Breakthrough technologies to accelerate breeding and strain improvement in biological production for a sustainable society

Paradigm shift in gene editing technology for gain-of-function crop breeding

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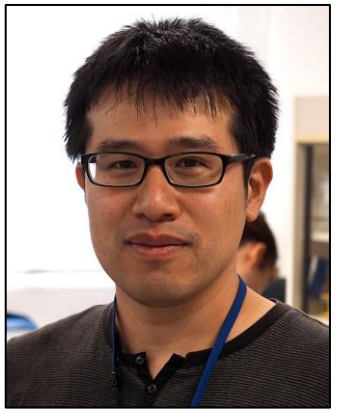

Summary :

The CRISPR/Cas is a powerful tool for genome engineering. The use of this tool, however, is currently limited to specific crop species/ varieties and the variation of genome modification is limited to small insertions/ deletions. Precise genome editing based on freely designed sequence is desirable but still difficult in plants. Knock-in is a method that is expected to make this approach possible. In this project, we aim to establish an efficient knock-in system for gain-of-function breeding using the *in planta* particle bombardment (iPB), a method which is applicable to a wide range of crop species/varieties. Our goal is to develop crops with unprecedentedly attractive traits for producers and consumers by our knock-in system.