



JSPS 先端学術研究人材養成事業セミナー・
新学術領域研究 第13回 配偶子制御セミナー

Mechanism and Evolution of Reproductive Plasticity in the Pea Aphid *Acyrtosiphon pisum*

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場所：基生研会議室 111

Dr. Dayalan は、岡崎3研究所で行っている、JSPS 先端学術研究人材養成事業「環境に対する生物の応答機構」の一環として、国際共同研究のために基生研に3ヶ月間滞在しています。ゲノムが解読され、環境応答研究の新モデル生物として注目を浴びているアブラムシの、生殖様式における表現型可塑性について発表していただきます。

Phenotypic plasticity in response to environmental change is a common phenomenon yet is poorly understood at the genetic and molecular level. Aphids exhibit plasticity in reproduction whereby seasonal changes result in asexual or sexual reproduction. We investigated the genetic basis of this reproductive plasticity by assessing meiosis and cell cycle genes from the genome of the pea aphid, *Acyrtosiphon pisum*. Aphids possess meiotic recombination genes and G1-to-S phase transition regulatory genes in gene copy numbers similar to other metazoans. Despite the lack of meiotic recombination in asexual aphids, meiosis genes are expressed in similar patterns between sexual and asexual aphids. However, the Spo11 meiosis gene is expressed at lower levels in asexual germ cells and oocytes and is spliced less efficiently. Additionally, regulatory genes that control the entry into and progression through cell division are duplicated in the aphid genome, and several of these paralogs exhibit differential expression between reproductive morphs. Together, this suggests that changes in the activity of several critical meiosis and cell cycle genes contribute to the expression of facultative asexuality in aphids.

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