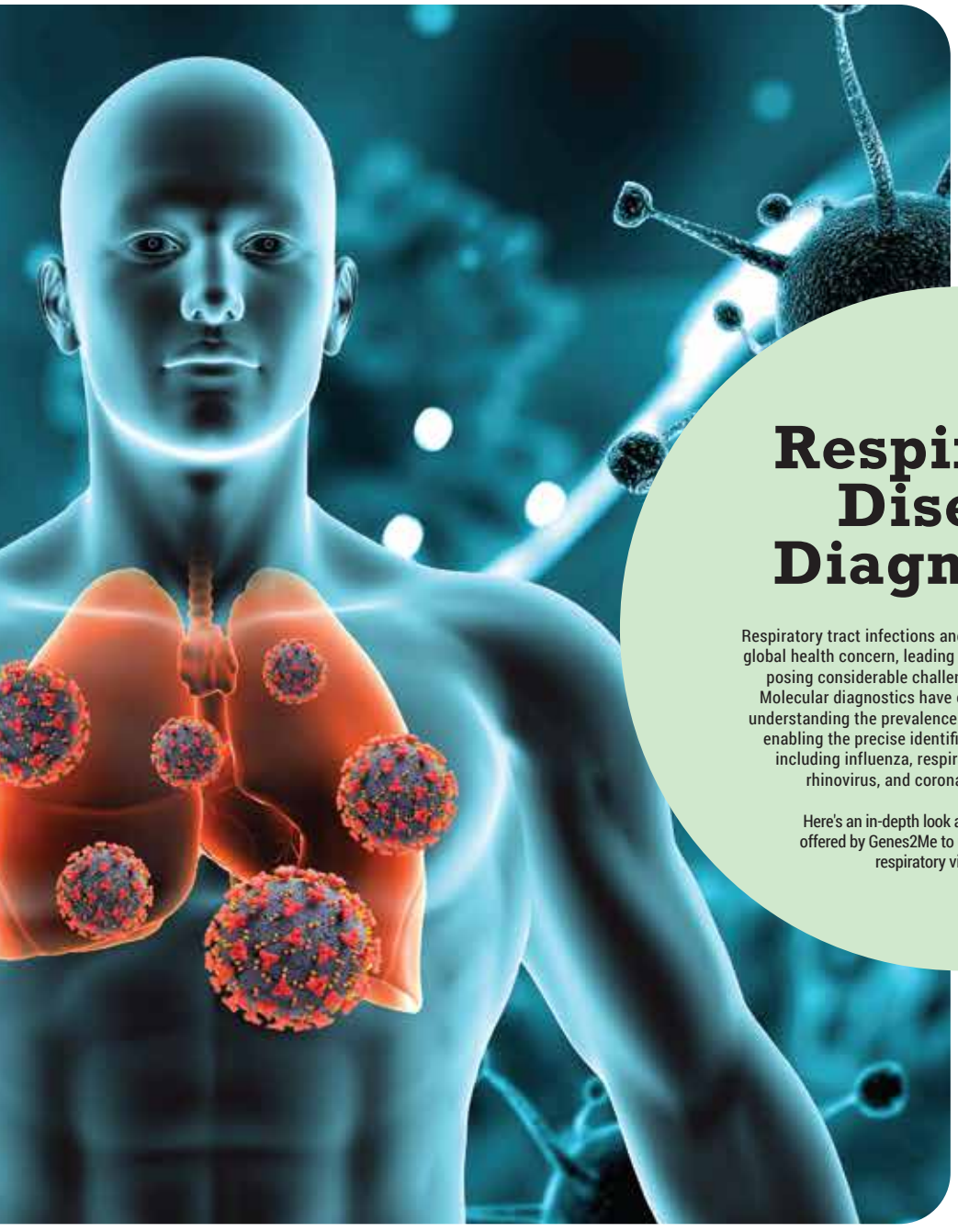
RT-PCR RESEARCH SOLUTIONS

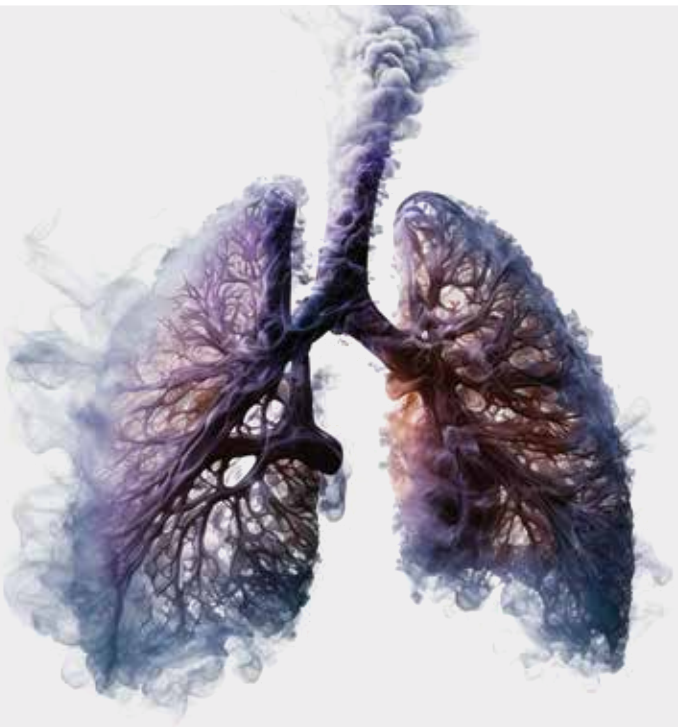
Analyzing Complex Rare Diseases



Respiratory Disease Diagnostics

Respiratory tract infections and lung diseases are a significant global health concern, leading to a wide range of illnesses and posing considerable challenges for healthcare systems. Molecular diagnostics have emerged as a powerful tool in understanding the prevalence and impact of these infections enabling the precise identification of respiratory viruses, including influenza, respiratory syncytial virus (RSV), rhinovirus, and coronaviruses like COVID-19.

Here's an in-depth look at the various RT-PCR kits offered by Genes2Me to uncover the prevalence of respiratory viral infections.



RCP-Q Comprehensive Real Time PCR Kit

(Respiratory Comprehensive Panel)

- Comprehensive Panel for Respiratory Diseases.
- Comprehensive assay for the detection and identification of 12 pathogens using one-step real-time RT-PCR.
- The RCP-Q kit is equipped to detect & differentiate a vast array of respiratory pathogens, including viruses and bacteria, all in a single test. This comprehensive coverage simplifies the diagnostic process & enables timely and precise identification.
- The Respiratory Panel amplifies a conserved microbial genome region, enabling parallel multiplex reactions in each tube to detect different targets using four unique dyes.

Targets Covered	19
TAT	90 minutes.
Pathogen List	Parainfluenza 1, Parainfluenza 2, Parainfluenza 3, Parainfluenza 4, Influenza A, Influenza B, Pandemic H1N1, Enterovirus, Bocavirus, Coronavirus OC43, Coronavirus NL63, Coronavirus 229E, Coronavirus HKU1, SARS-CoV-2, Human metapneumovirus, Parechovirus, Rhinovirus, RSV A/B, Adenovirus.
Sample Source	Human respiratory samples, sputum, tracheal aspirate, throat swab, nasopharyngeal swab.

Mycobacterium Tuberculosis Detection

The Mycobacterium tuberculosis complex (MTC or MTBC) is a genetically related group of Mycobacterium species that cause tuberculosis in humans & spread via respiratory tract, digestive tract and skin injuries, thus affecting various organs and tissues.

People with prolonged infection or close contact with infected people are at particularly high risk and those with active but untreated tuberculosis may infect more people annually. Thus, Genes2Me qRT-PCR kits are designed for rapid and accurate detection of M.tuberculosis in patient specimens & preventing them from delayed diagnosis and severe health losses.

MTC-Q Real Time PCR Kit

- Detection of Mycobacterium tuberculosis infection in clinical samples.
- Targets Covered: IS6110, MPt64 genes.

TB-Q Comprehensive Real Time PCR Kit

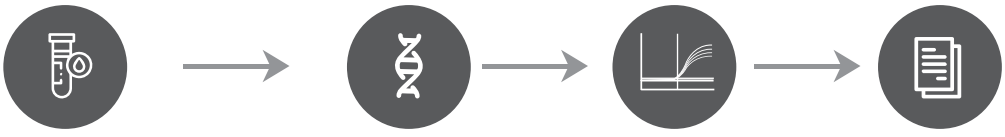
- Allows detection of MDRTB (Multidrug- resistant tuberculosis)
- 16 mutations covered for two first line drugs ie. isoniazid (INH) & rifampicin (RIF) resistant/ sensitive tuberculosis.

Target covered: RRDR of rpoB, katG, inhA genes.

MTB-NTM Multiplex Real Time PCR Kit

- Detects Non-tuberculosis mycobacterium infections causing lung diseases/ non causative agents of TB.
- Multiple NTM genotypes including: M. abscessus; M. avium; M. fortuitum; M. kansasii; M. intracellulare; M. massiliense; M. chimaera
- Accurate Detection and Differentiation of tuberculosis with NTM.
- Targets Covered: NTM specific - HSP65 gene.
  MTB specific - MPt64 gene.

ASSAY DESIGN



Sample Collection : Respiratory Sputum, Pulmonary or Extra Pulmonary samples & Bronchoalveolar lavage (BAL)

Extraction of Nucleic Acid

RT-PCR Detection

Analysis and Report

Influenza A/B-Q (H1N1 & H3N2) Real Time PCR Kit

- Influenza is a viral illness primarily impacting the upper respiratory tract, typically lasting around a week which include symptoms like abrupt onset of high fever, muscle aches, headache, fatigue, a dry cough, sore throat, and runny nose.
- Multiplex kit for simultaneous detection & differentiation of Influenza A, Influenza B & Influenza A subtypes H1N1 & H3N2 virus specific RNA along with Internal control.
- Gene Targets covered : Influenza A-matrix protein 2 (M2) and matrix protein 1 (M1) & B- nuclear export protein (NEP) and nonstructural protein 1 (NS1), H1NI & H3N2-HA gene.

Genes Covered	03
TAT	60 minutes.
Gene List	Influenza A- Matrix protein 2 gene, Influenza B- Hemagglutinin (HA) gene, Influenza A Subtypes- H1N1 & H3N2 (HA) gene.
Sample Source	Human respiratory samples, sputum, tracheal aspirate, nasopharyngeal aspirate, throat swab, nasopharyngeal swab.

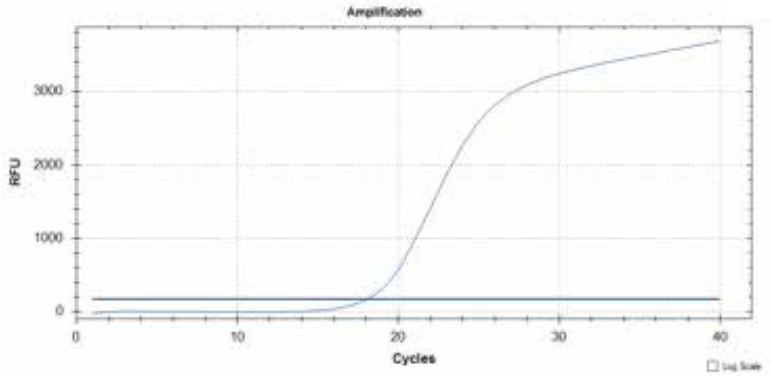


Image 1: Influenza A, B & H1N1

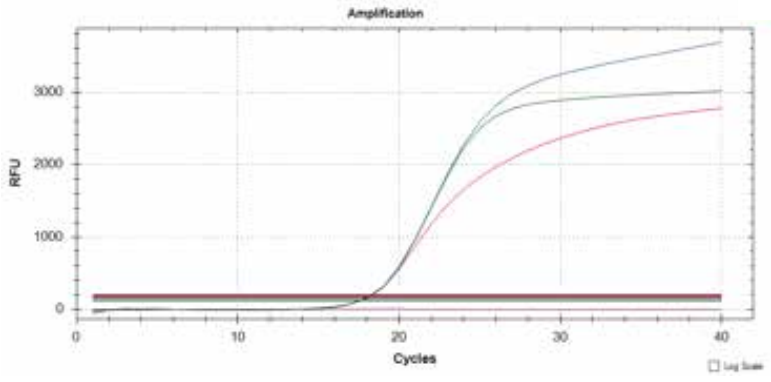


Image 2: Influenza H3N2

ParaFlu-Q Real Time PCR Kit

- Human parainfluenza viruses (HPIVs) commonly cause upper and lower respiratory illnesses in infants, young children, older adults, and people with weakened immune systems.
- Identification and differentiation of Parainfluenza variants in clinical samples from patients with signs and symptoms of respiratory infection.

Targets covered : Para1- HN gene; Para2,3,4- NP gene.

B.Pertussis-Q Real Time PCR Kit

- Bordetella pertussis causes whooping cough, an acute respiratory infection marked by severe, spasmodic coughing episodes during the paroxysmal phase.
- Leukocytosis with lymphocytosis is also common during this phase of the illness.

Targets covered : Bordetella pertussis bacterial strain specific mnmG gene in posterior nasopharyngeal swab samples.

RSV-Q Real Time PCR Kit

- Respiratory syncytial virus, or RSV is a common respiratory virus that usually causes mild, cold-like symptoms. Most people recover in a week or two, but RSV can be serious.
- Detection of RSV and differentiation between RSV subtype A and B specific RNA in clinical samples.

Targets covered : NS1 gene specific targets in nasopharyngeal/ oropharyngeal swab samples.

M. Pneumonia-Q Real Time PCR Kit

- Mycoplasma pneumoniae bacteria commonly cause mild infections of the respiratory system (the parts of the body involved in breathing).
- Outbreaks occur mostly in crowded settings like schools, college residence halls, military training facilities, long-term care facilities, and hospitals.

Targets covered : Mycoplasma pneumonia bacterial CARDS toxin (annotated mpn 372) gene in nasopharyngeal fluid, sputum and throat swab samples.

LP-MP Multiplex Real Time PCR Kit

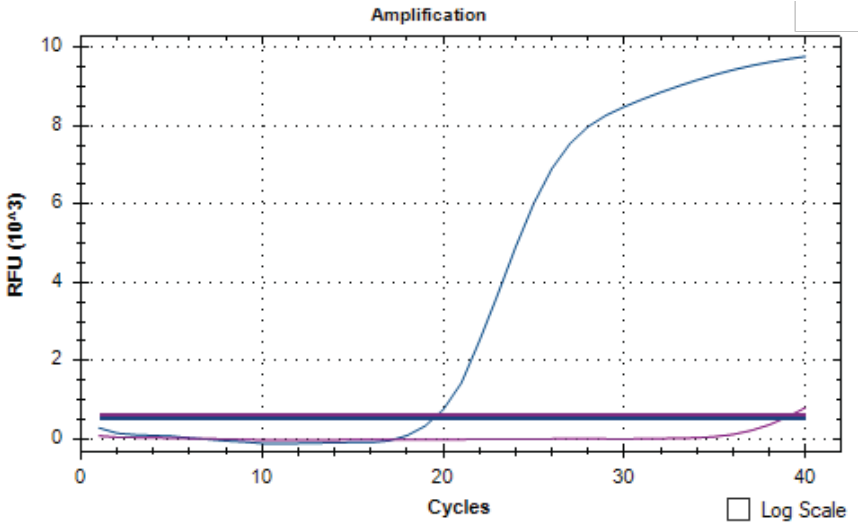
- Mycoplasma pneumoniae, Legionella pneumophila and Chlamydia pneumoniae are the most common bacterial agents, which account for 15–40%, 2–15% and 5–10% of atypical community-acquired pneumonia (CAP) respectively.
- Multiplex kit for identification and differentiation of Legionella pneumophila (LP)/ Mycoplasma pneumoniae (MP).

Targets covered : LP specific 16S rRNA & MP specific CARDS toxin gene.

Measles-Q Real Time PCR Kit

- Measles is a highly contagious disease caused by a virus which spreads easily when an infected person breathes, coughs or sneezes and can result in severe complications, and sometimes even death.
- Detection of highly contagious infection of eyes, nose, skin & throat caused by Measles virus.

Targets covered: N gene, H genes specific targets from measles virus.



Measles Real Time PCR specific amplification plot of measles positive sample (FAM channel) along with internal control (HEX channel).

S. Pneumonia-Q Real Time PCR Kit

- Streptococcus pneumoniae (the pneumococcus) is a major cause of morbidity and mortality as it is a common inhabitant of the respiratory tract.
- It causes a wide variety of diseases ranging from pneumonia, meningitis, otitis media, septicemia, and sinusitis to comparatively benign soft tissue infections.

Targets covered: Streptococcus pneumonia specific lytA gene in nasopharyngeal/ oropharyngeal swabs.

MERS-Q Real Time PCR Kit

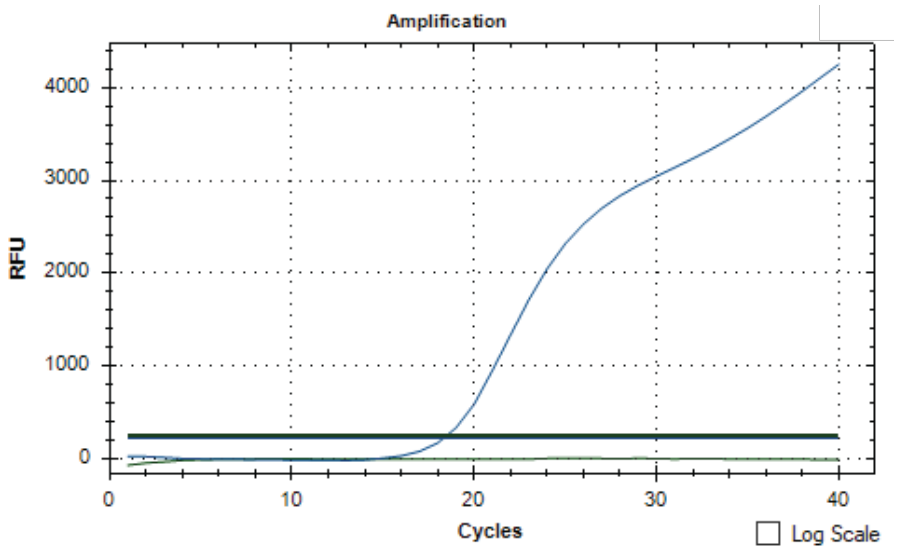
- Middle Eastern Respiratory Syndrome, or MERS was first reported in Saudi Arabia in the year 2012 which is a viral illness that causes severe lung infections and flu-like symptoms, with most patients developing pneumonia as a secondary infection.
- Detection of Middle East Respiratory Syndrome specific RNA in nasopharyngeal/ oropharyngeal swab samples.

Targets covered: MERS specific ORF1 & upE genes.

Adeno-Q Real Time PCR Kit

- Adenoviruses are a group of viruses that typically cause respiratory illnesses, such as a common cold, conjunctivitis (an infection in the eye that is sometimes called pink eye), croup, bronchitis, or pneumonia.
- Singleplex assay for detection of respiratory illness caused by Adenovirus.

Targets covered: Adenovirus specific L3 gene in nasopharyngeal/ oropharyngeal swabs.



Adeno-Q Real Time PCR specific amplification plot of Adeno positive sample (FAM channel) along with internal control (HEX channel).

COVID-19 Solutions

CoVFlu – One Step RT-PCR Kit

- CoVFlu stands as an exceptional diagnostic kit for extremely contagious respiratory diseases resulting from three distinct viruses: SARS-CoV-2, RSV and Influenza A/B.
- These viruses are transmitted through comparable means, such as respiratory droplets and aerosols, and manifest shared signs and symptoms, varying from mild to severe infections.
- Given the considerably higher transmission rates, severity of illness, complications, and mortality associated with COVID-19, there exists a critical requirement for the precise detection of Influenza A/B, RSV, and SARS-CoV-2 to ensure effective treatment and pharmaceutical interventions.
- CoVFlu is a multiplex RT-PCR kit which allows the co-detection of these 3 viruses.

Targets Covered	06
TAT	60 minutes.
Gene List	Influenza A-matrix protein 2 (M2) and matrix protein 1 (M1) & B- nuclear export protein (NEP); COVID-19- RdRp, N genes; RSV- NS1 gene.
Sample Source	Nasopharyngeal & Oropharyngeal swab.
Multi Target Design - differential labeled Probes	• Influenza A/B Targets (FAM) • COVID-19 Targets i.e. RdRp & N Gene (Texas Red) • RSV (Cy5) • RNaseP (HEX)

CoVFlu-II – One Step RT-PCR Kit

- Multi target design which allows for the simultaneous detection of multiple viral targets in a single sample which therefore, streamlines the diagnostic process.
- One step RT- PCR for qualitative & differential detection of SARS-CoV-2, Influenza A & B.

Kit Type	Pathogens and Dyes
Multiplex RT-PCR Kit	• Influenza A Targets (HEX dye) • Influenza B Targets (Texas Red dye) • SARS-CoV-2 (FAM dye) • RNaseP (Cy5 dye)

ViralDTECT-II Multiplex Real Time PCR for COVID-19

- This kit is designed as a multiplex real-time reverse-transcription PCR system, containing specific primers & fluorescent probes targeting genes of interest.
- Detection of 3 genes along with Internal control E gene (FAM dye); RdRp gene (Texas Red dye); N gene (Cy5 dye); RNaseP (HEX dye).

COVIDtect Multiplex RT PCR Kit for COVID-19

- This kit is an open-platform qualitative RT-PCR test utilizing Taqman Chemistry, designed for the in vitro detection of SARS-CoV-2 (COVID-19) in respiratory specimens, including nasopharyngeal swabs, oropharyngeal swabs, oropharyngeal washes, sputum, endotracheal aspirates, bronchoalveolar lavages, etc., from individuals suspected of having COVID-19.
- Detection of three genes i.e. S, RdRp and N gene (along with RNaseP as Internal Control).
- With no amplification in S gene ie S gene drop out, this test can be used as marker for possibility of Omicron variant.

RT-Direct Multiplex Real Time PCR Kit for COVID-19

- It is based on the 'gold standard RT-PCR method with coverage of three target genes specific to SARS-COV-2.
- Superior coverage of 3 gene ie RdRp, N and E gene (along with RNaseP as Internal Control).
- Single tube Qualitative extraction free results.
- Easy to perform and saves time, cost and manpower as it does not require RNA extraction process.

Ordering Information

Commercial Name	Cat No.	Pack Size	Compatible Instruments
RCP-Q Comprehensive Real Time PCR Kit	G2M803521	50 T	Instruments with FAM, ROX, Cy5, HEX/VIC Channels including RAPICycler - 96, ABI Prism®7500 & Quantstudio, BioRad CFX96, Roche Lightcycler, Qiagen Rotor-Gene, etc.
MTC-Q Real Time PCR Kit	G2M707321	50 T	
TB-Q Comprehensive Real Time PCR Kit	G2M803121	50 T	
MTB-NTM Multiplex Real Time PCR Kit	G2M707421	50 T	
Influenza A/B-Q Real Time PCR Kit	G2M706021	50 T	
ParaFlu-Q Real Time PCR Kit	G2M801921	50 T	
B. Pertussis-Q Real Time PCR Kit	G2M706821	50 T	
RSV-Q Real Time PCR Kit	G2M801221	50 T	
M. Pneumonia-Q Real Time PCR Kit	G2M707721	50 T	
LP-MP Multiplex Real Time PCR Kit	G2M707921	50 T	
Measles-Q Real Time PCR Kit	G2M705721	50 T	
S. Pneumonia-Q Real Time PCR Kit	G2M706921	50 T	
MERS-Q Real Time PCR Kit	G2M802121	50 T	
Adeno-Q Real Time PCR Kit	G2M707821	50 T	
CoVFlu – One Step RT-PCR Kit	G2M272721	100 T	
CoVFlu-II – One Step RT-PCR Kit	G2M709821	100 T	
ViralDTECT-II Multiplex Real Time PCR for COVID-19	G2M020220	100 T	
COVIDtect Multiplex RT PCR Kit for COVID-19	G2M030321	100 T	
RT-Direct Multiplex Real Time PCR Kit for COVID-19	G2M020321	100 T	