

# Researchers develop techniques to manipulate plant adaption in arid climates

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Ben-Gurion University of the Negev researchers have developed techniques to manipulate root development functionality that can help plants better adapt to hostile growing environments.

In a recent paper published in the prestigious journal *The [Plant Cell](#)*, BGU researchers were able show that by manipulating a specific gene they could impact lateral root growth. Lateral root (LR) development is a highly regulated process that determines a plant's growth and ability to adapt to life in different [environmental conditions](#).

The researchers identified ABI4, a master-gene that controls LR development, then mutated the gene and constructed [transgenic plants](#) in which this gene is over-expressed. They demonstrated that the ABI4 [gene functions](#) at a central junction that determines the accumulation of signals from three different plant hormones. The balance and manipulation of these signals, achieved via ABI4, regulates root structure development.

According to the research conducted by BGU student Doron Shkolnik-Inbar and Prof. Dudy Bar-Zvi in BGU's Department of Life Sciences, "the revolutionary research will allow control and manipulation of the level of root branching, enabling plants to adapt to arid soils or high salinity."

**More information:** ABI4 Mediates Abscisic Acid and Cytokinin Inhibition of Lateral Root Formation by Reducing Polar Auxin

Transport in Arabidopsis[C], [W]

*The Plant Cell* 22:3560-3573 American Society of Plant Biologists.

Provided by American Associates, Ben-Gurion University of the Negev

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