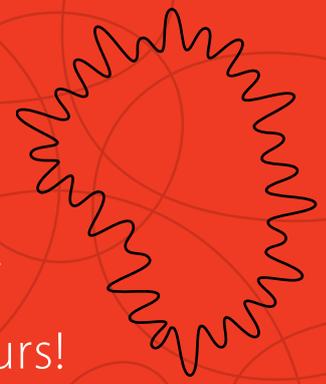# RespiFinder® SMART 22 FAST

A Real Time PCR based multiplex assay to detect
22 respiratory pathogens: diagnosis within 4 hours!
PF2500-SF (50 reactions)

Overview

Acute respiratory tract infection (RTI) is the most wide-spread type of acute infection in adults and children and is a significant cause of mortality in immunocompromised patients. The RespiFinder® SMART 22 FAST is a multiplex PCR assay for the simultaneous detection and differentiation of 22 respiratory pathogens within 4 hours, with the same sensitivity and specificity as monoplex Real Time PCR. Sensitive and comprehensive diagnosis of the causative pathogen(s) can now be achieved within a single working day. These fast results will improve therapy and will assist in the prevention of unnecessary use of antibiotics or hospital admissions.

Diagnostic specimens

- Nasopharyngeal aspirate/lavage
- Swab
- Bronchoalveolar Lavage (BAL)
- Sputum (after sample pretreatment)

Quality

- Validated on QCMD panels
- Validated on clinical samples
- CE-IVD labelled
- Designed and Produced under ISO13485:2003

Targets

Panel 1	Panel 2
Internal Control (IAC)	Internal Control (IAC)
Influenza A	Influenza A H1N1v
Influenza B	Parainfluenza-1
RSV-A	Parainfluenza-2
RSV-B	Parainfluenza-3
Human Metapneumovirus	Parainfluenza-4
Rhinovirus/Enterovirus	Bocavirus
Adenovirus	Coronavirus NL63
Mycoplasma pneumoniae	Coronavirus HKU1
Chlamydophila pneumoniae	Coronavirus 229E
Legionella pneumophila	Coronavirus OC43
Bordetella pertussis	

Features and benefits

- 18 viral + 4 bacterial RTI causing pathogens in one assay
- Diagnosis within 4 hours
- As sensitive as monoplex Real Time PCR
- Internal Amplification Control included

Procedure

Despite the developments in conventional PCR, the complexity of multiplex Real Time PCR is still limited due to the lack of sufficient detection channels. To achieve high-end multiplexing capacity on standard Real Time PCR machines, PathoFinder has developed the SmartFinder® technology. For every SmartFinder® reaction, up to 12 targets can be identified by means of melting curve analysis.

After a gene-specific multiplex reverse transcription step, the sample is split into two SmartFinder® reactions. In a SmartFinder® reaction two unique probes hybridize specifically to the pre-amplified DNA of each pathogen present in the clinical specimen. Hybridized probes are joined by a ligation step and subsequently amplified using a universal PCR primer pair of which one primer is labelled with a fluorescent dye (FAM).

The detection of the amplified FAM labelled probes is by melting curve analysis on Real Time PCR systems. Twelve detection probes, either ROX or Cy5 labelled and varying in melting temperature, enable specific detection of the amplified probe and the corresponding pathogen. The Internal Amplification Control (IAC), which is added at the start of the procedure, is detected by a specific detection probe in an additional channel to validate negative sample results. For more information about the SmartFinder® technology and SmartFinder® products, please visit our website: www.pathofinder.com.

Detection systems

- Lightcycler 480 (Roche),
- Lightcycler II (Roche),
- Rotor-Gene 3000 or 6000 (Corbett),
- Rotor-Gene Q (Qiagen)

References

- RespiFinder: A new multiparameter test to differentially identify fifteen respiratory viruses; M.Reijans, et al. J.Clin. Microbiol.; 2008, Vol. 46, p1232-1240.
- RespiFinder SMART 22 FAST: detection of 22 respiratory pathogens within four hours; L. Evers, Y. Ozog, S. Mansour, K. Loens, M. Reijans, M. Ieven, G. Simons (Maastricht, NL; Antwerp, BE); ECCMID 2013, Berlin, Germany.

Target DNA

Hybridization

Probe 1   Probe 2

Ligation

Amplification

Detection

Fluo

Temp