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CHROMOSOME WALKING

Chromosome walking is an important aspects of cytogenetics. It is a method for analyzing long stretches of DNA. By using this technique large regions of chromosome oa about 1000 Kb length can be easily characterized chromosome walking is done on the DNA fragment containing the gene of interest on DNA fragment. For chromosome walking clones of interest are derived from the genomic library. During chromosome walking the end piece of a cloned DNA fragment is subcloned and is used as a probe to recover another overlapping clone from the genomic library.

Probes:- These are labeled DNA or RNA molecules which are used to identify target which are used to identify target genes or molecules.

Subcloning:-The cloning of clone is called sub cloning

Steps in chromosomes walking

- i)** First clone of interest is selected from the genomic library after identifying by probe.
- ii)** A small fragment from one end of this clone is subcloned.
- iii)** This subcloned fragment is used as a probe and is hybridized with other clone from genomic library.
- iv)** Now second clone hybridized with sub clone of first clone is identified due to presence of overlapping region.
- v)** End piece of second clone is ten sub cloned and used for hybridization with another clone from library.

- vi)** Third clone hybridized with subclone of second clone is also identify due to presence of overlapping region.
- vii)** This process of sub cloning and probing the genomic library is repeated to recover overlapping done until the gene of interest is reached.
- viii)** Restriction maps of overlapping clone may be constructed so as to get the entire sequence of original DNA stretch.

Application of chromosome walking

- i)** Chromosome walking is applied for identification of specific gene.
- ii)** It can be used for isolation of specific gene.
- iii)** It is used for preparation of genome map.
- iv)** It is identification of genetic disorder.