

# 生命科学セミナー

## Functional identification of a potent inhibitor of insect steroid hormone biosynthesis 昆虫ステロイドホルモン生合成阻害剤の機能的同定

---

井村 英輔 博士

Department of Entomology, University of California, Riverside  
Postdoctoral researcher

---

8 月 22 日(木) 14:00~15:00

京都大学医学・生命科学総合研究棟 (G 棟) セミナー室 C/D

Steroid hormones play key roles in many aspects of animal physiology. In insects, the principal steroid hormones called ecdysteroids coordinate growth and maturation by controlling molting and metamorphosis. Ecdysteroids are also involved in a variety of physiological processes during adulthood, such as immunity, longevity, and reproduction. Ecdysteroid signaling can therefore be a potential target for controlling various aspects of insect physiology. In this study, *in vivo* chemical screening was conducted to identify small compounds that inhibit ecdysteroid signaling in *Drosophila*. Feeding one compound at nanomolar concentrations inhibited pupariation, resulting in prolongation of the larval period and a consequent increase in body size. The ecdysteroid titer in the compound-fed larvae was significantly reduced, and the pupariation defect was rescued by concurrent feeding of an active ecdysteroid, 20-hydroxyecdysone. Feeding of the compound significantly reduced the cell size of the ecdysteroidogenic tissue, the prothoracic gland (PG), without changing their cell numbers. During the larval period, the PG increases its cell size through endoreplication. Forced induction of endoreplication in PG cells rescued the effect of the compound. These results suggest that the compound disrupts *Drosophila* development by blocking endoreplication in the PG and thereby suppressing ecdysteroid biosynthesis. Further characterization of the mode-of-action of this novel steroidogenesis inhibitor is currently underway.

(発表スライドは英語表記、発表は日本語で行われます)

連絡先 細胞認識学分野、生命情報解析教育センター (CeLiSIS)

Tadashi Uemura 上村 匡 (内線) 9 2 3 8