

Researcher identifies genetic pathway responsible for much of plant growth

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Researchers at Iowa State University have discovered a previously unknown pathway in plant cells that regulates plant growth.

Yanhai Yin, an assistant professor in genetics, development and [cell biology](#), examined signaling mechanisms of a plant hormone called brassinosteroids. The hormone controls the growth of cells.

The brassinosteroids (BRs) have a major impact on how large the plant grows, says Yin.

"Previously, we knew that steroids promote growth," said Yin. "In model [plants](#) like *Arabidopsis* (a relative of mustard) and crops such as corn and rice, if you have more steroids, you have more growth, and if you have less steroids, you have less growth and the plant is smaller."

Now Yin knows that the HERK1 (named for Hercules -- the Greek and Roman god who possessed superhuman strength) pathway, induced by BRs, is controlling much of that growth.

Yin and his team's findings are in the May 5 edition of the journal [Proceedings of the National Academy of Sciences](#) of the United States of America.

There are many other internal and external factors such as light, nutrition and hydration that effect [plant growth](#), but the HERK1, along with some unknown signals, have a great effect.

Yin and his team of Hongqing Guo, assistant scientist; Lei Li, Huaxun Ye, and Xiaofei Yu, all graduate students; and Alexandria Algreen, undergraduate student; have shown that by over-expressing HERK1, they were able to increase a plant's size by 10 to 15 percent.

By under-expressing HERK1, the plants were about 50 percent smaller.

Now Yin and his group are trying to find what regulates HERK1 and how HERK1 controls growth.

Understanding what make plants get bigger could be a critical component when producing grain and bio-mass for biofuels.

"With that knowledge, maybe we have one more tool to manipulate corn and rice if we want more grain, or if we want more mass for bio-energy crops," he said.

Source: Iowa State University ([news](#) : [web](#))

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