

Virtual Learning

May 8, 2020



Medical Interventions Lesson: May 8, 2020

Objective/Learning Target:

Outline the steps required to produce a protein in the laboratory and describe the role of biomedical professionals along this processing path. (4.1.5)



Let's Get Started:

- 1. Review the process of manufacturing a protein from this week. What are the major steps involved?
- 2. In order for this to be accomplished, what type of biomedical professions would be involved?



Let's Get Started: Answers

- 1. Review the process of manufacturing a protein from this week. What are the major steps involved?
 - a. Bacterial transformation, protein isolation, protein purification, protein electrophoresis, getting the drug to market
- 2. In order for this to be accomplished, what type of biomedical professions would be involved?
 - a. Biomedical engineer, Process engineer, Quality assurance/quality control officer, FDA researcher, Pharmaceutical sales representative, Safety officer, Marketing agent, Package designer, design engineer, or material science engineer, Laboratory technician, Chemist, etc.



Lesson Activity

Either in your notebooks or on lucidchart, create a flowchart or outline for the entire process of manufacturing a protein. You can use GFP as your example protein but include a description of what happens at each step. Include at least 3 biomedical science professionals who would be involved with the process, where they would be involved, and what their roles would be.



Lesson Activity - Answer

Either in your notebooks or on lucidchart, create a flowchart or outline for the entire process of manufacturing a protein. You can use GFP as your example protein but include a description of what happens at each step. Include at least 3 biomedical science professionals who would be involved with the process, where they would be involved, and what their roles would be.

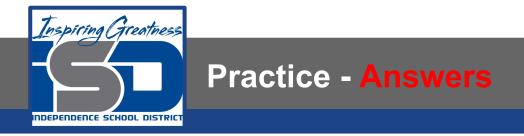
• One possible answer is shown <u>here</u>.



Practice

Identify what biotechnology would be required at each step:

- 1. Bacterial transformation
- 2. protein isolation
- 3. protein purification
- 4. protein electrophoresis
- 5. getting the drug to market



Identify what biotechnology would be required at each step:

- 1. Recombinant DNA using plasmids
- 2. centrifuge
- 3. chromatography
- 4. SDS-PAGE
- 5. Clinical trials



Additional Practice/Resources

- 1. Check your understanding by reviewing with these <u>flashcards</u>.
- 2. Consider writing a <u>cover letter</u> for one of the three biomedical professionals you chose and reflect on how you would be best suited for the job.
- 3. Read more about how proteins are created in labs.