

ミャンマーの在来イネ品種に由来する新規いもち病抵抗性遺伝子

Novel resistance genes to blast from a landrace rice variety in Myanmar

ミャンマー由来の在来イネ品種Haoruのいもち病抵抗性には、幅広いいもち病菌菌系に抵抗性を示す。

その抵抗性には、3つの抵抗性遺伝子が関与し、このうち二つは、標準判別いもち病菌菌系に対する抵抗性反応が既知のものとは異なり新規のものである。

一つは、第12染色体に座乗し、遺伝子名は *Pi58(t)* であり、も一つは、第6染色体に座乗する *Pi59(t)* である。

これらの遺伝子は、新規の抵抗性遺伝子として、イネの抵抗性の遺伝的改良に用いることができる。

A Myanmar rice landrace, Haoru, is broad-spectrum resistant which was controlled by three resistance genes.

Two of them were mapped on chromosomes 12 and 6, and designated them as *Pi58(t)* and *Pi59(t)*, respectively.

Pi58(t) and *Pi59(t)* were differentiated from other reported resistance genes using the standard differential system.

The estimated resistance spectrum of *Pi58(t)* corresponded with that of Haoru, suggesting that *Pi58(t)* is primarily responsible for Haoru's broad-spectrum resistance. In addition, *Pi59(t)* and the third gene were also proven to be new and useful genetic resources for studying and improving blast resistance in rice.

表1 判別品種およびHaoru由来抵抗性遺伝子保有系統(太字)の反応
(Reaction patterns of Haoru and segregation lines harboring new resistance genes to standard differential blast isolates)

Line	Resistance gene	Chr.	Reaction patterns																				
			Santandard differential blast isolates from the Philippines																				
			PO66	CA89	43	CA41	M64-1-3-9-1	M39-1-3-8-1	M39-1-2-21-2	M36-1-3-10-1	JMB8401	IK81-25	IK81-3	BN111	V850256	V850196	V86010	JMB840610	BN209	M101-1-2-9-1	B90002	C923-49	
Haoru	-	-	R	R	S	R	R	R	R	R	R	R	S	S	R	R	R	R	R	R	R	R	R
US-2	-	-	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
BC₁F₂ line (US-2/Haoru/US-2)	<i>Pi58(t)</i>	12	R	R	S	R	R	R	R	R	R	R	S	S	R	R	R	R	R	R	R	R	R
IRBL12-M	<i>Pi12(t)</i>	12	S	S	S	S	S	S	S	S	S	S	S	S	S	M	M	R	R	R	R	R	R
IRBL19-A	<i>Pi19(t)</i>	12	S	S	S	S	M	S	S	M	S	S	S	S	S	S	S	S	S	S	S	S	S
IRBLta-CP1	<i>Pita</i>	12	S	S	S	R	M	M	S	M	R	R	S	R	R	R	R	R	R	R	R	R	R
IRBLta2-Pi	<i>Pita-2</i>	12	S	S	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
IRBL20-IR24	<i>Pi20(t)</i>	12	S	S	S	S	S	S	R	R	S	M	M	R	S	R	S	S	S	S	S	S	S
BC₁F₂ line (US2/Haoru/US2)	<i>Pi59(t)</i>	6	S	S	S	S	R	S	S	S	S	S	S	S	S	R	S	S	S	R	R	R	R
IRBLz-Fu	<i>Piz</i>	6	R	M	R	M	R	R	R	R	R	R	R	S	M	R	R	M	R	M	R	M	M
IRBLz5-CA-1	<i>Piz-5</i>	6	R	M	M	R	M	R	R	R	R	R	R	R	R	M	R	M	M	S	M	M	M
IRBLz-T	<i>Piz-t</i>	6	S	S	S	S	R	R	S	S	S	S	S	S	S	R	S	S	S	R	R	R	R
IRBL9-W	<i>Pi9</i>	6	R	R	R	R	R	M	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R

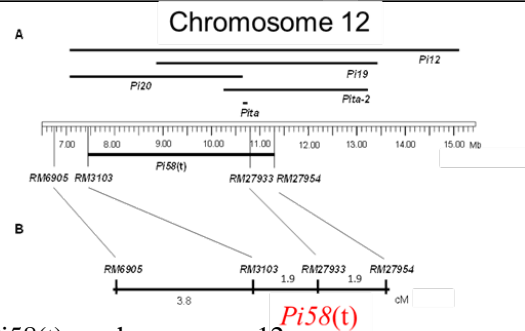
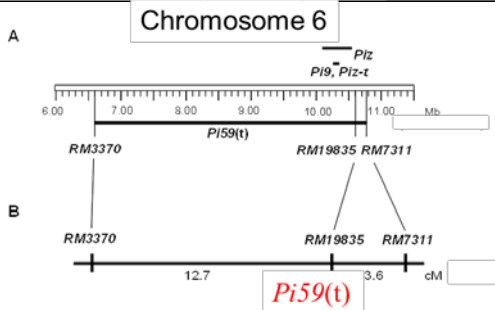


Fig.1 Position of resistance gene, *Pi59(t)* on chromosome 6 and *Pi58(t)* on chromosome 12
A: Physical map position based on the Nipponabare's genome sequence
B: Genetic map. Genetic distances between the gene and markers were estimated using BC₁F₂ lines of US-2/Haoru//US-2

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