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

演者: **Bungo Akiyoshi 博士**

Fred Hutchinson Cancer Research Center, USA

演題: **Toward reconstitution of chromosome segregation in vitro**

日時: 10 月 13 日 (水)11:00ー12:00

場所: 東京大学分子細胞生物学研究所　IML 棟 3 階大会議室

Faithful transmission of genetic material is essential for the survival of all living organisms. In eukaryotes, chromosome segregation is directed by the kinetochore, the macromolecular protein complex that assembles onto the centromere and interacts with spindle microtubules. Accurate segregation requires that sister kinetochores form bioriented attachment to microtubules emanating from opposite poles. Kinetochores also serve as the signaling hub that controls the cell cycle progression. Understanding the molecular mechanism of kinetochore biology has been hindered by the inability to purify intact kinetochores from any organism. In my graduate work, I developed complementary methods to purify kinetochores from budding yeast. These studies revealed distinct composition and modifications of kinetochores under different conditions. I also describe the reconstitution of dynamic microtubule attachment using purified kinetochores and single-molecule techniques, as well as novel insights obtained from these study.

1) Akiyoshi B, Nelson CR, Ranish JR, and Biggins S. ***Genes Dev*** (2009) Quantitative proteomic analysis of purified yeast kinetochores identifies a PP1 regulatory subunit.
2) Akiyoshi B, Nelson CR, Ranish JR, and Biggins S. ***Genetics*** (2009) Analysis of Ipl1-mediated phosphorylation of the Ndc80 kinetochore protein in Saccharomyces cerevisiae.
3) Akiyoshi B*, Sarangapani K*, Powers AF*, Nelson CR, Reichow SL, Arellano-Santoyo H, Gonen T, Ranish JR, Asbury CL, and Biggins S. ***Nature*** (in press) Direct stabilization of reconstituted kinetochore-microtubule attachments by tension.

幹事:染色体動態研究分野(渡邊研究室)

主催:東京大学分子細胞生物学研究所

共催:グローバル COE