

Advance toward controlling fungus that caused Irish potato famine

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Scientists are reporting a key advance toward development of a way to combat the terrible plant diseases that caused the Irish potato famine and still inflict billions of dollars of damage to crops each year around the world. Their study appears in ACS' journal *Organic Letters*.

Teck-Peng Loh and colleagues point out that the Phytophthora fungi cause extensive damage to [food crops](#) such as potatoes and soybeans as well as to ornamental plants like azaleas and rhododendrons. One species of the [fungus](#) caused the Irish [potato famine](#) in the mid 1840s.

That disaster resulted in nearly one million deaths from starvation and forced millions more people to flee Ireland for the United States and other countries. Still difficult to control despite the use of modern [pesticides](#), the fungus continues to cause \$6 billion in damage to global potato crops annually.

Scientists, however, have isolated a key hormone, alpha-1, that allows Phytophthora to reproduce. The hormone exists in several different forms, and a synthetic version of the most biologically active form could provide the basis for developing a way to control the fungus and reduce its threat, the scientists suggest.

They describe an advance toward this goal, the synthesis of a particularly active form of the mating hormone called (3R,7R,11R,15R)-hormone alpha-1. The scientists also showed that they could make relatively large quantities of the hormone. The advance could open the door to an

effective method to fight this ancient scourge, they suggest.

More information: "Total Synthesis of Phytophthora Mating Hormone alpha-1," *Organic Letters*.

Provided by American Chemical Society

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