

XPF-TOP2B interact to facilitate R-loop-mediated DNA looping and transcription activation

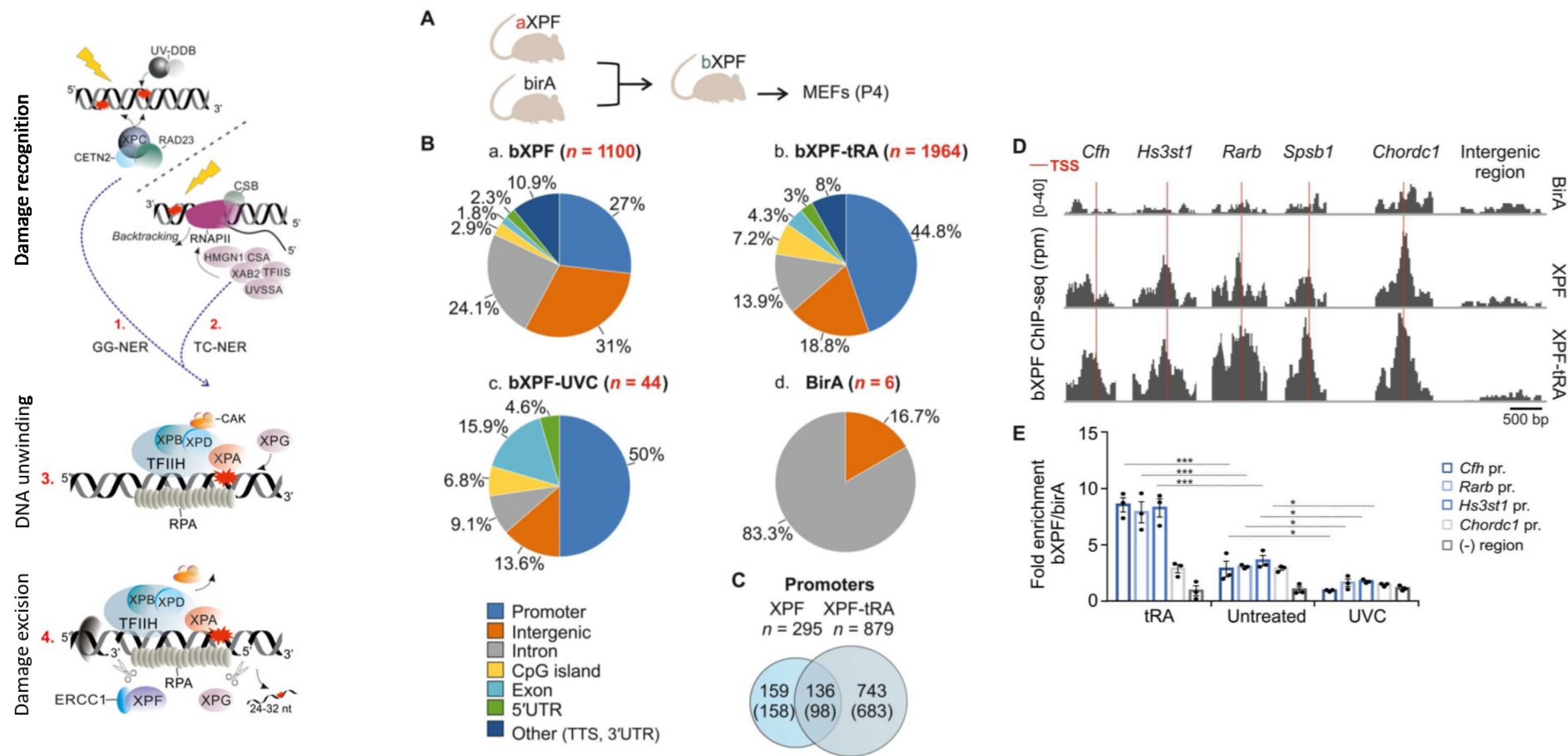
Callina Stratigi, PhD

Garinis Lab – Genome (In)stability and Mammalian Physiology

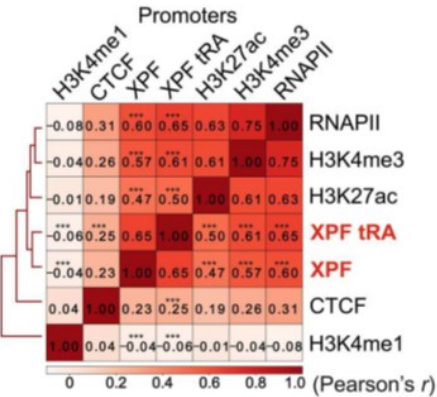
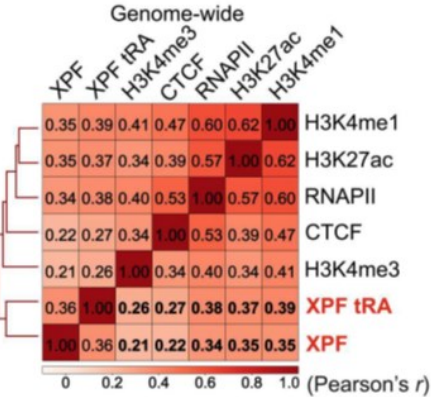
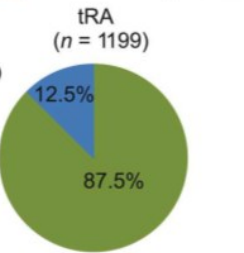
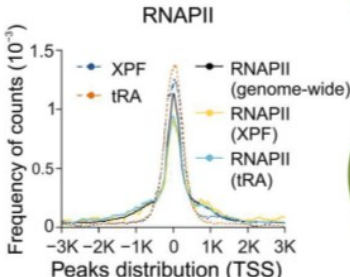
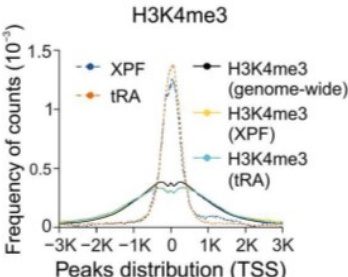
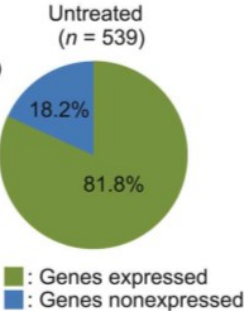
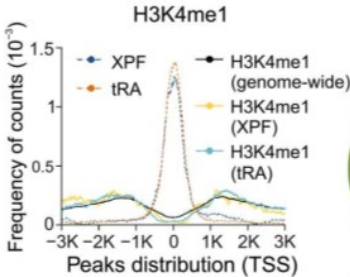
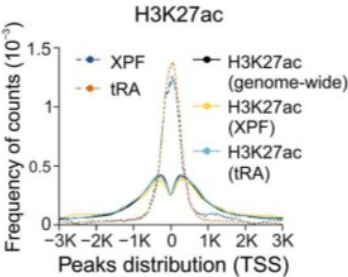
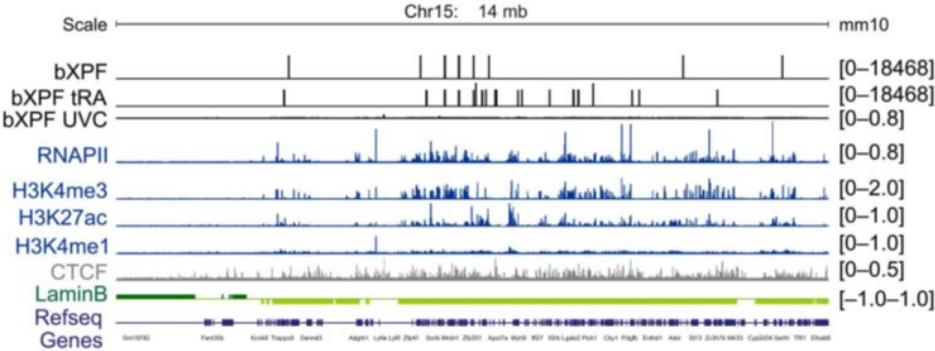
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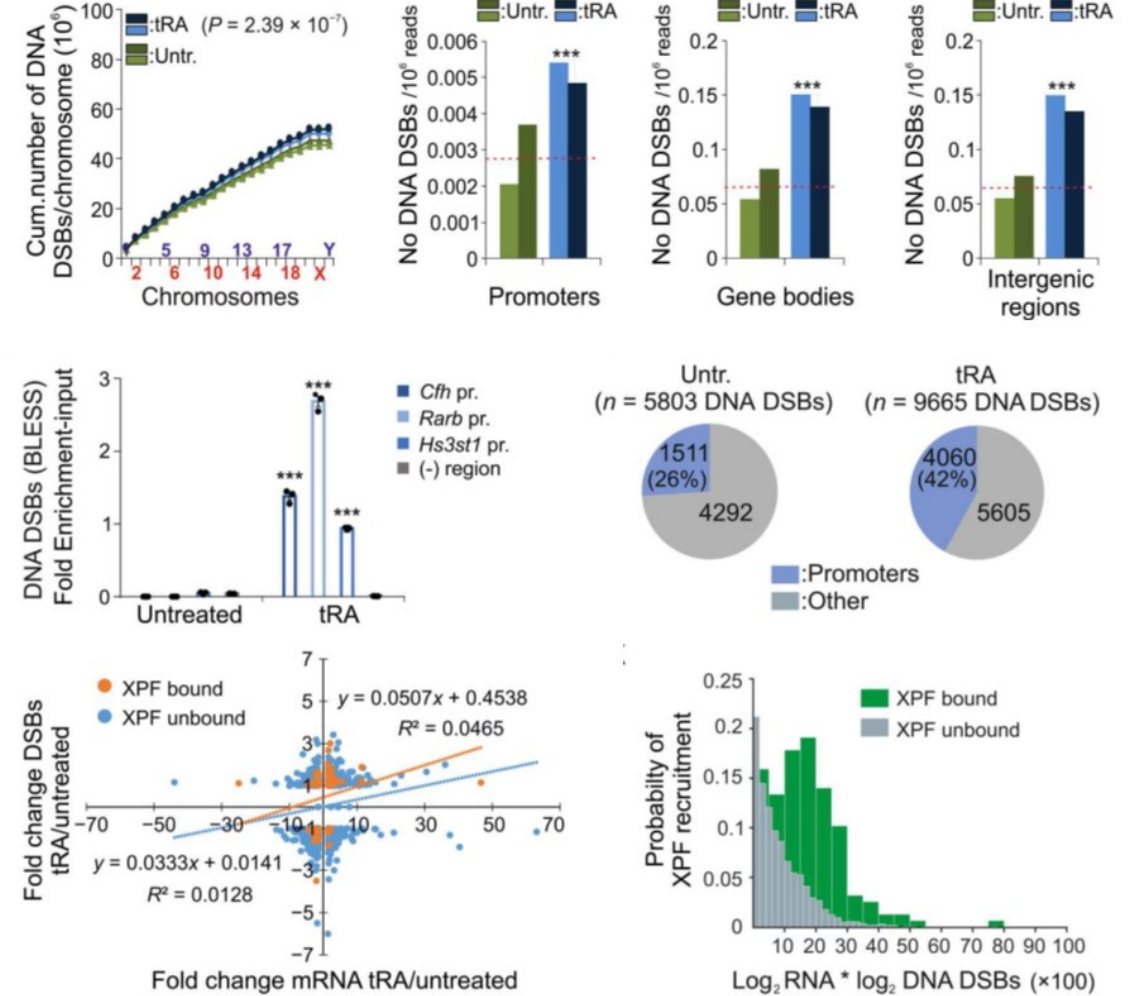
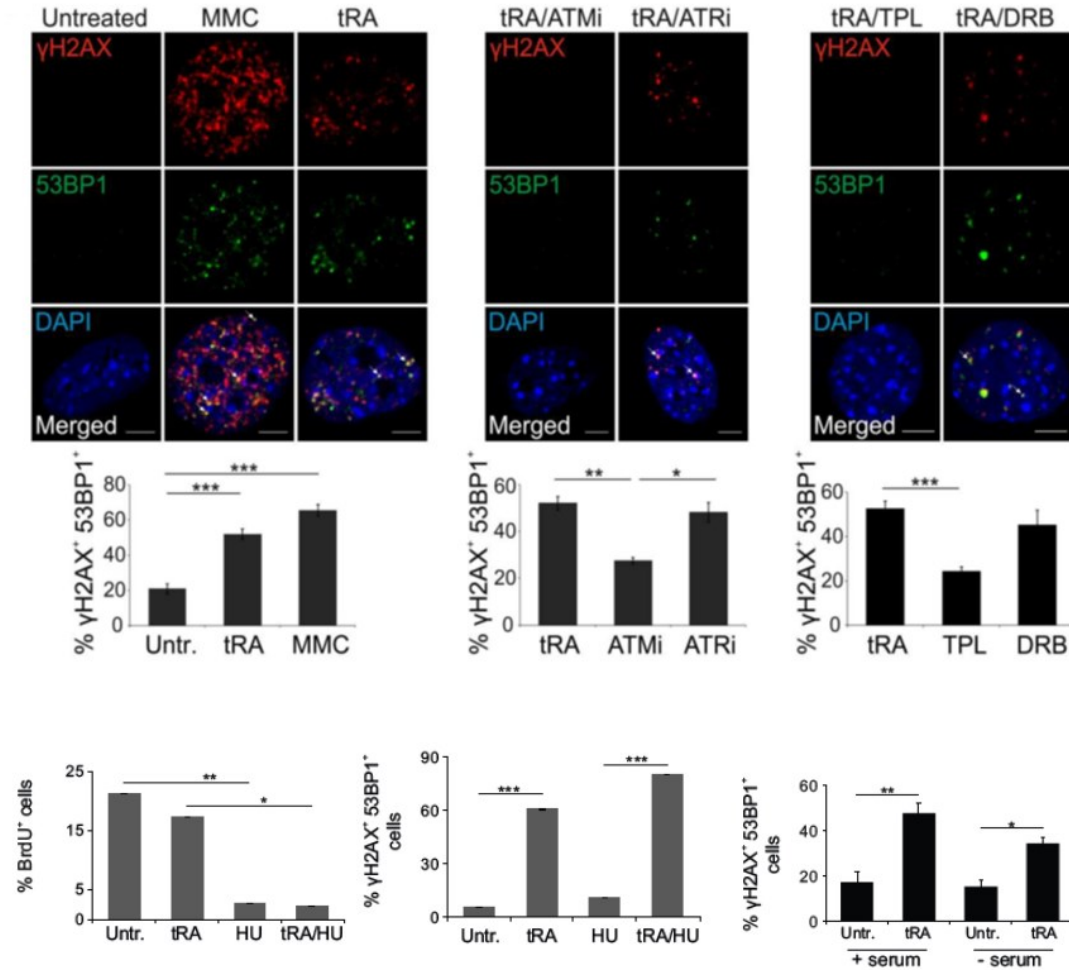
Transcription activation and UVC irradiation differentially recruit XPF to DNA



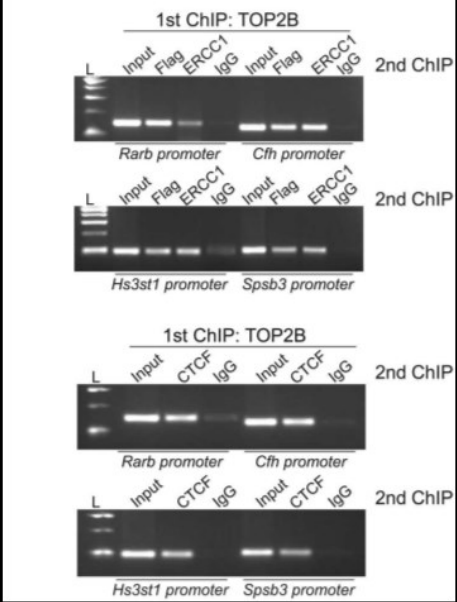
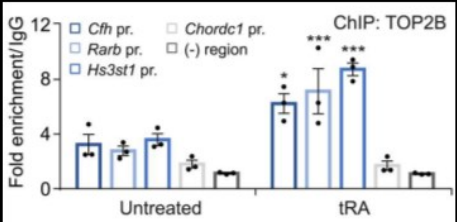
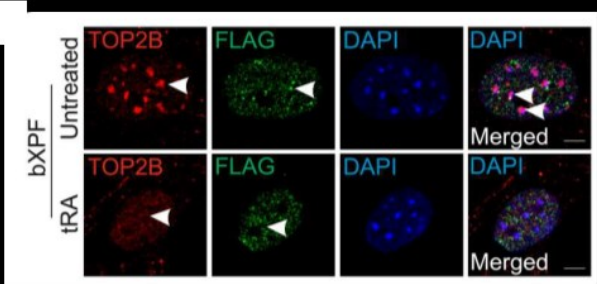
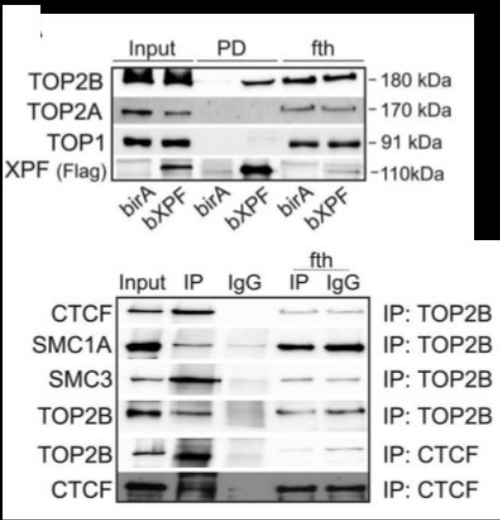
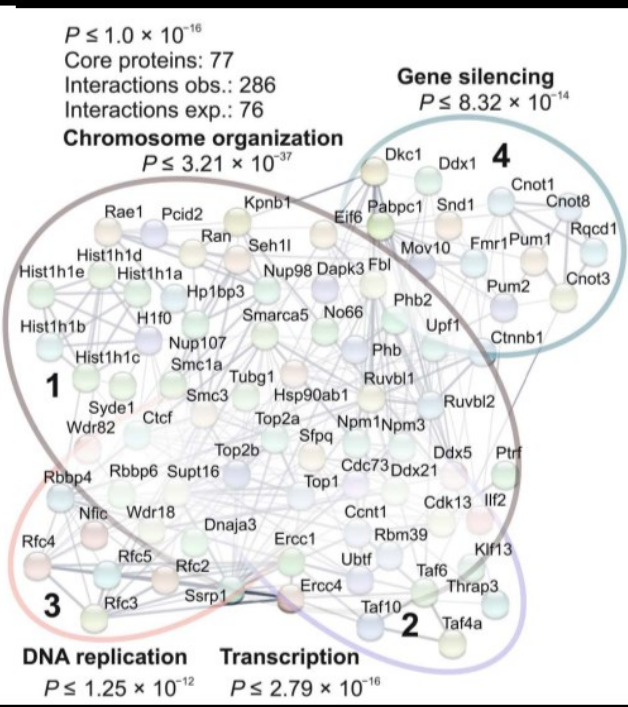
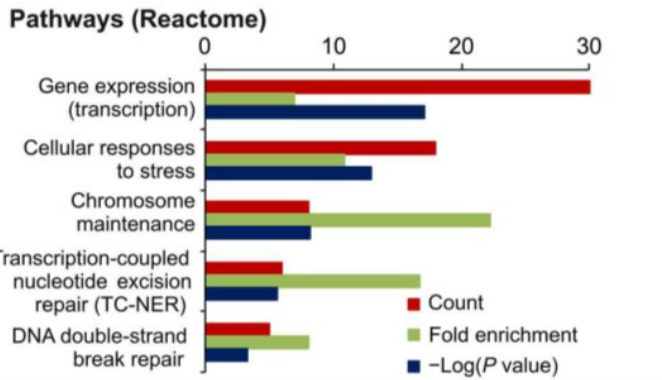
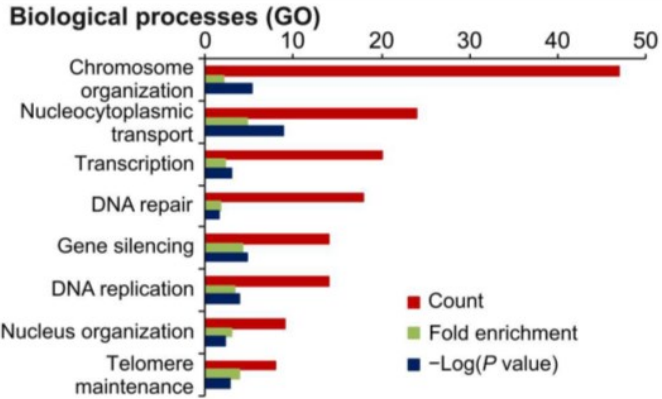
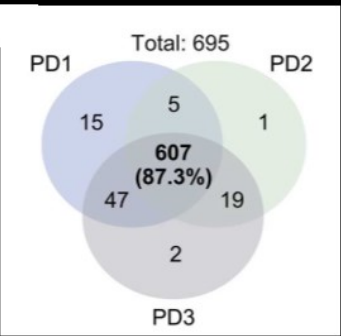
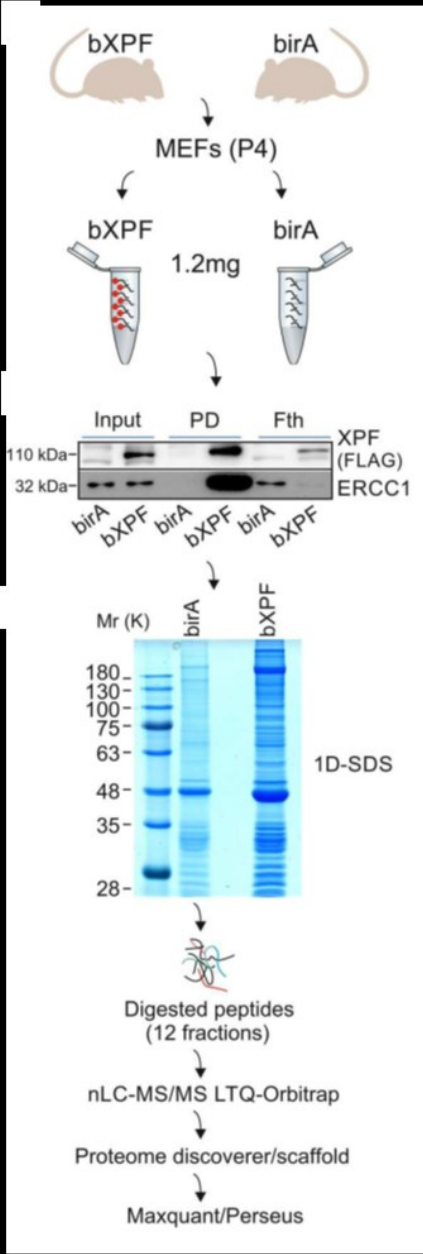
XPF recruitment on DNA coincides with RNAPII and active histone PTMs



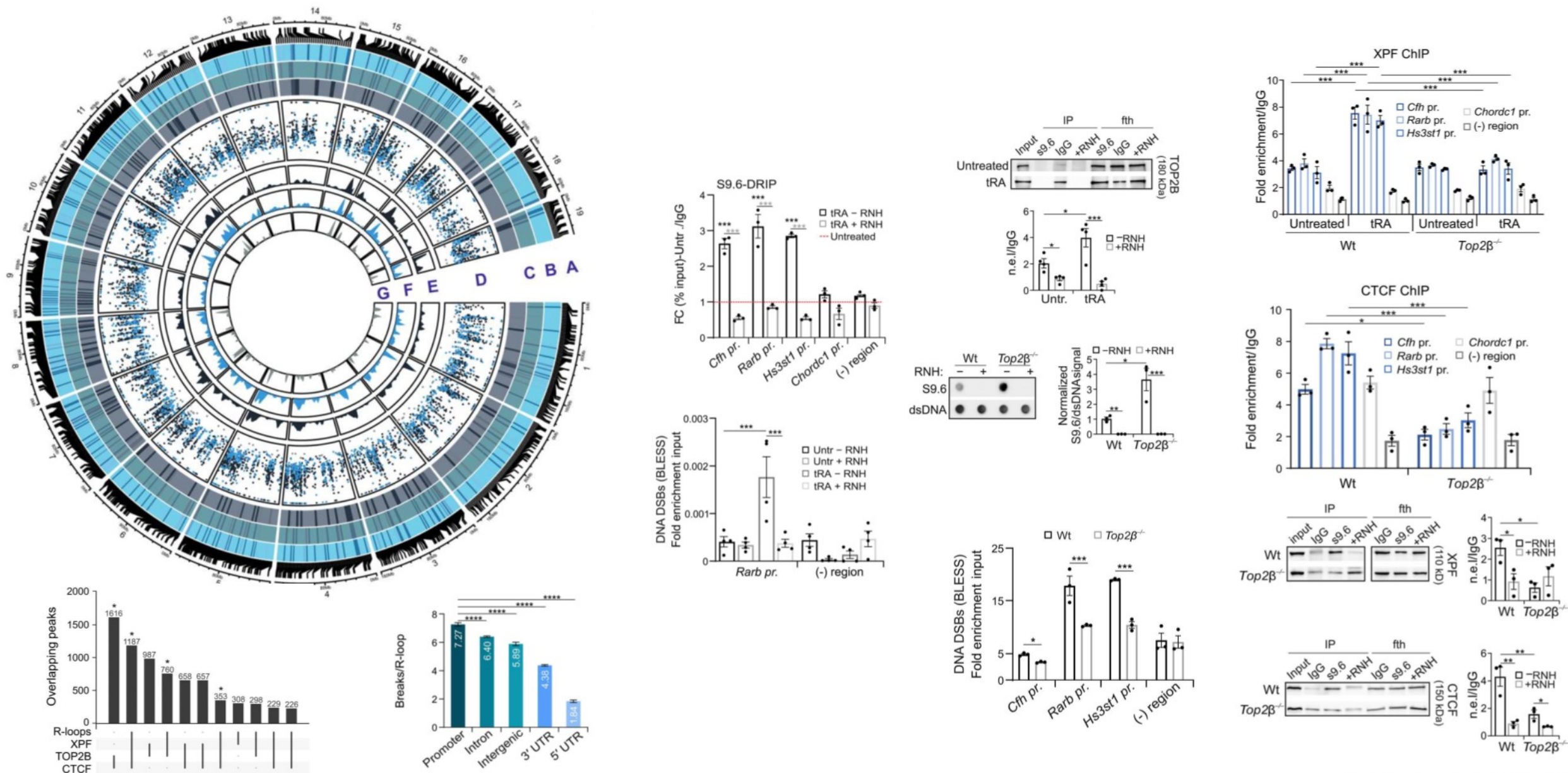
XPF is preferentially recruited to transcription-associated DNA breaks on promoters



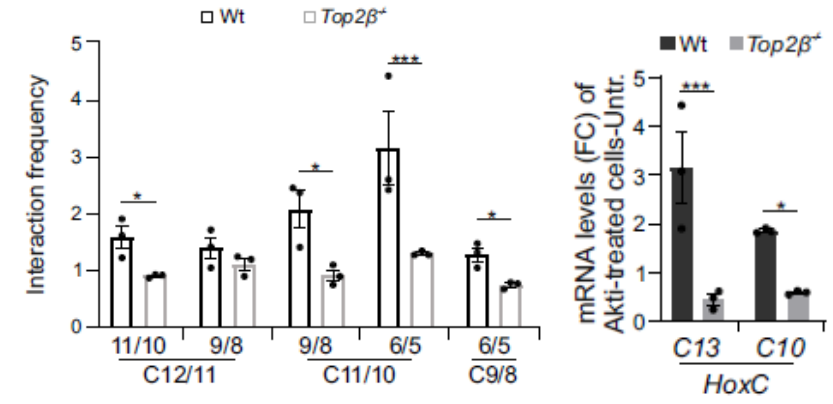
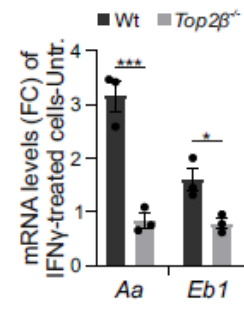
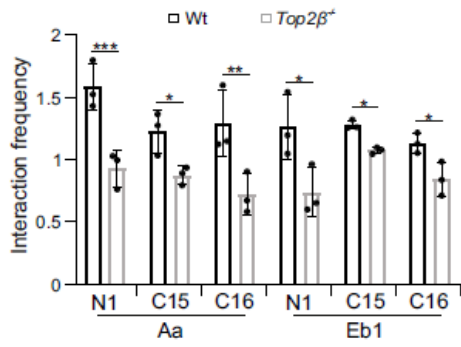
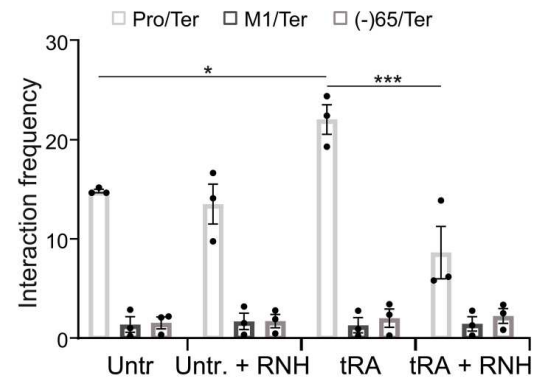
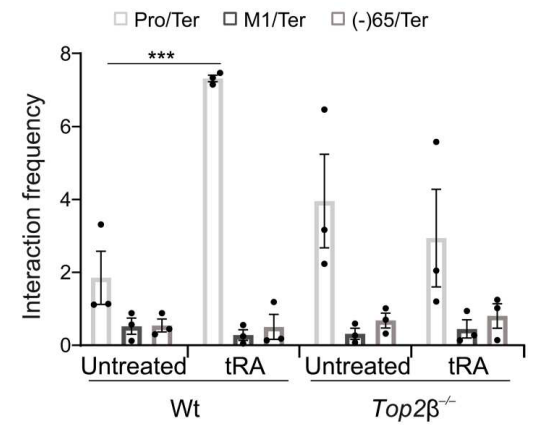
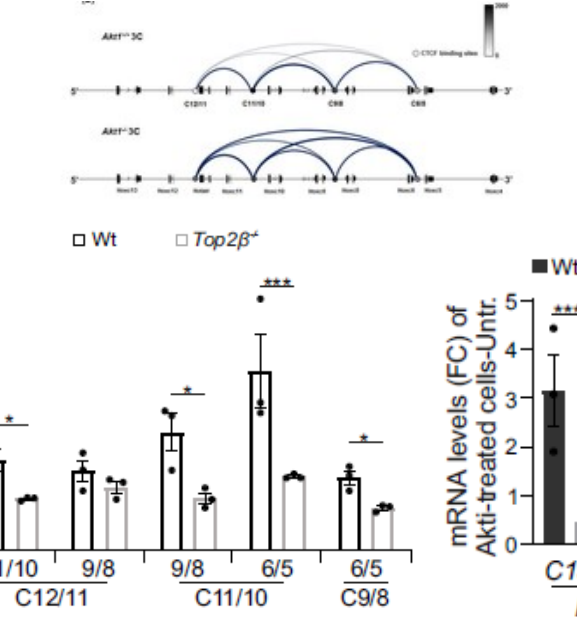
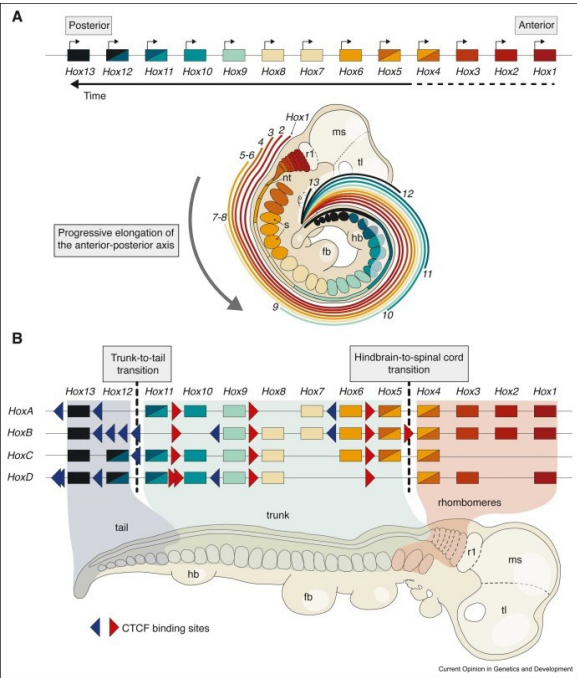
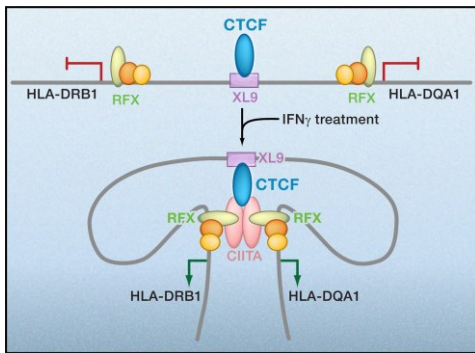
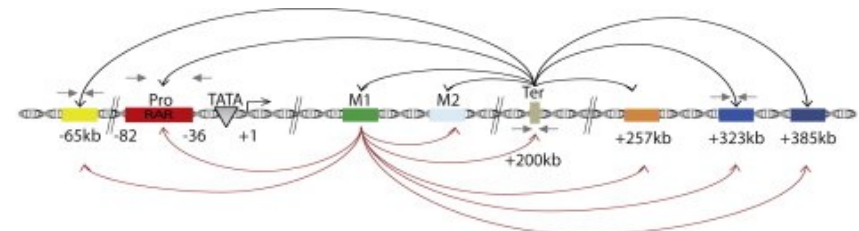
XPF-bound protein partners involved in chromosome organization, transcription and DNA repair



XPF processes transcription-associated R-loops in a TOP2B-dependent manner



R-loop processing is essential for CTCF-mediated DNA looping and transcription activation



XPF interacts with TOP2B for R-loop processing and DNA looping on actively transcribed genes

- XPF and TOP2B interact on active gene promoters
- XPF and TOP2B facilitate R-loop processing on the promoters of actively transcribed genes
- Abrogation of TOP2B leads to diminished XPF and CTCF binding on the promoters and on R-loops
- R-loop processing is essential for CTCF-mediated DNA looping and transcription activation

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Thank
You!

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