



Letters & Notices

CORONAVIRUS

Possible method for the production of a Covid-19 vaccine

OVER a number of years we worked on genetically transformed *Pasteurella multocida* vaccines, experimenting on whether they could provide protection against a variety of animal and avian virus diseases. We think the methodology has potential for a Covid-19 vaccine.

The practical work was carried out in Myanmar, and at the time, there was a suggestion that the method could be of value in developing countries, especially in an emergency. It required only fairly basic laboratory facilities, could be rapidly set up and was relatively inexpensive (a patent application for the method was made in early 2007, but although there were discussions with pharmaceutical companies and academia to progress its production, none eventually took this up).

The proposed steps are set out in Fig 1. When mixed with cell lysates of virus-infected tissues, *P multocida* took up free viral genes and incorporated them into its genome. Genetically transformed *P multocida* cells expressing foreign antigens on their surface could be detected by the addition of specific antibody-tagged erythrocytes. Linkage was observed microscopically. Transformed *P multocida* linked to erythrocytes could

then be separated from untransformed organisms and those not incorporating relevant genes by centrifugal washing and cultivation on solid media, to provide the basis for a vaccine.

P multocida B:3,4 used in the production of a live intranasal haemorrhagic septicaemia vaccine¹ was used to transform and express classical swine fever viral antigens. The resultant product was applicable as an intranasal aerosol, subcutaneous injection or as an injectable killed vaccine.

The production of a Covid-19 vaccine by this method – based on the SARS-CoV-2 virus – is a possibility if the extraction of antibodies (from serum, respiratory tract mucus and so on) from people that have recovered from the virus is performed effectively.

The human pathogen that can cause pneumonia, *Haemophilus influenzae*, is in the family Pasteurellaceae, and commensal species of *Haemophilus* are found in the human respiratory tract. Employment of these, and other species of bacteria, in place of *Pasteurella*, can be considered.

Any resulting vaccine would have to be stringently tested for safety and efficacy. If it were found to be successful, it could be added to the list of potential Covid-19 vaccines, along with several others that are being developed around the world.

Aung Myint, retired, formerly head of bacterial vaccine production at the Livestock Breeding and Veterinary Department

“ Production of a Covid-19 vaccine by this method is a possibility ”

No 111, Sabe Road, Htanbingone, Sabwagyigone, PO Box 11013, Insein, Myanmar

email: dr.aungmyint@gmail.com

Trevor Jones, retired, former veterinary investigation officer

Nottinghamshire, UK (address supplied)

email: farmlab@supanet.com

Reference

- 1 Myint A, Jones TO, Nyunt HH. Safety, efficacy and cross-protectivity of a live intranasal aerosol haemorrhagic septicaemia vaccine. *Vet Rec* 2005;156:42–5

doi: 10.1136/vr.m1193

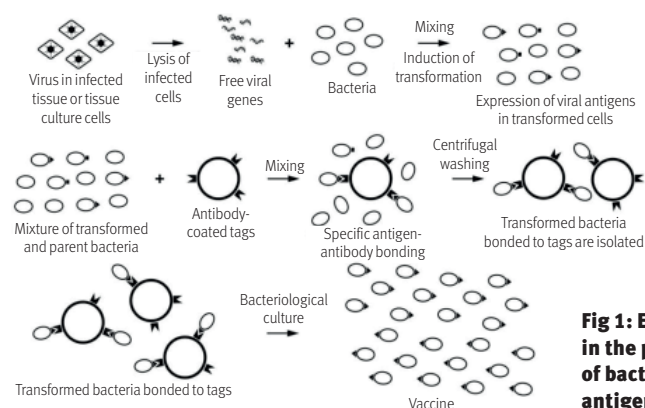


Fig 1: Essential steps in the preparation of bacteria for viral antigen production