Mouth bacteria could make stronger vaccines

HAMPTON, N.J., June 3, 2021 (SEND2PRESS NEWSWIRE) — Three researchers have published a groundbreaking paper https://www.nature.com/articles/s41541-021-00341-4 on the importance of oral bacteria in the fight against infectious diseases like influenza, HIV, and COVID-19, Gingivax LLC announced today.

The bacteria in our mouths have traditionally been recognized as a nuisance or worse. They are the cause of tooth decay, gingivitis, and periodontitis. Since we were kids, we were taught to vigilantly brush our teeth twice a day to keep them healthy.

But it turns out that oral bacteria also contain a secret: Research indicates that they possess the tools necessary to boost our immune systems against nastier pathogens, like the coronavirus. The new paper, published in the prestigious journal NPJ Vaccines, suggests that we can exploit these bacteria by using bits and pieces of them in vaccines.

Vaccines work by stimulating an immune response, specifically the part of the

immune system responsible for producing antibodies. Small molecules called adjuvants are typically added to vaccines to make them more potent and, hence, elicit a stronger immune response.

Unfortunately, the “gold standard” of adjuvants – an aluminum salt called alum – is no longer seen as adequate because it does not activate all of the necessary components of the immune system to elicit a robust mucosal antibody response. Specifically, it does not activate Th17 cells, which play a central role in the production of antibodies in mucosal surfaces, such as those found in our mouths and noses. (Protecting these surfaces is key to stopping infectious respiratory diseases like influenza and COVID.)

Worse, there has been little progress over the last few decades in the development of new adjuvants, largely a result of the steep regulatory hurdles required for approval.

Until new adjuvants are developed, vaccine technology will be severely limited.

That is why Gingivax, a new company centered around the benefits of the oral microbiome, is investigating oral bacteria as a potential source of new adjuvants. Molecules extracted from these bacteria, which can activate crucial Th17 cells, could be added to vaccines to increase their efficacy.

This isn’t the first time that bacterial components have been investigated as potential adjuvants. Previous research examined the use of gut bacteria, but the adjuvants derived from them can cause serious adverse events in patients. Because safety is the top concern in vaccine development, an alternative path is needed.

That is why we have turned to oral bacteria. Research indicates that the adjuvants derived from them can activate the immune response without overstimulating it and triggering adverse events.

Gingivax is currently seeking grants to conduct research in the development of novel adjuvants.

Learn more: http://www.gingivax.com/

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