第 57 回

# インターゲノミクスセミナー

Intergenomics

神戸大学大学院・農学研究科
インターゲノミクス研究会 主催
（若手研究者育成支援経費）

日時：11 月 11 日（金）15 時 10 分より 場所：農学部 B401

## 「Diversity of Effector Functions Involved in Fungal Pathogenicity」

15 : 10 **Introduction**

### 15 : 15 Genetic diversity and molecular interaction between rice and rice blast fungus in Thailand

**Dr. Chatchawan Jantasuriyarat (Department of Genetics, Faculty of Science, Kasetsart University, Thailand)**

The development of resistant rice varieties to rice blast disease is the priority goal of Thailand. Rice blast disease, caused by the fungus *Magnaporthe oryzae*, is the most devastating disease affecting rice yield reduction worldwide. Genetic diversity of rice blast fungus population in Thailand is examined using DNA markers and *Avirulence* (*AVR*) gene sequences. *AVR* genes, which involve in pathogenicity, are used to suppress rice defense signaling and enhance host susceptibility. The fungal *AVR* genes are extremely diverse and rarely have matches in sequence databases. They often are specifically expressed or strongly overexpressed inside plant tissue during plant–pathogen interaction. Very little is known about how these *AVR* genes are regulated or how the fungus knows that the *AVR* genes need to be expressed only inside the plant tissue. The overall aim of this project is the dissection of the regulatory mechanism of the rice blast fungal *AVR* genes. The promoter of *AVR* gene is characterized. Transcription factors binding to the promoter were identified and characterized. Moreover, the rice target protein for effector AVRPi9 is identified and validated. These candidate genes are important for the development of strategies to prevent the infection of the rice blast fungus.

### 16 : 15 Secreted proteins and peptides used for the interaction between plant cell and plant pathogenic fungi

**Dr. Fumi Fukada (Institute of Plant Science and Resources, Okayama University, Japan)**

In plant-pathogen interactions, pathogens secrete proteins and peptides, known as effectors for their successful infection, while plants employ secreted proteins and peptides to fine-tune plant immunity against pathogen infections. In this seminar, I will describe two examples of secreted proteins and peptides produced by plant pathogenic fungi or plant cells. A first example is an effector protein secreted by the biotrophic basidiomycete fungus *Ustilago maydis*, used as a novel cell adhesin for induction of the morphological changes associated with spore formation. A second example is a RALF (Rapid Alkalinization Factor) family peptide in rice that enhances immunity against pathogens and is potentially used for a novel plant-pathogen interaction.

17:15～ **General Discussion**

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