

# グローバルイノベーション研究院 公開セミナー Institute of Global Innovation Research Open seminar

Wednesday, June 19 2019, 15:00 - 17:00

東京農工大学 小金井キャンパス 13号館 4階 L134A教室  
Lecture Room 134A, 4<sup>th</sup> Fl., Building 13, Koganei Campus, TUAT



言語 / 日本語 Language / Japanese



## Program

15:00-16:00 "The science of smell"

Prof. Dr. Hiroaki Matsunami  
Duke University, School of Medicine, U.S.A.



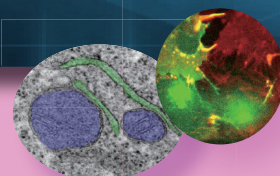
Mammalian odorant receptors (ORs) have gone through unique evolutionary history involving massive gene duplications followed by functional diversification. Our understanding of functional diversification of ORs that enable to detect and discriminate tens of thousands of environmental chemicals is limited as the majority of the mammalian ORs remained as "orphan" without well-characterized cognate odorous ligands. One of the roadblock toward "de-orphanizing" ORs has been that OR proteins are retained in the endoplasmic reticulum when expressed in heterologous cells. We have been studying molecular mechanisms underlying OR trafficking, which lead to develop in vitro methods to identify active ligands for many ORs. We also developed in vivo methods to identify new odorous ligands for ORs in freely behaving animals. These efforts afforded us a new opportunity to study OR ligand selectivity, signal transduction and functional evolution.

16:00-17:00 "Synthetic Cell Biology: Total synthesis of cell function and its biomedical applications"

Prof. Dr. Takanari Inoue  
Department of Cell Biology, Johns Hopkins University, U.S.A.



Signaling events in cells are localized and rapid, often complicated by the presence of feedback loops and crosstalk. Conventional tools used to probe cell signaling are often limited due to its speed and global effect. My scientific research career, to date, has focused on the development of alternative visualization and perturbation strategies for deconstructing and reconstructing spatiotemporally dynamic signaling events observed in nature. These strategies include series of molecular sensors and actuators based on chemically-induced dimerization techniques that allow for the induction of specific activity at different subcellular localizations of live cells in the order of seconds. More recently, we have extended these techniques to reconstitute cellular functions such as chemotaxis and phagocytosis in non-immune cells, and even in artificial cells. Ultimately, we will employ the knowledge and skills acquired from these synthetic studies on the complex cell behaviors to endow cells with important therapeutic functions with immediate applications in the treatment of cancers and neurodegenerative diseases.



## ■共催／Co-Organized by

グローバルイノベーション研究院 ライフサイエンス分野 分野グループ / 篠原研究チーム  
Institute of Global Innovation "Life Science" Life Science Group / Shinohara Team

卓越大学院プログラム

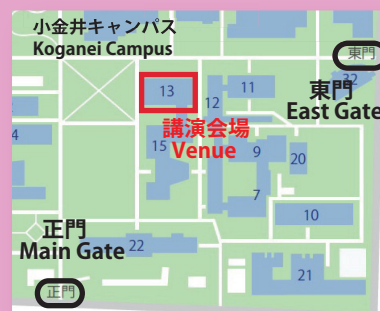
Excellent Leader Development for Super Smart Society  
by New Industry Creation and Diversity

## ■お問合せ先／Contact

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どなたでも、ご聴講いただけます。  
Everyone is welcome to attend.



詳細はホームページをご覧ください  
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