Introduction to UCSC genome browser

1. Browser format
   1. Species
   2. Genome assembly versions
   3. Tracks on one dimension
2. Understanding gene models
   1. Strands, exons, introns and UTRs
   2. Zoom in and Zoom out
   3. Multi-region
3. Intergenic regions
   1. Histone marks
      1. H3K4me1 H3K4me2 H3K4me3 H3K27ac - active
      2. H3K9me3 H3K27me3 – inactive
   2. Conserved regions that
      1. Promoters, exons, regulatory elements
      2. Histone marks and enhancers
4. Extract sequences
   1. Genomic sequence
   2. mRNA sequence
   3. Sequence of any region
5. Built-in tracks
   1. GENCODE gene models
   2. Repeats
6. Download data
   1. Table browser
7. Searching
   1. Search by coordinates
   2. Search by gene name
   3. Search by sequence (Blat)
8. Liftover
   1. Inter-species
   2. Intra-species (paralogs)
9. Genome graphs
   1. Import a track
   2. Load a track
   3. Jumping to a chromosome
10. Third-party data
    1. ENCODEproject.org
    2. Visualize on UCSC
11. Data sessions
    1. Start with an account on UCSC
    2. Save your session and share
12. Reset