

To be turned in at the beginning of class

Paper #1 Sequencing and comparison of yeast species to identify genes and regulatory elements.

Nature. 2003 May 15;423(6937):241-54. Sequencing and comparison of yeast species to identify genes and regulatory elements. Kellis M, Patterson N, Endrizzi M, Birren B, Lander ES.

This paper describes the sequencing of how many new genomes?

How were the species chosen (in terms of sequence similarity) and why?

Briefly describe how the authors determine the evolutionary relationship and distance between the species analyzed.

What was their approach to determine whether an ORF encoded a protein or was found by chance?

How did they identify putative regulatory motifs? Explain briefly.

Paper #2 Computational identification of noncoding RNAs in E. coli by comparative genomics.

Curr Biol. 2001 Sep 4;11(17):1369-73. Computational identification of noncoding RNAs in E. coli by comparative genomics. Rivas E, Klein RJ, Jones TA, Eddy SR.

The authors perform a computational comparative genomic screen for ncRNA genes. What kind of mutations that usually occur in ncRNAs do they take advantage of? Why do these kinds of mutations often appear in ncRNA genes?

Briefly describe the approach they use to identify ncRNAs in E. coli.

How do the authors test their predictions? What are the problems with this approach?