
QIAGEN
The accuracy
your patients deserve
The test confidence
you want
RespiFast RG Panel:
for the detection of
22 respiratory pathogens
Sample to Insight

RespiFast RG Panel

The RespiFast RG Panel is a qualitative multiplex PCR test for the detection and differentiation of 22 pathogens that can cause respiratory tract infections in humans. The kit is a ready-to-use assay for use with human nasopharyngeal swabs collected in Universal Transport Media (UTM). Sample preparation is automated on QIAsymphony® SP or can be performed manually. Detection is performed on Rotor-Gene® Q MDx and results are obtained within 3 hours and 30 minutes after nucleic acid extraction.

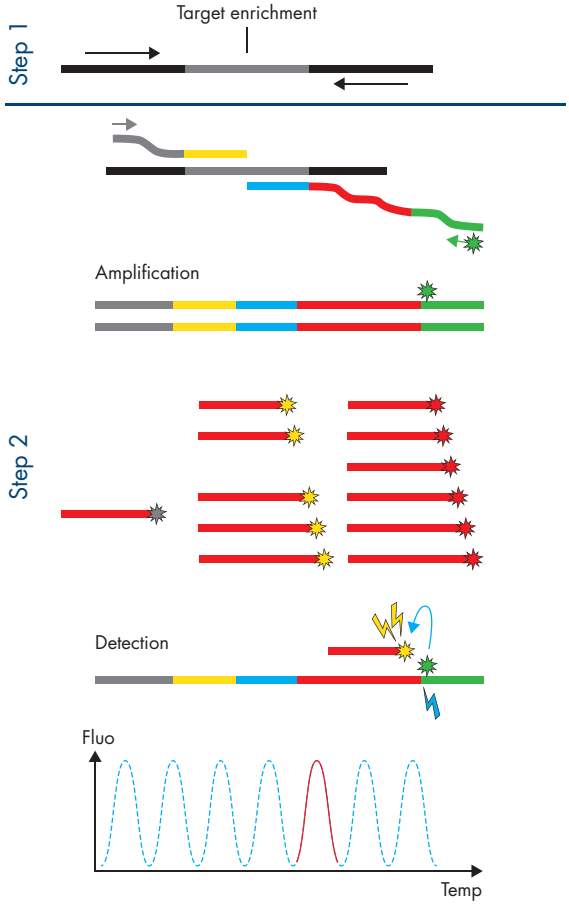
Multiplex to catch them all

Acute respiratory tract infection (RTI) is the most widespread type of acute infection in adults and children and is a significant cause of disease in immunocompromised patients. Both bacteria and viruses can cause acute RTI, and the number of causative pathogens is large and diverse. RespiFast RG Panel simultaneously detects and differentiates between 22 respiratory pathogens – 16 RNA viruses, 2 DNA viruses and 4 bacteria.

Viruses	Bacteria
Adenovirus	*Bordetella pertussis*
Bocavirus	*Chlamydophila pneumoniae*
Coronavirus 229E	*Legionella pneumophila*
Coronavirus HKU1/NL63	*Mycoplasma pneumoniae*
Coronavirus OC43	
Human Metapneumovirus	
Influenza A	
Influenza A H1N1pdm09	
Influenza B	
Parainfluenza virus type 1	
Parainfluenza virus type 2	
Parainfluenza virus type 3	
Parainfluenza virus type 4	
Rhinovirus/enterovirus	
Respiratory syncytial virus type A	
Respiratory syncytial virus type B	

The RespiFast RG Panel is based on the SmartFinder® technology that allows a highly complex analysis of up to 14 targets in a single real-time PCR reaction. The RespiFast RG Panel contains 23 different RespiFast primer sets combined with 15 fluorescent-labeled, single-tube multiplex amplification in real time (SMART) probes that enable the detection of 22 different pathogens as well as an internal control and 2 amplification controls. The reaction starts with a pre-amplification step that combines a reverse transcription step with a PCR step to amplify the target nucleic acids. Subsequently, a part of the pre-amplification reaction is transferred to 2 PCR tubes, and 2 separate reactions are performed. Detection of the pathogen is performed using Rotor-Gene Q MDx and melting curve analysis.

Overview of the workflow with the RespiFast RG Panel



Full confidence using multiple controls

An internal control is included in the assay to discriminate between true-negative samples and false-negative samples due to nucleic acid degradation, PCR inhibition or test failure. Two amplification controls are included in the assay to contingently discriminate between extraction failure and amplification failure in the assay. A positive control consisting of a DNA plasmid containing the target sequences of 4 pathogens is also included in the kit. The positive control does not require nucleic acid extraction and is handled as a sample in the RespiFast RG protocol. The positive control is recommended, but not mandatory.

Outstanding detection

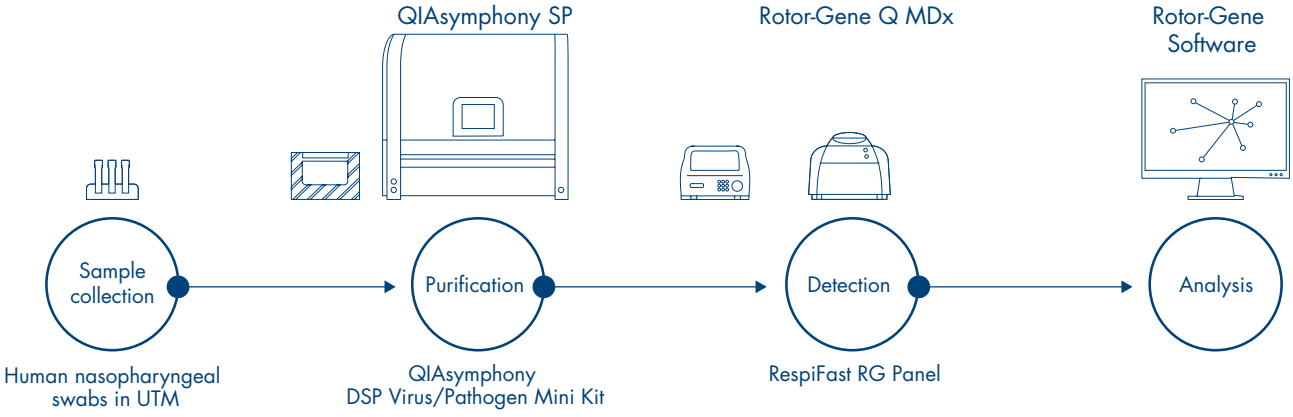
The limit of detection (LOD) was determined using whole virus and bacterial specimens in UTM by testing 20 replicates with the RespiFast RG Panel. The LOD for the respective pathogen was defined as a hit rate of greater than 18 out of 20 replicates. The following table details the LOD of the RespiFast RG Panel. If the LOD deviates between sample preparation methods, the LOD obtained with automated nucleic acid extraction is italicized.

Pathogen	Subtype or strain	Source	LOD copies/ml	LOD copies/reaction
Adenovirus	B3	ATCC®*	170	6
Bocavirus	N/A† (recombinant plasmid)	In-house	915 *4575*	31 *155*
Coronavirus	229E	ATCC	1610	*54*
Coronavirus	OC43	ATCC	9467	316
Coronavirus	NL63	Zepto-Metrix	120 *600*	4 *20*
Coronavirus	HKU1 (RNA extract from viral culture)	CHU Caen, France	192	6
Coxsackievirus	A9	ATCC	1840	61
Human Metapneumovirus	B3	Zepto-Metrix	350	12
Influenza A	H3N2 Victoria	ATCC	1195 *2390*	40 *80*
Influenza A	H1N1 Virginia	ATCC	140	*5*
Influenza B	Maryland	ATCC	173	6
Parainfluenza	1	ATCC	281 *7025*	9 *225*
Parainfluenza	2	ATCC	1053	35
Parainfluenza	3	ATCC	395	13
Parainfluenza	4a	ATCC	347	12
Rhinovirus	16	ATCC	90	3
Respiratory syncytial virus type A	2	ATCC	96	3
Respiratory syncytial virus type B	18537	ATCC	175 *1750*	6 *60*
B. pertussis	N/A	ATCC	70 *350*	2 *10*
L. pneumophila	N/A	ATCC	209	*7*
M. pneumoniae	N/A	ATCC	440	15
C. pneumoniae	N/A	ATCC	201	*7*

* American Type Culture Collection, USA.
† Not applicable.

Flexibility in your workflow

Nucleic acid extraction is automated on QIAsymphony SP using the QIAsymphony DSP Virus/Pathogen Mini Kit. As an alternative, manual nucleic acid extraction is validated using the QIAamp® MinElute® Virus Spin Kit. The workflow below highlights the automated nucleic acid extraction.



Ordering Information

Product	Contents	Cat. no.
RespiFast RG Panel	For 25 reactions: Pre-amplification Master Mix, Pre-amplification primer mix, RespiFast buffers, RespiFast enzyme, Internal Control, Positive Control, Dilution buffer	4693163
QIAsymphony DSP Virus/ Pathogen Mini Kit	For 192 preps (200 µl each): includes 2 reagent cartridges and enzyme racks and accessories	937036
QIAamp MinElute Virus Spin Kit	For 50 minipreps: 50 QIAamp MinElute Columns, QIAGEN Protease, carrier RNA, Buffers, Collection Tubes (2 ml)	57704

The RespiFast RG Panel is intended for in vitro diagnostic use.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN handbook or user manual. QIAGEN kit handbooks and user manuals are available at **www.qiagen.com** or can be requested from QIAGEN Technical Services or your local distributor.

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