

Actin structure investigation instructions (paper-and-pencil version)

Follow the steps below to construct the resulting structure of each protein on your own.	
1.	The original protein will be constructed on the first sheet of graph paper. The other three proteins will be constructed on their own sheets for easy comparison. Label each page to match your segment.
2.	For this model, all amino acids are three units (boxes) in size. Write the first three letters of the amino acids into the three boxes, using the key on the last page of this document to guide you.
3.	 Each amino acid added needs to be placed in a specific direction and shape that is determined by the previous amino acid. Use the direction of the arrows in the key to guide your protein building.
4.	Each amino acid is connected to the last box in the direction of the arrow in the previous amino acid, as shown in the example on the following page.
5.	Use the amino acid sequences from the Transcription and Translation Practice Sheet to create your final protein structures for all four of the segments of lactase.
6.	Compare your structures with those of others in your group, and work together to answer the prompts in the Protein Folding Investigations Activity Sheet .

Example:

Phe-Ala-His-Pro-Val-Phe-Val-Asp-Gly-Asp-Tyr-Pro

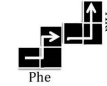
Step 1: To begin building your protein, find the first amino acid on the key and use the three letter code to write the amino acid on the chart paper. Be sure to make it the same shape as on the key.



Example:

Phe-Ala-His-Pro-Val-Phe-Val-Asp-Gly-Asp-Tyr-Pro

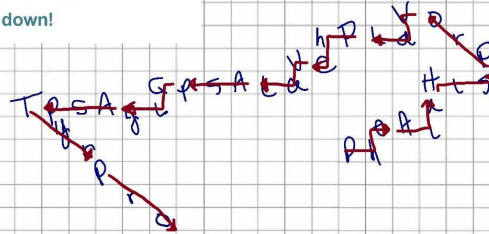
Step 2: To continue building your protein, find the next amino acid (Ala) on the key and copy it to the end of the last amino acid. You must be sure the arrows are continuous, this means the end of one arrow will flow from the following arrow:



Example:

Phe-Ala-His-Pro-Val-Phe-Val-Asp-Gly-Asp-Tyr-Pro

Step 3: Continue copying the three letter amino acids from the key to the chart paper until you finish building the protein. Notice sometimes you may need to rotate an amino acid completely upside down!



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Phe-Ala-His-Pro-Val-Phe-Val-Asp-Gly-Asp-Tyr-Pro

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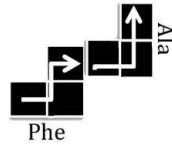


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