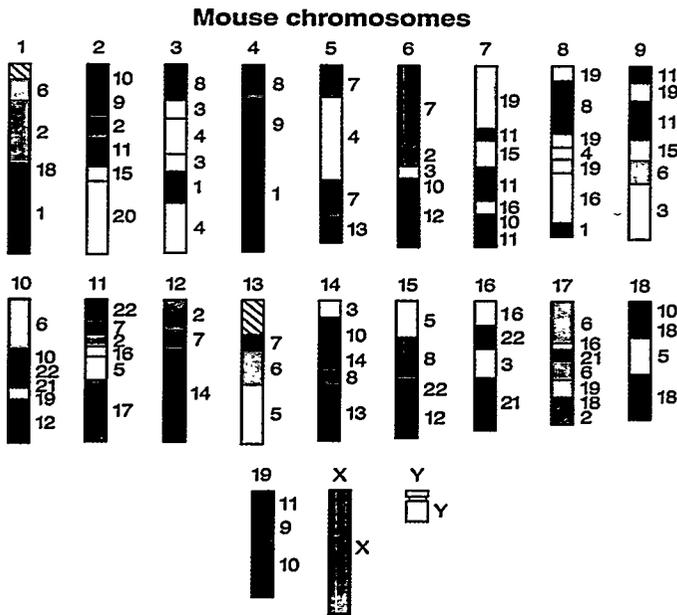


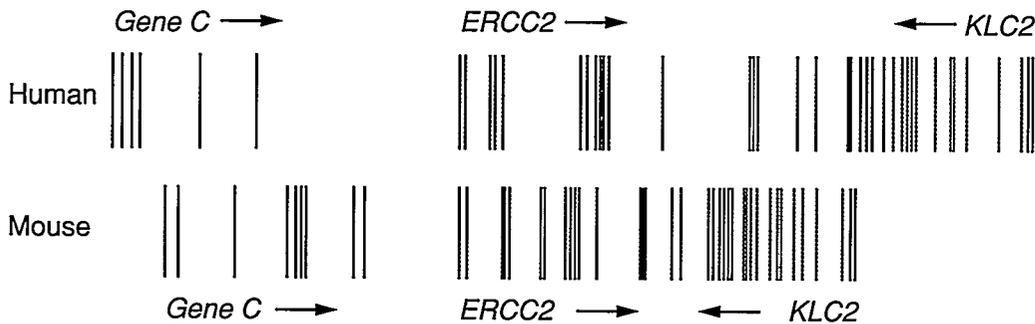
Human-Mouse Homologies. LLNL researcher Lisa Stubbs (above) is shown in the Mouse Genetics Research Facility at ORNL. [ORNL photo]



The figure at left demonstrates the genetic similarity (homology) of the superficially dissimilar mouse and human species. The similarity is such that human chromosomes can be cut (schematically at least) into about 150 pieces (only about 100 are large enough to appear here), then reassembled into a reasonable approximation of the mouse genome. The colors and corresponding numbers on the mouse chromosomes indicate the human chromosomes containing homologous segments. [Source: Lisa Stubbs, LLNL]

Comparative sequencing of homologous regions in human and mouse at LLNL has enhanced the ability to identify protein-coding (exon) and noncoding DNA regions that have remained unchanged over the course of evolution. Colors in the figure below depict similarities in mouse and human genes involved in DNA repair, a research interest rooted in DOE's mission to develop better technologies for measuring health effects, particularly mutations. [Source: Linda Ashworth, LLNL]

ERCC2 Region



5 kb

Legend

- Exons from "Gene C"
- Exons of ERCC2 gene
- Exons of KLC2 gene
- Non-coding conserved element

