

# Using Big Data to Clone and Characterize a Stability Factor in Maize

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## Abstract

Traits such as yield or transgene expression are very unstable in crops, yet they are integral to the success of farmers and modern agriculture. Stability can be thought of as the consistency of a trait across generations and different environments. How the genome interacts with the environment is a major determinant of stability, and much of this interface occurs through the processes of epigenetics. Epigenetics is a very young field whose contribution to important crop traits is not well understood. The aim of this study is to use large-scale data from high-throughput sequencing experiments to characterize the effects of an epigenetic gene. The non-functioning variant of the gene of interest causes instability of specific traits used as reporters. By identifying (cloning) and characterizing the non-functional (mutant) version of the gene the goal is to learn about the epigenetic effects which are contributing to instability and stability of crop traits.