Virtual Learning

Medical Interventions
Protein Electrophoresis

May 7, 2020

Medical Interventions
Lesson: May 7, 2020

Objective/Learning Target:

Recognize that electrophoresis can be used to separate proteins in a mixture and determine the purity of a sample. (4.1.4)

Let's Get Started:

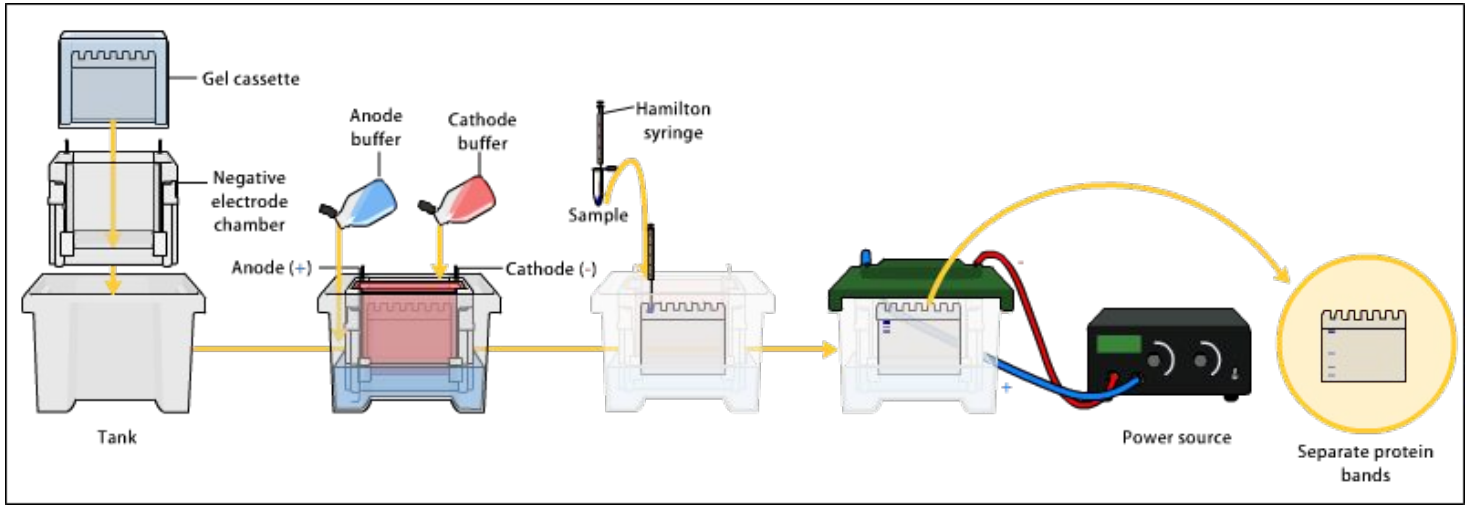
1. Review the process of gel electrophoresis by watching this video.
2. Read about the similarities and differences between electrophoresis between DNA and proteins.

Lesson Activity

1. Watch this video and read this background information on the process of protein electrophoresis. Describe this process in your notebooks or on paper and include a sketch showing the overall process.
2. Practice performing a protein electrophoresis by completing this online simulation.

Lesson Activity - Answer

1. Watch this video and read this background information on the process of protein electrophoresis. Describe this process in your notebooks or on paper and include a sketch showing the overall process.
2. Practice performing a protein electrophoresis by completing this online simulation.



Practice

Answer the following questions based on what you learned from the lesson activity:

1. What is SDS-PAGE?
2. What effect does treating with SDS have on the protein?
3. What is the purpose of treating protein samples with SDS before they are run on a gel?
4. Why is a polyacrylamide gel used?
5. What is the major limitation for identifying proteins using SDS-PAGE?

Practice - Answers

Answer the following questions based on what you learned from the lesson activity:

1. sodium dodecyl-sulfate polyacrylamide gel Electrophoresis
2. disrupts 3-D bending and folding of protein and coats amino acids with negative charge
3. denatures and separates proteins based on molecular weight
4. has a smaller pore size and is ideal for separating majority of proteins and smaller nucleic acids
5. can’t separate these two proteins of the same molecular weight from each other

Additional Practice/Resources

1. Check your understanding by reviewing with these flashcards.
2. Compare/contrast protein electrophoresis with DNA electrophoresis.
3. View an example of how protein electrophoresis is conducted by watching this lab instructional video.
4. There are other methods for analyzing proteins; read about the Western Blot technique as well as the emerging field of proteomics.