

Manufacturing of HIV-1 real-time PCR test kits to support HIV/AIDS project in Vietnam

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UNAIDS reported (2012) that 3.4 million children worldwide were living with AIDS. 230,000 deaths occurred among children under 15 years (2011). 2,000 newborn babies and 6,000 pregnant women infected with HIV annually in Vietnam. The importance of early identification of HIV infection is reflected in the 40% mortality rate within the first 12 months of infected infants that do not receive antiretroviral therapy (ART). In a study of infected infants, ART initiated prior to 2 months of age reduced mortality by 76%, supporting the efficacy of early ART. The detection of HIV is possible directly following the birth of a child by utilizing PCR to amplify HIV-DNA or RNA from blood samples. Blood collected on filter paper provide a fast, efficient, and low cost means to transport samples for HIV detection. RT-PCR detection and quantitation of specific amplicons have been achieved using dye and quencher labeled probes. The molecular beacon has a fluorescent reporter dye at 5'-end and a quencher at the 3'-end. When the closed molecular beacon is excited by irradiation, the reporter fluorescence is greatly reduced by quenching through the process of fluorescence resonance energy transfer. When the molecular beacon hybridizes to the target, the stem loop opens the reporter dye, with the quencher dye, thus increasing the reporter dye fluorescence intensity. In this presentation, the manufacturing of real-time PCR kits for HIV-1, and distributing of kits to 64 cities and towns in Vietnam for detection, quantitation of virus in infected new-born babies, will be presented and discussed.

Biography

Huynh Vu has received Ph.D. in Bio-Organic Chemistry from the University of Tokyo, Japan, in 1979. He was chemist at Nippon Kayaku Chemical Co., Japan and postdoc with School of Pharmacy, Purdue University. He worked with Stanford Research Institute International, in Bio-Organic Chemistry Department, and Applied Biosystems Inc., in R&D Department. Dr. Huynh was senior manager in anti-HIV research at Triplex Pharmaceuticals Inc., and molecular diagnostic research at Gen-Probe Inc. From 2009, he worked as CSO of Genomeplex Research Institute, Inc. for manufacturing of real-time PCR for HIV-1 virus. He has more than 200 presentations, publications and product developments with companies.

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