

## **Rapid Identification of 12 Respiratory Viruses with a Multiplex PCR Assay**

Department of Laboratory Medicine and Genetics, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

**Suk-Ran Kim, Chang-Seok Ki, Nam-Yong Lee**

A newly developed multiplex-PCR assay based on the DPO system (Seeplex® RV Detection Kit) was evaluated for the simultaneous detection of 12 respiratory viruses; influenza viruses A and B, parainfluenza viruses (PIV-1, PIV-2, and PIV-3), human respiratory syncytial virus A and B, human metapneumovirus, human coronaviruses OC43 and 229E/NL6, human rhinovirus A, and adenoviruses. The limit of detection (LOD) was estimated to be 101 copies/mL for each viral strains and there was no cross-reactivity for common bacterial and viral pathogens. A comparison study with conventional viral culture and immunofluorescence (VC/IF) method was performed using 101 respiratory specimens from 92 patients. By conventional VC/IF method, fifty seven specimens (56.4 %) showed positive results without any co-infection cases. The Seeplex® assay effectively detected the same viral strains in all 57 specimens. In addition, 9 out of the 57 specimens (15.8 %) were found to be co-infected with other respiratory viruses and 25 out of 44 (56.8 %) specimens testing negative with VC/IF gave positive results according to the Seeplex® assay. In the cases of a serial culture of respiratory specimens in the same patients for a clinical follow up, the Seeplex® assay showed more consistency and a better ability to reflect the patient's clinical status. Considering the high sensitivity and specificity, the Seeplex® multiplex-PCR assay might be a good alternative for the detection of common respiratory pathogens.