

## **Stem Rust Resistance Genes Effective against Race TTKS of *Puccinia graminis* f. sp. *tritici* in Wheat**

*Yue Jin*

USDA-ARS, Cereal Disease Laboratory, University of Minnesota, St. Paul, MN 55108  
yuejin@umn.edu

Adult plant responses of monogenic lines carrying *Sr* genes to race TTKS (or Ug99) of *P. graminis* f. sp. *tritici*, a direct measurement of the effectiveness for a given gene against this race, have not been investigated. Monogenic lines of designated *Sr* genes were characterized for seedling infection types to race TTKS in greenhouse tests and adult plant responses in a field stem rust nursery in Kenya. Resistance genes effective against race TTKS include *Sr13*, *22*, *24*, *25*, *26*, *27*, *28*, *32*, *35*, *36*, *37*, *39*, *40*, *44*, and *Tmp*. The low infection types to race TTKS corresponded to the expected low infection types of these genes to other incompatible Pgt races. The level of resistance conferred by these genes at the adult plant stage varied between highly resistant to moderately susceptible. Resistance genes *Sr24*, *Sr36*, and *SrTmp* occurred in relatively high frequencies in US breeding lines and current cultivars. The understanding of the effectiveness of individual *Sr* genes against race TTKS will facilitate the utilizations of these genes in breeding.