

## Western Blot



### General Aim

To detect a specific protein in a sample using western blot technique.

### Method

Electroblotting of proteins into nitrocellulose membrane.

### Learning Objectives (ILOs)

- To identify the theory behind western blot technique.
- To fully comprehend the steps of western blot technique.
- To design a complete western blot experiment.
- To analyze the visualized protein.

### Theoretical Background/Context

A blot, in molecular biology, is the technique that involves the transfer of DNA, RNA and proteins from a gel to a membrane (nitrocellulose or PVDF). Proteins can be detected by western blot (immunoblot). Labeled probes or antibodies can bind blotted proteins and reveal them, making it easier to study them.

### Principle of Work

Western blot is a commonly used technique designed to study a specific protein in a sample containing many other proteins. Proteins in the sample are extracted then separated by gel electrophoresis (SDS-PAGE) according to their molecular weight. Then, the proteins are electrophoretically transferred (blotted) to a more durable surface (e.g. nitrocellulose or PVDF membrane). Finally, a specific antibody is used to detect the protein of interest. The bound and labeled protein can be visualized giving information about its molecular weight and relative quantity.