

Post Graduate (PG)

VMC 609: Virus Cultivation in laboratory

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Objective of cultivation of virus:

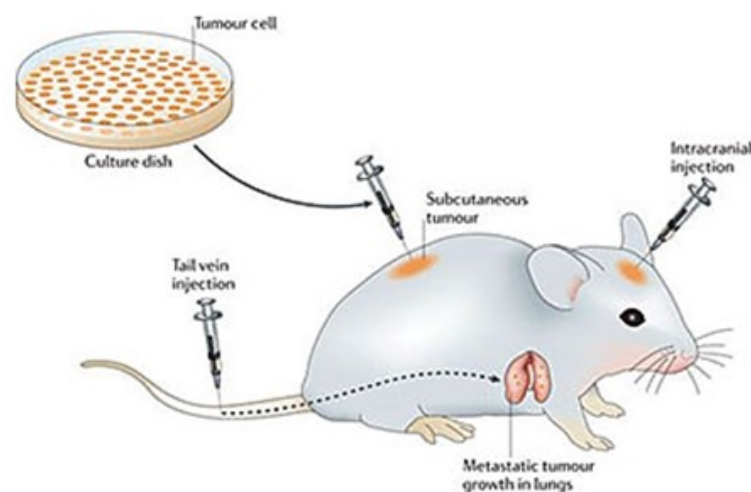
- To isolate and identify viruses in clinical samples. Demonstration of virus in appropriate clinical specimens by culture establishes diagnosis of viral diseases.
- To do research on viral structure, replication, genetics and effects on host cell.
- To prepare viruses for vaccine production.
- Isolation of virus is always considered as a gold standard for establishing viral etiology of a disease.

Hosts for cultivation of viruses in laboratory

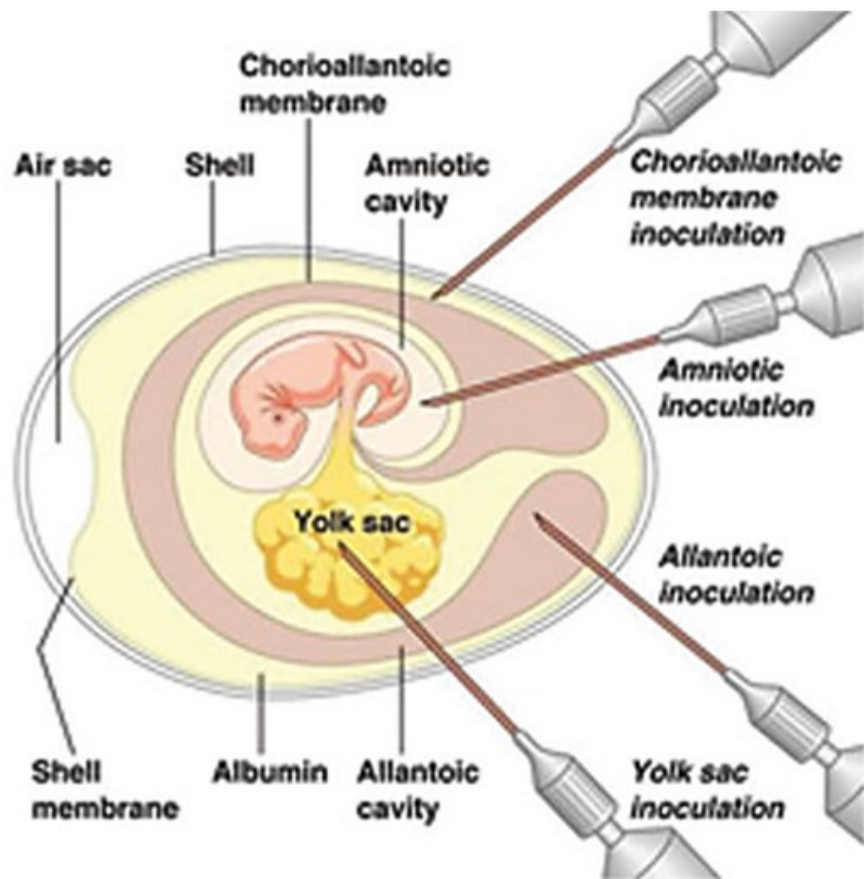
- Inoculation in laboratory animals
- Embryonated chicken eggs
- Cell culture culture.

Virus Cultivation

Purposes and Methods



Nature Reviews | Immunology



Inoculation in laboratory animal

Animals used for laboratory isolation of viruses:

- Newborn or suckling mice, rabbits, guinea pig, hamsters

Laboratory animals play an essential role

- for study of pathogenicity of viral infections & viral oncogenesis

Route of inoculation

Intracerebral route

Subcutaneous route

Intraperitoneal route

Intranasal route

Method of pathogenicity testing in laboratory animal

Virus is inoculated via suitable route



Animals are observed for development of signs of disease or death



Infected animals are then sacrificed and tissues are examined for presence of viruses by various tests

inclusion bodies in infected tissues

Background

Prior to development of cell lines

- Egg inoculation was preferred methods of virus cultivation

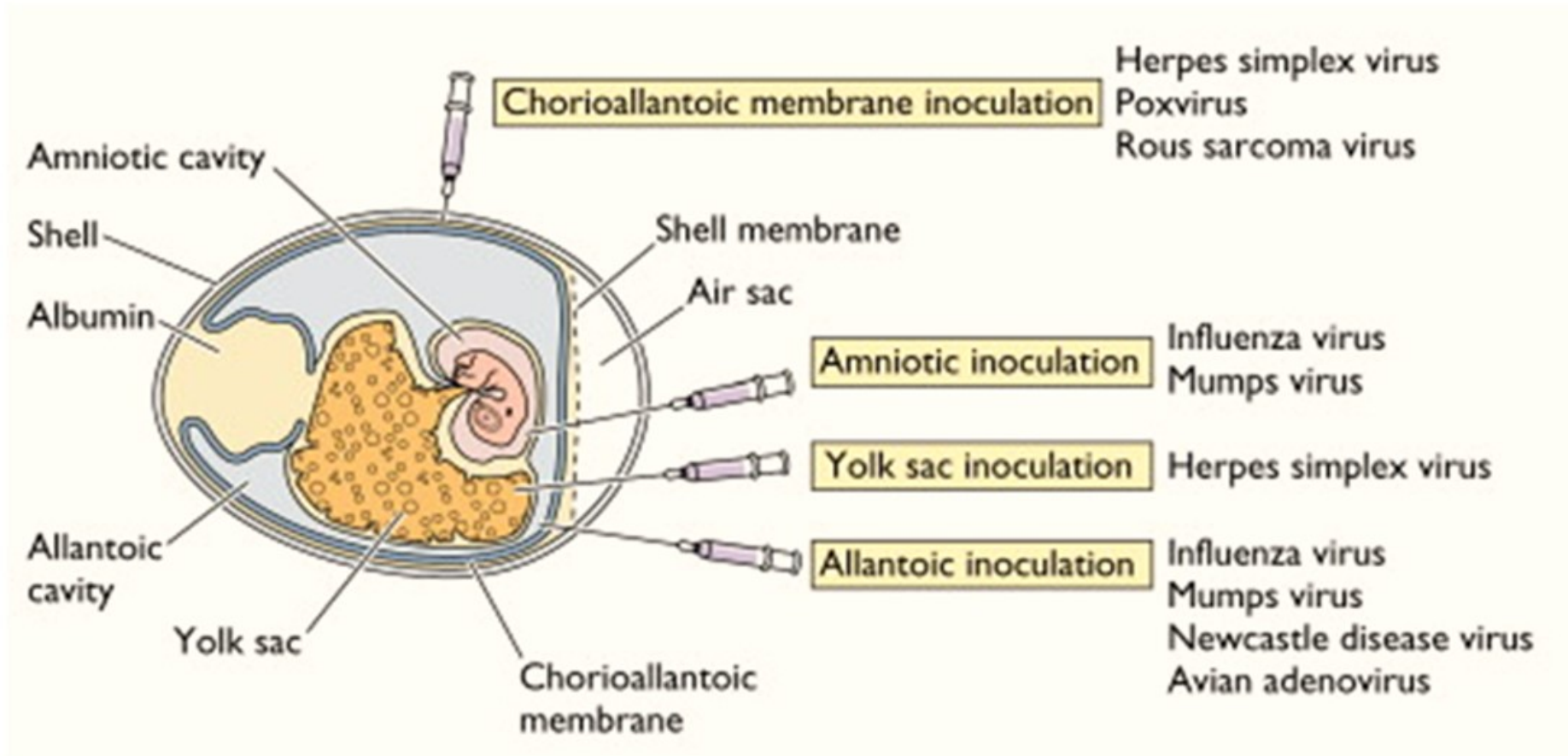
viruses grow in cells and membranes of the embryo

- Embryonated chicken eggs are used for the cultivation of some viruses

Indicators of Growth and multiplication of the viruses

- Death of the embryo, or by the formation of typical pocks or lesions on the egg membranes

Isolation in embryonated Eggs



Route of inoculation

Yolk sac:

- Cultivation of Japanese encephalitis virus, Chlamydia and rickettsia

Amniotic cavity

- Primary isolation of influenza virus

Allantoic cavity

- Influenza virus, rabies (flury strain) viruses Newcastle disease virus, Avian adenovirus

Chorioallantoic membrane

- Variola or vaccinia virus, Herpes simplex virus, Poxvirus, Rous sarcoma virus

Thanks