

Ponciano, G.P.; Rommens, C.M.; Rockhold, D.R.; McCue, K.F.; Whalen, M.C.; Belknap, W.R. 2010. Application of intragenic technology for development of disease-resistant potato. *Phytopathology* 100:S101.

Intragenics (also known as 'cisgenesis') is a plant transformation technology that consists of employing only genes, regulatory, and transfer DNA sequences from the plant genus to be transformed. Current status of our use of the technology to produce disease-resistant potatoes will be presented. The late blight disease caused by *Phytophthora infestans* continues to be potato's most serious disease worldwide. Using an intragenic transformation vector developed by J.R. Simplot Company, and the recently cloned RB resistance gene effective against a wide spectrum of *P. infestans* races, we aim to develop a late blight-resistant potato. We are also developing a strategy for intragenic potato plants resistant to viruses. We took a computational approach to identify virus homologous sequences present in the potato genome and in potato EST sequences. The identified genomic sequences are being evaluated to determine their potential to serve as si/miRNA templates to induce plant viral disease resistance via RNAi.