

Category	: 8th Rice Genetics Symposium
Select Theme	: Genome and Gene editing: Novel tools and technologies
Endorsement email	:
Genome and Gene editing Novel tools and technologies Keyword 1	: CRISPR
Genome and Gene editing Novel tools and technologies Keyword 2	: site-directed mutagenesis
Genome and Gene editing Novel tools and technologies Keyword 3	: Plant transformation
Title of Entry	: Development and utilization of genome editing tools in rice
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Select only one type of presentation : 15 minute oral presentation

Abstract : Engineered nucleases represent a group of potent enzymes to induce site-specific DNA double strand breaks (DSBs) and subsequently precise genetic alteration around the cut sites in the eukaryotic genomes. Modified CRISPR (clustered regularly interspaced short palindromic repeats) systems, comprising Cas nucleases (e.g., Cas9) and single guide RNAs (sgRNAs) have emerged as potent biotechnological tools for both basic and applied research. The most predominant utilization of CRISPR/Cas derived genome editing technologies is for targeted mutagenesis, site-specific insertions and deletions within any genome of interest, as demonstrated in a plethora of organisms including several crop plants. Development and utilization of CRISPR/Cas for gene replacement through homology directed repair (HDR) remain challenging in plants but hold greater promise in utilization for basic understanding of biological process and crop improvement. My presentation describes development and application of these technologies to generate heritable genome modifications in rice.

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