

## The Solanaceae Coordinated Agricultural Project

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The Solanaceae Coordinated Agricultural Project (SolCAP) focuses on the two most important vegetable crops in the Solanaceae: potato and tomato. Sequencing efforts in Solanaceae have led to extensive expressed sequence tag (ESTs) resources and genome sequence is emerging for both potato and tomato with preliminary assemblies of both of these genomes anticipated in 2010. Ultimately, understanding variation at the DNA sequence level is useful in crop improvement only to the extent that it helps us understand and/or predict variation in phenotype for agriculturally important traits. The primary research objective of SolCAP is to provide the infrastructure to link allelic variation in genes to valuable traits in cultivated germplasm for both potato and tomato. In tomato, SolCap has sequenced expressed genes in 6 tomato lines relevant to breeding to define genetic diversity. Single nucleotide polymorphisms will be genotyped in 480 accessions, including US fresh market, processing and heirloom varieties. The accessions are being evaluated in the field and phenotypic data will be archived in the Solanaceae Genomics Network to facilitate integration with genotypic data. SolCAP is working with SGN to improve the SGN interface through the breeder's portal. SolCAP also has extension and education components that will integrate training in genomics and plant breeding with curriculum aimed at students coming into the field and existing breeders seeking to make better use of sequence data in the context of crop improvement.