

# Does Ino80 affect rDNA structure in quiescence?

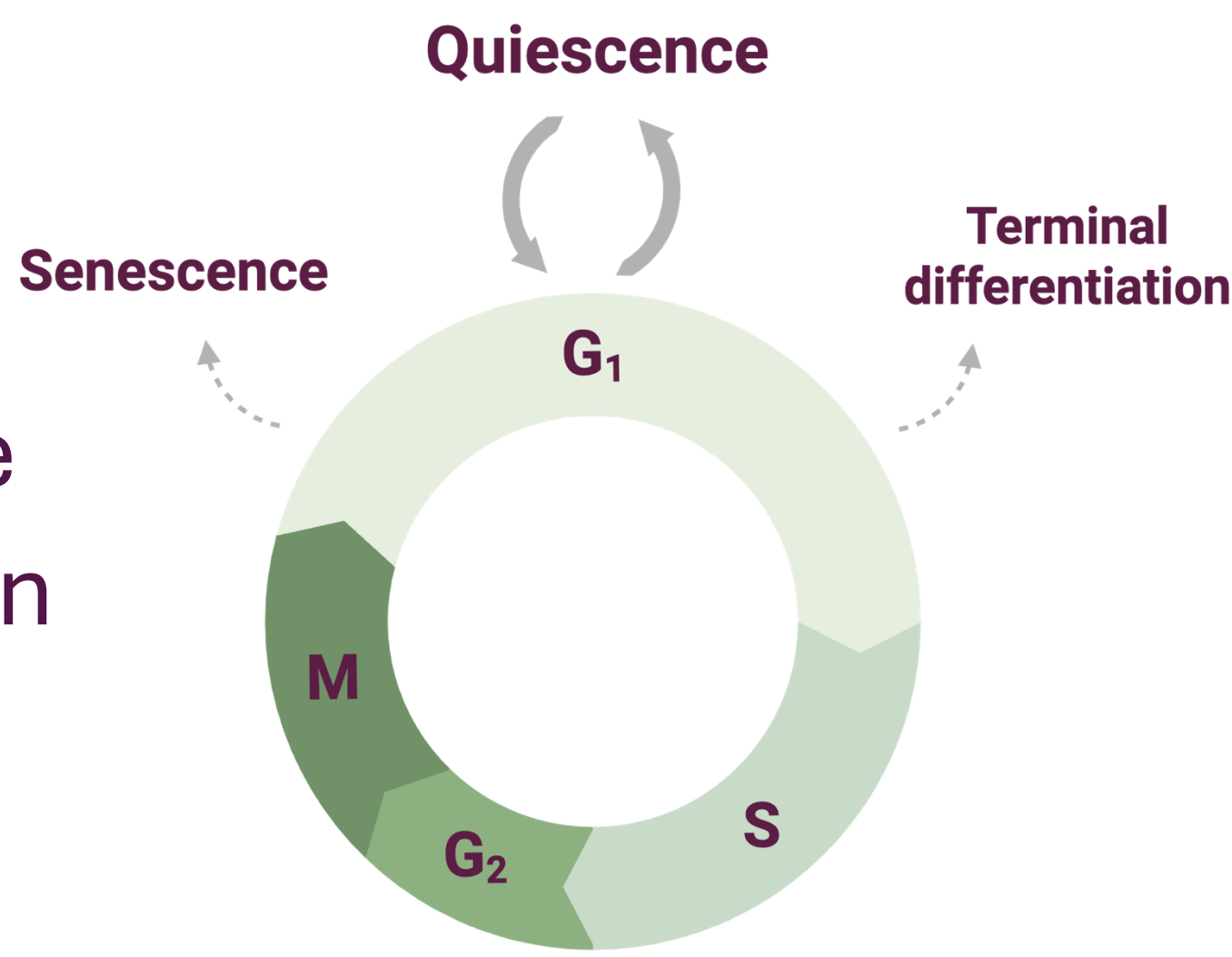
Sophia Samant, Rina Hirano, Toshio Tsukiyama | Basic Sciences Division, Fred Hutchinson Cancer Center, Seattle, WA



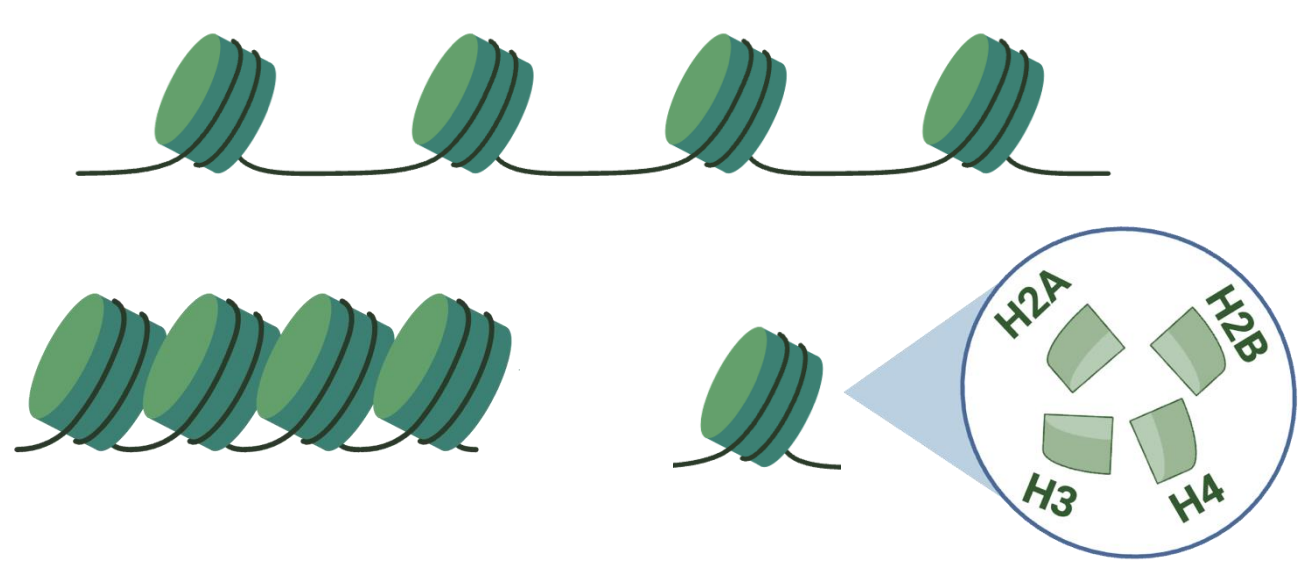
## Background

### Quiescence (Q)

- Reversible exit from cell cycle
- In yeast triggered by starvation



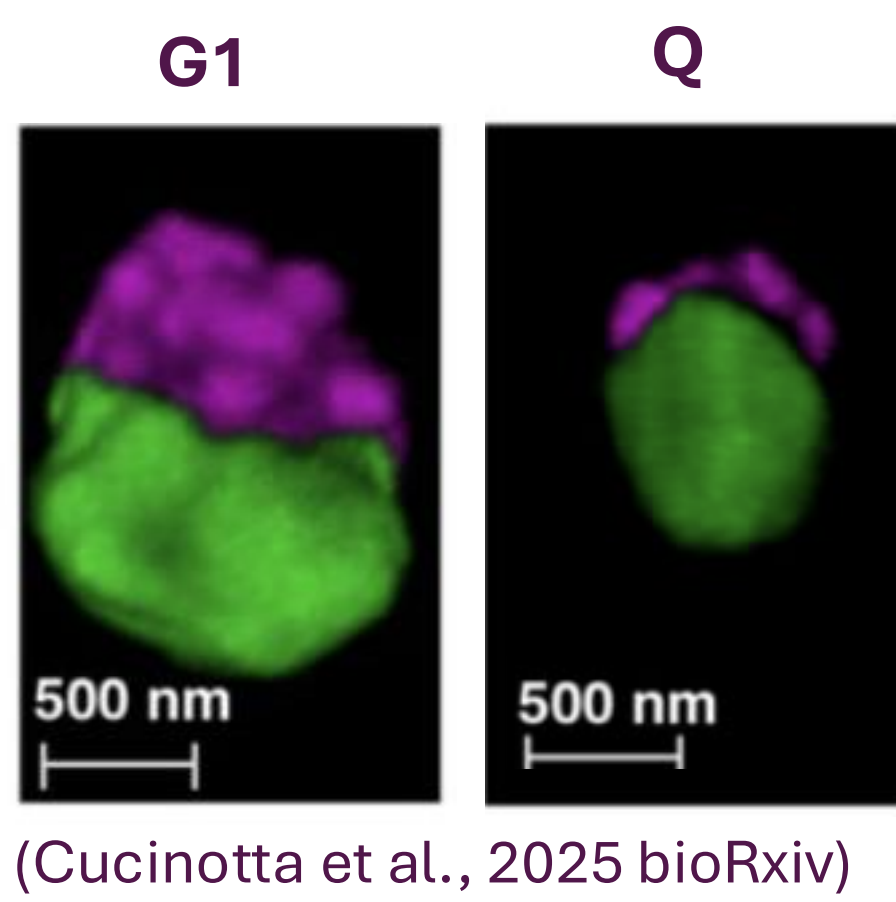
### Chromatin



- Eukaryotic DNA is wrapped around nucleosomes
- Q cells have condensed (inactive) chromatin

### rDNA locus

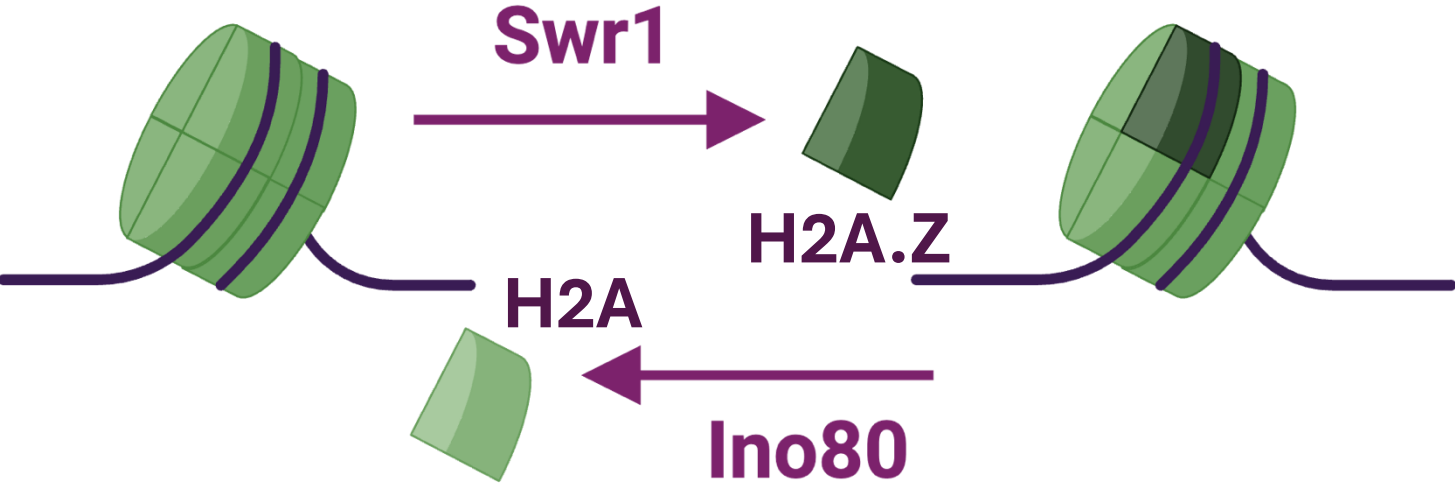
- rDNA = ribosomal DNA
- 150 copies in yeast
- Highly transcribed in cycling cells
- rDNA locus more condensed in Q



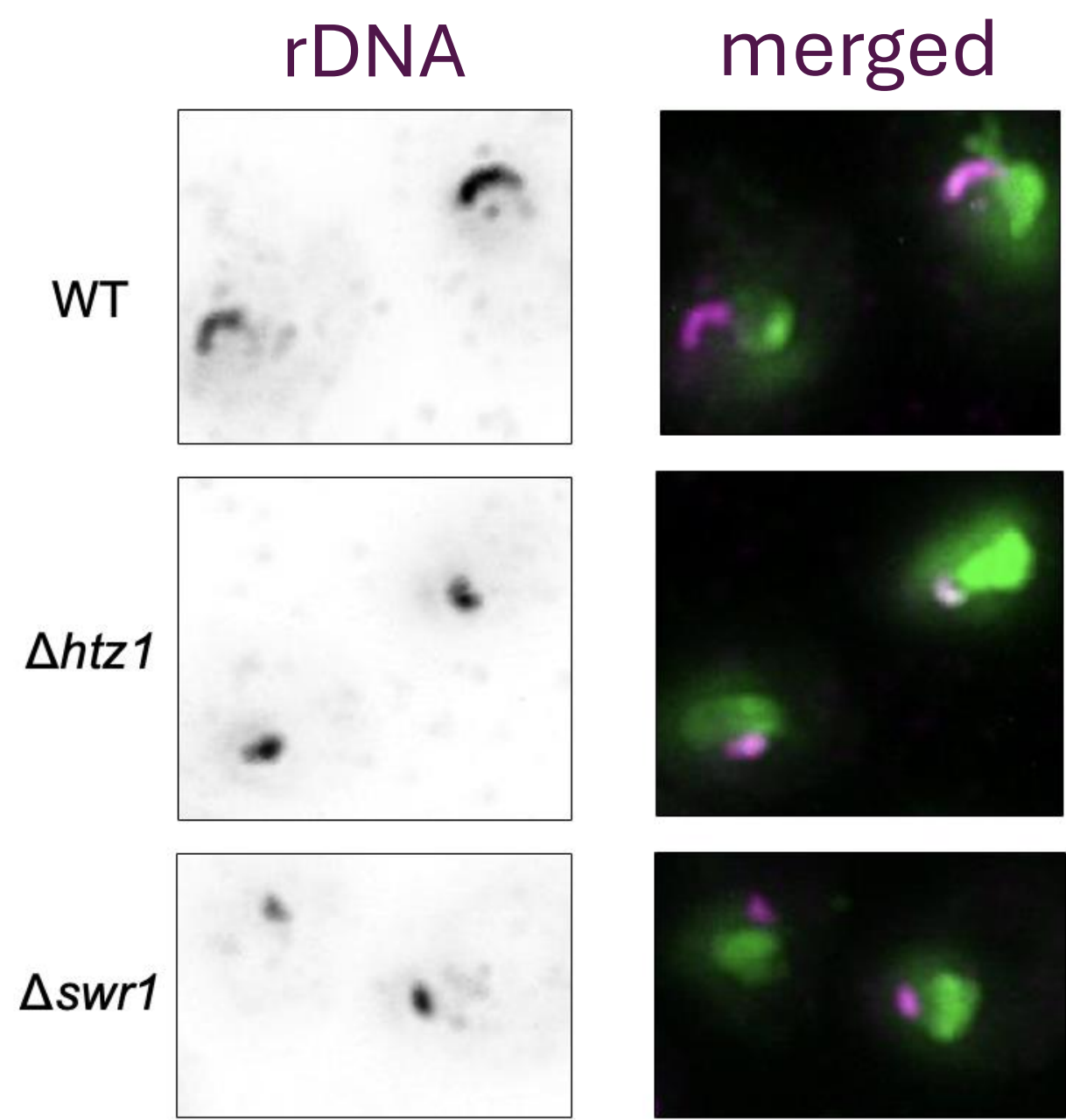
green = chromatin  
purple = rDNA

### Previous Results

- *HTZ1* (H2A variant, H2A.Z in mammals) deposited by Swr1 and removed by Ino80



- *SWR1* or *HTZ1* KO lead to further rDNA compaction

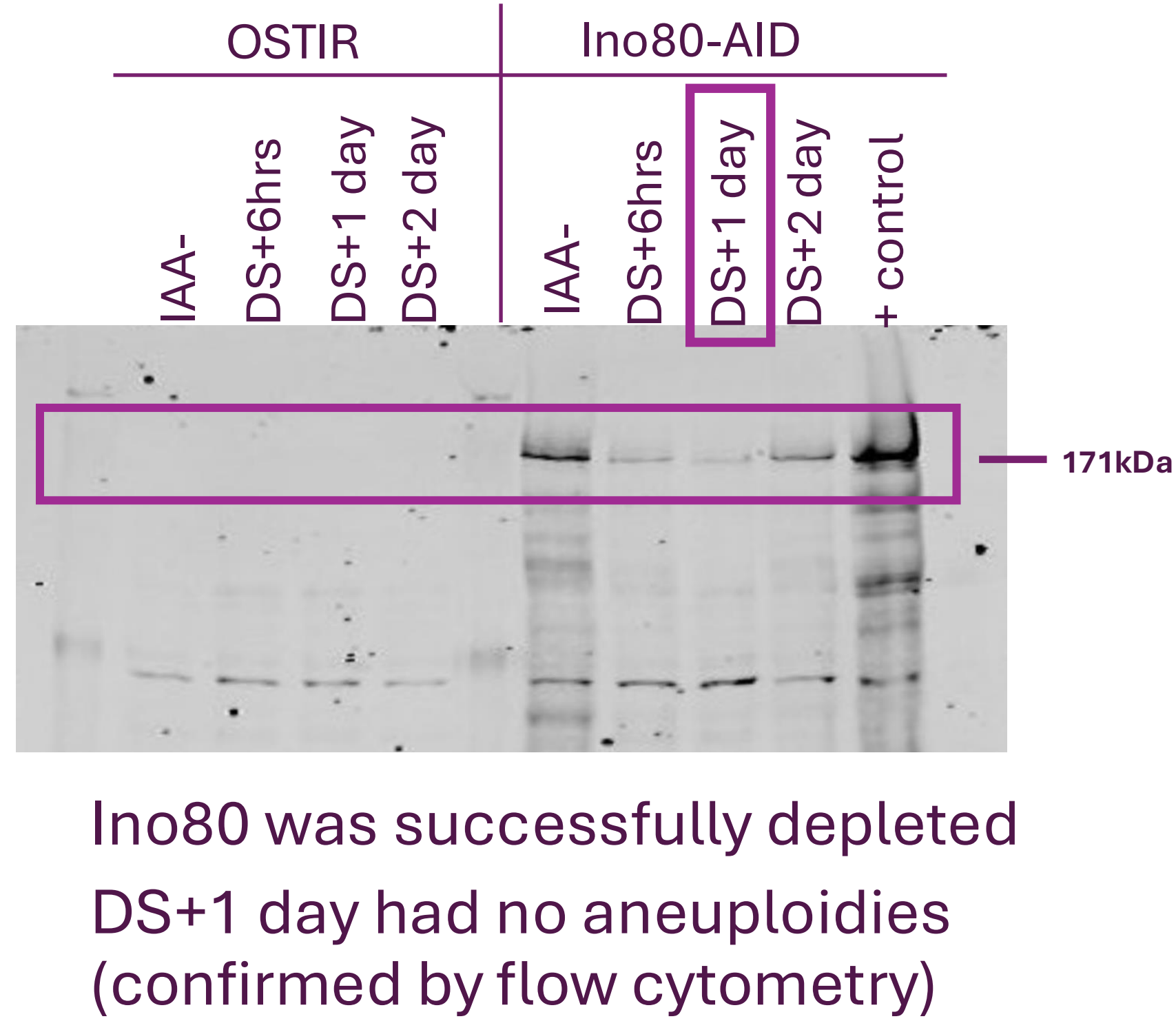
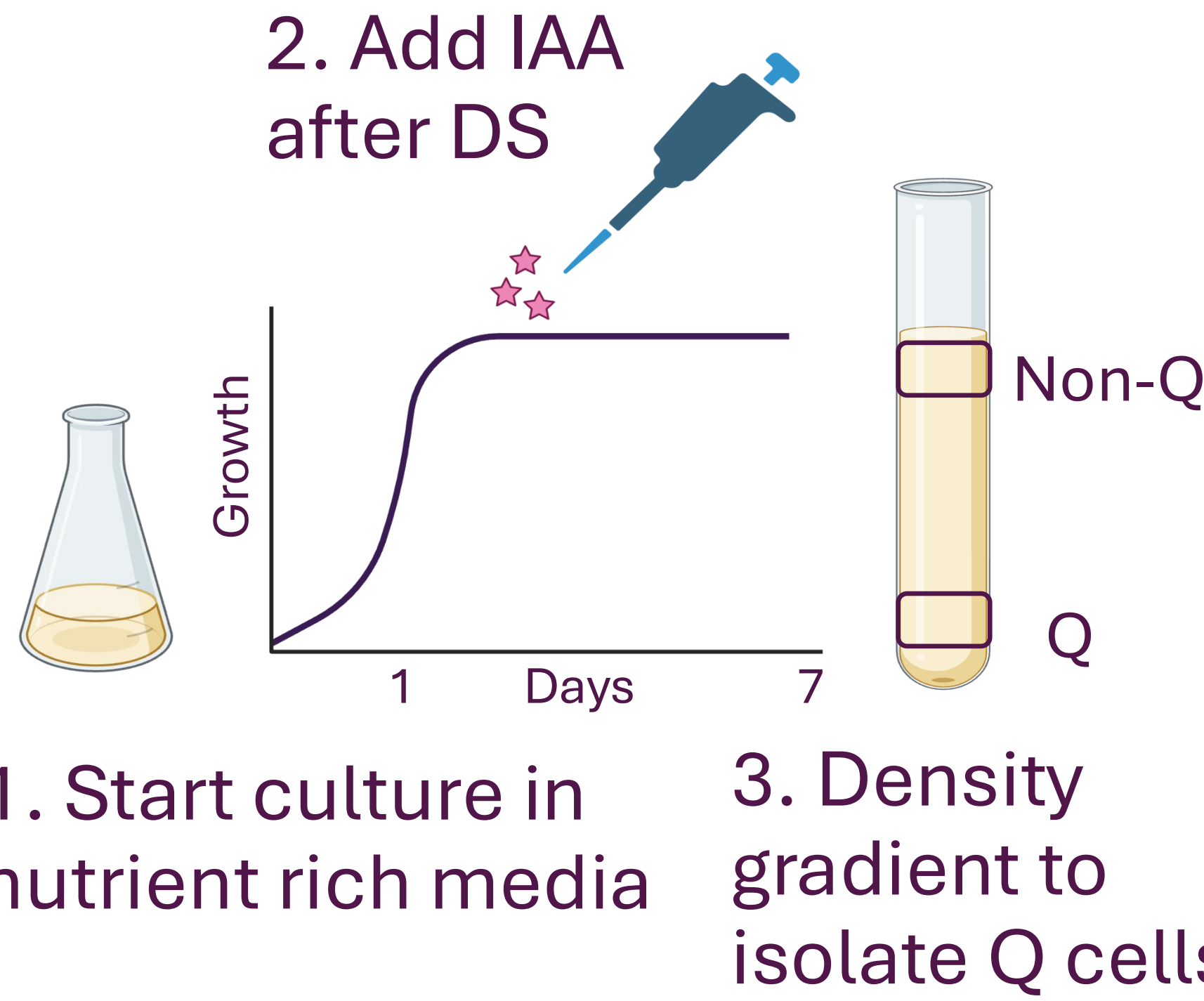
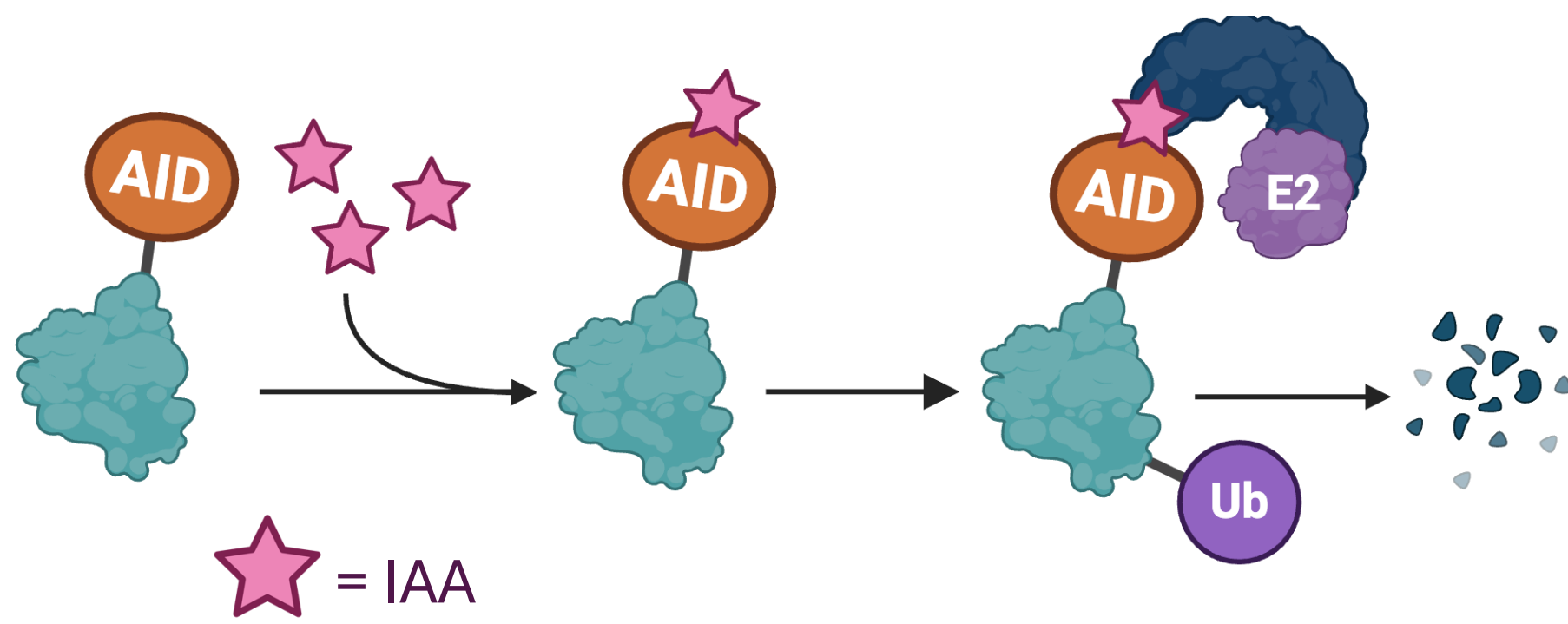


**Research Question:** What will depletion of Ino80 do to the rDNA structure?

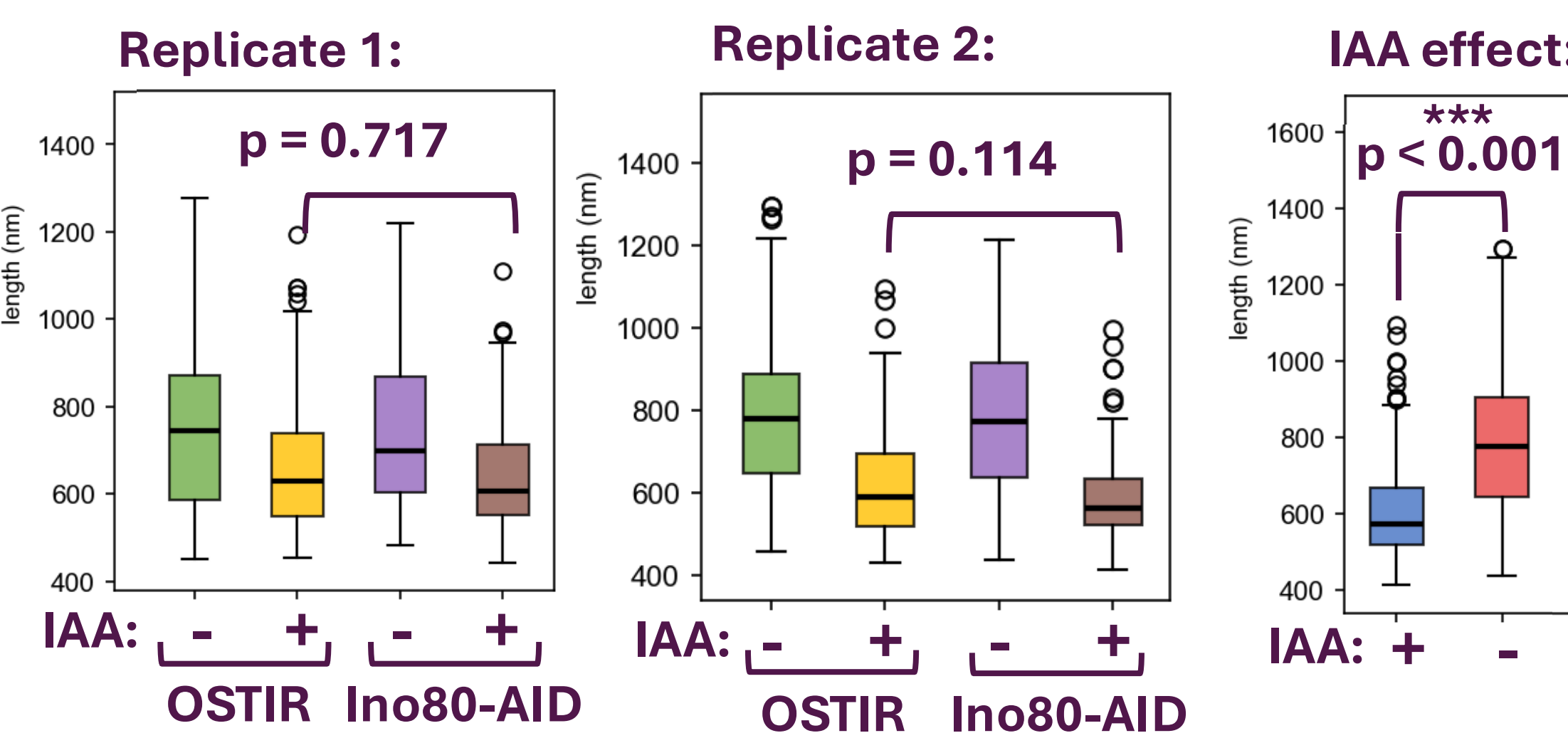
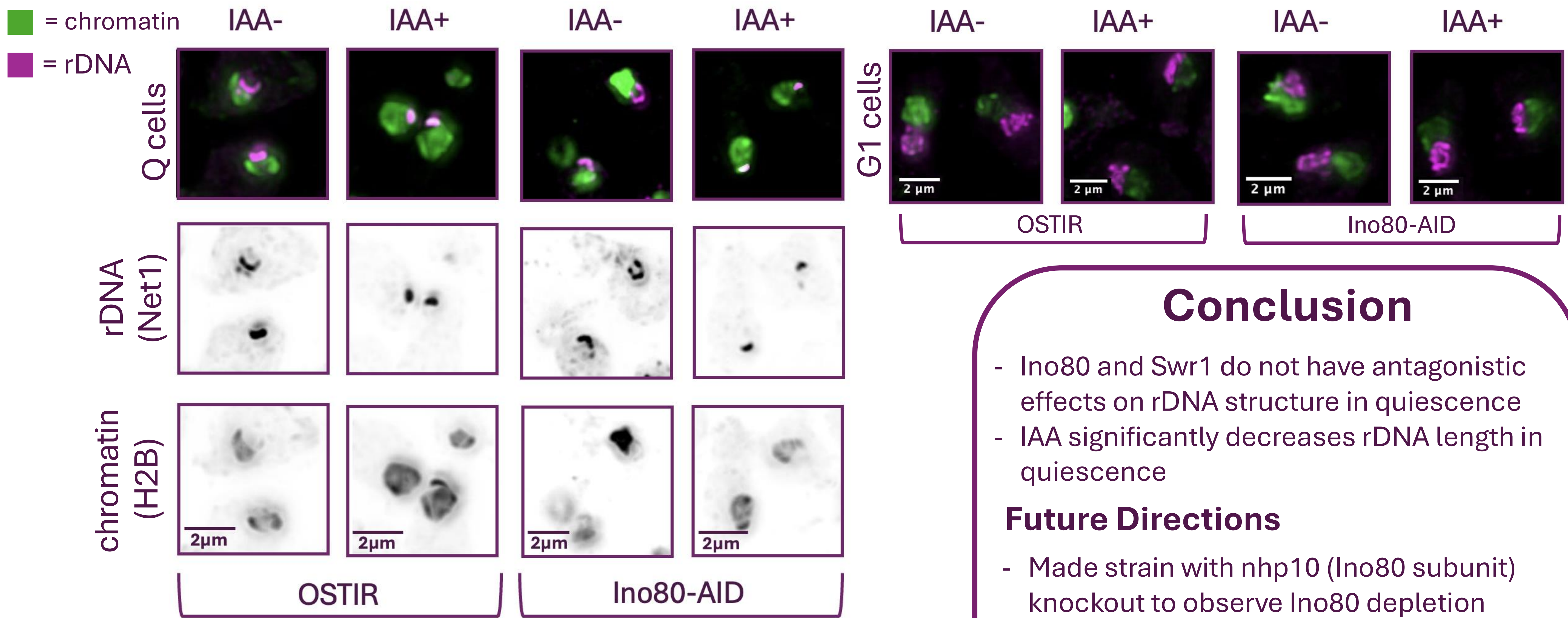
**Hypothesis:** Ino80 depletion will result in decompaction of the rDNA locus

## Methods

- Ino80 essential in cycling cells
- Conditional knock down by AID tag
- IAA added after diauxic shift (DS)



## Results



- OSTIR IAA+ and Ino80-AID IAA+ are not significantly different
- IAA+ and IAA- are significantly different

### Conclusion

- Ino80 and Swr1 do not have antagonistic effects on rDNA structure in quiescence
- IAA significantly decreases rDNA length in quiescence

### Future Directions

- Made strain with nhp10 (Ino80 subunit) knockout to observe Ino80 depletion without IAA effect
- Does Ino80 affect rDNA structure in absence of Swr1?
- How about other remodeling factors?

### Acknowledgements

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