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The Crystal Structure of the Chimeric Bt Cry1A.105 Insecticidal Protein at 3.0 Å Resolution. T.J. Rydel, E.J. Sturman, T.C. Lee[#], N.N. Bogdanova[#], T.M. Malvar^{*}, Monsanto Company, Chesterfield, MO, [#]Creve Coeur, MO, ^{*}Mystic, CT.

Genetically modified (GM) crops are engineered for herbicide tolerance, insect resistance (IR), or virus resistance. Corn and cotton GM IR crops contain one or more specific genes from the soil bacterium *Bacillus thuringiensis* (Bt), which produce insecticidal crystalline (Cry) proteins during sporulation. Cry1's control Lepidoptera (moths and butterflies) larvae, Cry3's control Coleoptera (beetles) larvae, and Cry2's control Lepidoptera and Diptera (mosquitoes) larvae. Crystal structures are publicly available for Cry1Aa, Cry2Aa, Cry3Aa, and Cry3Bb Bt proteins, and they all display a common 3-domain topology.

We have solved the crystal structure of Cry1A.105 to 3.0 Å resolution. Cry1A.105 is a chimeric protein containing domains I and II of Cry1Ab and domain III of Cry1F. The Cry1A.105 crystal structure was solved by molecular replacement methods using synchrotron data and either the Cry1Aa crystal structure or a Cry1A.105 protein structure model for phasing. This poster will review the experimental work, and how the Cry1A.105 crystal structure compares to the crystal structures of Cry1Aa, other 3-domain Cry crystal structures and to the modeled Cry1A.105 protein structure.