# Heartbreaker (Hbr) Insertional Popymorphisms in Maize and its Wild Relatives. (C07-casa090754-Poster)

#### Authors:

- A.M.Casa Institute for Genomic Diversity/Cornell University
- S.E.Mitchell Institute for Genomic Diversity/Cornell University
- Q.Zhang Monsanto Mystic Research
- C.D.Kellogg Institute for Genomic Diversity/Cornell University

• S.Kresovich - Institute for Genomic Diversity/Cornell University

## Abstract:

Genome size differences among plants are largely due to unequal accumulation of repetitive DNA sequences, mainly transposable elements (TEs). Here, we describe the levels of insertional polymorphism of a TE family, Heartbreaker (Hbr), in maize and its wild relatives, the teosintes. Nineteen loci were assayed for the presence/absence of Hbr in 238 individuals. Results from these analyses revealed that Hbr insertion frequency was highest in maize inbred lines. Moreover, maize inbred lines and landraces were more diverse than the teosintes. The DNA sequences from flanking regions of three loci in 11 inbred lines confirmed that the large size differences between alleles were due to the presence/absence of Hbr elements. We found no evidence of excision at alleles lacking the element. Results from Hbr display, a genome-wide DNA fingerprint of anonymous Hbr insertion sites, suggested that the inbred lines, landraces, and teosintes contained similar numbers of Hbr elements. Therefore, the higher frequencies of Hbr alleles observed in maize compared to the teosintes appears to be related to differential genomic distribution rather than differences in Hbr copy numbers.

#### **Corresponding Author Information:**

Alexandra Casa Cornell University 153 Biotechnology Bldg. Ithaca, NY 14853 phone: (607) 254-4849 fax: (607) 255-6249 e-mail: amc56@cornell.edu

## **Presentation Information:**

Presentation Date: Tuesday, November 12, 2002 Presentation Time: 4:00-6:00 pm Poster Board Number: 1507L

## Keywords:

maize and teosintes, transposable elements, insertional polymorphism, DNA sequence data