

Category	: International Rice Research Conference
Select Theme	: Genetic improvement
Endorsement email	:
Keyword 1	: Biotic stress tolerance
Keyword 2	:
Keyword 3	:
Title of Entry	: High resolution mapping, cloning and molecular characterization of Pi67(t) which confers resistance for leaf and neck blast resistance
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: The introgression line (INGR15002) derived from <i>O. glumaepatula</i> has proven broad spectrum field resistance for both leaf and neck blast. QTL analysis in this line revealed the existence of two major QTLs, qBL3 contributing 53% to the leaf and neck blast resistance and another qBL7 contributing for 35% phenotypic variance for only leaf blast. qBL3 was fine mapped to 100 Kb region through RAD (Restriction site Associated DNA) sequencing and identified linked SNP markers. Combining mapping with microarray, one candidate gene Os03g0281466 (Malectin-serine-threonine kinase) was identified and named as Pi67(t). The SNPs in the coding region of the gene as well as variations (presence/absence) of four important motifs (W- box element, MYC element, TCPELEMENT, BIHD1OS) in promoter regions are playing vital role in imparting resistance and susceptible reaction respectively. Successful introgression of qBL3 into susceptible variety i.e. BPT-5204, through marker assisted selection led to the identification of progeny which has field resistance for leaf and neck blast. This is the first report on the determination of major effect QTL from <i>O. glumaepatula</i> and its characterization led to the identification of novel gene-Pi67(t) which confers field resistance to both leaf and neck blast in rice.

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