

グローバルCOE特別セミナー

分子細胞生物学研究所セミナー

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演題: **Insights into how chromatids stay together by breaking them up**

日時: 11月5日(月) 15:00~16:00

場所: 東京大学分子細胞生物学研究所総合研究棟2階会議室

The protein complex cohesin mediates sister chromatid cohesion, which is essential for the high fidelity of genome segregation. In addition to its segregation function, cohesin is also required for post-replicative repair of DNA double strand breaks (DSB). Our studies of DSB-induced cohesion demonstrate that the generation of cohesion is a two-step process involving cohesin binding followed by conversion of bound cohesin to a “cohesive” state. In addition sister chromatid cohesion is regulated through a central hub, the Mcd1/Scc1/Rad21 subunit, which undergoes distinct post-translational modifications to modulate both cohesion establishment as well as dissolution. Finally we will discuss our current studies on genome and chromosome integrity.

- 1) DNA damage response pathway uses histone modification to assemble a double-strand break specific cohesin domain. *Molecular Cell* 16:991-1002 (2004).
- 2) A multi-step pathway for the establishment of sister chromatid cohesion. *PloS Genetics* Jan 19;3(1):e12 (2007).
- 3) DNA double-strand breaks trigger genome-wide sister-chromatid cohesion through Eco1(Ctf7). *Science* 317, 245-248 (2007).

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