

分子生物学科セミナー

Seminar in the Department of Biochemistry and Molecular Biology



Genetic regulation of flowering time in *Cannabis sativa*

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Date	November 4 (Wed) 3:00 p.m.
Venue	Zoom meeting (QR)
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Flowering time is a major determinant of plant architecture in *Cannabis sativa*, an increasingly important medicinal and industrial crop. The differentiation of the apical meristem into a terminal flower arrests vegetative growth and sets final plant height, with earlier flowering producing shorter, more compact plants suited to dense indoor cultivation. While the genetics of photoperiod insensitivity in autoflowering types is increasingly resolved, the determinants of flowering time variation within photoperiod-sensitive *Cannabis* remain largely undefined. This seminar examines the genetic basis of this variation through three complementary approaches. First, re-analysis of published datasets against a common reference genome generated an integrated map that places previously incomparable QTL in a shared reference frame and identifies novel, co-located flowering time QTL. Second, crosses between early- and late-flowering accessions produced F2 populations whose segregation for terminal flowering departed from Mendelian expectations, consistent with control by a few interacting loci. Third, bulked segregant analysis was applied to early- and late-flowering pools, and comparative transcriptomic and co-expression analysis of the parental genotypes nominated candidate regulators whose expression is co-ordinated with the transition to terminal flowering. Together these results provide a common-reference map and a shortlist of candidate regulators for functional validation.

Laura Steel博士は、オーストラリア・La Trobe大学に所属し、植物の成長や発達を制御する遺伝的メカニズムの解明に取り組んでいます。特に、医療用・産業用大麻の開花時期を決定する遺伝的要因に着目し、遺伝解析やトランスクリプトーム解析を通じて、開花制御の分子基盤を研究しています。また、現在は宇宙環境での持続可能な食料生産を目指す研究拠点「ARC Centre of Excellence in Plants for Space」に参画し、閉鎖環境での高効率栽培に適した矮性トマトの開発にも取り組んでいます。今回のセミナーでは、大麻の開花時期に関わるQTLの統合解析、交配集団を用いた遺伝解析、遺伝子発現解析などの最新の研究成果を紹介し、開花時期の遺伝的制御と植物の栽培特性を改良する可能性についてお話しいただきます。

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