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Large-scaled manufacturing of HIV-1 real-time PCR test kit, to support HIV/AIDS projects in Southeast Asian countries

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UNAIDS reported 2,000 newborn babies and 6,000 pregnant women infected with HIV in Vietnam, and 5,000 newborn infants were infected in Philippines in 2013. The importance of early identification of 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 of DNA or RNA from blood samples. Blood collected on filter paper provides a fast, efficient, and low cost means to transport samples for HIV detection. Real Time-PCR for detection and quantitation of specific amplicons has been achieved using quencher and dye labeled oligo probes (QDOPs). The QDOP has a fluorescent reporter dye at 5'-end and a quencher at the 3'-end. When the closed QDOP is excited by irradiation the reporter fluorescence is greatly reduced by quenching through the process of fluorescence resonance energy transfer. When the QDOP hybridizes to the target, the stem loop opens the reporter dye, with the quencher dye, thus increasing the reporter dye fluorescence intensity. In this workshop, the manufacturing of molecular test kits using advanced technology, with 1 – 20 M tests per run, and the distribution of kits to citizens in Vietnam and Philippines for detection, quantitation of virus in infected newborn babies, will be presented and discussed.

Biography

Huynh Manh Vu received PhD degree in Chemistry from Biotechnology Dept., the University of Tokyo, Japan, in 1979. He worked at Nippon Kayaku Chemical Co., in USA, he worked in R&D Dept. of Stanford Research Institute International, and Applied Biosystems Inc. He was Senior Manager in Anti-viral at Triplex Pharmaceuticals Inc., and Diagnostics Research at Gen-Probe Inc. In 2009, he became the Founder and CSO of Genomeplex Research Institute, Inc. for Manufacturing of HIV-1 Real-Time PCR, under collaboration with partners in Asia, for prevention of HIV/AIDS. He has 28 years of experience in Molecular Diagnostics, and more than 200 publications and product development documents.

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