CONCEPT: PROTEOMICS

● **Proteomics** is the analysis of the cell, tissue, or organism's _____

□ **Proteome** describes the complete set of proteins encoded by a genome

- Due to protein processing the proteome is much larger than the number of genes

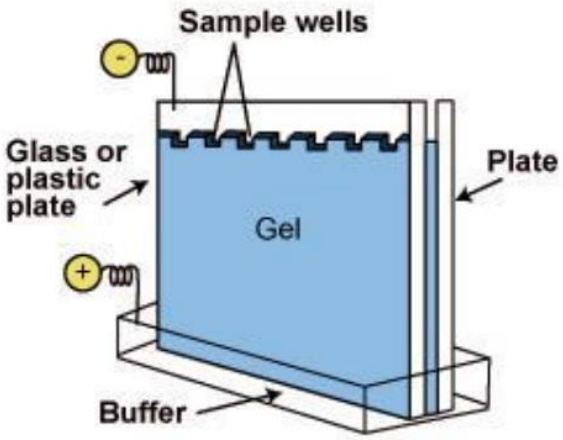
□ A variety of different methods have been developed to isolate proteins

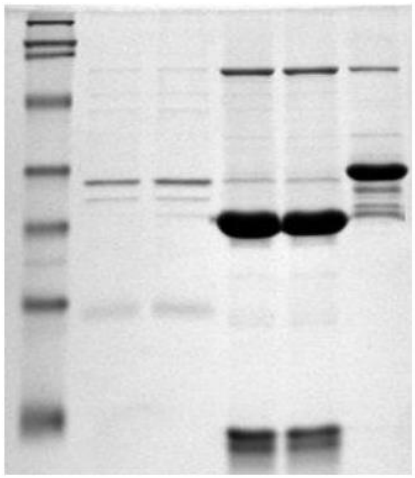
- **Gel electrophoresis** separates thousands of proteins by charge

- **Isoelectric focusing** is when the protein migrates in the gel to the point where its charge is zero

- **SDS PAGE** separates proteins by mass

EXAMPLE: SDS Gels





● A variety of different _____ have been developed to identify proteins in a sample

□ **Mass spectrometry** is a method use to identify proteins

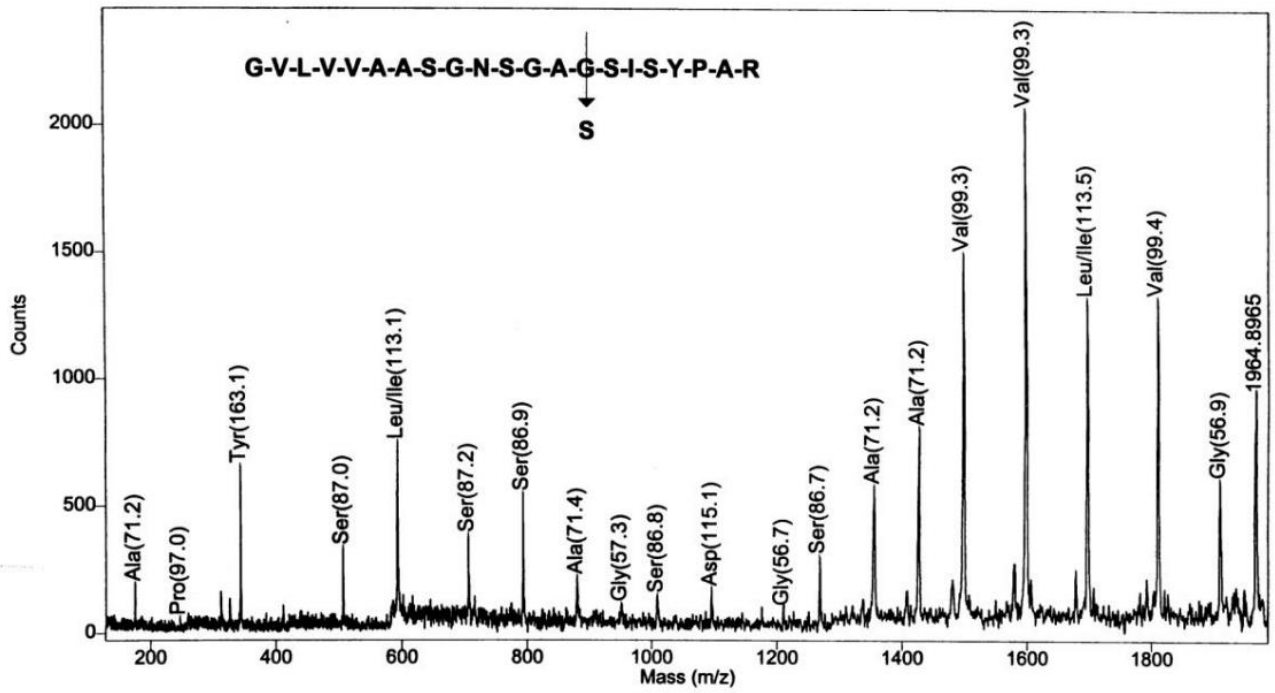
- **Tandem mass spectrometry** separates proteins by mass and charge

- Can be used to identify the amino acid sequence of the protein

□ **Protein microarrays** is a method used to detect proteins and protein-protein interactions in a sample

- Uses antibodies on a plate, and protein in the sample will bind to the antibody

EXAMPLE: Mass Spec Protein Sequencing



PRACTICE:

1. SDS-PAGE is a method used to separate proteins by which of the following characteristics?
    a. Mass
    b. Length
    c. Charge
    d. Acidity

2. Which of the following methods would be best to identify an amino acid sequence of a protein?
    a. Protein microarrays
    b. ChIP
    c. Tandem Mass Spectrometry
    d. Reverse genetics