

Transplanted corn gene protects rice

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Kansas State University scientists say they've demonstrated resistance to bacterial streak disease in maize can be transferred to rice.

Researchers in Manhattan, Kan., transferred a disease resistance gene from maize to rice and found it controls the disease, which is prevalent in Asia.

Scot Hulbert and colleagues identified and isolated a gene from maize, Rxo1, which recognizes the bacterium that causes bacterial streak in rice, a disease in which water-soaked lesions spread throughout the leaves. That gene also controls resistance to an unrelated bacterium that produces stripe disease in sorghum and maize.

The researchers transferred Rxo1 to rice and found 36 of the 82 transgenic rice lines displayed strong resistance when infected with the bacterium, characterized by a limited spreading of the lesions. All 36 resistant rice plants contained the Rxo1 gene when sequenced.

The scientists say that ability to transfer resistance between two distantly related plants may open the possibility for using "non-host" resistance genes, such as Rxo1, to control diseases in a variety of crops.

The research appears in the online edition of the Proceedings of the National Academy of Sciences.

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