendering Shortcuts" and "Coloring Shortcuts". Select "Worms" and "Secondary Structure", respectively.
 - i. Analyze the number of Alpha Helices, Beta pleated sheets, and if they are parallel/antiparallel/both
4. SKIP question 6 for the practice clones. We will discuss this after we do the labs.

5. The Application of the Protein:

Here are some guidelines regarding the application of the protein:

1. NO BS.
2. Understand the science. If you have questions, ask!
3. Try designing an experiment.
4. Remember: biofuels and bioremediation, among other industries.

******Please remember that this is a super-quick guide to answering DSAP questions, without any explanations, information, diagrams, etc. For a complete understanding of DSAP Analysis see the Transcript/Notes document as well as the accompanying powerpoint.