Medical News

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Early Diagnosis of HIV Infection Achieved With Polymerase Chain Reaction

The human immunodeficiency virus (HIV) infection may be diagnosed earlier with polymerase chain reaction technology than with other available tests.

Currently available laboratory methods, such as enzyme-linked immunosorbent assay (ELISA) and western blot, detect HIV antibodies that may take three weeks to six months after initial infection to reach measurable levels in the blood. Using polymerase chain reaction, scientists can produce millions of copies of DNA from a single DNA segment within two hours, making it possible to detect a single HIV-infected cell among 100,000 uninfected cells prior to seroconversion.

Polymerase chain reaction may be important in resolving the HIV status of persons with indeterminate serological results-such as newly infected individuals and babies born to HIV-positive mothers. Serological tests are not useful in neonatal HIV screening because newborns carry their mothers' antibodies and will test positive with serological methods. HIV infection is transmitted to an estimated 30% of newborns from their HIV-positive mothers.

Progress is being made in developing a polymerase chain reaction-based HIV kit for use in the clinical laboratory The kit will be a qualitative assay that can detect the presence of HIV at any stage of infection. One of the test kit's most important uses is expected to be for neonatal screening, where it may replace the need for viral culture, that can delay critical treatment for weeks.

An estimated one million Americans are thought to be infected with HIV, reports the National Institute of Allergy and Infectious Diseases. And more than 80% of U.S. physicians have now treated an HIV-positive patient, according to the American Medical Association.

Portable Tuberculosis Air Purifier

A new, portable high-efficiency filtration device filters tuberculosis-carrying airborne particulates. The MICROCON (Biological Controls, Tinton Falls, New Jersey) unit combines a high-volume (up to 725 cfm delivered) air impeller with a submicron high efficiency particulate air (HEPA) filter, both contained in a caster-mounted ducting unit. The unit also has a shielded UV-lamp option.

Tuberculosis bacteria present a serious threat to healthcare workers and patients wherever tuberculosis patients are being treated. The micron-size bacillus attaches to droplet nuclei and can migrate with air currents, distributing the bacteria throughout a facility. MICROCON's 360° intake and exhaust creates a recirculation pattern that filters the air within a room up to 55 times per hour.

MICROCON's HEPA filter is a self-sealed replaceable module. A patent application has been made for the MICROCON design.

From the Centers for Disease Control

PUBLIC-SECTORVACCINATION EFFORTS IN RESPONSE TO THE RESURGENCE OF MEASLES AMONG PRESCHOOL-AGED CHILDREN— UNITED STATES, 1989-1991

From 1989 through 1991 in the United States, the incidence of reported measles increased six-fold to nine-fold over the median annual incidence (1.3 per 100,000 population) reported from 1981 through 1988.

https://doi.org/10.1017/S0899823X00089297 Published online by Cambridge University Press