

Adjuvant for intradermal vaccine developed to deal with a pandemic

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A team of researchers from the U.S., Israel and Canada has developed an adjuvant for use as an intradermal vaccine to reduce deaths when pandemics occur. In their paper published in the journal *Science Advances*, the group describes their work, the adjuvant they developed and how it might be deployed in case of a deadly outbreak.

As each new flu season approaches, disease experts hold their collective breath hoping that the new season will not be one that unleashes a deadly pandemic upon the world's population. Because of that possibility, scientists around the world have been busy trying to find ways to slow the spread of a [deadly disease](#). In this new effort, the researchers have come up with a strategy that could involve sending a type of [vaccine](#) through the mail to prevent huge numbers of people overwhelming medical centers.

The researchers noted that vaccines that are developed and used to treat [seasonal flu](#) are not particularly well suited for fighting deadlier types of influenza. They believed the best approach to dealing with a deadly pandemic would be to distribute an adjuvant—a substance that causes the body's immune system to respond better to an antigen. Furthermore, they realized that in the panic that would ensue if a deadly [pandemic](#) occurred, people would swamp healthcare facilities hoping to get treatment. One way to prevent that, they reasoned, would be mass distribution of a type of injection device that does not require any medical expertise, such as an intradermal device, which could be used for self-administration of a vaccine.

With these two ideals in mind, the team set about first creating a good adjuvant. They made a concoction consisting of recombinant flu virus-like particles that get the immune system's attention, causing it to muster a stronger than normal response—and a glucopyranosyl-based lipid adjuvant that had already been shown to boost the effectiveness of regular vaccines. Next, they turned their attention to a delivery product. They came up with a microneedle delivery system that was not only easy to use, but robust enough to survive being sent through the mail.

The researchers found the system worked very well with ferrets. They also found when testing it with 100 volunteer humans that there were no known adverse reactions, and that an [immune response](#) to influenza was

indeed boosted.

More information: Darrick Carter et al. The adjuvant GLA-AF enhances human intradermal vaccine responses, *Science Advances* (2018). [DOI: 10.1126/sciadv.aas9930](https://doi.org/10.1126/sciadv.aas9930)

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