

**Sodium Dodecyl Sulfate–Polyacrylamide Gel Electrophoresis (SDS–PAGE)** . When protein molecules are treated with SDS, the detergent disrupts the secondary, tertiary, and quaternary structure to produce linear polypeptide chains coated with negatively charged SDS molecules. . The detergent binds to hydrophobic regions of the denatured protein chain in a constant ratio of about 1.4 g of SDS per gram of protein. **The presence of mercaptoethanol assists in protein denaturation by reducing all disulfide bonds.** If protein samples are treated so that they have a uniform charge, electrophoretic mobility then depends only on size. . **Thus, the molecular weights of proteins may be estimated if they are subjected to electrophoresis in the presence of a detergent, sodium dodecyl sulfate (SDS), and a disulfide bond reducing agent, mercaptoethanol.**