

Laboratory diagnosis of viral infections **Anusha Polampelli***

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Introduction

In the diagnostic laboratory virus infections is confirmed by a mess of strategies. Diagnostic medical specialty has modified speedily because of the appearance of molecular techniques and augmented clinical sensitivity of serologic assays.

Sampling

A wide sort of samples is used for medical specialty testing. the kind of sample sent to the laboratory usually depends on the kind of virus infection being diagnosed and therefore the check needed. a

Virus isolation

Viruses area unit usually isolated from the initial patient sample this enables the virus sample to be big into larger quantities and allows a bigger variety to check to be run on them. this can be notably necessary for samples that contain new or rare viruses that diagnostic tests are not nevertheless developed.

Many viruses are big in cell culture within the science lab. To do this, the virus sample is mixed with cells, a method known as surface assimilation, when that the cells become infected and turn out a lot of copies of the virus. though totally different viruses usually solely grow in sure sorts of cells, there are a unit cells that support growth of an oversized sort of viruses and area unit an honest start line, for instance the African monkey excretory organ cell line (Vero cells), human respiratory organ fibroblasts (MRC-5), and human epidermoid malignant neoplastic disease cells (HEp-2). One means that of decisive whether the cells area unit with success replicating the virus is to envision for a modification in cell morphology or for the presence of death employing a magnifier.

Other viruses might need different strategies for growth like the vaccination of embryonated chicken eggs (e.g. vertebrate respiratory disease viruses) or the intracranial vaccination of virus victimization newborn mice (e.g. lyssaviruses).

Nucleic acid-based strategies

Molecular techniques area unit the foremost specific and sensitive diagnostic tests they will notice either the complete infective agent order or components of the infective agent order. within the past supermolecule checks have chiefly been used

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as a secondary test to substantiate positive serologic results. However, as they become cheaper and a lot of machine-driven, they are more and more changing into the first tool for medicine.

Polymerase chain reaction

Detection of infective agent RNA and desoxyribonucleic acid genomes is performed victimization enzyme chain reaction. this system makes several copies of the virus order victimization virus-specific probes. Variations of PCR like nested polymerase PCR and real time PCR can even be accustomed confirm infective agent masses in patient body fluid often accustomed monitor treatment success in HIV cases.

Sequencing

Sequencing is that the solely diagnostic technique that may give the total sequence of an outbreak order. Hence, it provides the foremost data regarding terribly tiny variations between 2 viruses that may look identical victimization alternative diagnostic tests. presently it is solely used once this depth of knowledge is needed. for instance, sequencing is helpful once specific mutations within the patient area unit tested for to work out antiviral medical care and condition to infection. However, because the tests have gotten cheaper, faster, and a lot of machine-driven, sequencing can probably become the first diagnostic tool within the future.