

**Inhibition of resistance gene-mediated defense in rice by *Xanthomonas oryzae* pv. *oryzicola*** [Arial or Helvetica bold, 10 pt]

Seiko Makino,<sup>1</sup> Akiko Sugio,<sup>2</sup> Frank White,<sup>2</sup> and Adam J. Bogdanove<sup>1</sup> [Arial or Helvetica, regular, 10 pt]

<sup>1</sup>Department of Plant Pathology, Iowa State University, Ames, IA 50014, U.S.A.; <sup>2</sup>Department of Plant Pathology, Kansas State University, Manhattan, KS 66506, U.S.A. [Arial or Helvetica, regular, 9 pt]

*Xanthomonas oryzae* pv. *oryzae* and the closely related *X. oryzae* pv. *oryzicola* cause bacterial blight and bacterial leaf streak of rice, respectively. Although many rice resistance (*R*) genes and some corresponding avirulence (*avr*) genes have been characterized for bacterial blight, no endogenous *avr/R* gene interactions have been identified for leaf streak. Genes *avrXa7* and *avrXa10* from *X. oryzae* pv. *oryzae* failed to elicit the plant defense-associated hypersensitive reaction (HR) and failed to prevent development of leaf streak in rice cultivars with the corresponding *R* genes after introduction into *X. oryzae* pv. *oryzicola* despite the ability of this pathovar to deliver an AvrXa10:Cya fusion protein into rice cells. Furthermore, coinoculation of *X. oryzae* pv. *oryzicola* inhibited the HR of rice cultivar IRBB10 to *X. oryzae* pv. *oryzae* carrying *avrXa10*. Inhibition was quantitative and dependent on the type III secretion system of *X. oryzae* pv. *oryzicola*. The results suggest that one or more *X. oryzae* pv. *oryzicola* type III effectors interfere with *avr/R* gene-mediated recognition or signaling and subsequent defense response in the host. Inhibition of *R* gene-mediated defense by *X. oryzae* pv. *oryzicola* may explain, in part, the apparent lack of major gene resistance to leaf streak. defense response in the host. *Xanthomonas oryzae* pv. *oryzae* and the closely related *X. oryzae* pv. *oryzicola* cause bacterial blight and bacterial leaf streak of rice, respectively. Although many rice resistance (*R*) genes and some corresponding avirulence (*avr*) genes have been characterized for bacterial blight, no endogenous *avr/R* gene interactions have been identified for leaf streak. Genes *avrXa7* and *avrXa10* from *X. oryzae* pv. *oryzae* failed to elicit the plant defense-associated hypersensitive reaction (HR) and failed to prevent development of leaf streak in rice cultivars with the corresponding *R* genes after introduction into *X. oryzae* pv. *oryzicola* despite the ability of this of *R* gene-mediated defense by *X. oryzae* pv. *oryzicola* may explain, in part, the apparent lack of major gene resistance to leaf streak. [Arial or Helvetica, regular, 10 pt.] [Save as "xgc2009abstract\_LASTNAME" as ".rtf", ".doc" or ".docx." DO NOT SUBMIT a pdf file.]

**YOUR ABSTRACT MUST FIT WITHIN THE TEXT BOX**