京都産業大学タンパク質動態研究所セミナー

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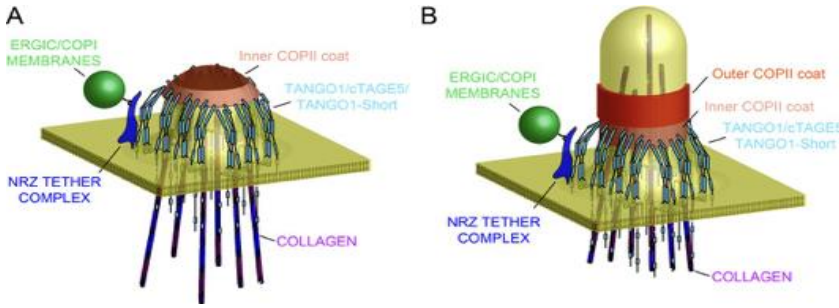
【場所】京都産業大学 15号館1階15102セミナー室

【講師】Dr. Vivek Malhotra

CRG, Centre for Genomic Regulation (Barcelona, SPAIN)

【演題】Building a machine for secretion of bulky collagens from endoplasmic reticulum

How are collagen's bulky cargoes that are too big to fit into a conventional COPII vesicle exported from the ER? Our discovery of TANGO1 (Bard, *Nature* 2006; Saito, *Cell* 2009), a ubiquitously expressed, ER-exit-site-resident, transmembrane protein has made the pathway of collagen secretion amenable to molecular analysis. TANGO1 acts as a scaffold to connect collagens in the lumen to COPII coats on the cytoplasmic side of ER. However, the growth of the collagen containing mega transport carrier is not simply by accretion of a larger COPII coated patch of ER membrane, but instead by rapid addition of premade small vesicles. We have seen that TANGO1 rings the ER exit site and thus organizes a sub compartment within the ER. We have now mapped all the components that work in concert along with the cargo to assemble TANGO1 into a ring, suggesting that export of bulky collagens is by direct connection of ER exit site to the Golgi via transient tunnels created by the function of TANGO1.



Model of TANGO1 ring assembly at an ERES.
(**A**) TANGO1-family proteins assembly into a ring at an ERES is mediated by interactions. TANGO1 delays the binding of the outer COPII coat to allow a mega carrier to form. (**B**) The cytoplasmic bud grows to a size that encapsulates collagen trimers. In this form, we suggest that the neck of this tubule is covered in the inner COPII coat bound to TANGO1, which prevents premature recruitment of outer COPII coat, thereby controlling the timing of membrane fission.

※本講演は英語講演となります。通訳はありませんので、ご注意ください。

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