BDR SEMINAR (Kobe & online hybrid)

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Monday, December 12, 2022

14:00-15:00

1F Auditorium, DB Building C, Kobe / Broadcast online via Zoom

Zoom meeting URL will be announced on the event day by e-mail.

※Non-BDR members: Please register from the following link.
https://krs1.riken.jp/m/bdrseminarregistration (Registration deadline: Dec 8)

Chromatin status modulator SAF-A is required for robust DNA replication and cell proliferation

Summary

Scaffold Attachment Factor A (SAF-A; also known as Heterogeneous Nuclear Ribonucleotide Protein U) is required for open chromatin at transcriptionally active sites, but does not itself directly activate transcription. SAF-A is chromatin-associated during interphase and its dissociation is required for chromatin compaction during mitosis. SAF-A is also involved in X-chromosome inactivation. SAF-A is believed to modulate chromatin status by tethering chromatin-associated RNAs to chromatin.

We have discovered that SAF-A is required at several steps for robust DNA replication, both in unperturbed conditions and under replication stress. We found that SAF-A is required for full licensing in the G1 phase, normal origin activation in the S phase, and for replication fork processivity under replication stress conditions. SAF-A is also required to prevent spontaneous replication stress under unperturbed conditions. Collectively, these SAF-A functions are required to prevent cells from entering quiescence. We will report details of how SAF-A is required for robust DNA replication and keeps cells from entering quiescence (G0).

GTEx human genomics study has reported multiple alternative splicing variants for SAF-A mRNAs. Our preliminary investigation suggests different splicing variants may play different roles in DNA replication and cell proliferation. We will update on our investigations of how SAF-A mediates robust DNA replication, the involvement of different splice variants, and how SAF-A keeps cells from entering quiescence.

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