

METHOD FOR PRODUCING VIRAL VACCINES

Field of the invention

The present invention relates to methods for producing viral vaccines.

Description of the related art

A vaccine is an immunogenic composition of an antigenic substance, e.g. the (non-infectious) pathogen such as a virus, its envelope, particles or its protein antigens. Administration or vaccination results in the immunization in a subject, e.g. a mammal such as a human, or a bird. The vaccination might cause a specific reaction to the vaccine and some minor inflammation, but this is generally much less detrimental than an infection of a fully viable virus which the vaccine is designed to prevent. The immune system of the subjects will adapt itself to specifically recognize the antigens of the vaccine and swiftly inactivate the pathogen after further exposure of the subject to the pathogen. Thus an increased resistance against the pathogen is achieved through vaccination.

For vaccine purposes a virus is conventionally cultivated on an adequate cell culture or generally cellular substrate. In the case of influenza, normally embryonated chicken eggs are used. The infectious viral harvest is collected and purified to remove unwanted non-viral cell constituents. In particular, in the case of vaccines derived from chicken substrates allergic reaction to chicken/egg proteins are possible in certain susceptible individuals.

An essential step in the production of viral vaccines is the inactivation of the infectious viruses. Formalin (an aqueous solution of formaldehyde) is the most frequently used inactivating agent in the manufacture of vaccines. It is usually used as a saturated aqueous solution with concentration of around 37 % formaldehyde. Formaldehyde inactivates a virus by irreversibly cross-linking primary amine groups in surface proteins with other nearby nitrogen atoms in protein or DNA through a -CH₂-