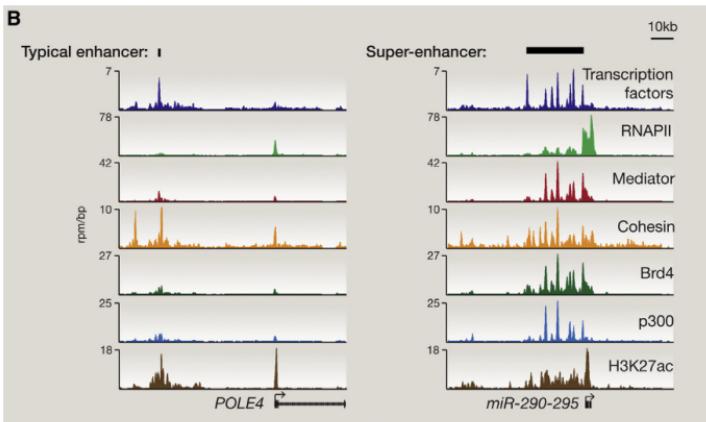
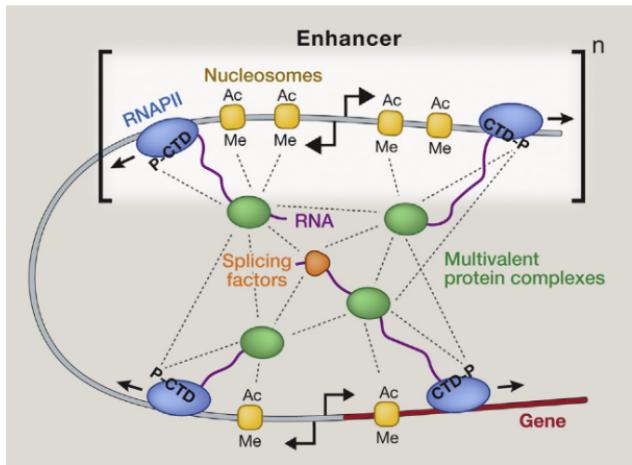


# Research Update

Clayton W. Seitz

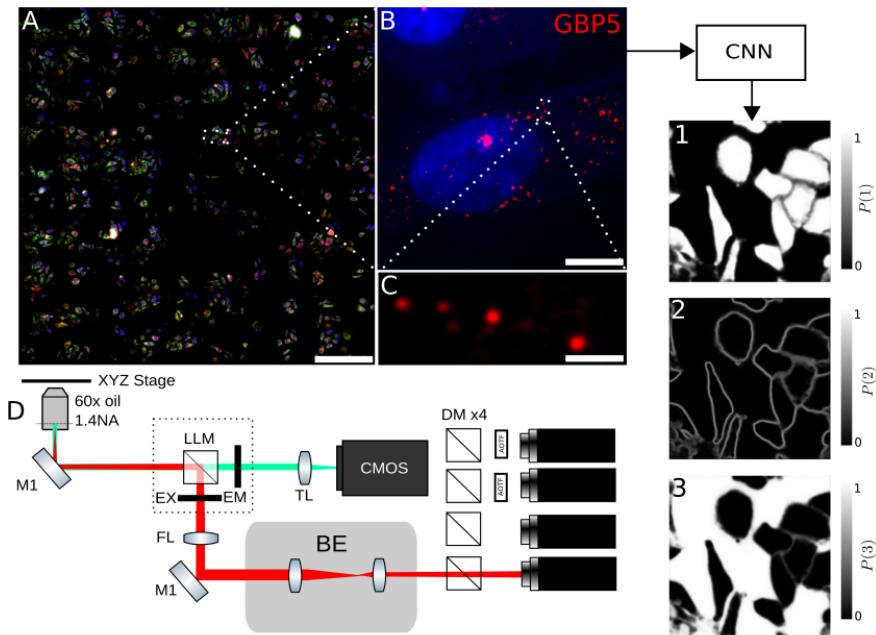
March 25, 2023

# Recap: A modern view of transcriptional control



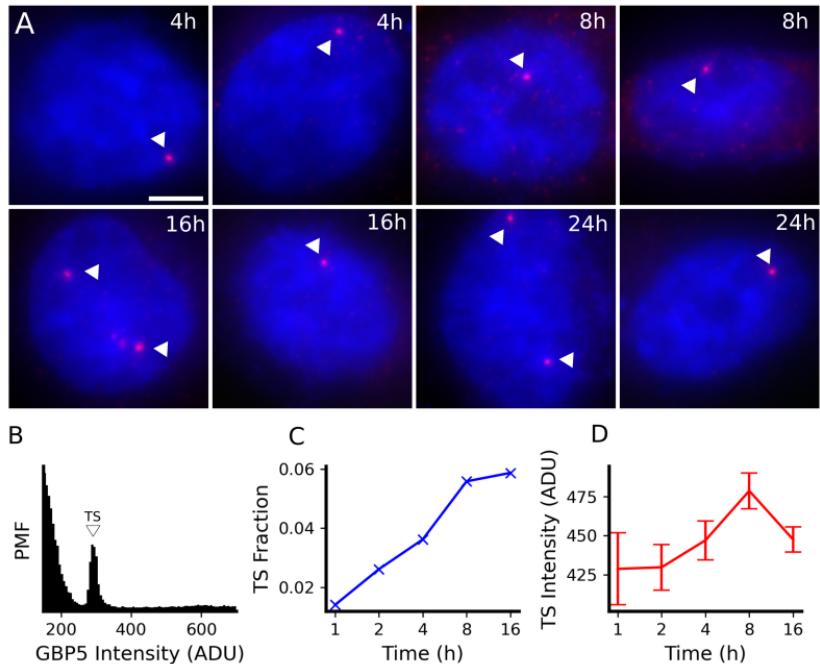
Hnisz et al. A phase separation model of transcriptional control.  
Cell 2017

# High-throughput imaging of GBP5 transcripts in single cells



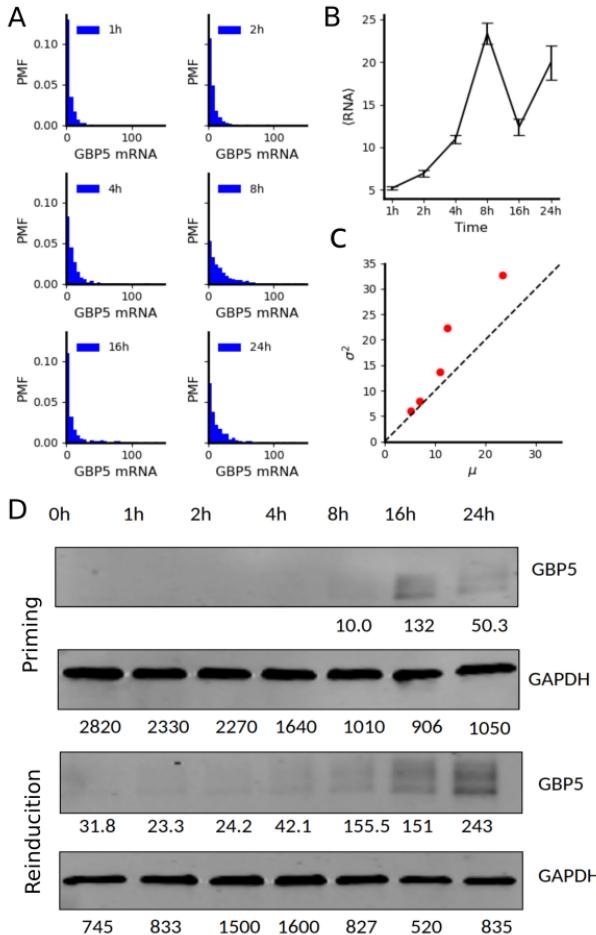
- ▶ (A) Large FOV three channel maximum intensity projection. Scalebar 300μm
- ▶ (B) GBP5 mRNAs. Scalebar 10μm
- ▶ (C) Diffraction-limited image of GBP5 transcripts hybridized with 48 complementary fluorescent probes
- ▶ (D) 4-color widefield microscope used for fluorescence imaging with a 60X Nikon oil-immersion objective.
- ▶ (1-3) Single cell masks predicted by a convolutional neural network (CNN)

# Identification of GBP5 transcription sites

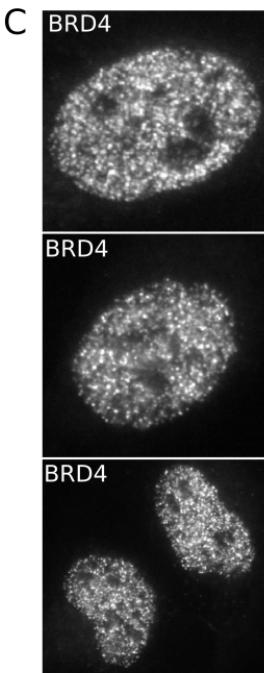
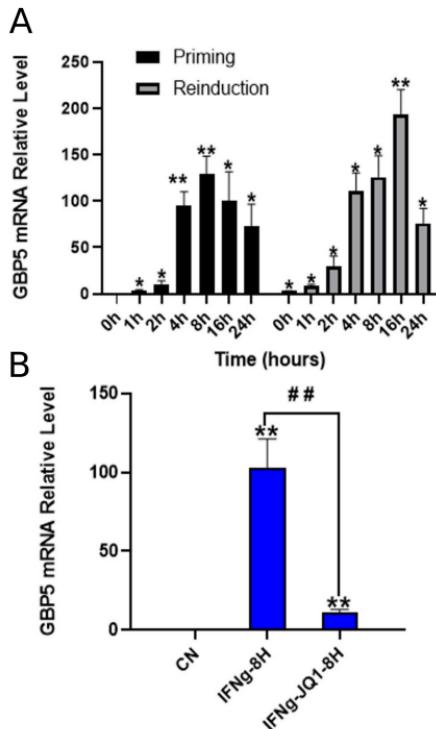


- ▶ (A) Large FOV three channel maximum intensity projection. Scalebar 300um
- ▶ (B) GBP5 mRNAs. Scalebar 10um
- ▶ (C) Diffraction-limited image of GBP5 transcripts hybridized with 48 complementary fluorescent probes
- ▶ (D) 4-color widefield microscope used for fluorescence imaging with a 60X Nikon oil-immersion objective.
- ▶ (1-3) Single cell masks predicted by a convolutional neural network (CNN)

# High-throughput imaging of GBP5 transcripts in single cells



# RT-qPCR validation of GBP5 expression and identification of BRD4 as a potential transcription factor



Next:

- ▶ Determine BRD4 residency at putative GBP5 TS, +/- JQ1
- ▶ Super-resolution imaging of H2B at putative GBP5 TS