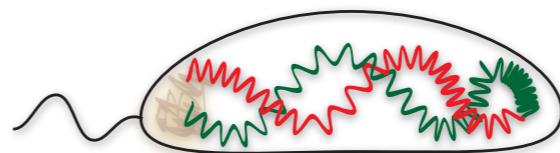
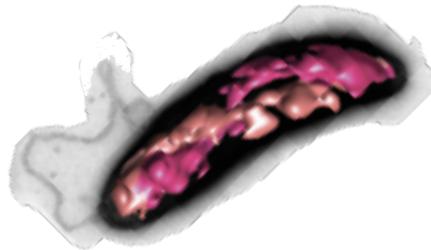
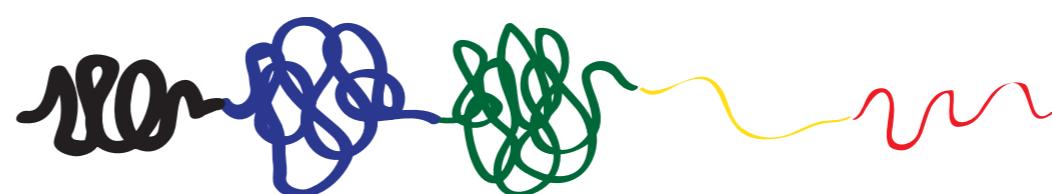
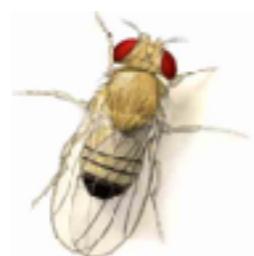
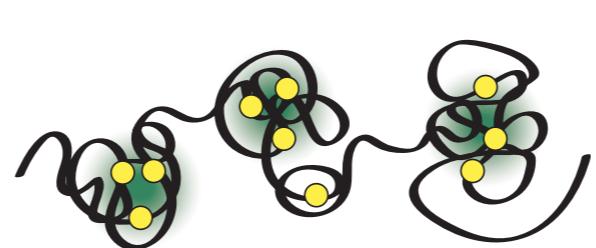


<http://marciuslab.org/publications/>



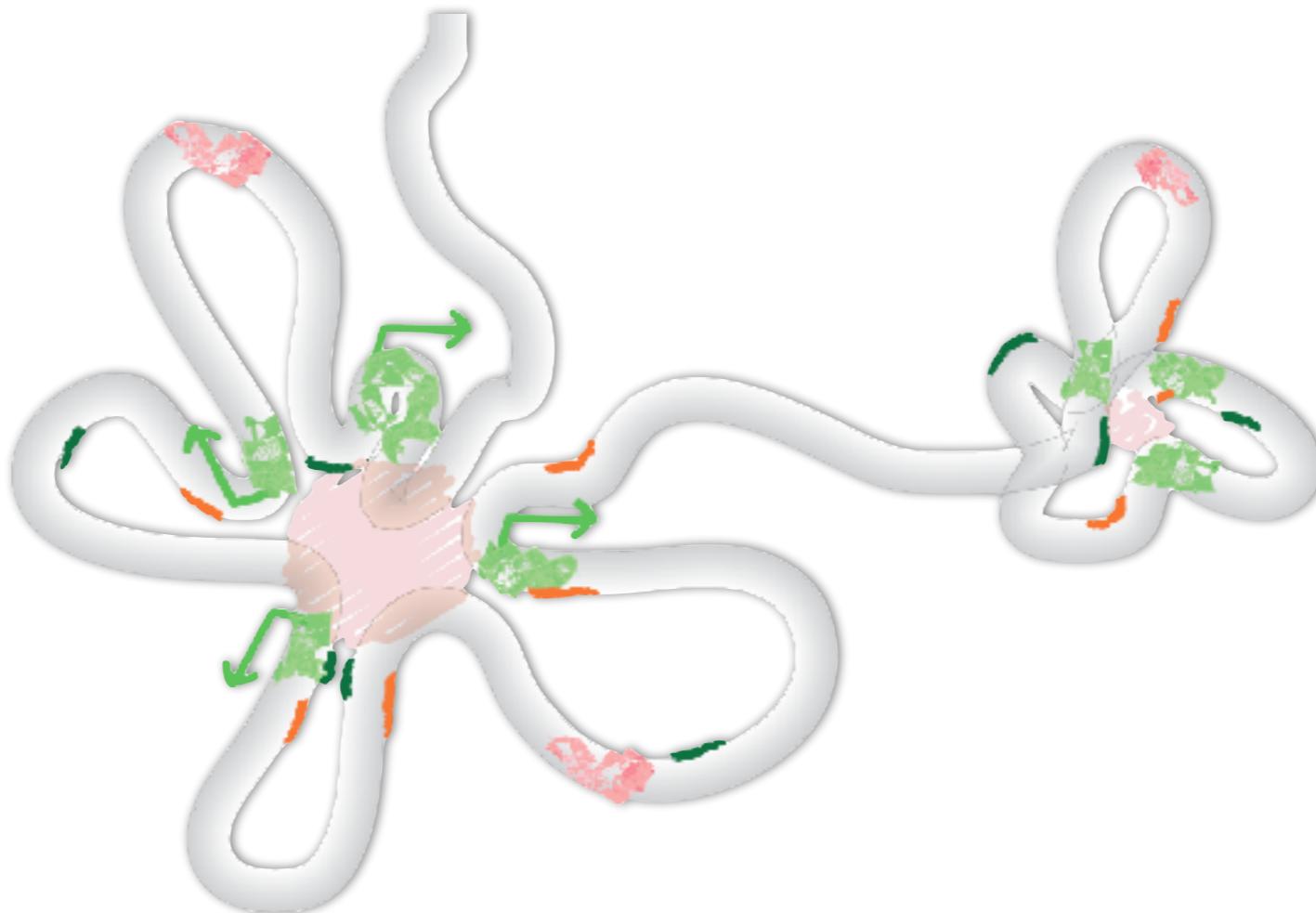
Biological Applications (I)

Alpha-Globin Locus

François Serra, Marco Di Stefano & Marc A. Martí-Renom
Structural Genomics Group (CNAG-CRG)



Human α -globin domain



Davide Baù



Bryan R Lajoie



Amartya Sanyal



Meg Byron



Program in Systems Biology
Department of Biochemistry and Molecular Pharmacology
University of Massachusetts Medical School
Worcester, MA, USA

Human α -globin domain

ENm008 genomic structure and environment

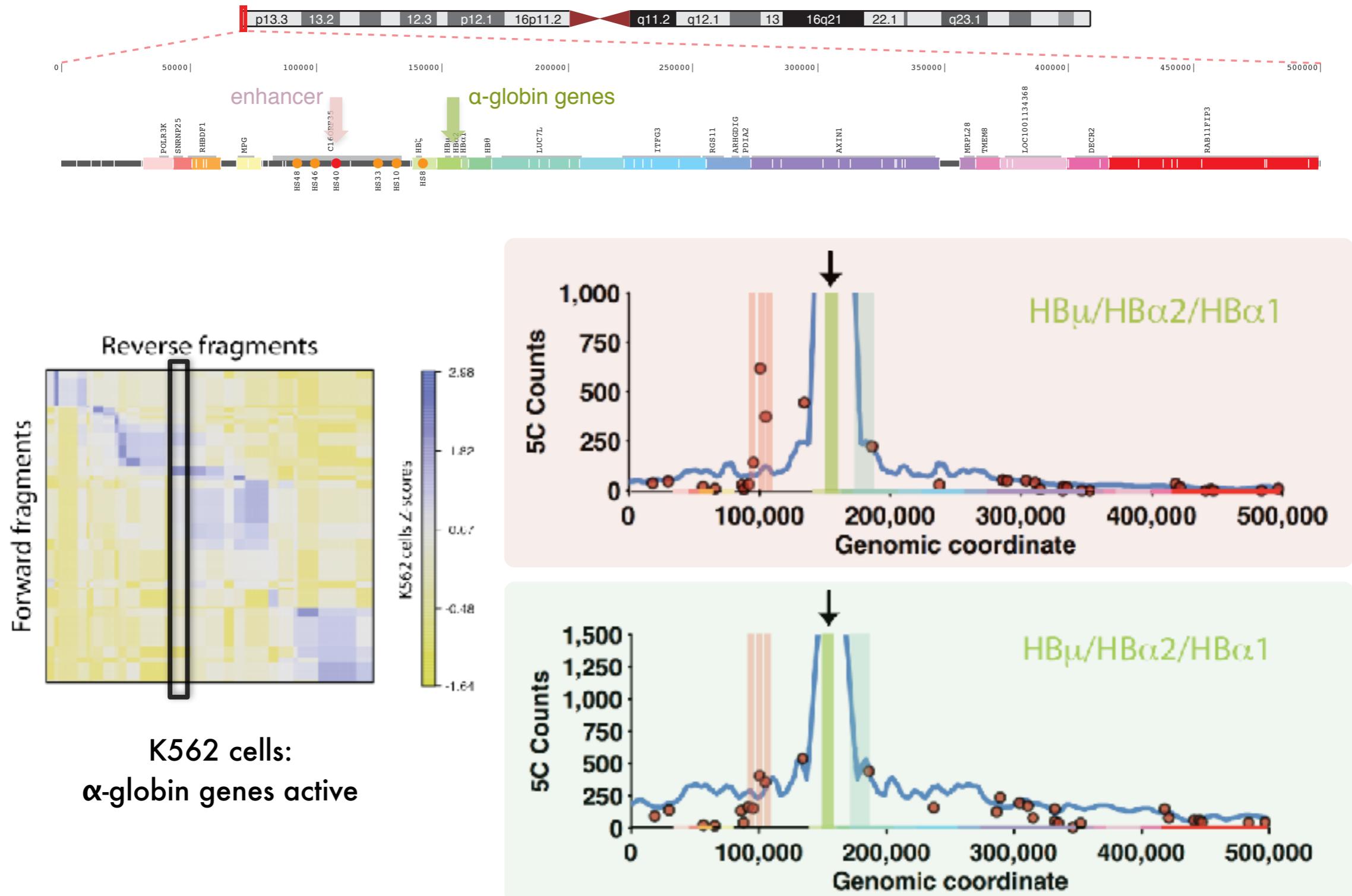


The ENCODE data for ENm008 region was obtained from the UCSC Genome Browser tracks for: RefSeq annotated genes, Affymetrix/CSHL expression data (Gingeras Group at Cold Spring Harbor), Duke/NHGRI DNase1 Hypersensitivity data (Crawford Group at Duke University), and Histone Modifications by Broad Institute ChIP-seq (Bernstein Group at Broad Institute of Harvard and MIT).

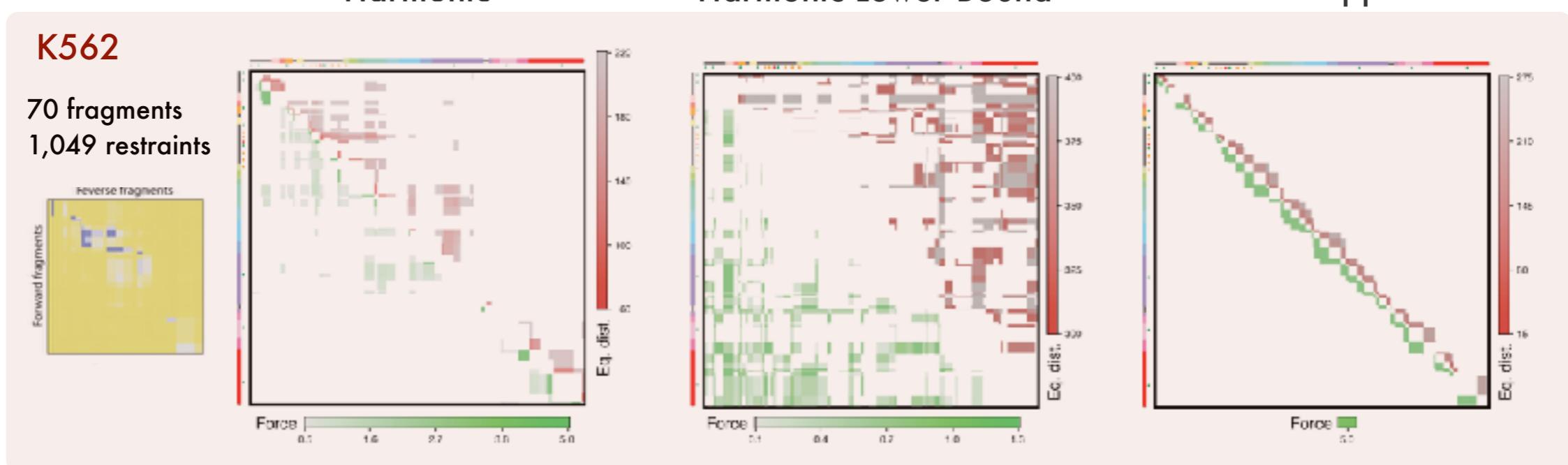
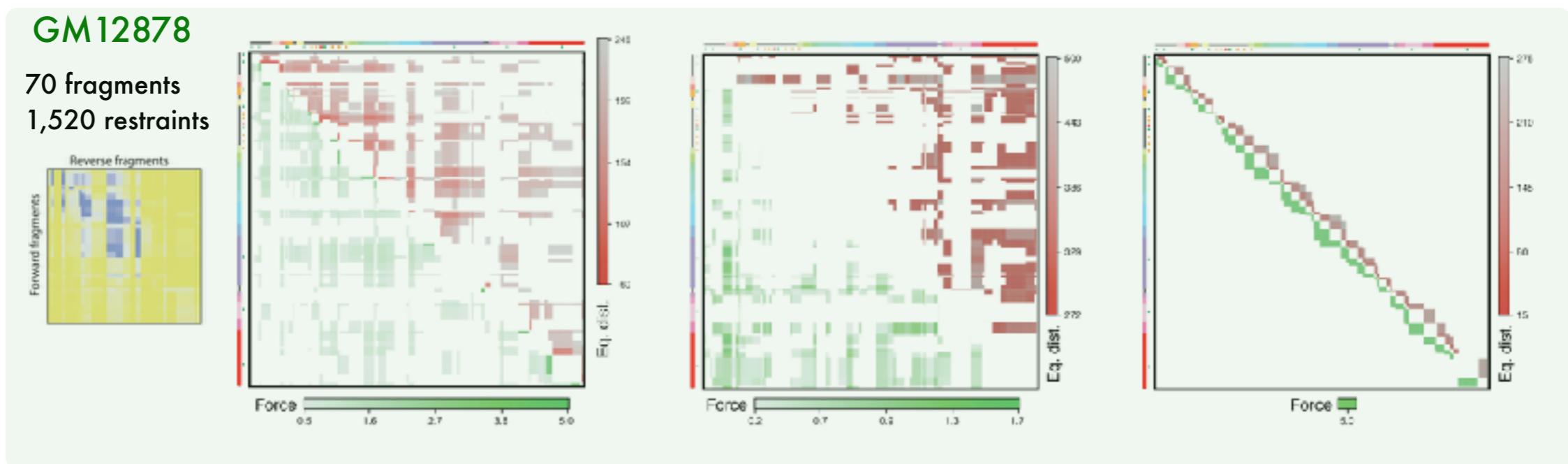
ENCODE Consortium. Nature (2007) vol. 447 (7146) pp. 799-816

Human α -globin domain

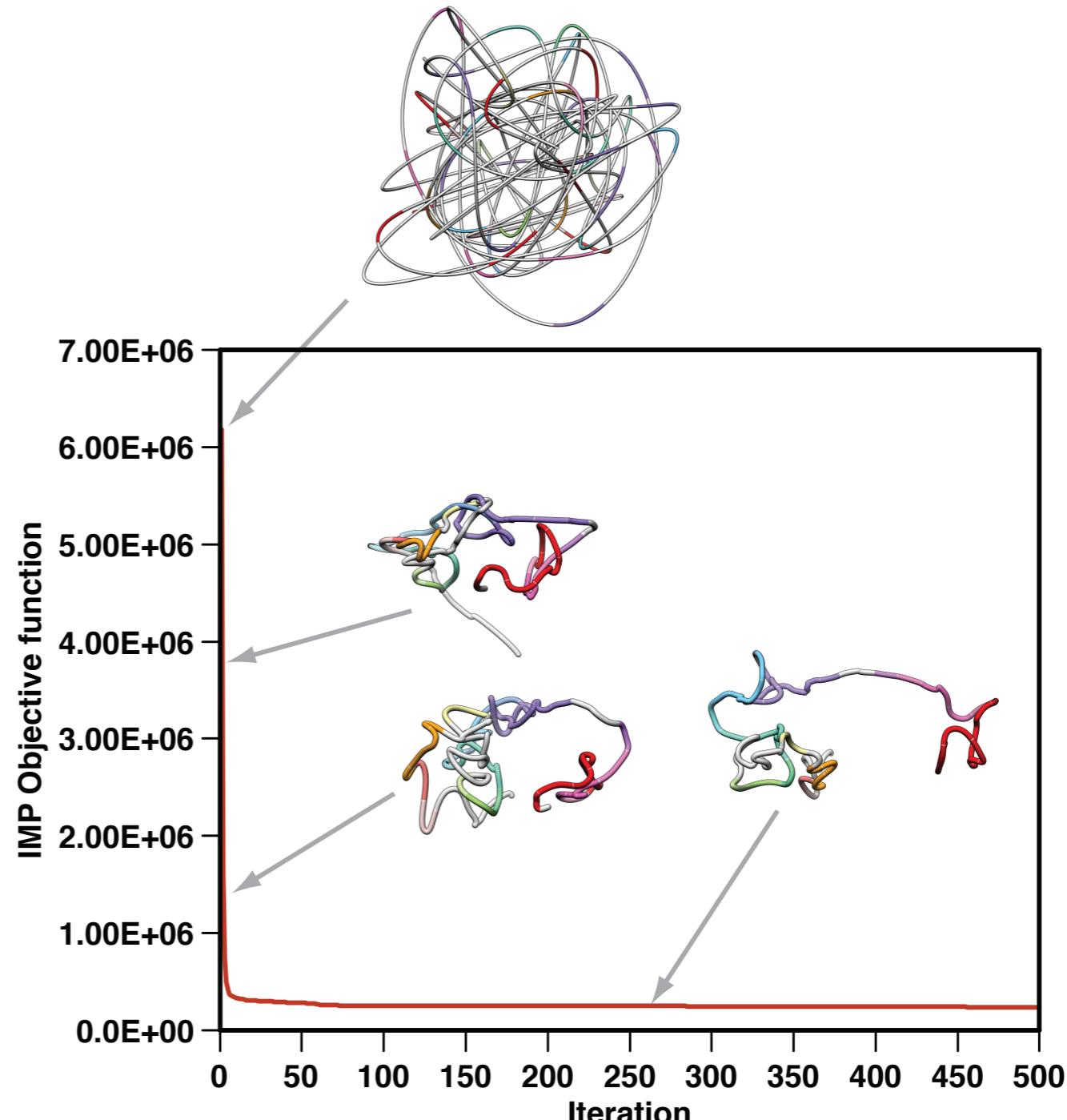
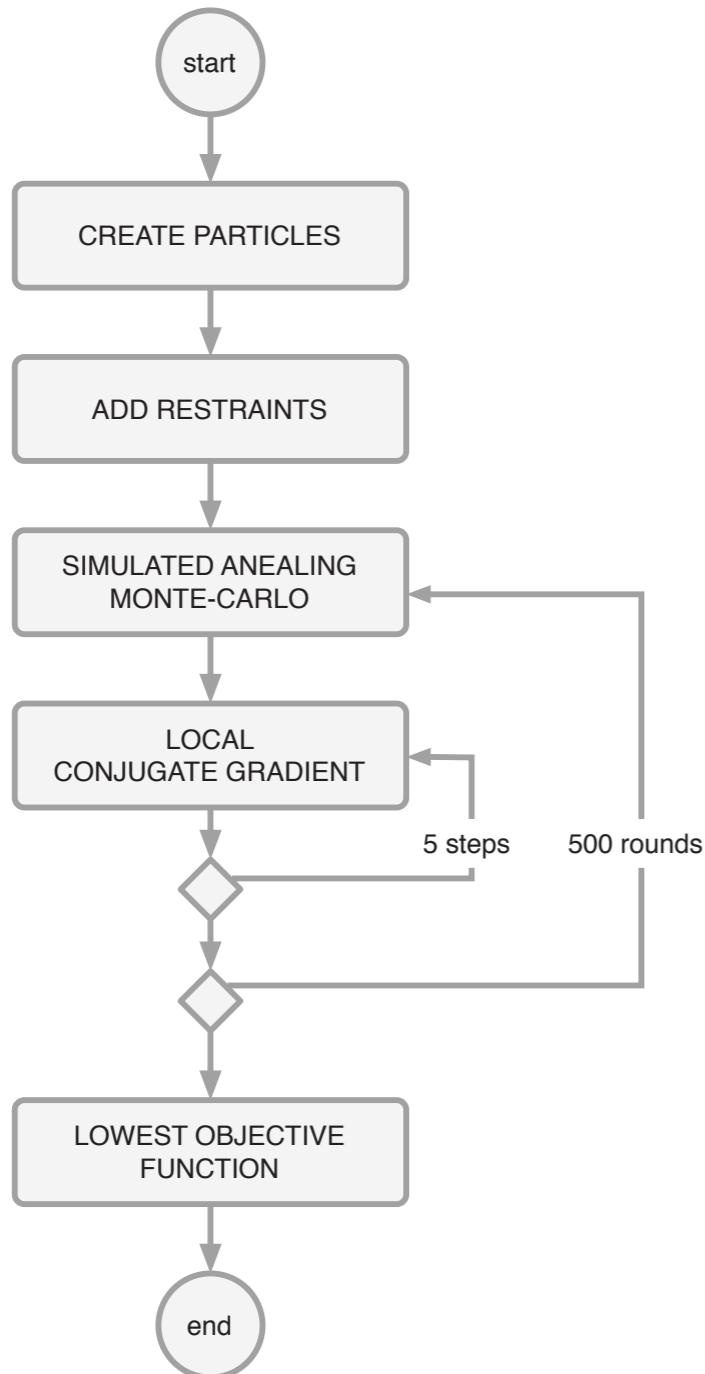
ENm008 genomic structure and environment



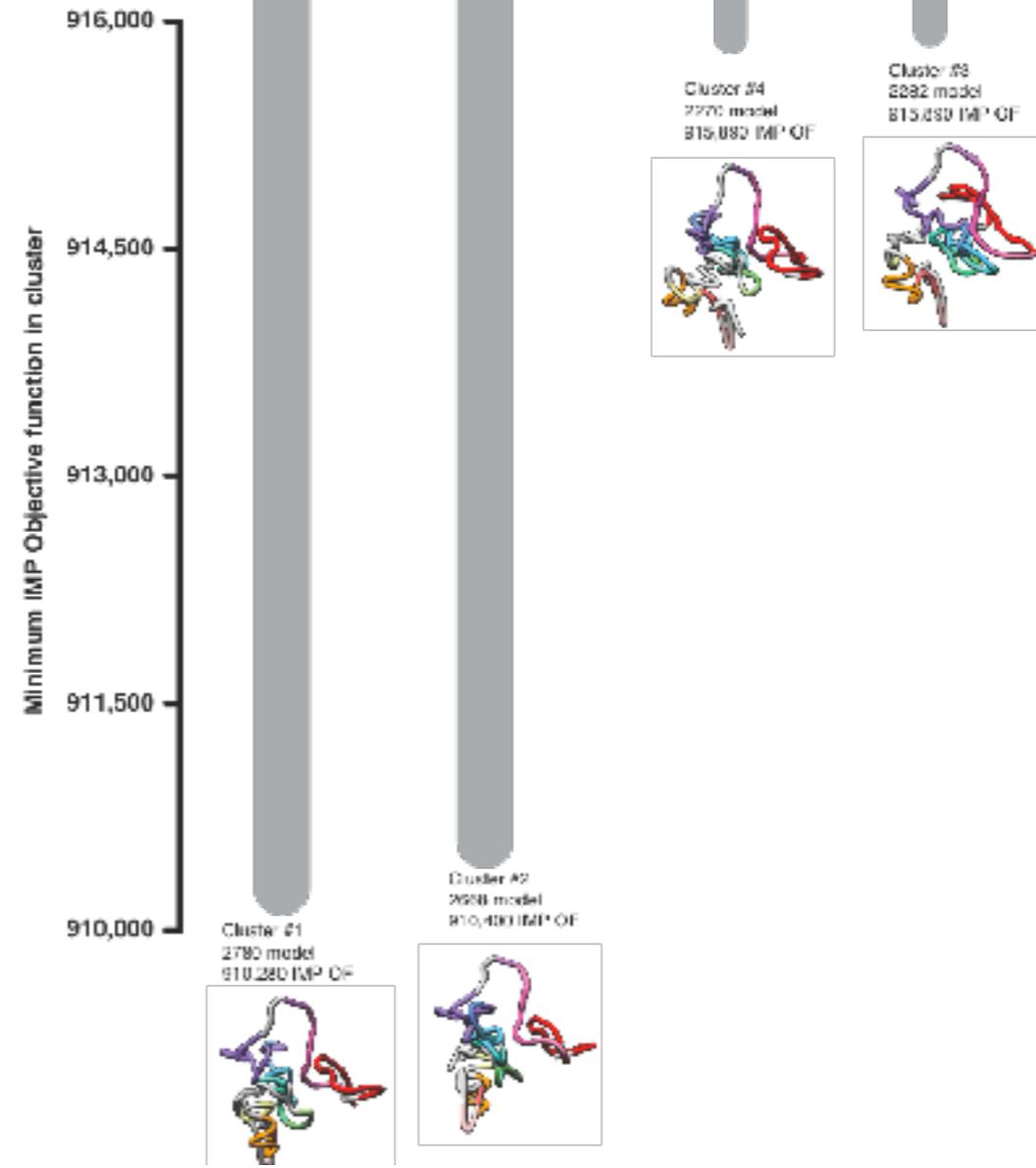
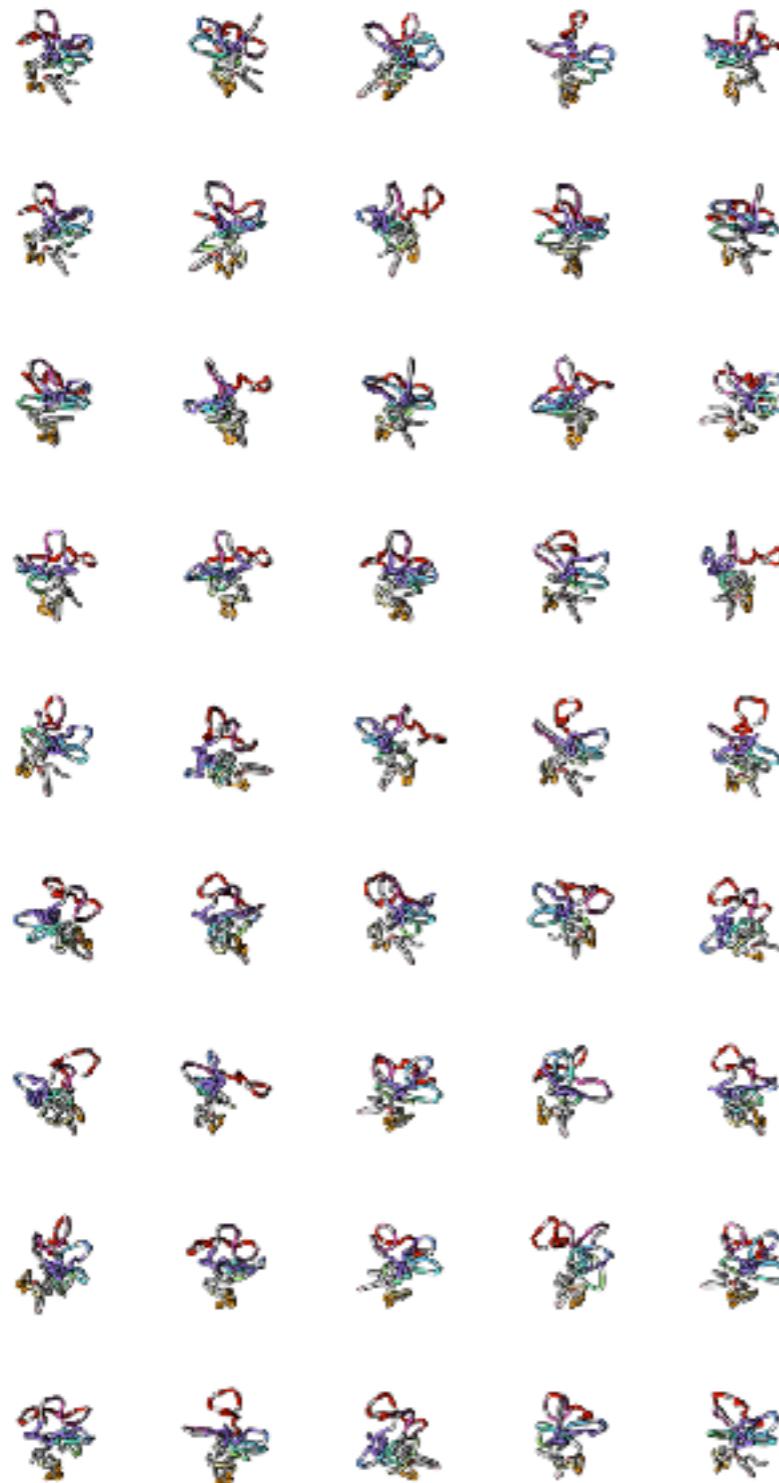
Scoring



Optimization

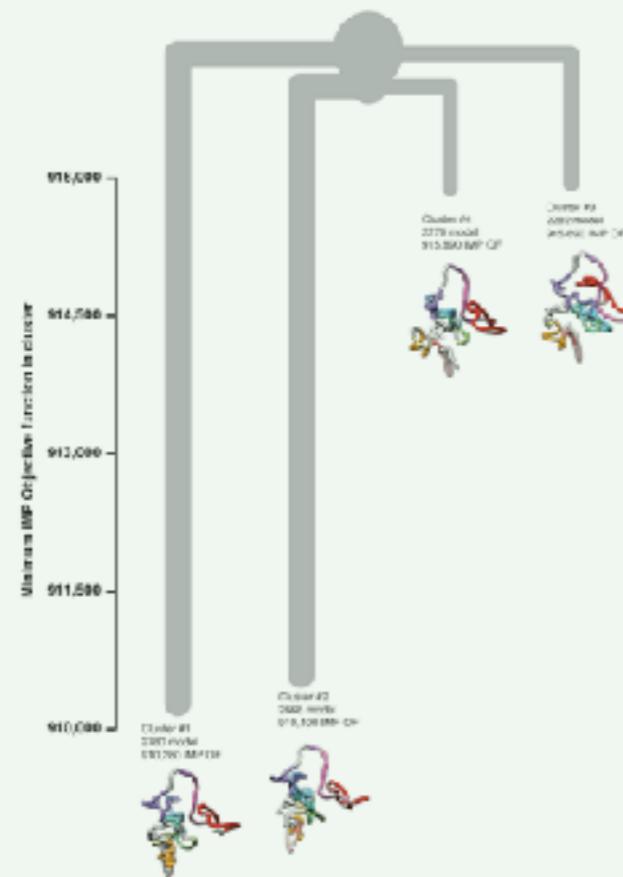
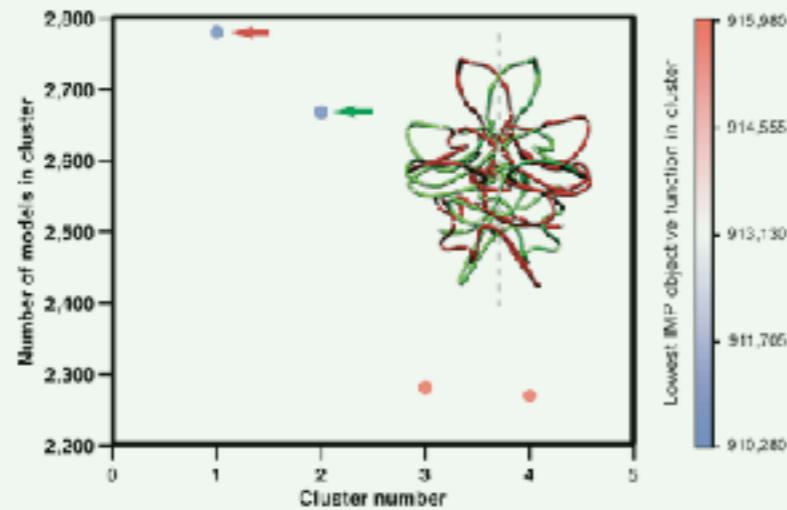


Clustering

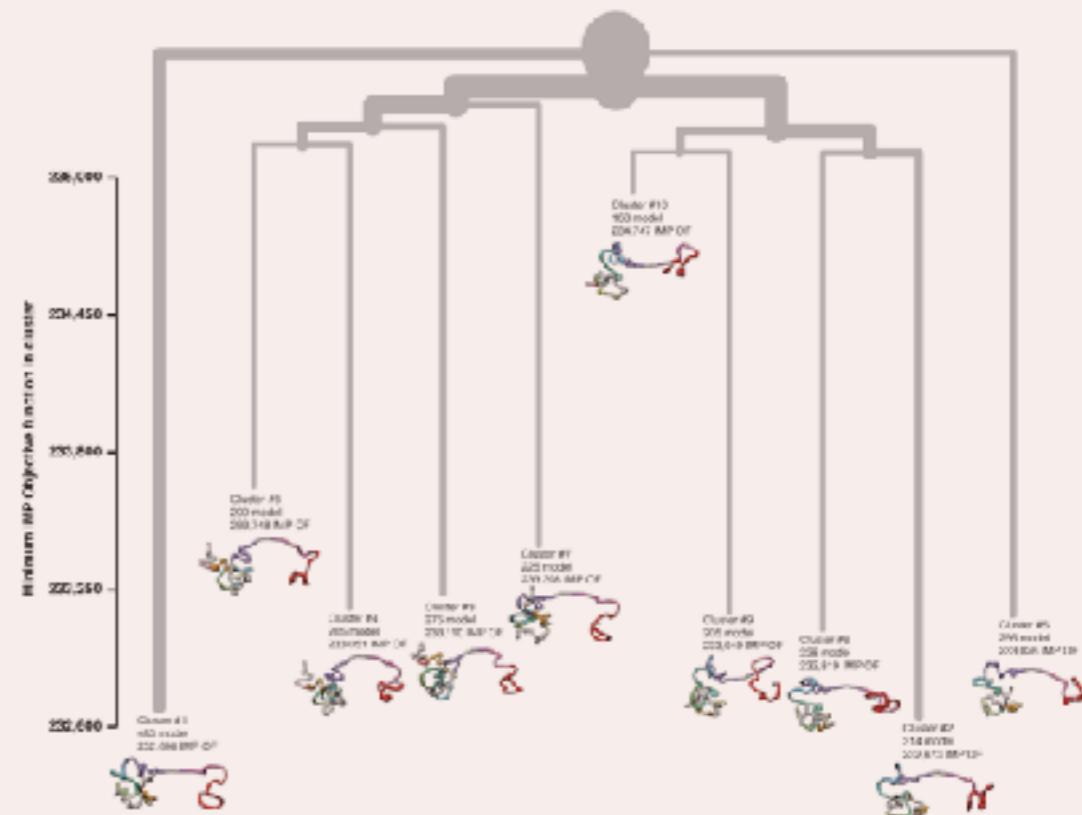
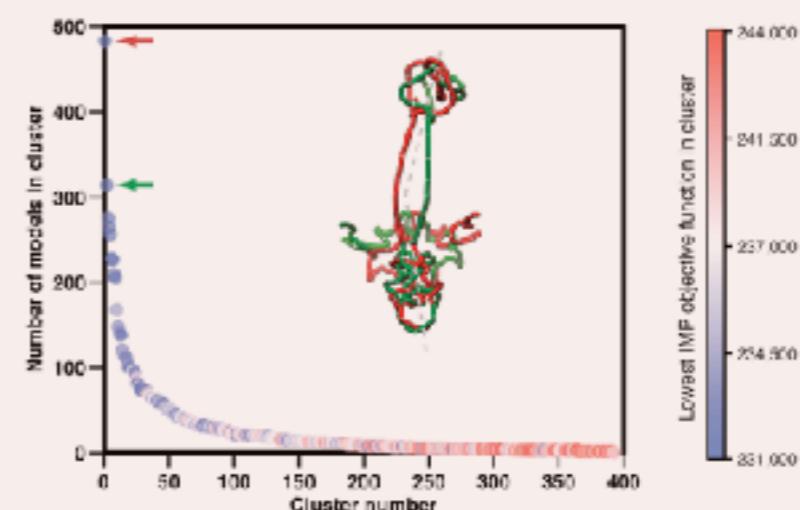


Not just one solution

GM12878



K562



Regulatory Requirements

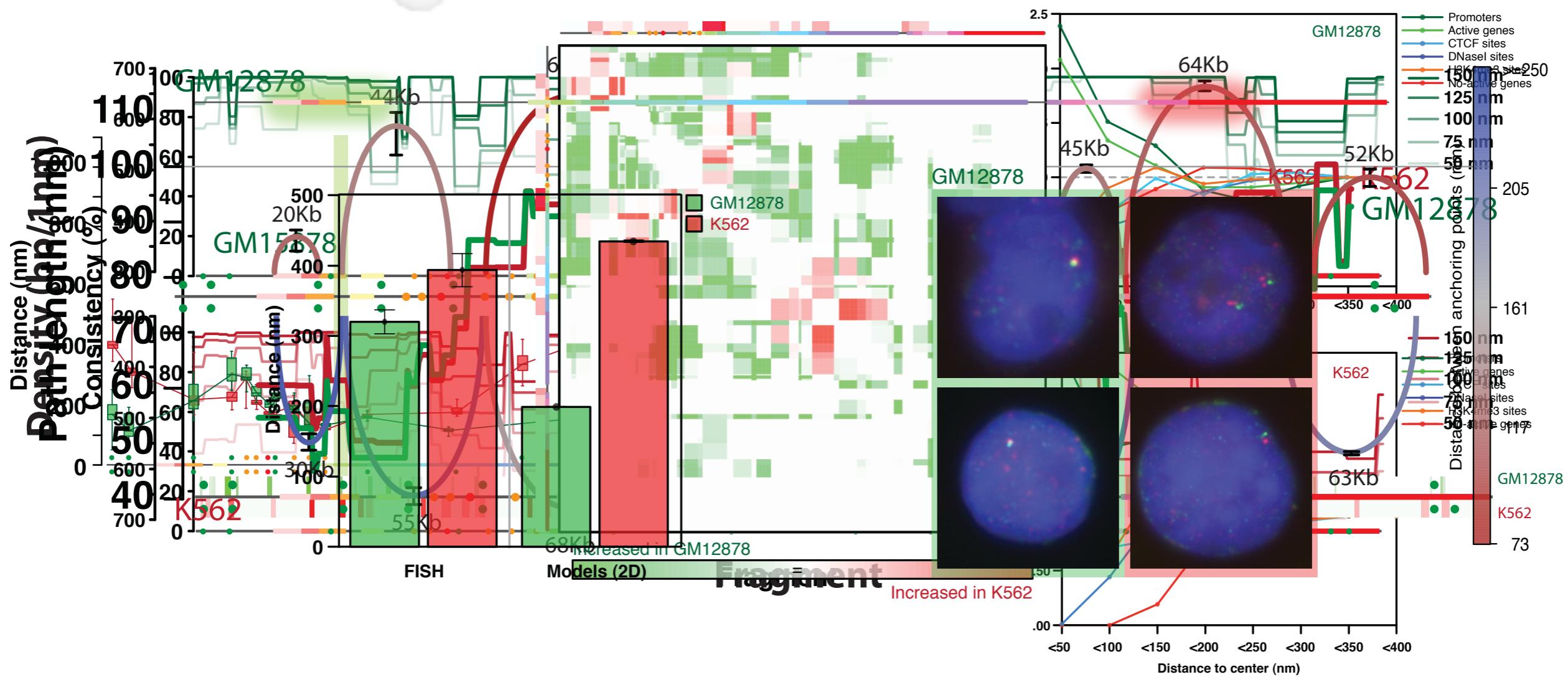
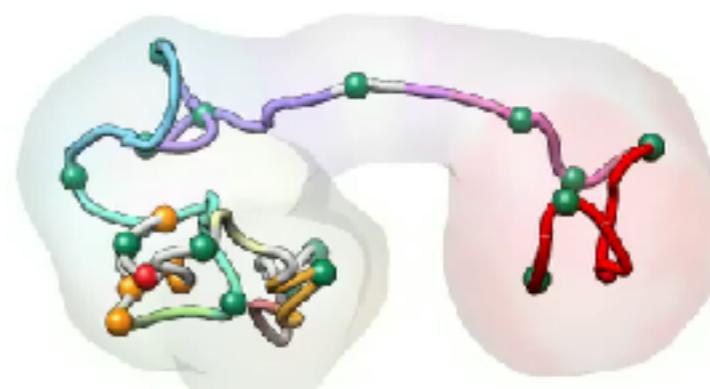
GM12878

Cluster #1 2780 model

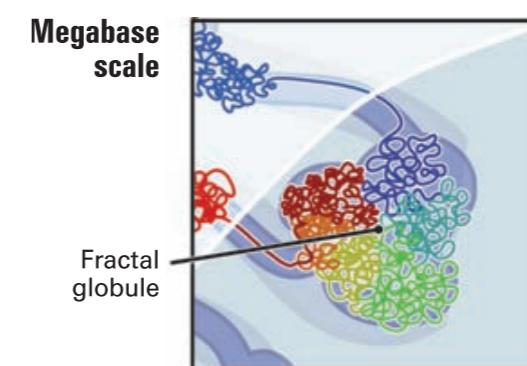
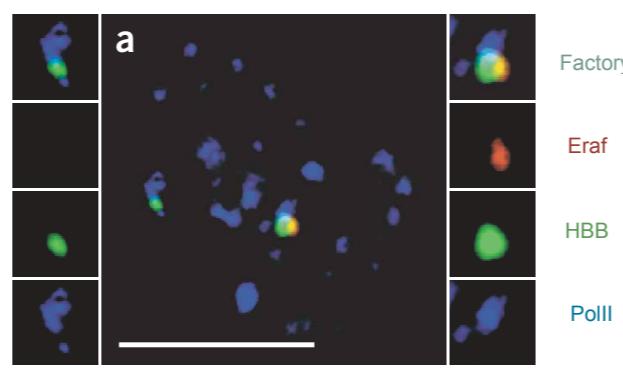
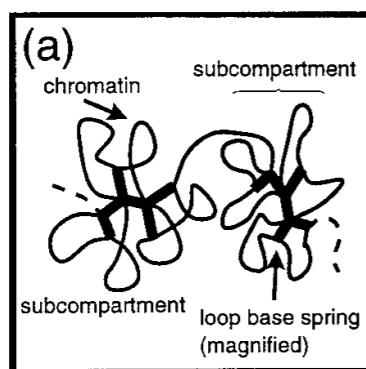
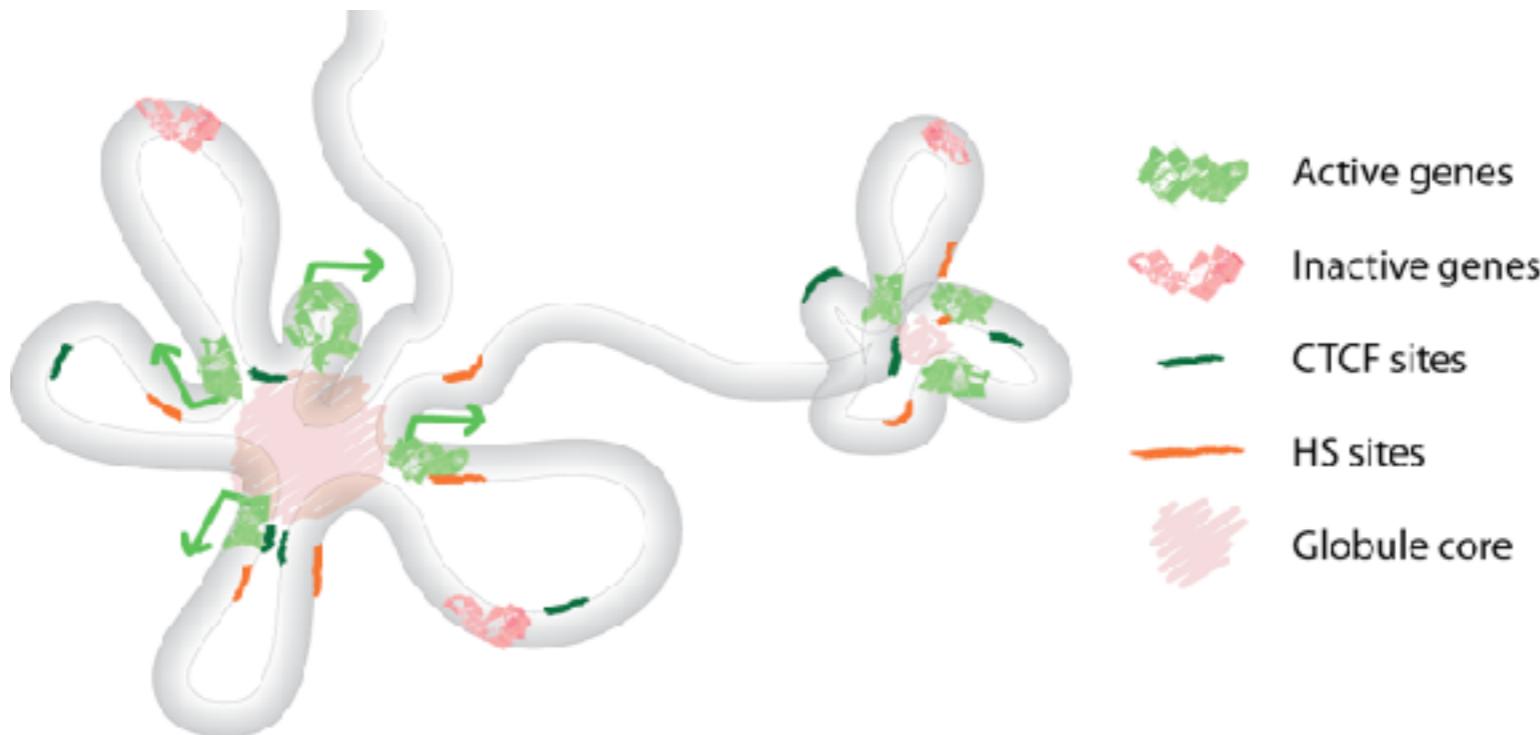


K562

Cluster #2 314 model



The “Chromatin Globule” model



D. Baù et al. **Nat Struct Mol Biol** (2011) 18:107-14
A. Sanyal et al. **Current Opinion in Cell Biology** (2011) 23:325–33.