
Having prospect for the development of simple, highly effective and safe sublingual vaccines

Our Research Division (Research Center) is conducting research focusing on sublingual vaccines among vaccines administered orally.

【Three Major Benefits of Sublingual Vaccines】

- Easy taking by oneself
- Wide range of effectiveness from infection prevention to suppression of severity
- High level of safety

【Summary】

① Easy taking by oneself

The current method of vaccination against influenza viruses and COVID-19 is injection subcutaneously or intramuscularly, but with sublingual vaccines, tablets are administered sublingually by oneself, so specialized equipment such as syringes and needles and doctors are not required.

Therefore, sublingual vaccines are expected to be widely used in areas with poor medical environments.

② Wide range of effectiveness from infection prevention to suppression of severity

There are various antibodies related to immunity, but the sites that work are different, and antibodies called secretory type IgA are on the mucous membranes and antibodies called IgG are in the blood. Viruses such as influenza viruses and COVID-19 do not directly infect the blood, but infect the mucous membrane of the upper respiratory tract, so current vaccines that aim to increase IgG production can prevent severe illness, but are not expected to be effective in preventing infection itself. In order to prevent infection with these viruses, it is necessary to

produce secretory type IgA by sublingual administration, but there are various issues and this has not been realized.

However, our Research Center has developed a method to produce secretory type IgA by sublingual administration of a vaccine in a preclinical study using cynomolgus macaques.

Furthermore, we confirmed that IgG in the blood is also produced by this method.

Therefore, sublingual vaccines can be expected to be effective in preventing infection itself while preventing severe illness after infection, just like current vaccines.

③ High level of safety

Current vaccines have various side effects such as swelling, pain, and fever at the inoculation site after vaccination, but in the study using cynomolgus macaques with the sublingual vaccine, these side effects were not confirmed.

The sublingual vaccine is expected to be safer to use than current vaccines.

【Publication and New-release】

The research of our Research Center, which examined the usefulness of the sublingual vaccine described above, was published in the journal "Biology Methods & Protocols".

Title: SARS-CoV-2 sublingual vaccine with RBD antigen and poly(I:C)
adjuvant: Preclinical study in cynomolgus macaques

URL: <https://academic.oup.com/biomethods/article/8/1/bpad017/7266774>

In addition, this paper was released separately by the University Oxford Press to the whole world.

Title: Rapid acting, oral vaccines are coming soon

URL: <https://www.eurekaalert.org/news-releases/1000684>

【About Biology Methods & Protocols】

Biology Methods and Protocols is an online scientific journal published by Oxford University Press in UK that publishes papers on biology, biomedicine, preclinical and translational research.

【About EPS Innovative Medicine Co., Ltd.】

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or to license out to the partner enterprises.

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