



Meet an MPRINT Scientist



Ray Bressan

Ray earned a Ph.D. degree from Colorado State University and joined the Purdue faculty in 1978. Early in his career he established that osmotic adaptation in plants is a cellular developmental process that occurs in virtually all species, and with co-workers he characterized an osmotin gene that has powerful anti-pathogen properties. This pioneer work led to the discovery of an important new class of anti-pathogen genes (the osmotins) that may be exploited using genetic engineering to improve the disease resistance of major crops, including sorghum.

Bressan has collaborated successfully with MPRINT's Hasegawa, Murdock, Shade, and Nielsen to identify and clone important genes with anti-insect properties. For example, the soybean cysteine proteinase inhibitor gene and the *Griffonia* lectin gene are valuable genes whose products are active against insect pests, including cowpea weevil and corn rootworm, and probably also the sorghum stem borer complex. These genes have the potential to control insect pests without the use of toxic pesticides. They are also genes that might be used with the *Bacillus thuringiensis* (Bt) gene to help stabilize transgenic plants against rapidly evolving resistant insect populations in important crops. DNA shuffling or oligonucleotide cassette mutagenesis will be combined with techniques of phage display to increase the insecticidal activities of the cysteine proteinase inhibitors.

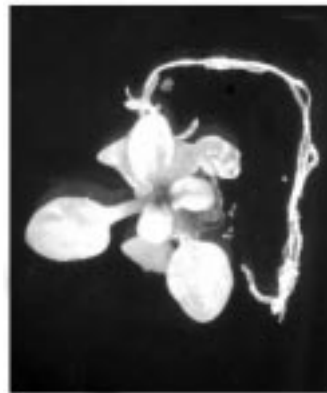
Some MPRINT Science

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A TDNA-tagged salt-tolerant mutant of *Arabidopsis thaliana*

Personal MPRINT

Ray, whose grandfather was Italian, is learning to speak Italian and is a good cook—especially of Italian dishes. Ray also runs and plays handball.