発生ダイナミクス分野主催セミナー
Developmental Dynamics Seminar

Mechanism of microtubule-based centrosome cohesion and separation

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(Katahira) Life Sciences Project Research Laboratory, Room 103
片平・生命科学プロジェクト研究棟　1階 103会議室

The centrosome is the main microtubule-organizing center of animal cells. By nucleating and anchoring microtubules, the centrosome controls microtubule-dependent processes including intracellular transport, cell shape, polarity and migration as well as chromosome segregation. During interphase, two centrosomes are connected together by the centrosomal linker, a network of proteins, into one microtubule organizing unit. In late G2 phase or with mitotic onset, this linker is resolved by the action of kinases. This allows the two centrosomes to be separated by the Eg5 plus-end directed kinesin for making a bipolar spindle. Recently, we found that, even if the centrosomal linker is not present or functional, the two centrosomes are kept close together via the action of microtubules during interphase. However, the mechanism underlying the microtubule-based centrosome cohesion remains unclear. In this seminar, I will show that a minus-end directed motor protein functions as a critical component of the cohesion machinery.

I will also propose the novel concept that the timing of centrosome separation is determined by the balance between inward and outward forces generated by the minus- and plus-end directed motors.

This seminar will be held in English.

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