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生命科学セミナー

(植物生殖遺伝分野担当: 第17回)

(生命科学研究科単位認定セミナー: 2ポイント)

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場所: 生命科学研究科・本館大会議室(片平・3F)

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Cellular signaling responses in the stigma following self-incompatible and compatible pollinations in *Brassica* and *Arabidopsis*

In the Brassicaceae, the stigmatic papillae have cellular recognition systems for optimal pollen grain selection which include a general recognition of compatible pollen as well as the self-incompatibility system to reject 'self' pollen. These recognition systems are activated early post-pollination to regulate pollen hydration and pollen tube penetration through the stigmatic papillae. Following 'self' pollination, the self-incompatibility response is initiated by the stigma-specific *S* Receptor Kinase (SRK) with binding of the pollen ligand, SP11/SCR. SRK is then proposed to activate an intracellular signaling pathway in the stigmatic papilla which includes the *M* Locus Protein Kinase (MLPK) and the ARC1 E3 ubiquitin ligase. To further understand how ARC1 participates in this signaling pathway, we have screened for ARC1 protein substrates, and one substrate has been identified as Exo70A1, a predicted subunit of the exocyst complex. In other systems, the exocyst complex functions as a tethering complex to dock vesicles at the plasma membrane during regulated or polarized secretory events. We are currently investigating the role of Exo70A1 in the stigma in response to self-incompatible and compatible pollinations in *Brassica* and *Arabidopsis*. We have found that Exo70A1 is required in the stigma for the compatible pollen response and is negatively regulated by ARC1 during the self-incompatibility response.

なお、不明な点は、生命科学研究科・植物生殖遺伝分野・渡辺 (nabe@ige.tohoku.ac.jp) までお願いします。
共催: 特定領域研究「植物ゲノム障壁」、若手研究(S)「アブラナ科自家不和合性」、新農業プロジェクト



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