

論文内容の要旨

論文題目: The molecular genetic study of inflorescence development using
corymbosal mutants in *Arabidopsis thaliana*.

(訳: シロイヌナズナ散房花序様変異体 *corymbosal* を用いた花序形態形成機構の
研究)

氏名: 山口 暢俊

本文: The inflorescence architecture that has puzzled scientists for centuries is a highly ordered branching pattern. Stem development is one of the most important processes for determination of inflorescence architecture. However, the molecular mechanism of this regulation is still largely unknown. By the previous screening in the laboratory to which I belong, two *Arabidopsis* corymb-like mutants, *corymbosal* (*crm1*) and *crm2* were identified. Despite the importance of characterization of *crm1* to understand the stem development, it has not been carried out. Therefore, I decided to utilize this mutant as a means for my study on stem development in *Arabidopsis thaliana* and took three approaches to elucidate yet to be answered questions regarding the *CORYMBOSA1* (*CRM1*) function. First, I performed the characterization of *crm1* mutants and the cloning of responsible genes.

I found a role of CRM1/BIG-mediated auxin action for stem development. Second, I investigated the effect of additional auxin or auxin transport inhibitor on auxin transport, auxin gradients and morphology, and characterized the phenotype in auxin-related mutants or transgenic plant. I obtained solid evidence that auxin action is critical for stem development. Third, I identified a suppressor mutant of *crm1* inflorescence phenotype. By utilizing a variety of methods, I found a mechanism for regulating the orientation in pedicel and fruit.

The obtained data and new genetic resources through this study will be valuable for future studies on stem development.