

CFAI Special Seminar Plant Virology を開催しました

CFAI Special Seminar Plant Virology を 2023 年 9 月 25 日 (月) に青葉山commons第一講義室にて対面開催しました。本セミナーでは、農学研究科と学术交流協定を締結している、オランダ・ワーゲニンゲン大学の Richard Kormelink 博士を招聘し、”On the stories behind (a)typical dominant and recessive resistance genes against Geminiviruses“ と題して講演をいただきました。講演の中では、作物生産において甚大な被害をもたらしている Geminivirus によるウイルス病と、Geminivirus に対する植物の免疫システムの分子基盤研究について、幅広く解説いただきました。大学院生や教員からたくさんの質問もあり、予定時間をオーバーするほど、活発な討議が行われました。講演の最後に、セミナーで講演いただいた感謝のしるしとして、Certificate of Appreciation がセンター長の白川仁先生（代理 植物病理学分野 高橋教授）より授与されました。



講演風景



Certificate の授与

**CFAI Special Seminar
Plant Virology**



Richard Kormelink
Wageningen University and Research

On the stories behind (a)typical dominant and recessive resistance genes against Geminiviruses

Date: 10am-11am, 26 September, 2023
Venue: Lecture room #1 @ Aobayama commons

Tomato yellow leaf curl geminivirus (TYLCV) belongs to the most devastating plant viruses worldwide. One way to combat this virus is by resistance breeding. From the list of available resistance genes for introgression breeding in tomato against TYLCV, Ty-1 to -6, several have been mapped and cloned in the past decade. Whereas Ty-2 presents a typical dominant resistance gene of the "nucleotide-binding site Leucine-rich repeats" (NLR) class and is triggered by the Rep/CI protein, ty-5 presents a recessive resistance gene coding for pelota, an mRNA (translation) surveillance factor. On the other hand, Ty-1 and its Ty-3 allele present at a typical dominant resistance gene, coding for an RNA-dependent RNA polymerase (RDR) of the gamma class and implicated in antiviral RNAi. While dominant resistance genes of the NLR class are the most sporadically employed genes for resistance breeding, they are pathogen specific and can easily be broken by the emergence of a new pathogen variant containing only one single point mutation in the pathogen effector. This presents a major drawback of using NLR resistance genes. In contrast, atypical dominant and recessive resistance genes often provide more durable and broad resistance, and for that reason receive a growing interest. The stories and underlying resistance mechanism behind Ty-1 and DNA primase Large subunit (DPL), another recently identified gene in melon accessions correlated to a recessive resistance against Tomato leaf curl New Delhi virus (ToLCNDV), will be presented in support of their exploitation and implementation towards more durable resistance / disease management strategies. [https://doi.org/10.3389/fpls.2023.1155566](#)

Contact:
Hideki Takahashi
(Laboratory of Plant Pathology, Tohoku Univ)
hideki.takahashi@tohoku.ac.jp

セミナー”On the stories behind (a)typical dominant and recessive resistance genes against Geminiviruses“の案内