Molecular detection of respiratory pathogens

**MATERIALS AND METHODS**

**RT-PCR**

RT-PCR was performed in a commercial LightCycler 480 instrument (Roche Diagnostics, Indianapolis, IN). Reactions were performed in a final volume of 20 μL containing 10 μL of LightCycler 480 Master Mix, 0.8 μL of each primer, and 1 μL of cDNA template. The cycling conditions were as follows: initial denaturation at 95°C for 10 minutes, followed by 45 cycles of 95°C for 15 seconds, 60°C for 30 seconds, and 72°C for 30 seconds. The data were analyzed using the LightCycler 480 software (Roche Diagnostics).

**Results**

RT-PCR revealed the presence of **Influenza A** and **Influenza B** in the sample. The patient was found to be co-infected with both viruses, which is a common finding in the winter season. The results also indicated the presence of **rhinovirus**, **adenovirus**, and **respiratory syncytial virus**. These findings are consistent with the clinical presentation of the patient, which included fever, cough, and respiratory distress.

**DISCUSSION**

The results of this study highlight the importance of using multiplex RT-PCR for the detection of respiratory viruses. This approach is particularly useful in clinical settings where multiple viruses may be present simultaneously. The use of RT-PCR in conjunction with other diagnostic tests, such as DFA or rapid antigen tests, can provide a comprehensive evaluation of the patient's respiratory tract.

**CONCLUSION**

The presented case study demonstrates the utility of multiplex RT-PCR in the diagnosis of respiratory infections. The identification of multiple viruses in a single sample underscores the need for comprehensive diagnostic testing to guide appropriate treatment and public health interventions.