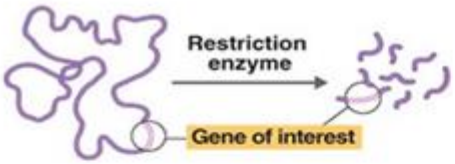
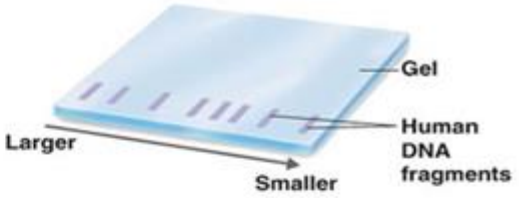
SOUTHERN BLOTTING

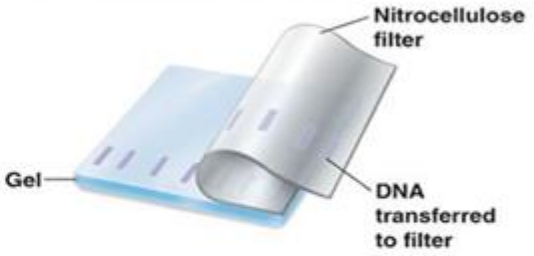


1 DNA containing the gene of interest is extracted from human cells and cut into fragments by restriction enzymes.

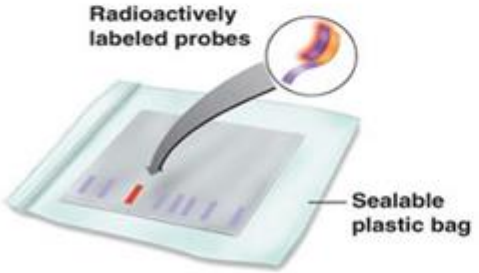


2 The fragments are separated according to size by gel electrophoresis. Each band consists of many copies of a particular DNA fragment. The bands are invisible but can be made visible by staining.

3 The DNA bands are transferred to a nitrocellulose filter by blotting. The solution passes through the gel and filter to the paper towels.



4 This produces a nitrocellulose filter with DNA fragments positioned exactly as on the gel.



5 The filter is exposed to a radioactively labeled probe for a specific gene. The probe will base-pair (hybridize) with a short sequence present on the gene.

6 The filter is then exposed to X-ray film. The fragment containing the gene of interest is identified by a band on the developed film.

NORTHERN BLOTTING