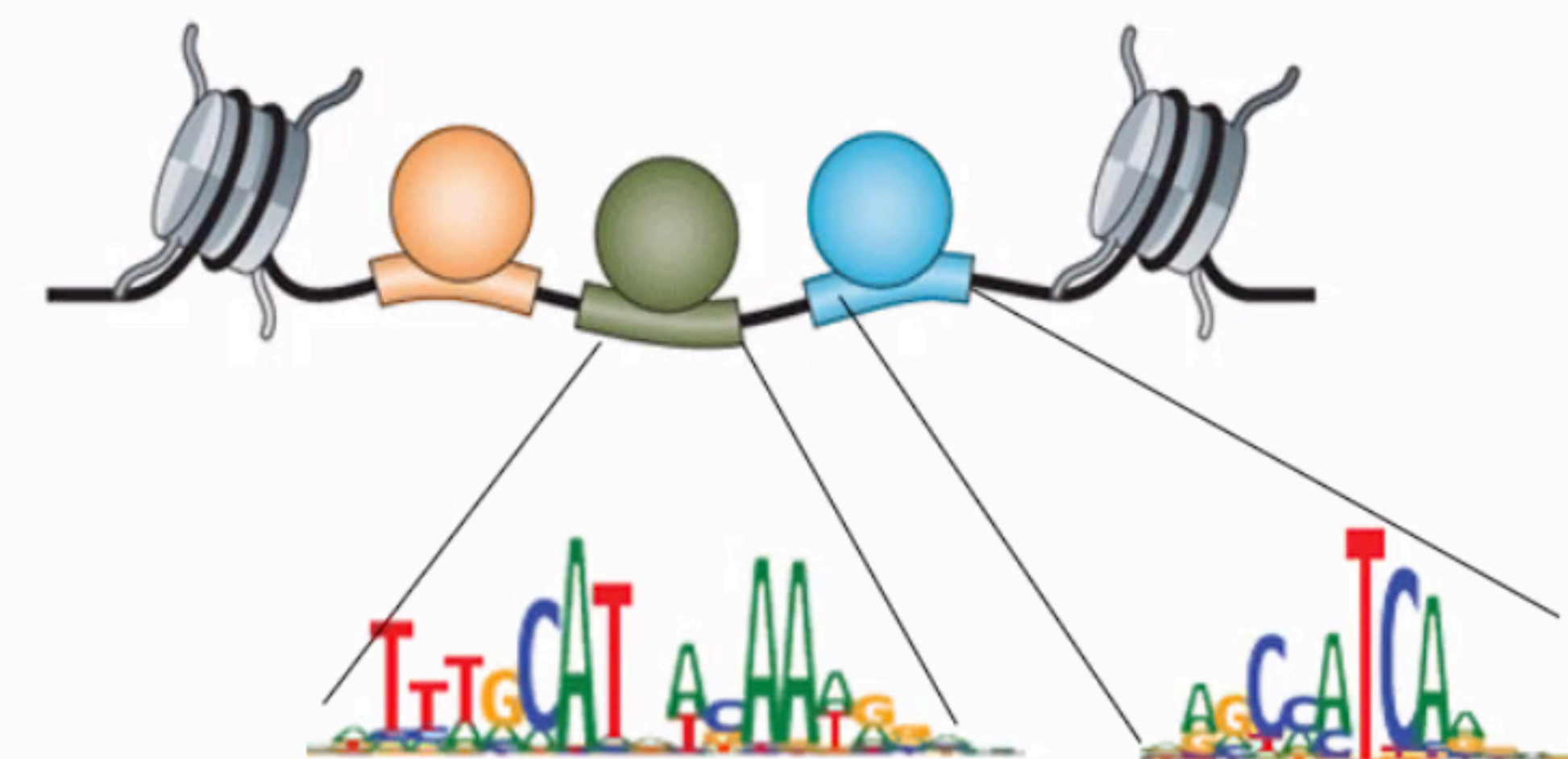
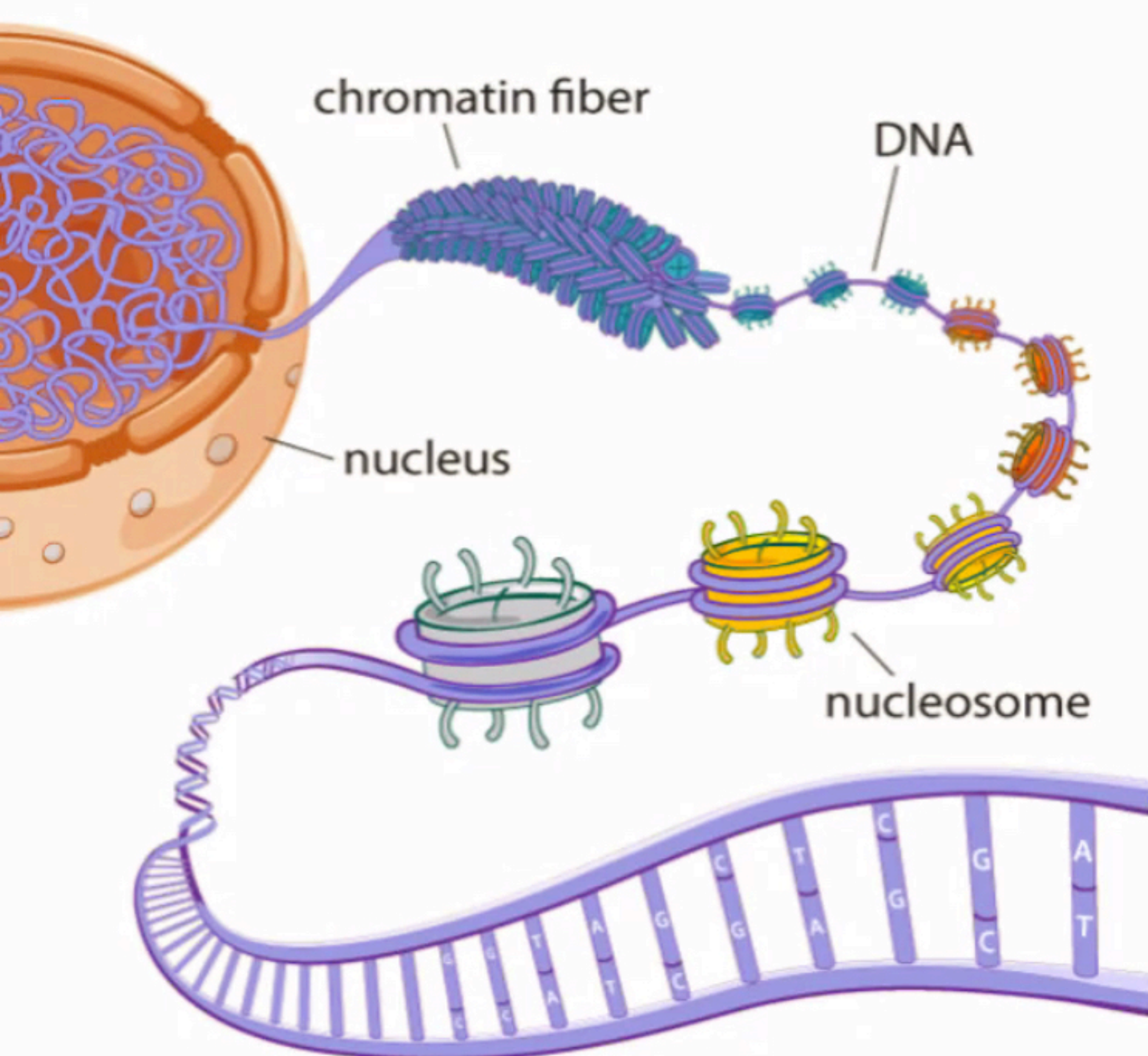


Goal: Decoding regulatory DNA

- All ENCODE TF ChIP-seq data
- All ENCODE DNase-seq, ATAC-seq, scATAC-seq
- All histone ChIP-seq
- Across biosamples in human and mouse



Repressed gene

Active gene

Putative regulatory elements

Protein

The cis-regulatory code

- Motifs (alternative binding modes)
- Driver motif instances
- effects of motif affinity
- effects of motif flanking seq. context
- effects of TF expr. concentration
- homotypic, heterotypic partners
- motif density
- motif spacing (fixed vs. soft syntax)
- motif relative orientation
- variant effects
- Repeats

⇒ causal effects on direct vs. indirect binding, accessibility & footprints

⇒ directional vs. symmetric cooperativity, competition

⇒ dependence on cell context



Tao Wang



Surag's

Alex Tseng