

Botanical compound could prove crucial to healing influenza

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Building on previous work with the botanical abscisic acid, researchers in the Nutritional Immunology and Molecular Medicine Laboratory (NIMML) have discovered that abscisic acid has anti-inflammatory effects in the lungs as well as in the gut. The results will be published in the *Journal of Nutritional Biochemistry*.

"While the immune effects of abscisic acid are well understood in the gut, less was known about its effects in the respiratory tract. We've shown definitively that not only does abscisic acid ameliorate disease activity and lung inflammatory pathology, it also aids recovery and survival in influenza-infected mice," said Raquel Hontecillas, Ph.D., study leader, assistant professor of immunology at Virginia Bioinformatics Institute, and co-director of NIMML.

Influenza accounts for anywhere from 3,000 to 49,000 deaths per year in the United States alone, according to the Centers for Disease Control. It is difficult to treat if not caught immediately; antivirals usually become ineffective after the virus [incubation period](#) has passed and resistance to [antiviral drugs](#) poses a serious public health problem in the face of outbreaks. Abscisic acid, however, has been shown to be most effective at about seven to ten days into the infection, targeting the immune response rather than the virus itself, which many researchers feel is a safer way to reduce flu-associated fatalities.

"Most drugs for respiratory infections target the virus itself, rather than the [inflammatory responses](#) caused by the virus. Abscisic acid activates

peroxisome proliferator-activated receptor-gamma, a receptor that aids in reducing inflammation, through a newly identified pathwaya but it does so without the side effects of other agonists like [thiazolidinediones](#), which are known to have strong adverse side effects. The development of [complementary and alternative Medicine](#) approaches that modulate the host response has great promise in decreasing respiratory damage caused by influenza or other respiratory pathogens," said Josep Bassaganya-Riera, Ph.D., director of NIMML and professor of nutritional immunology at the Virginia Bioinformatics Institute.

From this and previous research, it's clear that abscisic acid could yield a novel new way to combat inflammatory disease, both in the gut and the respiratory tract. By using host-targeted strategies to mediate disease, alternate pathways can be established to activate immune responses without the deadly side effects of many drugs currently on the market.

Provided by Virginia Tech

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