Sequenced potato genomes could speed development of disease-resistant varieties

Examining the ancestors of the modern, North American cultivated potato has revealed a set of common genes and important genetic pathways that have helped spuds adapt over thousands of years.

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The modern spuds found in today's kitchens are genetically complex tetraploid potatoes, having four times the regular number of chromosomes. Potatoes' complex genome harbors an estimated 39,000 genes. (In comparison, the human genome comprises roughly 20,000 genes.)

From the large gene pool, the researchers identified 2,622 genes that drove the crop's early improvement when first domesticated. The study appears in the current issue of Proceedings of the National Academy of Sciences.

Studying the gene diversity spectrum, from its wild past to its cultivated present, can provide an essential source of untapped adaptive potential, [said Robin Buell, Michigan State University Foundation Professor of Plant Biology and senior author of the paper].

"We'll be able to identify and study historic introgressions and hybridization events as well as find genes targeted during domestication that control variance for agricultural traits," she said. "Many of these help focus on adapting to different climates, fending off different pathogens or improving yield, keys that we hope to better understand to improve future breeding efforts."

[Editor's note: Read the full study]

The GLP aggregated and excerpted this article to reflect the diversity of news, opinion and analysis. Read full, original post: Examing potatoes' past could improve spuds of the future