

発生ダイナミクス分野主催セミナー  
Developmental Dynamics Seminar

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**2024.9.13 (Fri) 16:00~17:30**

片平・生命科学プロジェクト研究棟講義室AB(ハイブリッド開催)  
Life Sciences Project Research Laboratory, Lecture hall. (Hybrid)

## **Evolution of sex determination and sex-ratio bias**

Sex-determining mechanisms are characterized by their rapid evolution and diversity even among populations of the same species. We focus on the study of sex determination in free-living nematodes of the genus *Auanema*, revealing the mechanisms that control the development of males, females, and hermaphrodites. Intriguing findings emerged from crossing different sexual morphs: matings between hermaphrodites and males yield only male progeny, while crosses between males and females produce exclusively non-male offspring. Interestingly, hermaphrodites emerge in response to specific social cues sensed by the maternal generation. These results can be attributed to unusual genetic phenomena, including non-Mendelian inheritance, chromatin diminution, inverted meiosis, and the occurrence of transgression. Our study not only unravels the complexities of sex determination in *Auanema* nematodes but also contributes to a broader understanding of genetic and evolutionary dynamics in developmental mechanisms.

### **Reference:**

- DC.Shakes, et.al., *Nature commun.* 2 (1), 157 (2011)
- J. Chaudhuri, et.al., *Scientific Reports* 5 (1), 17676 (2015)
- N. Kanzaki, et.al., *Scientific reports* 7 (1), 11135 (2017)
- S. Tandonnet, et.al., *Curr. Biol.*, 28, 93-99 (2018)
- T. Al-Yazeedi, et.al., *Genetics*, 222, iyae159 (2022)
- T. Al-Yazeedi, et.al., *Genetics*, 227, iyae032 (2024)

This is credit-granted seminar (2 points).  
本セミナーは生命科学研究科単位認定セミナー（2ポイント）です。

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