



Legend

In the column labeled cosmid clones, black indicates a FISH-ordered clone where distance between clones has been measured. Other cosmids are shown in red. Genes are in red to the left of the metric scale. Other markers are labeled in black. A disease associated with a specific gene is shown in blue to the right of the metric scale.

- Restriction-mapped contig
- BAC, PAC, or P1 clone
- YAC with known and concordant size
- YAC with unknown or discordant size
- + Sequence tagged site (STS)
- STS and/or hybridization results
- § Polymorphic marker

Chromosome 19 Map. In the current map (at left) of the first 2 million bases at the p-telomere end of chromosome 19, the EcoR I restriction-mapped contigs (represented by red lines) provide the starting material for genomic sequencing across a region.

Construction of the human chromosome 19 physical map was based on a similar strategy for mapping the roundworm *Caenorhabditis elegans*. View the complete map on the World Wide Web (http://www-bio.llnl.gov/genome/html/chrom_map.html). [Source: Adapted from figure provided by Linda Ashworth, LLNL]

Sequencing

The sequencing group is divided into several subprojects. The core team is responsible for the construction of sequence libraries, sequencing reactions, and data collection for all templates in the random phase of sequencing. The finishing team works with data produced by the core team to produce highly redundant, highly accurate "finish" sequence on targets of interest. Finally, a team of researchers focuses specifically on development, testing, and implementation of new protocols

for the entire group, with an emphasis on improving the efficiency and cost basis of the sequencing operation.

Resources

The resources group provides mapped clonal resources to the sequencing teams. This group performs physical mapping as needed for the DNA sequencing group by using fingerprinting, restriction mapping, fluorescence in situ hybridization, and other techniques. A small mapping effort is under way to identify, isolate, and characterize BAC