Meridian Life Science, Inc.

ISO 9001 Certified & GMP Compliant

Respiratory Diseases
Reagents for Assay Development

Meridian Life Science, Inc.
Innovative Solutions. Trusted Partner.®

www.MeridianLifeScience.com

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Meridian Life Science

Expertise in Infectious Disease

Meridian Life Science, Inc.
Innovative Solutions. Trusted Partner.®

Since 1983, Meridian Life Science, Inc. has provided antibodies and antigens for research and commercial assay development. With a specialty in infectious disease, the company offers over 1,500 different antibodies and antigens to infectious disease and toxins.

Infectious diseases are a leading cause of death, accounting for 30% of the estimated 68 million deaths per year worldwide. They are caused by pathologic agents including bacteria, viruses, fungi and parasites. Many infectious diseases are preventable and controllable if they are accurately diagnosed and treated in a timely manner.

Pregnant woman and children are at a greater risk of acquiring infectious diseases because their immune systems are not fully functioning. Pregnancy weakens the immune system, leaving expectant mothers and their fetuses more vulnerable to contracting a disease. Furthermore, babies do not start producing antibodies until they are 6 months old and a child's immune system is not fully mature until the age of 14. In addition, children, especially under the age of 5, tend to have poor personal hygiene, increasing the spread of infectious agents. Vaccinations have helped prevent and eradicate some of the most contagious diseases, however there are a number of diseases for which researchers are still developing vaccines and many people choose to remain unvaccinated. Overall, the preventable infectious diseases still account for two thirds of childrens' deaths worldwide.

The ability to quickly diagnose the cause of an infectious disease has had a large and favorable impact on the care of pregnant women and children. Diagnostic assays that directly identify an infectious agent have become increasingly essential and new diagnostic platforms have increased the potential to detect a wider range of established and newly discovered viruses with greater sensitivity.

KEY PRODUCTS FOR INFECTIOUS DISEASE

TORCH
- Toxo
- Rubella
- CMV
- HSV-1, 2

RESPIRATORY
- RSV
- Adenovirus
- Influenza A,B
- Parainfluenza (1, 2, 3)
- *Legionella pneumophila*
- *Chlamydia pneumoniae*
- *Mycobacterium tuberculosis*
- *Mycoplasma pneumoniae*
- *Streptococcus pneumoniae*
- *Staphylococcus aureus*
- *SARS Coronavirus*

TROPICAL
- Dengue
- Chikungunya
- Malaria
- Chagas
- Leishmaniasis
- Leptospirosis
- Newcastle disease

FOOD & WATER
- Hepatitis A
- *Campylobacter jejuni*
- *E. coli*
- *Legionella*
- *Salmonella*
- *Shigella*
- *Bacillus anthracis*
- *Clostridium difficile*
- *Listeria*
- *Streptococcus*
- *Staphylococcus*
- *Giardia*
- *Cryptosporidium*

CHILDHOOD
- Mumps
- Rubeola
- VZV
- Rotavirus
- RSV
- Coxsackie
- EBV
- Parvo B19

STDs
- HBV
- HCV
- HSV-1, 2
- HIV-1, 2
- Syphilis
- HPV (6, 11, 16, 18)
- *Chlamydia trachomatis*
- *Neisseria gonorrhoeae*

GASTROINTESTINAL
- Norovirus
- Rotavirus
- Adenovirus
- *Clostridium difficile*
- Astrovirus
- *Cryptosporidium*
- *Campylobacter jejuni*
- *E. coli*
- *Salmonella*
- *Giardia lamblia*
- *H. pylori*

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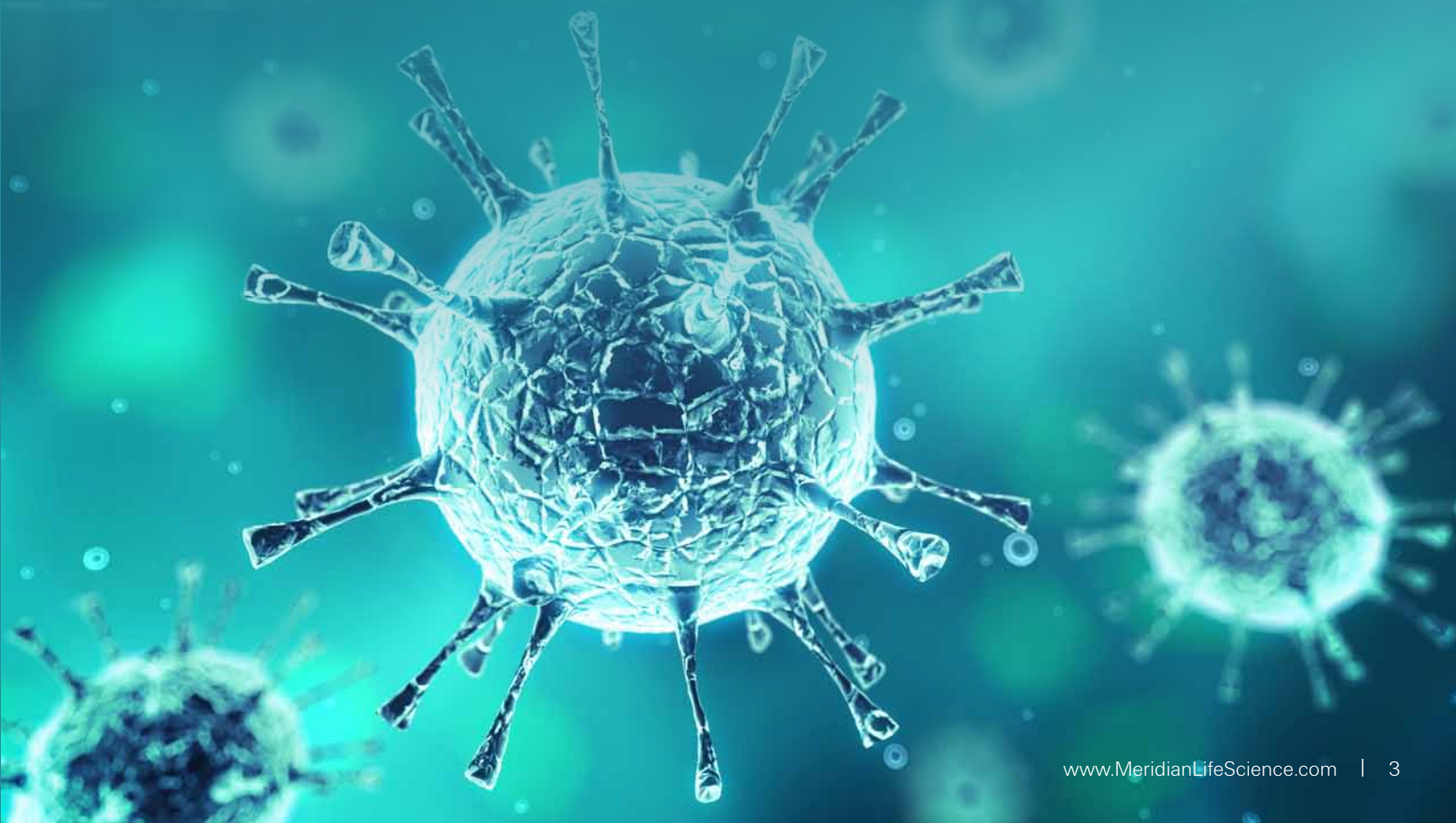
Meridian Life Science is a leading manufacturer of infectious disease reagents, with over 3,500 antigens and antibodies used in diagnostic applications.



Company Overview

Meridan Life Science, Inc

Meridian Life Science, Inc. is a leading large scale manufacturer of antibodies, viral antigens, recombinant proteins, PCR Enzymes, nucleotides and critical assay reagents.

Meridian has been providing innovative life science solutions and building trusted partnerships for over 35 years. Meridian's focus is to offer products and services that help to advance the development of diagnostic assays and vaccine development.

- Commercial scale manufacturing of antigens and antibodies with protein purification expertise
- Full line of immunoassay reagents, including antigens, antibodies, and blockers
- Large scale production of reagents for molecular assays
- Technical support with assay development experience
- Dedicated R&D and manufacturing teams
- Robust and mature Quality System

Meridian provides contract R&D, process development, and manufacturing services to the biopharmaceutical and *in vitro* diagnostic markets along with cGMP biologics manufacturing for Phase I/II clinical trials.

CORE EXPERTISE AND QUALITY SYSTEMS


CERTIFICATE

The Certification Body of
TÜV SÜD AMERICA INC.

Meridian
Life Science, Inc.
5171 Wilfong Road
Memphis, TN 38134 USA

ISO 9001:2008

Design, Manufacture and Distribution of Immunological Reagents, including the Production of Monoclonal Antibodies for the Healthcare Industry

ISO 9001:2008 Certificate

- ISO 9001 Certified & cGMP Compliant
- Virology
- Cell Culture
- Protein Purification
- *In Vitro* & *In Vivo* MAbs
- R&D Contract Manufacturing
- Nucleotide Chemistry
- PCR/qPCR Reagents

Extensive Capabilities and Services

Immunodiagnostics

- Antigens & Antibodies
- Recombinant Proteins
- Blocking Reagents

Contract Services

- Antigens & Antibodies
- cGMP Phase I/II Viral Vaccines
- Cell & Viral Banking

PCR Amplification

- Nucleotides
- Enzymes
- PCR/qPCR Reagents

WORLDWIDE PRESENCE

MEMPHIS, TN
Viral Antigens
Recombinant Proteins
In Vitro Antibodies
HAMA Blocking Reagents
Protein Purification
Contract R&D and PD
Cell and Viral Banking
cGMP Vaccines

BOCA RATON, FL
Ascites Production
Large Scale MAbs
55,000 Mice (BALB/c, CAF1)

BEIJING, CHINA
Representative Office

BOSTON, MA
Distribution & Sales

LONDON, UK
PCR /qPCR Assay Development
RNA Analysis
DNA MW Markers

SYDNEY, AUS
Competent Cells
DNA Extraction Controls

SINGAPORE
Representative Office

Parent Company:
MERIDIAN BIOSCIENCE, INC.
Diagnostic Test Kits
Founded in 1977; IPO in 1986
Nasdaq: VIVO
Headquartered in Cincinnati, OH
Employees: 550+
International Presence: 60+ countries

35+ Years of Manufacturing

Meridian's Experience

Meridian is a premier provider of products and services for the IVD and biopharmaceutical industries.

Products include large scale native and recombinant antigens, antibodies, and immunoassay blockers. Services include clinical cGMP manufacturing for vaccines, viral challenge materials, virus-like particles, vectored gene therapies, and recombinant proteins in various expression systems.

In addition, Meridian provides contract R&D, process development, scale-up, and downstream processing services to support IVD and biopharmaceutical production and has manufactured over 20 clinical grade biotherapeutics and vaccines in the cGMP facility in Memphis, TN.

PRODUCTION SYSTEMS

- Tissue Culture
- Spinner Flasks
- Roller Bottles (smooth and ribbed)
- Cell Factories
- WAVE Bioreactors™
- BioFlo 6000 Reactors
- Egg-based Virus Manufacturing
- 55,000 Mice Capacity

EXPRESSION SYSTEMS

- Mammalian (CHO, Vero, NS0, etc.)
- Bacterial *(E. coli)*
- Yeast *(P. pastoris, S. cerevisiae, H. polymorpha)*
- Baculovirus in Sf9
- Egg-based Virus Production
- Vaccinia & Adeno

PURIFICATION METHODS

- Protein A/G
- Ultrafiltration, Diafiltration
- TFF (plate or hollow fiber)
- Centrifugation/ultracentrifugation
- ÄKTA™ FPLC for SEC, Affinity, Ion exchange, HIC
- Dialysis, ultracentrifugation, tangential flow
- Expanded bed chromatography
- Centrifugation, gradient centrifugation
- Microfluidization, freeze/thaw, chemical lysis

SERVICES

VIRUS PRODUCTION

- Live or inactivated virus production in BSL2
- Expertise in infectious diseases (ToRCH, STDs, Childhood, Gastro, Respiratory, Tropical, etc.)
- Proprietary antigen purification techniques
- 300+ antigens manufactured using 90,000+ Tissue culture flasks, Roller bottles & Spinner flasks per year

RECOMBINANT PROTEINS

- 10L-130L Fermentation equipment
- *E. coli, P. pastoris, S. cerevisiae*, Baculovirus in Sf9, Eggs
- 200+ Customized rec-Antigens in commercial IVD assays
- 200+ large scale fermentation runs using *E. coli*
- 100+ large scale Egg-based Virus production (Flu A & B)
- 45+ projects using eggs & mammalian cell lines to produce challenge stocks (Rhinovirus, RSV, Influenza)
- Multiple custom clinical vaccines using Vero cells & Baculovirus in Sf9 cells in Phase I/II trials

MONOCLONAL ANTIBODIES

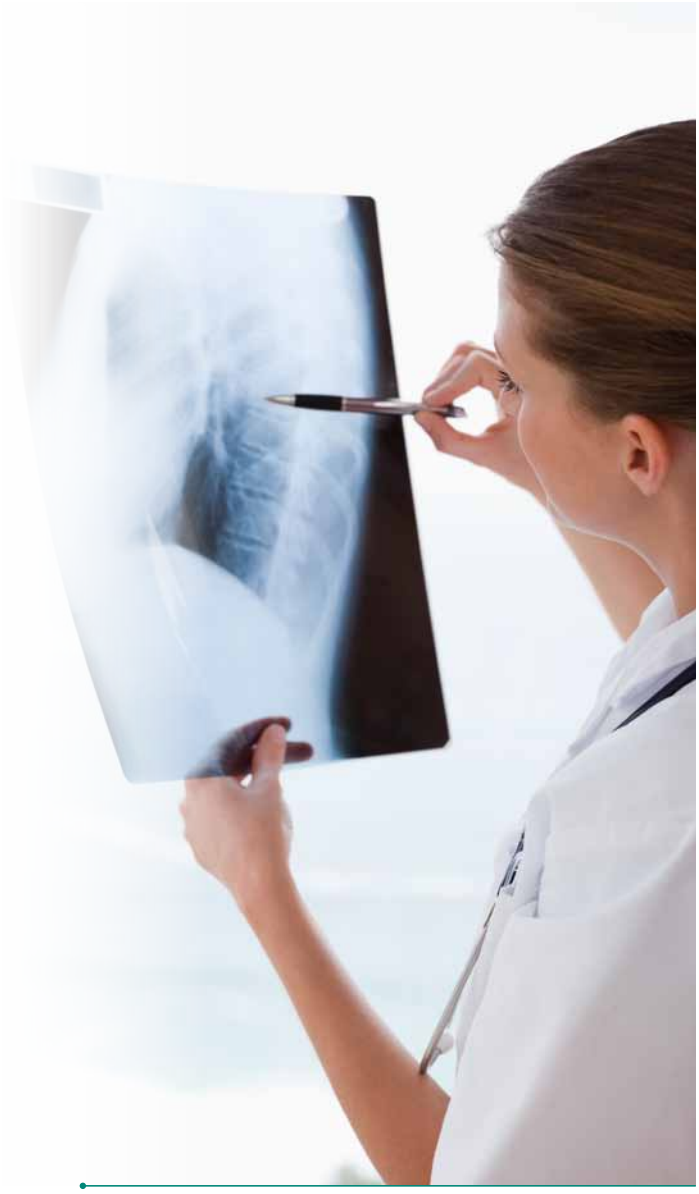
- 1000+ MAbs produced *in vivo / in vitro* in gram scale
- Large scale ascites production
- Multi-Kilogram quantities of mouse IgG
- Liters of ascites for hCG, TSH, T3, T4, HIV

PROTEIN PURIFICATION

- Protein A/G to purify 150kg+ of antibody/year
- Expertise in TFF to concentrate multiple viral products
- Equipment room with 20+ ultracentrifuges, which process 2000L+ per year
- 300+ batches/year that require microfluidization
- ÄKTA™ systems with capacities of 10mL – 8L per minute used to purify 400+ proteins

Respiratory Diagnostic Testing Overview

The respiratory tract is prone to developing infections because it comes in direct contact with the physical environment and is exposed to airborne microorganisms. Lower respiratory tract infections (LRIs) are a leading cause of morbidity and mortality worldwide.



A wide range of organisms can infect the respiratory tract including viruses, bacteria, fungi and parasites, and over a dozen pathogens are commonly encountered in a clinical setting. Accurate identification of the causative organism is required to effectively treat the infection and control its spread, since each organism (e.g. bacteria vs. viruses) does not respond to the same treatment (e.g. antibiotics).

Lower respiratory tract infections (LRIs) are generally more serious than upper respiratory infections (URTIs). They are the leading cause of death among all infectious diseases. Influenza virus, RSV, parainfluenza virus, and adenovirus are the most common viruses that cause LRIs such as tracheobronchitis, bronchiolitis, and pneumonia. Influenza affects both the upper and lower respiratory tracts, and more dangerous strains such as H5N1 tend to bind to receptors deep in the lungs.

Young children, the elderly, and patients with compromised cardiac, pulmonary, or immune systems are at greatest risk for serious disease by respiratory pathogens. In children, 15% - 25% of pneumonias are caused by RSV, 15% by parainfluenza virus, and 7% - 9% by adenovirus. RSV infection is the most frequent cause of hospitalization in children under 5 years of age. In the elderly, respiratory viral infections cause up to 26% of hospital admissions for community-acquired pneumonia.

Given the consequences, early detection is critically important both to improve individual patient outcomes and to prevent the spread of disease. It has been suggested that rapid testing for respiratory viruses, if established as the standard of care, could substantially lower health care costs and potentially save lives. Rapid diagnosis of respiratory infections can significantly reduce hospital stays, antibiotic use, and laboratory utilization (including chest x-rays).

RESPIRATORY DIAGNOSTIC ASSAYS

Two main categories of diagnostic techniques have emerged over the recent years; namely the detection of viral antigens by enzyme based immunoassays (EIAs) and nucleic acid-amplification assays such as polymerase chain reaction (PCR). Commercially available EIAs include immunofluorescence (IFA) assays, ELISA and lateral flow assays. However, cell culture, nucleic acid-amplification techniques and IFA assays all require trained laboratory personnel and specialized equipment. In optimal circumstances, results can be available within approximately 2 hours for RT-PCR and IFA, but these diagnostic services are often not offered on site, causing further delays to obtaining results and initiating effective patient management. In contrast, ELISAs and lateral flow assays require less laboratory training to administer, and also provide a quick-turn around time. The original limitations in cross-reactivity between species and strains initially identified in these immunoassays has been resolved. A deeper understanding of the unique immunodominant regions in the organisms has led to significant improvements in the development of specific and sensitive antigens and antibodies required for these assays.

The desire to control and prevent respiratory infections has driven efforts to develop improved diagnostic tests. Several commercial multi-analyte respiratory pathogen panels have been developed for both immunoassays and nucleic acid-amplification platforms that simultaneously broaden and streamline respiratory diagnostic testing. These panels typically include clinically important respiratory tract infections such as influenza A and B, RSV and parainfluenza 1,2 and 3 viruses, in a single swab test at the point-of-care. Numerous studies have demonstrated the improved sensitivity and specificity, broader pathogen coverage, and shortened turnaround time for these tests as compared to standard methods.

> “Rapid testing for respiratory viruses, if established as the standard of care, could substantially lower health care costs and potentially save lives.”

Influenza

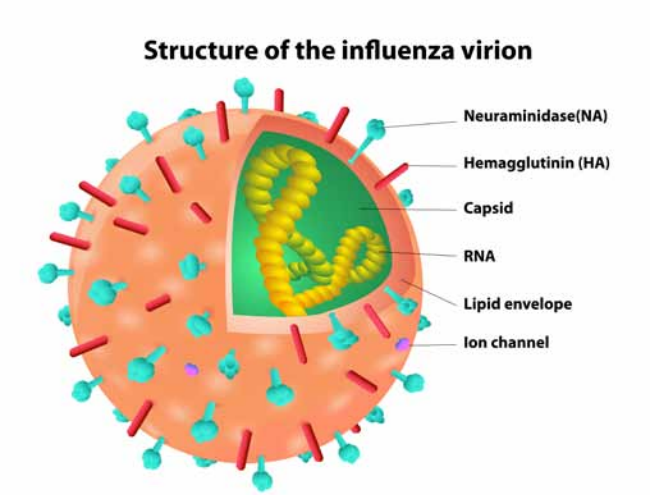
Antigen Detection Assays

Influenza or flu is a highly infectious respiratory illness caused by the influenza virus. Common symptoms include fatigue, fever, chills, a hacking cough, and body aches which can self-resolve in 1-2 weeks. However, complications can arise including life-threatening secondary infections. Influenza is a serious disease, and approximately 1 in 1,000 cases result in death.

There are three main types of influenza virus (Types A, B and C) that cause infection in humans and these are further characterized into subtypes and strains. The continued emergence of new flu strains each year is due to the ability of a flu virus to mutate slowly (through small genetic changes called antigenic drift) and quickly through a process called reassortment. Antigenic drift is responsible for the seasonal variations every year and reassortment is responsible for the development of new strains that can cause pandemics.

Influenza type A (Flu A) viruses are especially prone to reassortment due to their wide host range (humans, dogs, birds, pigs, horses, whales, seals and other animals). Specifically, the Flu A genome is made up of eight loosely linked segments, each of which harbors at least one important gene. Those genes direct the expression of the major viral proteins such as hemagglutinin (HA) and neuraminadase (NA). In the process of viral reproduction, the linkages between the eight segments of the Flu A genome break apart. Since it is possible for two different Flu A strains to infect a cell simultaneously, some of the genetic segments from one strain can be swapped with another during reproduction. For instance, if a human flu virus and a bird flu virus infect a person, reassortment can intermingle genes from both viruses during replication and create a virus with a protein against which humans have little or no immunity, plus human influenza genes that are more likely to cause sustained human-to-human transmission. In contrast, Influenza B (Flu B) and C viruses do not cause pandemics, most likely due to their limited host range of only humans.

Flu A virus is the most common flu virus infecting humans, animals, and birds. It is divided into subtypes, based on the nature of their surface glycoproteins, HA and NA. There are 18 different HAs and 11 NAs which are distinguishable serologically (antibodies to one virus subtype do not react with another). In comparison, Flu B infection mostly occurs in humans and it is divided into lineages and strains. Currently circulating influenza B viruses belong to one of the two lineages: B/Victoria and B/Yamagata. This virus is responsible for significant morbidity which is why the seasonal trivalent influenza vaccine contains Flu B as an integral component. Unlike Flu A or B, Influenza C viruses only cause a mild respiratory illness in humans and secondary complications are rare. Flu C is structurally different to Flu A and B viruses and contains a glycoprotein called HEF (hemagglutinin-esterase-fusion).



Source: J Clin Microbiol. 2007 Sep; 45(9): 3109–3110.

Influenza viruses are mostly spread by aerosolization made when an infected person coughs or sneezes. Complications usually arise from bacterial infections of the lower respiratory tract and signs of a secondary respiratory infection often appear just as the infected person seems to be recovering. The elderly and the chronically ill are at greater risk for secondary infection and other complications. Children can also experience a rare, but serious complication called Reye's syndrome.

DIAGNOSIS

Diagnostic influenza tests help the identification of influenza types A and B and influenza A subtypes 2009 H1N1, H1, H3, H5, N1, and N2. Influenza tests include rapid influenza diagnostic tests (RIDTs), direct fluorescent antibody stains, viral cultures and molecular assays.

DIAGNOSTIC METHODS FOR INFLUENZA

Method	Influenza Types Identified	Test Time
Viral culture (conventional)	A and B	3-7 days
Rapid culture (shell vial)	A and B	1-3 days
Immunofluorescence	A and B	2-3 hours
Rapid Influenza Diagnostic Tests (antigen)	A and B	< 30 min
RT-PCR5 (singleplex and multiplex; real-time and other RNA-based) and other molecular assays	A and B	Varied (generally 1-6 hours)

Source: J Clin Microbiol. 2007 Sep; 45(9): 3109–3110.

RIDTs have become routine influenza tests since their initial FDA approval in 1999, and they typically detect both Type A and B influenza. They are easy to use, relatively inexpensive, and provide rapid results in 10-30 minutes, allowing physicians to prescribe antivirals in the relatively small window of effectiveness (1-2 days after onset of symptoms). The performance of RIDTs is highly dependent on the quality of reagents, proficiency of operation, transport and storage conditions, time from illness onset to sample collection and the emergence of genomic variations and novel strains.

Many RIDTs detect the nucleoprotein (NP), which is one of the more conserved proteins in the influenza virus and subsequently less likely to undergo mutations that lead to antigenic drift (which in turn can cause the functional components of an RIDT to not recognize a current influenza strain). The major limitation of currently available RIDTs is their low and variable sensitivity. To obtain a true increase in assay sensitivity, monoclonal antibodies capable of recognizing existing and emerging strains are critical.

INFLUENZA A - REAGENTS FOR SEROLOGIC TESTING

PAIR

C01321M | **MAb to Influenza A Nucleoprotein (NP)**
- Specific for Influenza A NP and does not cross react with Influenza B
- Capture antibody

C01323M | **MAb to Influenza A Nucleoprotein (NP)**
- Specific for Influenza A NP and does not cross react with Influenza B
- Detection antibody

Paired MAbs for Sandwich ELISA Antigen Detection Assays

PAIR

C01736M | **MAb to Influenza A Nucleoprotein (NP)**
- Immunogen strain: A/California/07/2009 (H1N1) and A/Victoria/210/2009 (H3N2)
- Strongly reactive (96%) for H1N1 strain A/Bejing/262/95(8IN73-2) in immunoprecipitation studies (for details see table page 13)
- Specific for Influenza A NP and does not cross react with Influenza B
- Capture antibody

C01731M | **MAb to Influenza A Nucleoprotein (NP)**
- Immunogen strain: A/California/07/2009 (H1N1) and A/Victoria/210/2009 (H3N2)
- Strongly reactive for 9 different H1N1 and H3N2 strains (96-100%) in immunoprecipitation studies (for details see table page 13)
- Specific for Influenza A NP and does not cross react with Influenza B
- Detection antibody

PAIR

C01732M | **MAb to Influenza A Nucleoprotein (NP)**
- Immunogen strain: A/Solomon Island/3/2005 (H1N1), A/Hiroshima/52/2005 (H3N2) and A/Victoria/210/2009 (H3N2)
- Strongly reactive for (95%) for H1N1 strain A/Bejing/262/95(8IN73-2) in immunoprecipitation studies (for details see table page 13)
- Specific for Influenza A NP and does not cross react with Influenza B
- Capture antibody

C01731M | **MAb to Influenza A Nucleoprotein (NP)**
- Pair has been tested by ELISA using 5 strains of Influenza A viruses (2 inactivated Influenza A viruses (A/Solomon Island/3/2006 (H1N1) and A/Hiroshima/52/2005 (H3N2)) and 3 cultured Influenza A viruses (H1N1, H3N2 and swinepandemic H1N1))
- Lateral flow tested using colloidal gold based immunoassay methods
- Detection antibody

Paired MAbs for Sandwich ELISA & LF Antigen Detection Assays

PAIR

C01733M | **MAb to Influenza A Nucleoprotein (NP)**
- Immunogen strain: A/Hiroshima/52/2005 (H3N2)
- Strongly reactive for 9 different H1N1 and H3N2 strains (97-100%) in immunoprecipitation studies (for details see table page 13)
- Specific for Influenza A NP and does not cross react with Influenza B
- Capture antibody

C01736M | **MAb to Influenza A Nucleoprotein (NP)**
- Detection antibody

PAIR

C01733M | **MAb to Influenza A Nucleoprotein (NP)**
- Capture or detection antibody

C01734M | **MAb to Influenza A Nucleoprotein (NP)**
- Immunogen strain: A/Hiroshima/52/2005 (H3N2)
- Strongly reactive (95%) for H1N1 strain A/Bejing/262/95(8IN73-2) in immunoprecipitation studies (for details see table page 13)
- Specific for Influenza A NP and does not cross react with Influenza B
- Capture or detection antibody

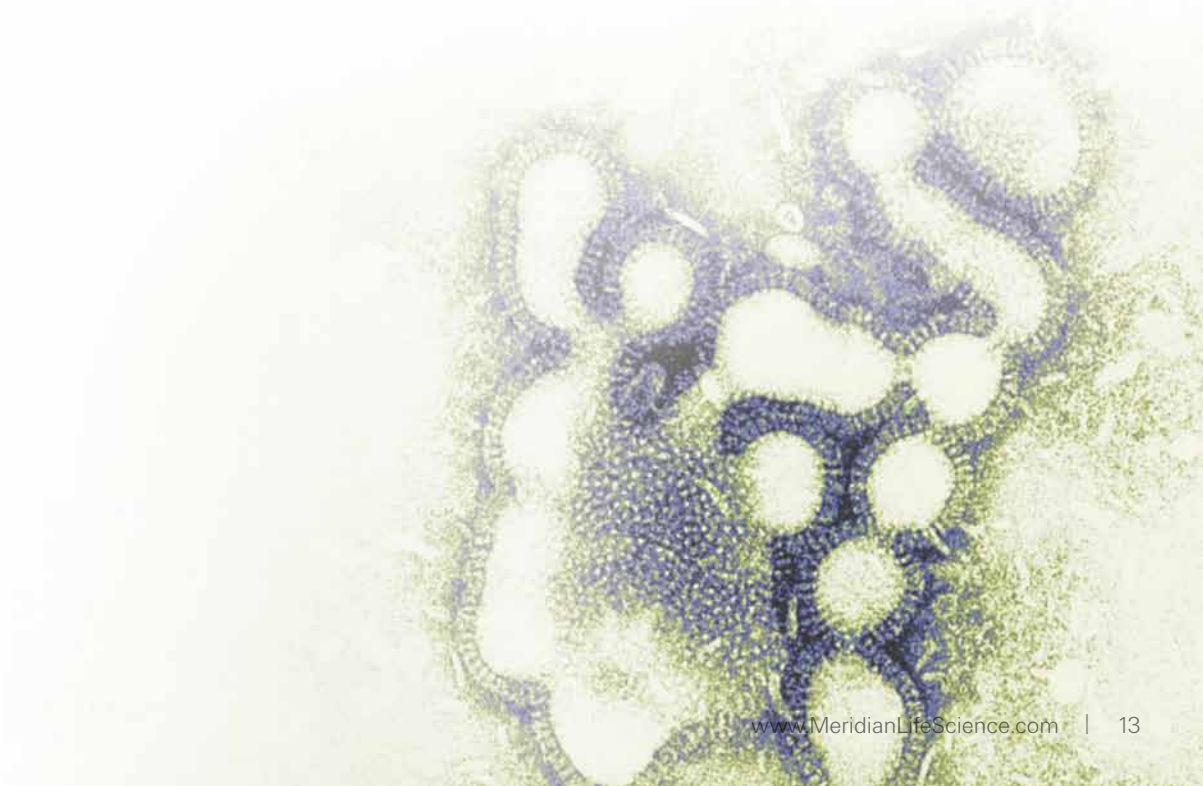
Paired MAbs for Sandwich ELISA & LF Antigen Detection Assays

PAIR

C65331M | **MAb to Influenza A Nucleoprotein (NP)**
- Immunogen strain: A/Texas
- Specific for Influenza A NP
- Reactive with > 50 separate isolates from H1 through H14
- Capture antibody

C65375M | **MAb to Influenza A Nucleoprotein (NP)**
- Specific for Influenza A NP
- Detection antibody

Paired MAbs for Sandwich ELISA & IFA Detection Assays



INFLUENZA A - REACTIVITY DATA

Diagnostics for influenza are measured for their reactivity to seasonal, swine, and avian flu strains. The major viruses which are incorporated into the traditional trivalent inactivated influenza vaccine are the human viral strains of the H1 subtype, an H3 subtype of influenza A virus and an influenza B virus. Potential pandemic strains from birds and pigs include the H5 and H7 avian flu viruses.

The following antibodies have been tested against a panel of influenza subtype nucleoproteins using a immunoprecipitation-equivalent method to determine their reactivity to a particular strain. The higher the percentage, the stronger the reactivity of the antibody.

Cat No.	Inactivated Virus								
	H1N1					H3N2			
	A/Solomon Islands/3/2006	A/California pdm/07/2009	A/Taiwan/ 1/86 (8IN73)	A/Bejing/262/ 95(8IN73-2)	A/New Caledonia/20/ 99(8IN73-3)	A/Hiroshima/ 52/2005	A/Victoria/ 210/2009	A/Shangdong/ 9/93(8IN74)	A/Kiev/301/ 94(8IN74-2)
C01731M	97	96	98	100	100	99	99	99	99
C01732M	53	68	87	95	93	72	76	91	93
C01733M	97	97	98	99	99	99	99	97	98
C01734M	97	97	95	98	97	99	98	98	96
C01735M	99	99	98	100	99	100	99	98	99
C01736M	49	61	91	96	94	69	70	91	94
C01737M	97	95	98	99	99	99	98	99	98
C01738M	99	99	98	99	99	99	99	98	98
C01739M	98	98	96	99	97	99	99	68	79
C01740M	99	99	98	100	99	100	99	98	98

Cat No.	Egg-cultured Virus												
	H2N2	H4N6	H5N3	H6N5	H7N7	H8N4	H9N2	H10N7	H11N6	H12N5	H13N6	H14N5	H15N8
	A/Adachi/ 1/57	A/Duck/ Czechoslovakia /1/56	A/Duck Hong Kong /820/80	A/Shearwater/ Australia/1/72	A/Tufted duck/ Shimane/ 124R/80	A/Turkey/ Ontario/ 6188/68	A/Turkey/ Wisconsin/66	A/Chicken/ Germany/N/49	A/Duck/ England/56	A/Duck/ Alberta/60/76	A/Gull/ Maryland/ 704/77	A/Mallard/ Astrakhan/ 263/82	A/Duck/ Australia/ 341/83
C01731M	98	100	100	100	100	100	100	100	99	100	100	99	100
C01732M	97	98	93	97	94	97	98	94	97	97	93	96	95
C01733M	99	97	93	94	93	97	97	98	94	97	87	97	82
C01734M	99	84	82	91	75	87	85	86	78	88	91	87	92
C01735M	99	82	81	97	72	88	85	87	80	87	92	87	97
C01736M	97	98	93	97	94	96	98	98	98	98	98	97	95
C01737M	100	100	100	99	99	100	100	100	100	100	100	99	100
C01738M	99	86	82	99	76	91	88	89	84	89	91	89	99
C01739M	95	97	96	98	92	80	93	80	96	97	97	98	79
C01740M	100	95	92	99	89	96	95	96	92	96	97	95	99

INFLUENZA B - REAGENTS FOR SEROLOGIC TESTING

PAIR

C01742M | **MAb to Influenza B Nucleoprotein (NP)**
- Immunogen strain: Inactivated B/Malaysia/2506/2004
- Specific for Influenza B NP and does not cross react with Influenza A
- Capture antibody

C01741M | **MAb to Influenza B Nucleoprotein (NP)**
- Immunogen strain: Inactivated B/Malaysia/2506/2004
- Specific for Influenza B NP and does not cross react with Influenza A
- Sandwich ELISA was tested using 2 strains of viruses; inactivated Influenza B viruses (B/Malaysia/2506/2004) and cultured Influenza B viruses
- Immunochromatography assay was experimentally performed using C01741M conjugated to blue latex beads and C01742M sensitized on a membrane
- Detection antibody

PAIR

C01742M | **MAb to Influenza B Nucleoprotein (NP)**
- Capture antibody

C01747M | **MAb to Influenza B Nucleoprotein (NP)**
- Immunogen strain: Inactivated B/Malaysia/2506/2004 and B/Brisbane/60/2008
- Specific for Influenza B NP and does not cross react with Influenza A
- Detection antibody

PAIR

C01744M | **MAb to Influenza B Nucleoprotein (NP)**
- Immunogen strain: Inactivated B/Malaysia/2506/2004
- Specific for Influenza B NP and does not cross react with Influenza A
- Capture antibody

C01743M | **MAb to Influenza B Nucleoprotein (NP)**
- Immunogen strain: Inactivated B/Malaysia/2506/2004 and B/Brisbane/60/2008
- Specific for Influenza B NP and does not cross react with Influenza A
- Detection antibody

PAIR

C01744M | **MAb to Influenza B Nucleoprotein (NP)**
- Capture antibody

C01747M | **MAb to Influenza B Nucleoprotein (NP)**
- Detection antibody

PAIR

C01745M | **MAb to Influenza B Nucleoprotein (NP)**
- Immunogen strain: Inactivated B/Malaysia/2506/2004
- Specific for Influenza B NP and does not cross react with Influenza A
- Capture antibody

C01741M | **MAb to Influenza B Nucleoprotein (NP)**
- Detection antibody

Paired MAbs for Sandwich ELISA & LF Antigen Detection Assays

INFLUENZA B - REAGENTS FOR SEROLOGIC TESTING (cont)

PAIR

C01745M | **MAb to Influenza B Nucleoprotein (NP)**
- Capture antibody

C01743M | **MAb to Influenza B Nucleoprotein (NP)**
- Detection antibody

PAIR

C01745M | **MAb to Influenza B Nucleoprotein (NP)**
- Capture antibody

C01747M | **MAb to Influenza B Nucleoprotein (NP)**
- Detection antibody

PAIR

C01745M | **MAb to Influenza B Nucleoprotein (NP)**
- Capture antibody

C01748M | **MAb to Influenza B Nucleoprotein (NP)**
- Immunogen strain: Inactivated B/Malaysia/2506/2004
- Specific for Influenza B NP and does not cross react with Influenza A
- Detection antibody

PAIR

C01746M | **MAb to Influenza B Nucleoprotein (NP)**
- Immunogen strain: Inactivated B/Malaysia/2506/2004
- Specific for Influenza B NP and does not cross react with Influenza A
- Capture antibody

C01741M | **MAb to Influenza B Nucleoprotein (NP)**
- Detection antibody

PAIR

C01746M | **MAb to Influenza B Nucleoprotein (NP)**
- Capture antibody

C01747M | **MAb to Influenza B Nucleoprotein (NP)**
- Detection antibody

PAIR

C01749M | **MAb to Influenza B Nucleoprotein (NP)**
- Immunogen strain: Inactivated B/Malaysia/2506/2004
- Specific for Influenza B NP and does not cross react with Influenza A
- Capture antibody

C01748M | **MAb to Influenza B Nucleoprotein (NP)**
- Detection antibody

Paired MAbs for Sandwich ELISA & LF Antigen Detection Assays

PAIR

C65016M | **MAb to Influenza B Nucleoprotein (NP)**
- Specific for Influenza B NP
- Immunogen: Hong Kong Strain CDC #V4-004
- Capture antibody

C65131M | **MAb to Influenza B Nucleoprotein (NP)**
- Specific for Influenza B NP
- Immunogen: Hong Kong Strain
- Detection antibody

Paired MAbs for Sandwich LF Antigen Detection Assays & Nuclear Staining in IFA

PAIR

C01326M | **MAb to Influenza B Nucleoprotein (NP)**
- Specific for Influenza B NP
- Immunogen: Purified influenza virus type B
- Capture antibody

C01329M | **MAb to Influenza B Nucleoprotein (NP)**
- Specific for Influenza B NP
- Immunogen: Purified influenza virus type B
- Detection antibody

Paired MAbs for Sandwich ELISA Antigen Detection Assays & WB

INFLUENZA B - REACTIVITY DATA

Current circulating influenza B strains are changing profile. The World Health Organization (WHO) analysis of circulating influenza B strains has revealed that while Victoria lineage viruses are prevalent in some countries, the proportion of Yamagata lineage ones continue to increase and are becoming dominant in many countries. Patterns with the genetic clades showed that many viruses in clade 2, which includes B/Massachusetts/2/2012, were antigenically distinct from those in clade 3, which includes B/Wisconsin/1/2010. As a result WHO recommends including B/Massachusetts/2/2012, in replacement of B/Wisconsin/1/2010, and a B/Brisbane/60/2008-like virus starting from the 2013-14 season.

The following antibodies have been tested against a panel of influenza subtype nucleoproteins using a immunoprecipitation-equivalent method to determine their reactivity to a particular strain. The higher the percentage, the stronger the reactivity of the antibody.

Cat No.	Inactivated Virus					Egg-cultured Virus
	Victoria-Lineage		Unknown Lineage	Unknown Lineage	Yamagata-Lineage	Yamagata-Lineage
	B/Malaysia/ 2506/2004	B/Brisbane/ 60/2008	B/Qingdao/ 102/91	B/Tokio/ 53/99	B/Victoria/ 504/00	B/Shanghai/ 361/02
C01741M	90	88	70	71	71	84
C01742M	89	90	98	96	97	90
C01743M	96	95	98	97	99	97
C01744M	86	85	95	95	98	94
C01745M	88	87	96	96	99	94
C01746M	88	87	95	92	97	87
C01747M	91	94	94	84	98	97
C01748M	96	95	99	99	100	99
C01749M	95	95	75	78	82	93

Parainfluenza

Antigen and Antibody Detection Assays

Human parainfluenza viruses (HPIVs) commonly cause upper and lower respiratory illnesses. The symptoms of HPIVs are not severe enough to cause concern in healthy adults. However, they can be life-threatening in an infant, the elderly, or anyone with a compromised or weakened immune system.

There are four types of parainfluenza viruses which cause respiratory infections. The exact type of infection, the symptoms, and the location of the infection depends on the type of virus:

HPIV-1: the leading cause of croup in children (croup is a swelling near the vocal chords and other parts of the upper respiratory system)

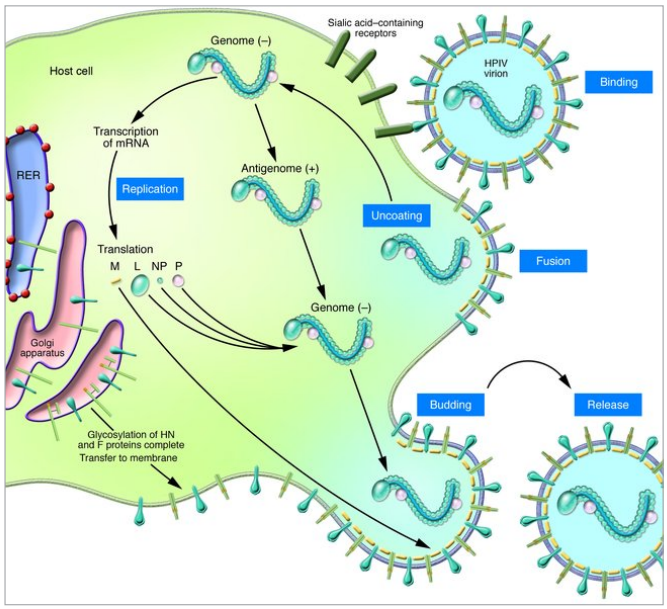
HPIV-2: causes croup in children, but it is detected with less frequency than HPIV-1

HPIV-3: mainly associated with bronchiolitis and pneumonia

HPIV-4 (includes subtypes 4A and 4B): not as well known, but may cause mild to severe respiratory tract illnesses

HPIVs are spread from person to person by direct contact or exposure to contaminated secretions from the nose or throat. Most children are infected with HPIV-3 by the age of two years and with HPIV-1 and HPIV-2 by the age of five years. HPIV-3 infections are a major cause of pneumonia and bronchiolitis in infected infants under 6 months old.

THE PARAINFLUENZA LIFE CYCLE



Source: U.S. National Library of Medicine

DIAGNOSIS

Laboratory diagnosis of parainfluenza viruses can be performed by isolation and detection of the virus in cell culture, or detection of viral antigens directly within respiratory tract secretions using immunofluorescence (IFA) , enzyme immunoassays (EIA), fluroimmunoassays or polymerase chain reaction (PCR). Also, analysis of specific IgG antibodies showing a subsequent rise in titer following infection (using paired serum specimens) can demonstrate an acute infection. However, individual parainfluenza virus types are known to cross-react making subtyping difficult. Hemagglutination inhibition tests (HIT), complement fixation (CF) and neutralization tests (NT) can be performed to differentiate the HPIV types by evaluating the specific IgM, IgG and IgA antibody titers. During the acute phase of infection, two thirds of patients show a high serum titer of specific HPIV IgM antibodies which persist 2-11 weeks. In 70 - 80% of patients, an increase in specific IgG antibodies (at least fourfold within 10 days) is found during primary infection with HPIV-1, 2 or 3. New EIA assays rely on purified viral envelope glycoprotein and nucleocapsid preparations. In differential diagnosis, tests for other paramyxoviruses like mumps, pneumonia and simianvirus type 5 have to be performed due to possible cross-reactions.

REAGENTS FOR SEROLOGIC TESTING

B65121G | **Goat Anti-Parainfluenza 1**
- Specific for all structural antigens of HPIV-1
- Immunogen: Cantell Strain
- Recognizes Sendai virus by ELISA
- Does not cross react with HPIV-2 or -3, Influenza A or B, Respiratory Syncytial Virus, HSV-1 or -2, Adenovirus, CMV, Measles, Mumps or Rubella by indirect IFA
- Does not react with HEp-2 cells or monkey kidney cells by indirect IFA

C01306M | **MAb to Parainfluenza 1**
- Specific for HPIV-1 Fusion Protein

C01307M | **MAb to Parainfluenza 2**
- Specific for HPIV-2 Hemagglutinin Protein

C01308M | **MAb to Parainfluenza 3**
- Specific for HPIV-3 Hemagglutinin Protein

IFA Antigen Detection Assays

C65122M | **MAb to Parainfluenza 1**
- Specific reactivity to HPIV-1
- Negative against types 2 & 3 by indirect IFA
- Reactive with Sendai virus

B65130G | **Goat Anti-Parainfluenza 2 & 3**
- Specific for all structural antigens of HPIV-2 and -3
- Immunogen: Human Isolate Type 3
- Minimal cross-reactivity with HPIV-1, bovine parainfluenza-3 and canine parainfluenza
- Does not react with HEp-2 cells by indirect IFA

ELISA & IFA Antigen Detection Assays

C65467M
C65329M | **MAb to Parainfluenza 3**
- Specific for hemagglutinin of HIPV-3
- Also recognizes Bovine Parainfluenza virus, type 3
- MAbs are interchangeable as capture or detection

Paired MAbs for Antigen Detection in Sandwich ELISA and IFA

R02802 | **Parainfluenza Type 1 Native Antigen**
- Strain VP1 propagated in Vero cells
- Contains a high concentration of virus and viral components as well as some cellular material suspended in tissue culture media
- Concentration: ~2 mg/mL (Dye Binding Assay)
- Buffer: Tissue Culture Media

R02902 | **Parainfluenza Type 2 Native Antigen**
- Strain Greer propagated in Vero cells
- Contains a high concentration of virus and viral components as well as some cellular material suspended in MEM
- Concentration: ~2 mg/mL (Dye Binding Assay)
- Buffer: MEM

R02002 | **Parainfluenza Type 3 Native Antigen**
- Strain C243 stain propagated in Vero cells
- Contains a high concentration of virus and viral components as well as some cellular material suspended in buffer
- Concentration: ~1 mg/mL (Dye Binding Assay)
- Buffer: Tissue Culture Media

IgG & IgM Antibody Detection Assays for ELISA

Respiratory Syncytial Virus (RSV)

Antibody and Antigen Detection Assays

Respiratory syncytial virus (RSV) was discovered in 1956 and it is recognized as one of the most common causes of childhood illness. RSV is a respiratory virus that infects the lungs and breathing passages and causes mild, cold-like symptoms in healthy people. For infants and older adults, RSV can lead to serious illnesses such as bronchiolitis and pneumonia.

RSV is single-stranded RNA virus of the family Paramyxoviridae, which includes common respiratory viruses such as measles and mumps. Two viral proteins, the attachment glycoprotein G and the surface glycoprotein F, are the main antigens responsible for inducing a neutralizing immune response and resistance to infection. RSV is the most common cause of bronchiolitis (inflammation of the small airways in the lung) and pneumonia in children younger than 1 year of age. Symptoms usually appear within 4 to 6 days of infection and healthy people usually recover in a week or two. When infants and children are exposed to RSV for the first time:

- 25-40% will have signs or symptoms of bronchiolitis or pneumonia
- 5 to 20 out of 1,000 will require hospitalization (most children hospitalized for RSV infection are younger than 6 months of age)

RSV spreads from direct and indirect contact with nasal or oral secretions from infected people. The virus can survive on hard surfaces such as tables and crib rails for many hours, and on soft surfaces such as tissues and hands for shorter amounts of time. Researchers are developing an RSV vaccine, but none is available yet. There is no specific treatment for RSV. In the United States, 60% of infants are infected during their first RSV season, and nearly all children will have been infected with the virus by 2–3 years of age.

DIAGNOSIS

Several different types of laboratory tests are available for the diagnosis of RSV infection including ELISA, rapid lateral flow, Direct Fluorescent Antibody Detection (DFA), neutralization assay and RT-PCR. Most clinical laboratories currently utilize EIA antigen detection tests, and many supplement antigen testing with cell culture or immunofluorescence assays to confirm diagnosis.

Antigen detection tests and culture are generally reliable in young children but less useful in older children and adults. Because of its thermolability, the sensitivity of RSV isolation in cell culture from respiratory secretions can vary among laboratories. IgG and IgM antibody tests are used less frequently for routine diagnosis. Although useful for seroprevalence and epidemiologic studies, a diagnosis using paired acute- and convalescent-phase sera to demonstrate a significant rise in antibody titer to RSV cannot be made in time to guide patient care.

REAGENTS FOR SEROLOGIC TESTING

	C66432M	**MAb to RSV** • Recognizes the nucleoprotein of RSV in extracts of live virus • Not recommended for use with inactivated virus	Antigen Detection for Dot Blot and Lateral Flow Assays
	C01769M C01777M	**MAb to RSV Fusion Protein** • Recognizes the fusion protein of both A & B RSV strains • No cross reactivity with Influenza A or B and Adenovirus	Antigen Detection for EIA Assays
	C01694M	**MAb to RSV Long Strain** • Recognizes the F protein of RSV • Reactive with surface domain of both mature RSV virions and virion envelopes without formed inner nucleocapsid structures • Does not react with Influenza A (H1N1), Influenza A (H3N2), Influenza B, Parainfluenza 1,2,3 or Adenovirus	Antigen Detection for ELISA and Lateral Flow Assays
PAIR	C65063M	**MAb to RSV** • Specific for the fusion protein of RSV, types A & B • No cross reactivity with HEp-2 cells • Capture antibody	Paired MAbs for Sandwich ELISA or Lateral Flow Assays and for IFA Detection Assays
PAIR	C65065M	**MAb to RSV** • Specific for the fusion protein of RSV, types A & B • Neutralizes RSV virus • Detection antibody	
	C87610M	**MAb to RSV Fusion Protein** • Recognizes an RSV fusion protein (46 kDa and 22 kDa s-s linked glycoprotein)	IFA Detection Assays
	B65860G	**Goat anti-RSV** • Reacts with all RSV viral antigens • Reacts well with bovine isolates • Does not react with Parainfluenza 1-3, Influenza A & B or Adenovirus by IFA • Negative against HEp-2 cells and WI-38 cells	Antigen Detection for EIA and IFA Assays
	8175	**RSV Grade II Native Antigen** • >10% viral protein partially purified extraction (Long strain) • Propagated in FRhK cells • Buffer: PBS, pH 7.3-7.7, no preservative	Positive Control or Antibody Detection for EIA Assays
	EV9510	**RSV Memphis 37, Live Virus** • High titer stock produced in characterized HEp-2 cells • Virus strain was isolated from an original pediatric clinical sample • Minimum titer: $1x10^7$ PFU/mL	

Adenovirus

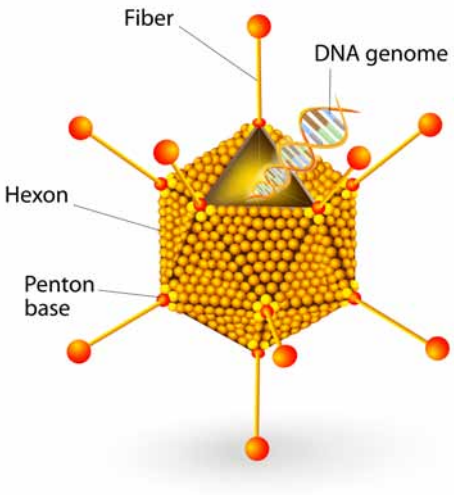
Antigen and Antibody Detection Assays

Adenoviruses are a family of DNA viruses that are an important cause of febrile illnesses in young children. They are most frequently associated with upper respiratory tract syndromes such as pharyngitis but can also cause pneumonia and less commonly, gastrointestinal, ophthalmologic, genitourinary, neurologic, and disseminated disease. Most adenoviral diseases are self-limiting, although fatal infections can occur in immunocompromised patients and occasionally in healthy children and adults.

Adenovirus derives its name from its initial isolation from human adenoids in 1953. To date over 50 types have been identified which are immunologically distinct. They are unusually stable to chemical or physical agents and adverse pH conditions, enabling their prolonged survival outside of the body and water. They are spread primarily via respiratory droplets, however they can also be spread by fecal routes. Some people infected with adenoviruses can have ongoing infections in their tonsils, adenoids, and intestines that do not cause symptoms and they can shed the virus for months or years.

Most infections with adenovirus result in infections of the upper respiratory tract such as conjunctivitis, tonsillitis, an ear infection, or croup. Adenoviruses types 40 and 41 can also cause gastroenteritis. In babies, adenoviruses can also cause coughing fits that look almost exactly like whooping cough, viral meningitis or encephalitis. Most people recover from adenovirus infections by themselves, but people with immunodeficiency sometimes die of adenovirus infections.

ADENOVIRUS MORPHOLOGY



DIAGNOSIS

Since adenoviruses are associated with a variety of clinical syndromes and non-specific manifestations, identifying an infection based upon clinical criteria alone is challenging. Laboratory diagnosis can be made using antigen detection, polymerase chain reaction assay, virus isolation, and serology. Adenovirus typing is usually done by hemagglutination-inhibition and/or neutralization with type-specific antisera or by molecular methods.

Mammalian adenoviruses share group-specific antigen epitopes (on the inside of hexons) which are the main antigens involved in the host immune response. Most commercial EIA assays for adenovirus directly detect this group specific hexon antigen which is capable of recognizing most of the Adenovirus serotypes in nasopharyngeal secretions or stool specimens. Confirmation of adenovirus infection is important in order to decide on the use of antiviral agents, exclude other treatable infections, establish a prognosis, and initiate infection control measures when appropriate.

REAGENTS FOR SEROLOGIC TESTING

R02721 | **Adenovirus, Native Antigen**
- Strain Adenoid 6
- Propagated in MRC-5 cells
- Contains high concentration of virus and viral components as well as some cellular material
- Can be used for both IgG and IgM detection in assays, which include EIA with polystyrene and latex solid phases
- Concentration: ~2mg/mL (Bio-Rad Dye Binding Assay)
- Buffer: MEM

R14800 | **Adenovirus, Native Antigen**
- Strain Adenoid 6, ATCC #VR-846
- Propagated in HEp-2 cells and purified by ion exchange chromatography
- Concentration:~5 mg/mL (Bradford assay using BSA standard)
- Buffer: 30mM BIS Tris Buffer, pH 6.8 containing NaCl

R86310 | **Adenovirus Type 6, Native Adenovirus**
- Strain Tonsil 99
- Propagated in HeLa cells
- Concentration: ~1 mg/mL (Lowry)
- Buffer: 0.05 M Tris-HCl, pH 8.0 containing 0.1 M NaCl, 5 mM EDTA
- Contains preservative: 0.1% Sodium Azide and 0.005% Thimerosal

IgG and IgM Antibody Detection Assays

PAIR

C65431M | **MAb to Adenovirus**
- Specific for the hexon group antigen of many Adenovirus serotypes
- Known reactivity with 34 serotypes of Adenovirus including types 40 and 41 (40, 41, 1, 1a, 2, 2c, 3, 3a, 4, 5, 5a, 5b, 5c, 5d, 6, 7, 7a, 8, 9, 10, 11, 12, 12a, 14, 16, 18, 19, 20, 26, 31, 34, 35, 36 and 37)
- Does not react with Influenza A, Influenza B, RSV, Parainfluenza 1, 2 & 3, *Mycoplasma pneumoniae*, *H. pylori* and mammalian cells
- Capture antibody

C65604M | **MAb to Adenovirus Hexon**
- Specific for the hexon group antigen
- Known reactivity with at least 21 serotypes of Adenovirus (Including types 1, 3, 4, 5, 6, 7, 7a, 8, 9, 10, 11, 12, 13, 14, 18, 20, 21, 26, 31, 40 and 41)
- Does not react with Influenza A, Influenza B, RSV, Parainfluenza 1, 2 & 3, Mycoplasma pneumoniae, *H. pylori* and mammalian cells
- Detection antibody

Paired MAbs for Sandwich ELISA and LF Antigen Detection Assays

REAGENTS FOR SEROLOGIC TESTING

PAIR

C65431M | **MAb to Adenovirus**
- Specific for the hexon group antigen of many Adenovirus serotypes
- Known reactivity with 34 serotypes of Adenovirus including types 40 and 41 (40, 41, 1, 1a, 2, 2c, 3, 3a, 4, 5, 5a, 5b, 5c, 5d, 6, 7, 7a, 8, 9, 10, 11, 12, 12a, 14, 16, 18, 19, 20, 26, 31, 34, 35, 36 and 37)
- Does not react with Influenza A, Influenza B, RSV, Parainfluenza 1, 2 & 3, *Mycoplasma pneumoniae*, *H. pylori* and mammalian cells
- Capture antibody

C01256M | **MAb to Adenovirus Hexon**
- Specific for the hexon group antigen
- Reactive with Adenovirus types 1, 2, 3, 4, 5, 6, 7a, 8, 11, 14, 20, 21, 26, 31, 40, and 41 other types not tested)
- Does not react with Influenza A and B, RSV, Parainfluenza 1, 2 & 3, *Mycoplasma pneumoniae*, *H. pylori*, and mammalian cells
- Detection antibody

PAIR

C01727M | **MAb to Adenovirus Hexon**
- Specific for the hexon group antigen of over 30 Adenovirus serotypes, including types 40 and 41
- Does not react with Influenza A and B, Parainfluenza, Rotavirus, *Mycoplasma pneumoniae* and *H. pylori*
- Capture antibody

C01728M | **MAb to Adenovirus Hexon**
- Specific for the hexon group antigen of over 30 Adenovirus serotypes, including types 40 and 41
- Does not react with Influenza A and B, Parainfluenza, Rotavirus, *Mycoplasma pneumoniae* and *H. pylori*
- Detection antibody

PAIR

C65431M | **MAb to Adenovirus Hexon**
- Capture MAb

C01554M | **MAb to Adenovirus Hexon**
- Specific for the hexon group antigen
- Recognizes the hexon group antigen of Adeno types 1, 2, 3, 4, 5, 6, 7a, 8, 11, 14, 20, 21, 26, 31, 40 and 41
- Does not react with Influenza A and B, RSV, Parainfluenza 1, 2 and 3, *Mycoplasma pneumoniae, H. pylori* and mammalian cells
- Detection antibody

Paired MAbs for Sandwich ELISA and LF Antigen Detection Assays

PAIR

C86804M | **MAb to Adenovirus Hexon**
- Specific for the hexon antigen
- Capture antibody

C86006M | **MAb to Adenovirus Hexon**
- Antibody is a biclonal mixture of IgG_{2a} and IgM
- Both isotypes are specific for the hexon antigen of Human Adenovirus (types 1, 5, 8 and 27)
- Detection antibody

PAIR

C01781M | **MAb to Adenovirus Hexon**
- Capture antibody

C01832M | **MAb to Adenovirus Hexon**
- Species specific conserved epitope
- No cross reaction with Influenza A and B or RSV
- Pair have been tested in colloidal gold-based lateral flow assay and ELISA
- Detection antibody

Paired MAbs for Sandwich ELISA and LF Antigen Detection Assays

PAIR

C01785M | **MAb to Adenovirus Hexon**
- Species specific conserved epitope
- No cross reaction with Influenza A and B or RSV
- Capture antibody

C01828M | **MAb to Adenovirus Hexon**
- Species specific conserved epitope
- No cross reaction with Influenza A and B or RSV
- Detection Antibody

Paired MAbs for Sandwich ELISA on Latex Beads

C01778M
C01779M
C01782M
C01783M
C01784M

MAb to Adenovirus Hexon
- Species specific conserved epitope
- No cross reaction with Influenza A and B or RSV

ELISA Antigen Detection Assays

Legionella pneumophila

Antigen and Antibody Detection Assays

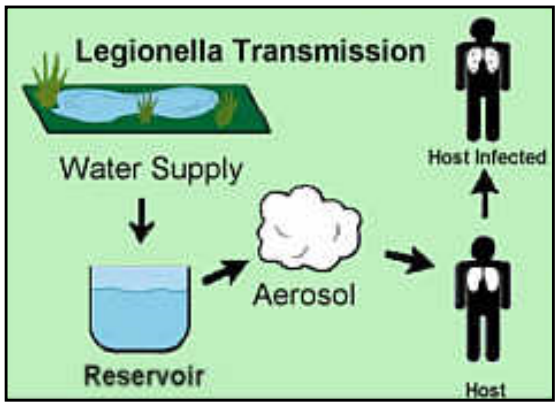
Legionella species are consistently recognized as one of the most common causes of pneumonia. They are found in fresh water environments worldwide and can cause respiratory disease (Legionellosis) in humans. The symptoms of Legionellosis range from subclinical asymptomatic infections to severe life-threatening pneumonia.

The genus Legionella currently has over 50 species comprising 70 distinct serogroups. One species of Legionella, *L. pneumophila*, is the main cause (90%) of Legionellosis, and 70-80% of those cases are attributed to infection with serogroup type I. Legionellosis can be acquired by the inhalation of aerosols containing Legionella bacteria or by micro-aspiration of ingested water contaminated with Legionella. Person to person transmission is not thought to be a risk. The likelihood of contracting Legionellosis depends on the level of contamination in the water source, the susceptibility of the person exposed, and the intensity of exposure.

Legionellosis can appear in two distinct clinical presentations: Legionella pneumonia (Legionnaire's disease) and Pontiac fever. Legionnaire's disease is a serious form of pneumonia that can cause death in 10-15% of cases.

Pontiac fever is a milder form of the disease that presents as an influenza-like illness. It is usually self-limiting and typically does not require treatment. The attack rate is much higher for Pontiac fever (up to 95% of those exposed) than for Legionnaire's disease (5%).

Individuals not only attain varied titers, but also give heterological response to different serotypes and species. The heterologic response is variable and is probably characteristic of the individual and does not seem to be mediated by the antigenic nature of the infecting strain.



Source: moondragon.org

Species	Disease	Symptoms	Mechanism of Infection
Legionella pneumophila	Legionella pneumonia (Legionnaires' disease)	Cough, fever and nonspecific symptoms (malaise, myalgia, headache). Sometimes shaking chills, chest pain, diarrhea, delirium or other neurologic symptoms	Inhalation of aerosols containing Legionella bacteria or micro-aspiration of ingested water contaminated with Legionella
	Pontiac Fever	Influenza like illness (headache, chills, muscle aches, dry cough, fever) without manifestation of pneumonia	

DIAGNOSIS

Diagnosis of Legionellosis is based on the detection of *L. pneumophila* in culture, antigen detection in urine, PCR, or antibody detection in serum. The most useful diagnostic test has proven to be antigen detection in urine since it is simple, quick and very reliable. However, in most situations, the use of both the urinary antigen plus sputum culture are the best diagnostic combination due to the heterological response of infected individuals to different serotypes and species. Symptoms and chest x-rays alone are not enough to distinguish Legionnaires' disease from other types of pneumonia.

REAGENTS FOR SEROLOGIC TESTING

PAIR

C01590M | **MAb to *Legionella pneumophila***
- Reacts with the LPS of *L. pneumophila* strains
- Capture antibody

C01591M | **MAb to *Legionella pneumophila***
- Reacts with the LPS of *L. pneumophila* strains
- Detection MAb

Paired MAbs for Antigen Detection in Sandwich ELISA and IFA Assays

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C86135M | **MAb to *Legionella pneumophila* LPS**
- Reacts with LPS membrane Philadelphia 1 strain of *L. pneumophila*
- Does not cross react with *L. pneumophila* serogroups 2, 6, 7, 10 and 11, *Legionella bozemanii, Legionella lonbeachae, Legionella micdadei, Corynebacterium diphtheria, Pseudomonas fluorescens, Pseudomonas cepacia, Pseudomonas aerugenose, Bordetella pertusis, Leptospira interrogens* (Australia, Pomona, Icterogemorrhagia), *Toxoplasma gondii, Hemophilus,* influenza (type B), *Hemophilus ducreyi, Brucella abortus, Bacillus anthracis, Klebsiella pneumoniae, Listeria monocytogenes, Mycobacterium tuberculosis, Neisseria meningitides, Pasteurella multocida, Proteus vulgaris, Shigella sonnei, Staphylococcus faecalis, Streptococcus puogenes, Streptococcus pneumoniae, Yersinia Pseudotuberculosis, Yersinia pestis* EV76, *Salmonella typhi, Escherichia coli* K88 and *Francisella tularensis* 15.
- Cross reaction with *Legionella pneumophila* serogroups 3 and 4 have not been tested
- Capture MAb, can be used in urine testing

C01685M | **MAb to *Legionella pneumophila* LPS**
- Detection Philadelphia 1 strain antibody, can be used for urine testing

Paired MAbs for Antigen Detection in EIA Assays

B65051G | **Rabbit Anti-*Legionella pneumophila***
- Reacts with *L. pneumophila* serogroups 1-12 in IFA. Recognizes all antigens of intact microorganism
- Antiserum is not absorbed and may cross react with related microorganisms
- Immunogen: A whole cell preparation of *Legionella pneumophila*; ATCC #33152

IFA Antigen Detection

R14610 | ***Legionella pneumophila* Serovars 1-7**
- Pool of *Legionella pneumophila* serovars 1A, 1B, 2, 3, 4, 5 ,6 and 7
- Product is a whole cell suspension that has been washed and heat treated
- Buffer: PBS

IgG & IgM Detection for EIA Assays

Mycoplasma pneumoniae

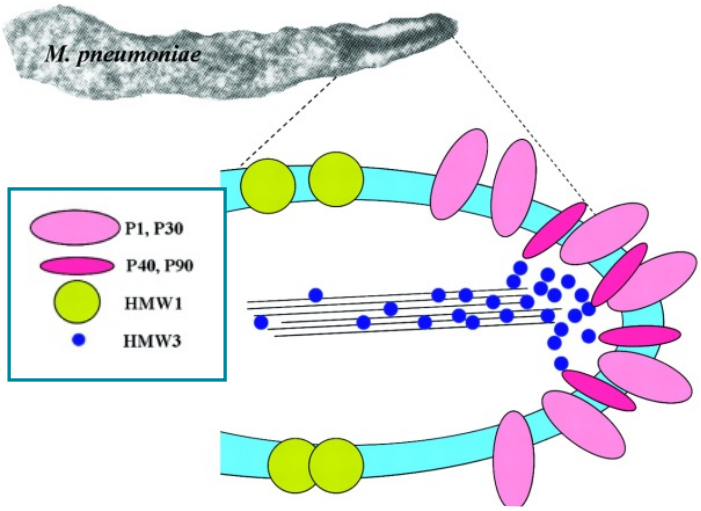
Antigen and Antibody Detection Assays

Mycoplasma pneumonia is a contagious respiratory infection caused by the bacteria *Mycoplasma pneumoniae (M. pneumoniae)*. Every year, almost 2 million Americans are treated for Mycoplasma pneumonia. The disease is easily spread through contact with respiratory fluids and it causes regular epidemics.

M. pneumoniae can cause a host of symptoms such as primary atypical pneumonia, tracheobronchitis, and upper respiratory tract disease. Tracheobronchitis is most common in children with a reduced immune system capacity, and up to 18% of infected children require hospitalization.

Clinically, *M. pneumoniae* cannot be differentiated from pneumonia caused by other bacteria or viruses. A specific diagnosis is important because treatment of *M. pneumoniae* infection with β-lactam antibiotics is ineffective, whereas treatment with macrolides or tetracyclines can reduce the duration of the illness.

MYCOPLASMA PNEUMONIAE STRUCTURE



Source: Physiological Reviews, American Physiological Society

Adherence of *M. pneumoniae* to the respiratory epithelium is the first step in the infection process. This attachment process is a complex event that requires several adhesin proteins, such as P1, P30, and P116. To date, most commercial antibody detection assays for *M. pneumoniae* use partially purified lysates, although it has been demonstrated that a P1-enriched antigen increases the sensitivity and specificity of serologic diagnosis. Until recently, it has not been possible to develop a specific antigen for *M. pneumoniae* P1 due to an unusual UGA stop codon in the reading frame, leading to the premature termination of this protein in *E. coli*. *M. pneumoniae* P1 antigens are now readily available to enable the development of better performing EIA assays for both antigen and antibody detection specific to *M. pneumoniae*.

DIAGNOSIS

The true incidence of *M. pneumoniae* associated infection is not clear as it difficult to diagnose in the early stages of infection. The standard methods include culture, serology (conventionally this been limited to the complement fixation (CF) test, which measures predominantly IgM antibodies), and PCR. *M. pneumoniae* is slow growing, thus culture techniques are not (routinely) used.

Newer sensitive and specific immunological detection techniques such as ELISA have become established in clinical practice. These assays use purified *M. pneumoniae* antigen to detect specific IgG, IgM or IgA antibodies to the bacteria or antibodies to *M. pneumoniae* to detect the presence of bacteria in the patient's serum. EIA assays have been found to be more sensitive for the detection of acute infection than culture, and have a sensitivity comparable to PCR. Furthermore, EIAs can detect IgG and IgM separately to distinguish between current and past infections.

REAGENTS FOR SEROLOGIC TESTING

C01517M | **MAb to *Mycoplasma pneumoniae***
- Reacts with a > 200 kDa antigen

ELISA and IFA Antigen Detection Assays

PAIR

C01787M | **MAb to *Mycoplasma pneumoniae* P1 Antigen**
- Specific for the P1 adhesin of *Mycoplasma pneumoniae*
- Capture antibody with C01790M as detection antibody

C01788M | **MAb to *Mycoplasma pneumoniae* P1 Antigen**
- Specific for the P1 adhesin of *Mycoplasma pneumoniae*
- Capture antibody with C01790M or C01791M as detection antibody

C01790M | **MAb to *Mycoplasma pneumoniae* P1 Antigen**
- Specific for the P1 adhesin of *Mycoplasma pneumoniae*
- Detection antibody with C01788M or C01787M as capture antibody

C01791M | **MAb to *Mycoplasma pneumoniae* P1 Antigen**
- Specific for the P1 adhesin of *Mycoplasma pneumoniae*
- Detection antibody with C01788M as capture antibody

Paired MAbs for Sandwich ELISA Assays and IFA Detection Assays

R02102 | ***Mycoplasma pneumoniae,* Native Antigen**
- Strain FH
- Antigen preparation is purified from broth based medium
- Can be used for both IgG and IgM detection in assays, which include EIA with polystyrene and latex solid phases
- Concentration: Measured by Dye Binding Assays
- Buffer: PBS

R01494 | ***Mycoplasma pneumoniae,* Native Antigen**
- Strain FH enriched for P1 antigen
- Octyl-glucoside and CHAPS extraction of *M. pneumoniae* grown in axenic medium, collected and washed by centrifugation
- Concentration: Measured by BCA Method
- Buffer: 0.9% NaCl containing 2% Octyl-glucoside and 1% CHAPS

R14720 | ***Mycoplasma pneumoniae,* Native Antigen**
- Strain FH (NCTC #10119), enriched for P1 antigen
- Harvested organisms are washed and processed in a two step detergent extraction process
- Concentration: Measured by Bradford assay using BSA standard
- Buffer: Phosphate Buffer containing 2% n-Octylglucopyranoside

IgG & IgM Antibody Detection for ELISA

Chlamydia pneumoniae

Antibody Detection Assays

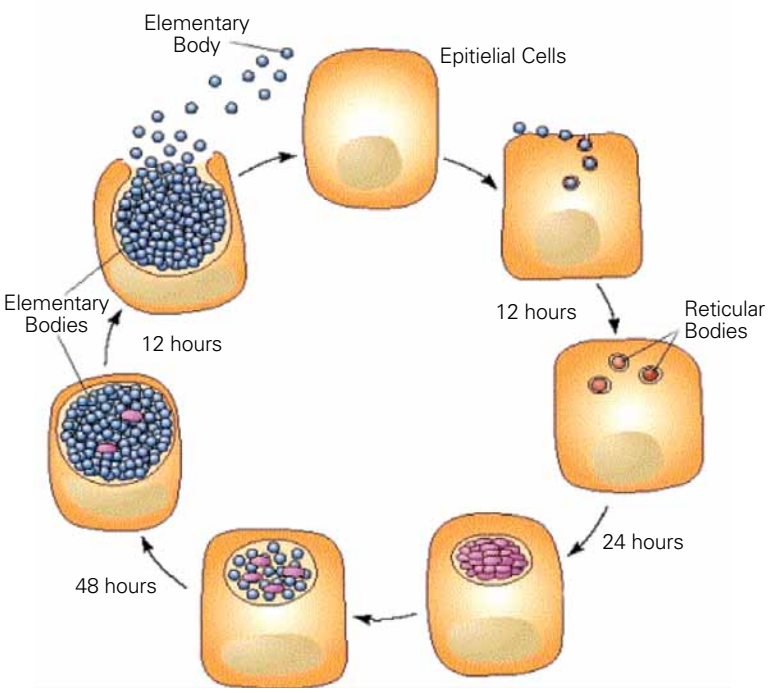
Chlamydia pneumoniae *(C. pneumoniae)* is a common species of bacteria and a major cause of pneumonia around the world. Approximately 50% of adults have evidence of past infection by age 20 and reinfection later in life is common. Many studies have suggested a direct association between *C. pneumoniae* infection and other inflammatory diseases such as atherosclerosis, acute exacerbations of COPD, and asthma.

Chlamydia pneumoniae are Gram-negative, aerobic, intracellular pathogens that have a very unique life-cycle. The organism alternates between an infectious but non-replicating elementary body that is adapted to survive outside the host, and a noninfectious, reticulate body which reproduces inside host cells by means of transverse fission. This bacteria cannot survive for long outside body's cells and as a result it is difficult to diagnose by gram-staining. Furthermore, only in the reticulate stage is the pathogen susceptible to antibiotic therapy, making it difficult to treat.

Most cases of *C. pneumoniae* infection cause no symptoms, or mild upper and lower respiratory tract infections. In school age children it is emerging as a frequent cause of mild pneumonia, and up to 10% of cases of community-acquired pneumonia can be attributed to this organism. Transmission occurs person to person via respiratory secretions Symptomatic patients can carry the bacteria in the nasopharynx for months after illness. Also, asymptomatic carriers (2-5% of the population) may be an important source of infection.

Seroepidemiologic studies have shown an association between *C. pneumoniae* infection and atherosclerosis but the significance of this is not yet established. Possible links with Alzheimer's disease, arthritis and asthma are also postulated.

LIFE CYCLE OF CHLAMYDIA



Source: California STD/HIV Prevention Training Centre

DIAGNOSIS

Diagnosis of *C. pneumoniae* infection is challenging due to the fastidious nature of the pathogen, the considerable seroprevalence, and the possibility of transient asymptomatic carriage. Established diagnostic laboratory methods include isolation of the organism in cell culture, serological assays and DNA amplification tests. Microimmunofluorescence test (MIF), is the current "gold standard" for serological diagnosis, but the assay still lacks standardization and is technically challenging.

Antibody EIA assays are the most common serology tests used for the diagnosis of *C. pneumoniae* infections whereas tests for the pathogen or antigen are largely avoided as they often give false negative results. Primary chlamydial infection is characterized by a predominant IgM response within 2 to 4 weeks and a delayed IgG and IgA response within 6 to 8 weeks. However, in reinfection, IgG and IgA levels rise quickly, often in 1-2 weeks whereas IgM levels may be rarely detected. For this reason, IgA antibodies have shown to be a reliable immunological marker of primary, chronic and recurrent infections especially when combined with the detection of IgM.

Although the basic structure of the cell wall is the same in all chlamydia, significant species-specific deviations have been recognized among them. For some time the crucial species-specific epitopes of chlamydia have been thought to reside on the variable domains of the MOMP, however, for *C. pneumoniae*, it has been found that the species-specific epitopes are located on the closely folded polymorphic membrane proteins (PMP1-21). As a result the type and purity of the antigen selected for antibody assays is a critical parameter for determining ELISA assay sensitivity and specificity.

REAGENTS FOR SEROLOGIC TESTING

R02620 | ***Chlamydia pneumoniae* (TWAR Strain)**
- TWAR strain CWL-029 cultured in HL cells
- Optimally infected cells are harvested and centrifuged to pellet cellular debris
- Concentration: Measured by Bio-Rad Dye Binding Assays
- Buffer: SPG

IgM, IgG & IgA Detection for EIA Assays

Product list

ABBREVIATIONS

Ab	Antibody
Ag	Antigen
Asp	Aspartic acid
BSA	Bovine Serum Albumin Conjugated
CLIA	Chemiluminescence Immunoassay
CSF	Cerebrospinal fluid
CHAPS	3-[(3-cholamidopropyl)dimethylammonio] -1-propanesulfonate
DB	Dot Blot
DFA	Direct Immunofluorescence Assay
EDTA	Ethylenediaminetetraacetic acid
EIA, ELISA	Enzyme Immunoassay, Enzyme-linked immunosorbent assay
ELISPOT	Enzyme-Linked ImmunoSpot
FCS	Fetal Calf Serum
GST	Glutathione S-transferase
GSH	Glutathione
HFMD	Hand Foot and Mouth Disease
HI	Hemagglutination Inhibition
IgG	Immunoglobin G
IgM	Immunoglobin M
IFA	Immunofluorescence Assay
LF	Lateral Flow
Lysate	Cells which have been lysed
Met	Methionine
MAb	Monoclonal antibody
PAb	Polyclonal antibody
OD	Optical density
PBS	Phosphate Buffer Saline
PCR	Polymerase Chain Reaction
Purified	Refer to the Product Specification Sheet regarding the extent of purification and the purification process used.
SDS-PAGE	Sodium dodecyl sulfate polyacrylamide gel electrophoresis
WB	Western Blot
UV-Vis	Ultraviolet–visible spectroscopy

Adenovirus

A family of DNA viruses that are an important cause of febrile illnesses in young children and are most frequently associated with upper respiratory tract syndromes such as pharyngitis. Over 50 types have been identified which are immunologically distinct but share group-specific antigens on the inside of the viral hexon which is responsible for the host immune response. Most commercial EIA assays for adenovirus directly detect this group specific hexon antigen which is capable of recognizing most of the Adenovirus serotypes in nasopharyngeal secretions or stool specimens.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Adenovirus (strain Adenoid 6)	Ag	R02721	MRC-5 Cells	EIA	Lysate	–
Adenovirus Type 2 hexon (strain Adenoid 6)	Ag	R14800	Vero Cells	EIA	Purified	–
Adenovirus Type 6 (strain Tonsil 99)	Ag	R86310	Hela Cells	EIA	Purified	–
Adenovirus Hexon	MAb	C01778M	Mouse	EIA	Purified	IgG2a
Adenovirus Hexon	MAb	C01779M	Mouse	EIA	Purified	IgG1
Adenovirus Hexon	MAb	C01780M	Mouse	EIA,Pr,LF	Purified	IgG2a
Adenovirus Hexon	MAb	C01781M	Mouse	EIA,Pr,LF	Purified	IgG2a
Adenovirus Hexon	MAb	C01782M	Mouse	EIA	Purified	IgG2a
Adenovirus Hexon	MAb	C01783M	Mouse	EIA	Purified	IgG2a
Adenovirus Hexon	MAb	C01784M	Mouse	EIA	Purified	IgG1
Adenovirus Hexon	MAb	C01785M	Mouse	EIA	Purified	IgG2a
Adenovirus Hexon	MAb	C01254M	Mouse	EIA,IFA	Purified	IgG1
Adenovirus Hexon	MAb	C01256M	Mouse	EIA,IFA,LF,Pr	Purified	IgG2a
Adenovirus Hexon	MAb	C01296M	Mouse	N/A	Purified	IgG
Adenovirus Hexon	MAb	C01554M	Mouse	EIA,IFA, Pr, LF	Purified	IgG1
Adenovirus Hexon	MAb	C01595M	Mouse	EIA,IFA	Purified	IgG1
Adenovirus Hexon	MAb	C01612M	Mouse	EIA,LF,WB	Purified	IgG1
Adenovirus Hexon	MAb	C01711M	Mouse	EIA,LF	Purified	IgG2a
Adenovirus Hexon	MAb	C01727M	Mouse	EIA,LF,Pr	Purified	IgG1
Adenovirus Hexon	MAb	C01728M	Mouse	EIA,LF,Pr	Purified	IgG1
Adenovirus Hexon	MAb	C01832M	Mouse	EIA, Pr	Purified	IgG2a
Adenovirus Hexon	MAb	C01828M	Mouse	EIA, Pr	Purified	IgG1
Adenovirus Hexon	MAb	C65136M	Mouse	EIA,IFA	FITC	IgG1
Adenovirus Hexon	MAb	C65604M	Mouse	EIA,IFA,LF,Pr	Purified	IgG1
Adenovirus Hexon	MAb	C86006M	Mouse	EIA,LF,Pr	Purified	Mixed
Adenovirus Hexon	MAb	C86007M	Mouse	EIA,ID,Pr	Purified	Mixed
Adenovirus Hexon	MAb	C86804M	Mouse	EIA,ID,IHC,Pr	Purified	IgG2a
Adeno-associated Virus (AAV) Intact Particles	MAb	C44206M	Mouse	EIA,IFA,IHC(f), IP,Neut	Purified	IgG3
Adeno-associated Virus (AAV) VP1,VP2,VP3	MAb	C44180M	Mouse	IB,IFA,IHC(f),IP	Purified	IgG1
Adenovirus	MAb	C11994M	Mouse	N/A	Purified	IgG
Adenovirus	MAb	C65431M	Mouse	EIA,IFA,LF,Pr	Purified	IgG1
Adenovirus	MAb	C65433F	Mouse	EIA,IFA	FITC	IgG1
Adenovirus	MAb	C66437M	Mouse	N/A	Purified	IgG
Adenovirus	MAb	C66439M	Mouse	EIA	Purified	IgG
Adenovirus	MAb	C66440M	Mouse	EIA	Purified	IgG
Adenovirus 40 & 41	MAb	C66431M	Mouse	EIA	Purified	IgG2a
Adenovirus	PAb	B65140B	Goat	EIA,IFA,WB	Biotin	–
Adenovirus	PAb	B65140F	Goat	EIA,IFA,WB	FITC	–
Adenovirus	PAb	B65140G	Goat	EIA,IFA,WB	Purified	–

Product list *continued*

Angiotensin Converting Enzyme 2 (ACE2)

A metallopeptidase that functions as the receptor for SARS (severe acute respiratory syndrome) virus. It is a type I transmembrane protein with a large catalytic extracellular domain which acts as both a peptidase and a viral receptor.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Angiotensin Converting Enzyme 2 (ACE2) (SARS Receptor) (Middle)	PAb	B88520R	Rabbit	WB	Aff.Pur.	–
Angiotensin Converting Enzyme 2 (ACE2) (SARS Receptor) C-terminal	PAb	B88270R	Rabbit	EIA	Aff.Pur.	–
Angiotensin Converting Enzyme 2 (ACE2) (SARS Receptor) N-terminal	PAb	B88703R	Rabbit	WB	Aff.Pur.	–

Bordetella pertussis

A gram negative bacteria that is the causative agent of pertussis or whooping cough (an infection of the respiratory system characterized by a "whooping" sound when the person breathes in). *B. pertussis* has the ability to inhibit the function of the host's immune system via its virulence factors including one toxin known as pertussis toxin. The infection occurs mostly in children under the age of one when they are unimmunized, or children with faded immunity, normally around the ages 11 through 18. Diagnostic tests include ELISA assays designed to detect IgG, IgA, or IgM specific antibodies and rapid molecular assays.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Bordetella pertussis	MAb	C65500M	Mouse	EIA,IFA,WB	Purified	IgG3

Chlamydia pneumoniae

A common species of gram-negative bacteria which is a major cause of pneumonia around the world. Seroepidemiologic studies have shown an association between *C. pneumoniae* infection and atherosclerosis but the significance of this is not yet established. Antibody EIA assays are the most common serology tests used for the diagnosis. A primary chlamydial infection is characterized by a predominant IgM response within 2 to 4 weeks and a delayed IgG and IgA response within 6 to 8 weeks.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Chlamydia pneumoniae (TWAR strain)	Ag	R02620	HL Cells	N/A	Lysate	–
Chlamydia pneumoniae	MAb	C01369M	Mouse	EIA,IFA	Purified	IgG2b

Influenza Type A

A highly infectious respiratory illness which can cause life-threatening secondary infections. There are three main types of influenza virus (Types A, B and C) that cause infection in humans and many sub-types which are further characterized into strains. Diagnostic influenza tests include rapid influenza diagnostic tests (RIDTs), direct fluorescent antibody stains, viral cultures and molecular assays. Many RIDTs detect the nucleoprotein (NP), which is one of the more conserved proteins in the influenza virus and subsequently less likely to undergo mutations that lead to antigenic drift.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Influenza A strain A/Beijing/262/95 (H1N1)	Ag	R86280	Chicken Eggs	EIA	Purified	–
Influenza A strain A/Brisbane/10/07 (H3N2)	Ag	R01249	Chicken Eggs	N/A	Purified	–
Influenza A strain A/California/7/2009 NYMC X-179A (H1N1)V	Ag	R01430	Chicken Eggs	N/A	Lysate	–
Influenza A strain A/Kiev/301/94 (H3N2)	Ag	R86480	Chicken Eggs	EIA	Purified	–
Influenza A strain A/New Caledonia/20/99 IVR 116 (H1N1)	Ag	R86380	Chicken Eggs	EIA	Purified	–
Influenza A strain A/Panama/2007/99 (H3N2)	Ag	R86288	Chicken Eggs	EIA	Purified	–
Influenza A strain A/Shangdong/9/93 (H3N2)	Ag	R86874	Chicken Eggs	EIA	Purified	–
Influenza A strain A/Solomon Islands/03/06 (H1N1)	Ag	R01245	Chicken Eggs	N/A	Purified	–
Influenza A strain A/Taiwan/1/86 (H1N1)	Ag	R86873	Chicken Eggs	EIA	Purified	–

Influenza Type A *cont.*

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Influenza A strain A/Wisconsin/67/05 (H3N2)	Ag	R01250	Chicken Eggs	N/A	Purified	–
Influenza A strain New Jersey 8/76 (H1N1)	Ag	R01416	Chicken Eggs	N/A	Lysate	–
Influenza A (matrix protein)	MAb	B87020M	Mouse	IFA,WB	Purified	IgG1
Influenza A (matrix protein)	MAb	C01298M	Mouse	N/A	Purified	IgG1
Influenza A (matrix protein M2)	MAb	C01502M	Mouse	EIA	Purified	IgG2b
Influenza A (matrix protein M1)	PAb	B65143G	Goat	EIA,IFA	Purified	–
Influenza A (matrix protein M1)	PAb	B65246G	Goat	EIA,IFA	Biotin	–
Influenza A (matrix protein M1)	PAb	B65247G	Goat	IFA	FITC	–
Influenza A (matrix protein M1)	PAb	B65248G	Goat	EIA,ICC	HRP	–
Influenza A Nonstructural Protein (NS1)	MAb	C01442M	Mouse	EIA	Purified	IgG2a
Influenza A (Nucleoprotein)	MAb	C01244M	Mouse	IFA	Purified	IgG2a
Influenza A (Nucleoprotein)	MAb	C01321M	Mouse	EIA,Pr,WB	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C01323M	Mouse	EIA,Pr,WB	Purified	IgG2b
Influenza A (Nucleoprotein)	MAb	C01324M	Mouse	EIA	Purified	IgG3
Influenza A (Nucleoprotein)	MAb	C01325M	Mouse	EIA	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C01731M	Mouse	EIA,Pr, LF	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C01732M	Mouse	EIA,Pr, LF	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C01733M	Mouse	EIA,Pr, LF	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C01734M	Mouse	EIA,Pr, LF	Purified	IgG2a
Influenza A (Nucleoprotein)	MAb	C01735M	Mouse	N/A	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C01736M	Mouse	EIA,Pr, LF	Purified	IgG2a
Influenza A (Nucleoprotein)	MAb	C01737M	Mouse	EIA	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C01738M	Mouse	EIA	Purified	IgG2b
Influenza A (Nucleoprotein)	MAb	C01739M	Mouse	EIA	Purified	IgG2a
Influenza A (Nucleoprotein)	MAb	C01740M	Mouse	EIA	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C01763M	Mouse	EIA,WB	Purified	IgG2a
Influenza A (Nucleoprotein)	MAb	C65331M	Mouse	EIA,IFA,Pr	Purified	IgG2a
Influenza A (Nucleoprotein)	MAb	C65333F	Mouse	IFA	FITC	IgG2a
Influenza A (Nucleoprotein)	MAb	C65341F	Mouse	IFA,IHC	FITC	IgG2a
Influenza A (Nucleoprotein)	MAb	C65341M	Mouse	IFA,IHC	Purified	IgG2a
Influenza A (Nucleoprotein)	MAb	C65365M	Mouse	EIA,IFA,Pr	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C65375M	Mouse	EIA,IFA,Pr	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C65385M	Mouse	EIA,IFA,Pr	Purified	IgG1
Influenza A (Nucleoprotein)	MAb	C86305M	Mouse	ICC	Purified	IgG2a
Influenza A (Nucleoprotein)	MAb	C87050M	Mouse	IFA	Purified	IgG2a
Influenza A (Nucleoprotein)	MAb	C01760M	Mouse	EIA	Purified	IgG2b
Influenza A (Swine H1N1) Hemagglutinin (A/California/14/2009)	PAb	B01419R	Rabbit	EIA	Aff.Pur.	–
Influenza A (Swine H1N1) Hemagglutinin (A/California/14/2009)	PAb	B01420R	Rabbit	EIA	Aff.Pur.	–
Influenza A (Swine H1N1) Neuraminidase (A/California/14/2009)	PAb	B01421R	Rabbit	EIA	Aff.Pur.	–
Influenza A H1N1 (Virions)	PAb	B65141G	Goat	IFA,IHC(p)	Purified	–
Influenza A H1N1 (Virions)	PAb	B65241G	Goat	IFA,IHC(p)	Biotin	–
Influenza A H1N1 (Virions)	PAb	B65242G	Goat	IFA,IHC(p)	FITC	–
Influenza A H1N1 (Virions)	PAb	B65243G	Goat	IFA,IHC(p)	HRP	–
Influenza A H3N2 (Virions)	PAb	B65311G	Goat	IFA,IHA	Purified	–
Influenza A H3N2 (Virions)	PAb	B65313G	Goat	IFA,IHA	FITC	–
Influenza A H3N2 (Virions)	PAb	B65314G	Goat	EIA	HRP	–
Influenza A H3N2 (Virions)	PAb	B65317G	Goat	IFA,IHA	Biotin	–
Influenza A Hemagglutinin H1	MAb	C01278M	Mouse	EIA,WB	Purified	IgG1

Product list *continued*

Influenza Type A *cont.*

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Influenza A Hemagglutinin H1	MAb	C01279M	Mouse	EIA,WB	Purified	IgG2a
Influenza A Hemagglutinin H1	MAb	C01280M	Mouse	EIA,WB	Purified	IgG2a
Influenza A Hemagglutinin H1	MAb	C01281M	Mouse	EIA,Pr,WB	Purified	IgG1
Influenza A Hemagglutinin H1	MAb	C01282M	Mouse	EIA,Pr,WB	Purified	IgG1
Influenza A Hemagglutinin H1	MAb	C01283M	Mouse	EIA,WB	Purified	IgG1
Influenza A Hemagglutinin H1	MAb	C86304M	Mouse	EIA,HI,ICC,IFA	Purified	IgG1
Influenza A Hemagglutinin H1	PAb	B01423R	Rabbit	EIA	Aff.Pur.	–
Influenza A Hemagglutinin H1	PAb	B01424R	Rabbit	EIA	Aff.Pur.	–
Influenza A Hemagglutinin H1	PAb	B01425R	Rabbit	EIA	Aff.Pur.	–
Influenza A Hemagglutinin H2	MAb	C01603M	Mouse	EIA,WB	Purified	IgG1
Influenza A Hemagglutinin H2	MAb	C01604M	Mouse	EIA,WB	Purified	IgG1
Influenza A Hemagglutinin H2	MAb	C01605M	Mouse	EIA,WB	Purified	IgG1
Influenza A Hemagglutinin H2	MAb	C01606M	Mouse	EIA,WB	Purified	IgG2a
Influenza A Hemagglutinin H2	MAb	C01607M	Mouse	EIA,WB	Purified	IgG1
Influenza A Hemagglutinin H2	MAb	C01608M	Mouse	EIA,WB	Purified	IgG2a
Influenza A Hemagglutinin H3	MAb	C01318M	Mouse	EIA,WB	Purified	IgG1
Influenza A Hemagglutinin H3	MAb	C01319M	Mouse	EIA,WB	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C88200M	Mouse	EIA	Aff.Pur.	IgG
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C88205M	Mouse	EIA	Aff.Pur.	IgG
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C86490M	Mouse	DB,EIA,HI	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C86490P	Mouse	DB,EIA,HI	HRP	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C01309M	Mouse	EIA,Pr	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C01310M	Mouse	EIA,HI,Pr	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C01312M	Mouse	EIA,HI	Purified	IgG1
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C01691M	Mouse	EIA	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C01313M	Mouse	EIA,HI	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C01314M	Mouse	EIA,HI	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C01315M	Mouse	EIA,HI	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C01316M	Mouse	EIA	Purified	IgG1
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C01317M	Mouse	EIA	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C86240M	Mouse	DB,EIA,HI,Pr	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C86270M	Mouse	DB,EIA,HI	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C86280M	Mouse	DB,EIA,HI,Pr	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1)	MAb	C86290M	Mouse	DB,EIA,HI	Purified	IgG2a
Influenza A Hemagglutinin H5 (Avian H5N1) (Middle Region)	PAb	B88540G	Goat	EIA	Aff.Pur.	–
Influenza A Hemagglutinin H5 (Avian H5N1) (Middle Region)	PAb	B88540R	Rabbit	EIA	Aff.Pur.	–
Influenza A Neuraminidase H5 (Avian H5N1) (Middle Region)	PAb	B88440R	Rabbit	EIA	Aff.Pur.	–
Influenza A Neuraminidase H5 (Avian H5N1) (C-terminal)	PAb	B88340R	Rabbit	EIA	Aff.Pur.	–
Influenza A Hemagglutinin H7	MAb	C01467M	Mouse	HI	Purified	IgG2b
Influenza A Hemagglutinin H7	MAb	C01609M	Mouse	EIA,WB	Purified	IgG2b
Influenza A Hemagglutinin H7	MAb	C01610M	Mouse	EIA,WB	Purified	IgG1
Influenza A Hemagglutinin H7	MAb	C01611M	Mouse	EIA,WB	Purified	IgG1
Influenza A Hemagglutinin H9	MAb	C01601M	Mouse	EIA	Purified	IgG1
Influenza A Hemagglutinin H9	MAb	C01602M	Mouse	EIA	Purified	IgG1
Influenza A Neuraminidase N1	PAb	B01426R	Rabbit	EIA	Aff.Pur.	–
Influenza A Neuraminidase N1	PAb	B01427R	Rabbit	EIA	Aff.Pur.	–

Influenza Type B

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Influenza B Soluble Antigen (B/Lee/40 strain)	Ag	GB9518	MDCK Cells	HA	Purified	–
Influenza B strain B/Florida/04/06	Ag	R01246	Chicken Eggs	N/A	Purified	–
Influenza B strain B/Florida/07/04	Ag	R01247	Chicken Eggs	N/A	Purified	–
Influenza B strain B/Hong Kong 5/72	Ag	R02310	MDCK Cells	EIA	Purified	–
Influenza B strain B/Malaysia/2506/04	Ag	R01248	Chicken Eggs	N/A	Purified	–
Influenza B strain B/Tokio/53/99	Ag	R86250	Chicken Eggs	EIA	Purified	–
Influenza B strain B/Victoria/504/00	Ag	R86350	Chicken Eggs	EIA	Purified	–
Influenza B (matrix protein M1)	MAb	C01345M	Mouse	EIA,WB	Purified	IgG1
Influenza B (matrix protein M1)	MAb	C01346M	Mouse	EIA,WB	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01302M	Mouse	N/A	Purified	IgG2b
Influenza B (Nucleoprotein)	MAb	C01303M	Mouse	N/A	Purified	IgG2b
Influenza B (Nucleoprotein)	MAb	C01326M	Mouse	EIA,Pr,WB	Purified	IgG2b
Influenza B (Nucleoprotein)	MAb	C01327M	Mouse	EIA,Pr,WB	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01328M	Mouse	EIA,Pr,WB	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01329M	Mouse	EIA,Pr,WB	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01340M	Mouse	EIA,WB	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01341M	Mouse	EIA,WB	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01342M	Mouse	EIA,WB	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01343M	Mouse	EIA,WB	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01505M	Mouse	EIA,WB	Purified	IgG2a
Influenza B (Nucleoprotein)	MAb	C01506M	Mouse	EIA,WB	Purified	IgG2a
Influenza B (Nucleoprotein)	MAb	C01507M	Mouse	EIA,WB	Purified	IgG2a
Influenza B (Nucleoprotein)	MAb	C01508M	Mouse	EIA,WB	Purified	IgG2a
Influenza B (Nucleoprotein)	MAb	C01684M	Ascites	EIA.WB	Purified	IgG2a
Influenza B (Nucleoprotein)	MAb	C01741M	Mouse	LF,Pr	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01742M	Mouse	LF,Pr	Purified	IgG2a
Influenza B (Nucleoprotein)	MAb	C01743M	Mouse	LF,Pr	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01744M	Mouse	LF,Pr	Purified	IgG2b
Influenza B (Nucleoprotein)	MAb	C01745M	Mouse	EIA,LF,Pr	Purified	IgG2b
Influenza B (Nucleoprotein)	MAb	C01746M	Mouse	LF,Pr	Purified	IgG2b
Influenza B (Nucleoprotein)	MAb	C01747M	Mouse	LF,Pr	Purified	IgG2a
Influenza B (Nucleoprotein)	MAb	C01748M	Mouse	LF,Pr	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C01749M	Mouse	LF,Pr	Purified	IgG2a
Influenza B (Nucleoprotein)	MAb	C65131M	Mouse	IFA,LF,Pr	Purified	IgG2b
Influenza B (Nucleoprotein)	MAb	C65133F	Mouse	IFA	FITC	IgG2b
Influenza B (Nucleoprotein)	MAb	C86402M	Mouse	EIA,WB	Purified	IgG2a
Influenza B (Nucleoprotein)	MAb	C86633M	Mouse	EIA,WB	Purified	IgG1
Influenza B (Nucleoprotein)	MAb	C87071M	Mouse	EIA,IFA,WB	Purified	IgG2b
Influenza B (Nucleoprotein)	MAb	C65016M	Mouse	IFA,LF,Pr	Purified	IgG2b
Influenza B (Nucleoprotein)	MAb	C65081M	Mouse	IFA,LF,Pr	Purified	IgG2b
Influenza B (Nucleoprotein)	MAb	C65107M	Mouse	IFA,LF,Pr	Purified	IgG2b
Influenza B Hemagglutinin HA2	MAb	C01275M	Mouse	EIA,WB	Purified	IgG2a
Influenza B Hemagglutinin HA2	MAb	C01276M	Mouse	EIA,WB	Purified	IgG2b
Influenza B Neuraminidase	MAb	C55196M	Mouse	EIA,Neut	Purified	IgG2a
Influenza B Neuraminidase	MAb	C55601M	Mouse	EIA,Neut	Purified	IgG2a
Influenza B Neuraminidase	MAb	C55960M	Mouse	EIA,Neut	Purified	IgM
Influenza B (Virions)	PAb	B65341G	Goat	EIA,IFA,WB	Purified	–
Influenza B (Virions)	PAb	B65342G	Goat	EIA,IFA,WB	Biotin	–
Influenza B (Virions)	PAb	B65343G	Goat	EIA,IFA,WB	FITC	–
Influenza B (Virions)	PAb	B65344G	Goat	EIA,IFA,WB	HRP	–

Product list *continued*

Legionella pneumophila

A gram-negative bacteria that causes a pneumonia type illness called Legionnaires' disease (also called legionellosis) and a mild flu like illness called Pontiac fever. Legionellosis can be acquired by the inhalation of aerosols containing Legionella bacteria or by micro-aspiration of ingested water contaminated with Legionella. Diagnosis is based on the detection of *L. pneumophila* in culture, antigen detection in urine, PCR, or antibody detection in serum.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Legionella pneumophila LPS	MAb	C01590M	Mouse	EIA,IFA,Pr	Purified	IgG3
Legionella pneumophila LPS	MAb	C01591M	Mouse	EIA,IFA,Pr	Purified	IgG3
Legionella pneumophila LPS Philadelphia 1 strain	MAb	C01685M	Mouse	EIA	Purified	IgG3
Legionella pneumophila LPS Philadelphia 1 strain	MAb	C86135B	Mouse	N/A	Biotin	IgG3
Legionella pneumophila LPS Philadelphia 1 strain	MAb	C86135M	Mouse	EIA	Purified	IgG3
Legionella pneumophila serogroup 1	MAb	C01757R	Rabbit	EIA,IFA,LF	Purified	IgG1
Legionella pneumophila	PAb	B65051G	Rabbit	IFA	Purified	–
Legionella pneumophila	PAb	B65053F	Rabbit	IFA	FITC	–
Legionella pneumophila	PAb	B65054R	Rabbit	EIA,ICC	HRP	–
Legionella pneumophila	PAb	B65057B	Rabbit	EIA,IFA	Biotin	–

Mycobacterium tuberculosis

A pathogenic bacterial species that is the main causative agent of tuberculosis (TB). *M. tuberculosis* has an unusual, waxy coating on its cell surface which makes the cells impervious to Gram staining. The most frequently used diagnostic methods for determining if a person has been infected with *M. tuberculosis* are the tuberculin skin test or blood test, however chest x-ray or a sample of sputum are needed to see whether the person has TB. The 65-kDa Heat-shock protein (HSP) has been identified as an immunogenic protein which is useful as diagnostic marker for TB.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Heat Shock Protein-65, Mycobacterium tuberculosis, Recombinant	Ag	R86650	E. coli	N/A	Purified	–
Heat Shock Protein-70, Mycobacterium tuberculosis, Recombinant	Ag	R86700	E. coli	EIA,WB	Purified	–
Heat Shock Protein-70	MAb	C24123M	Mouse	EIA,IHC,IP,WB	Purified	IgG1
Mycobacterium tuberculosis, 38kDa, Recombinant	Ag	R30380	E. coli	EIA	Purified	–
Mycobacterium tuberculosis (16kDa)	MAb	C65557M	Mouse	EIA,WB	Purified	IgG2a
Mycobacterium tuberculosis (16kDa)	MAb	C65567M	Mouse	EIA,WB	Purified	IgG2a
Mycobacterium tuberculosis CFP10 (10kDa culture filtrate protein)	MAb	C01398M	Mouse	EIA,Pr	Purified	IgG1
Mycobacterium tuberculosis CFP10 (10kDa culture filtrate protein)	MAb	C01399M	Mouse	EIA	Purified	IgG1
Mycobacterium tuberculosis CFP10 (10kDa culture filtrate protein)	MAb	C01400M	Mouse	EIA,Pr	Purified	IgG2b
Mycobacterium tuberculosis ESAT6 (6kDa early secretory antigen of T cells)	MAb	C01401M	Mouse	EIA	Purified	IgG1
Mycobacterium tuberculosis ESAT6 (6kDa early secretory antigen of T cells)	MAb	C01402M	Mouse	EIA	Purified	IgG2a
Mycobacterium tuberculosis Hsp65	MAb	C65578M	Mouse	EIA,WB	Purified	IgG2a
Mycobacterium tuberculosis RV1734 dormant protein from H37RV strain	MAb	C01408M	Mouse	EIA,WB	Purified	IgG2b
Mycobacterium tuberculosis RV2031 dormant protein from H37RV strain	MAb	C01409M	Mouse	EIA	Purified	IgG2b
Mycobacterium tuberculosis RV2031 dormant protein from H37RV strain	MAb	C01410M	Mouse	EIA,WB	Purified	IgG2a
Mycobacterium tuberculosis RV2031 dormant protein from H37RV strain	MAb	C01411M	Mouse	EIA,WB	Purified	IgG1
Mycobacterium tuberculosis RV2031 dormant protein from H37RV strain	MAb	C01412M	Mouse	EIA,WB	Purified	IgG1
Mycobacterium tuberculosis RV2623 Recombinant Protein of Dormancy Regulon	MAb	H86320M	Mouse	EIA,WB	Purified	IgG2a

Mycobacterium tuberculosis *cont.*

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Mycobacterium tuberculosis RV2626 dormant protein from H37RV strain	MAb	C01413M	Mouse	EIA,WB	Purified	IgG2b
Mycobacterium tuberculosis RV2626 dormant protein from H37RV strain	MAb	C01414M	Mouse	EIA,WB	Purified	IgG2a
Mycobacterium tuberculosis RV2626 dormant protein from H37RV strain	MAb	C01415M	Mouse	EIA,WB	Purified	IgG2a
Mycobacterium tuberculosis RV2626 dormant protein from H37RV strain	MAb	C01416M	Mouse	EIA,WB	Purified	IgG2a
Mycobacterium tuberculosis RV2626 dormant protein from H37RV strain	MAb	C01417M	Mouse	EIA,WB	Purified	IgG2a
Mycobacterium tuberculosis RV3134 Recombinant Protein of Dormancy Regulon	MAb	H86315M	Mouse	EIA,WB	Purified	IgG1
Mycobacterium tuberculosis, 16kDa	MAb	C86160M	Mouse	EIA,WB	Purified	IgG1
Mycobacterium tuberculosis, 16kDa	MAb	C86360M	Mouse	EIA,WB	Purified	IgG2a
Mycobacterium tuberculosis, 38kDa	MAb	C86380M	Mouse	EIA,WB	Purified	IgG1
Mycobacterium tuberculosis, 38kDa	MAb	C86810M	Mouse	EIA,WB	Purified	IgG1
Mycobacterium tuberculosis, 38kDa	MAb	C86820M	Mouse	EIA,WB	Purified	IgG2b
Mycobacterium tuberculosis, Hsp65	MAb	C65577M	Mouse	EIA,WB	Purified	IgG2a
Mycobacterium tuberculosis (all antigens)	PAb	B65601B	Rabbit	IFA,IHC	Biotin	–
Mycobacterium tuberculosis (all antigens)	PAb	B65601C	Rabbit	IFA,IHC	HRP	–
Mycobacterium tuberculosis (all antigens)	PAb	B65601F	Rabbit	IFA,IHC(p)	FITC	–
Mycobacterium tuberculosis (all antigens)	PAb	B65601R	Rabbit	IFA,IHC(p)	Purified	–

Mycoplasma pneumoniae

A bacteria that can cause a host of symptoms such as primary atypical pneumonia, tracheobronchitis, and upper respiratory tract disease. Clinically, *M. pneumoniae* cannot be differentiated from pneumonia caused by other bacteria or viruses. Standard methods for detection include culture and PCR, however new sensitive and specific immunological detection techniques such as ELISA have become established in clinical practice.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Mycoplasma pneumoniae (strain FH)	Ag	R02102	Broth base medium	EIA	Purified	–
Mycoplasma pneumoniae (strain FH)	Ag	R14720	M. pneumoniae culture	N/A	Partially Purified	–
Mycoplasma pneumoniae	MAb	C01517M	Mouse	EIA,IFA,WB	Purified	IgG1
Mycoplasma pneumoniae	MAb	C01518M	Mouse	EIA,IFA,WB	Purified	IgG1
Mycoplasma pneumoniae	MAb	C01519M	Mouse	EIA,IFA,WB	Purified	IgG1
Mycoplasma pneumoniae	MAb	C01520M	Mouse	EIA,IFA,WB	Purified	IgG1
Mycoplasma pneumoniae	MAb	C01521M	Mouse	EIA,IFA,WB	Purified	IgG1
Mycoplasma pneumoniae (all antigens)	PAb	B65511R	Rabbit	IFA	Purified	–
Mycoplasma pneumoniae (all antigens)	PAb	B65614P	Rabbit	ICC	HRP	–
Mycoplasma pneumoniae (all antigens)	PAb	B65651F	Rabbit	IFA	FITC	–

Product list *continued*

Parainfluenza

A group of four viruses that commonly causes upper and lower respiratory illnesses. The exact type of infection, the symptoms, and the location of the infection depend on the type of virus. Laboratory diagnosis of parainfluenza viruses can be performed by isolation and detection of the virus in cell culture, or detection of viral antigens directly within bodily respiratory tract secretions using IFA, EIA, fluroimmunoassays or PCR.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Parainfluenza 1, strain VP1	Ag	R02802	Vero Cells	EIA	Lysate	–
Parainfluenza 1	MAb	C65122M	Mouse	EIA,IFA	Purified	IgG2b
Parainfluenza 1 & 3, Fusion Protein	MAb	C65738M	Mouse	EIA,IFA,Pr	Purified	IgG2a
Parainfluenza 1, Fusion Protein	MAb	C01306M	Mouse	N/A	Purified	IgG2a
Parainfluenza 1, Fusion Protein	MAb	C65492M	Mouse	EIA,IFA,Pr	Purified	IgG2a
Parainfluenza 1	PAb	B65121G	Goat	IFA	Purified	–
Parainfluenza 1	PAb	B65124G	Goat	EIA,ICC	HRP	–
Parainfluenza 1	PAb	B65127G	Goat	EIA,IFA	Biotin	–
Parainfluenza 2, strain Greer	Ag	R02902	Vero Cells	EIA	Lysate	–
Parainfluenza 2, strain Greer	Ag	R29126	Vero Cells	EIA	Purified	–
Parainfluenza 2, strain II ALTBcc2056	Ag	R86260	MA104 Cells	N/A	Purified	–
Parainfluenza 2	MAb	C65241M	Mouse	IFA	Purified	IgG2a
Parainfluenza 2, Hemagglutinin	MAb	C01307M	Mouse	N/A	Purified	IgG1
Parainfluenza 2 & 3 (all antigens)	PAb	B65130G	Goat	EIA,IFA	Purified	–
Parainfluenza 2 & 3 (all antigens)	PAb	B65231G	Goat	EIA,IFA	Biotin	–
Parainfluenza 2 & 3 (all antigens)	PAb	B65232G	Goat	IFA	FITC	–
Parainfluenza 2 & 3 (all antigens)	PAb	B65233G	Goat	EIA,ICC	HRP	–
Parainfluenza 3, strain C243	Ag	R02002	Vero Cells	EIA	Lysate	–
Parainfluenza 3, strain III V2932	Ag	R86360	MA104 Cells	EIA	Purified	–
Parainfluenza 3, Hemagglutinin	MAb	C01308M	Mouse	N/A	Purified	IgG2a
Parainfluenza 3, Hemagglutinin	MAb	C65329M	Mouse	EIA,IFA,Pr	Purified	IgG2a
Parainfluenza 3, Hemagglutinin	MAb	C65467M	Mouse	EIA,IFA,Pr	Purified	IgG2a

Pneumocystis jiroveci

A yeast-like fungus of the genus Pneumocystis and the causative organism of Pneumocystis pneumonia (PCP), a form of pneumonia. PCP is not commonly found in the lungs of healthy people, but, being a source of opportunistic infection, it can cause a lung infection in people with a weak immune system. Pneumocystis pneumonia is especially seen in people with cancer undergoing chemotherapy, HIV/AIDS, and the use of medications that suppress the immune system. Diagnosis is based on IFA or by molecular methods.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Pneumocystis carinii (Pneumocystis jiroveci) 50kDa	MAb	C01583M	Mouse	IFA,WB	Purified	IgG3
Pneumocystis carinii (Pneumocystis jiroveci) 65/67kDa	MAb	C01581M	Mouse	IFA,WB	Purified	IgG2b
Pneumocystis carinii (Pneumocystis jiroveci) 93kDa	MAb	C01582M	Mouse	IFA,WB	Purified	IgG2b

Respiratory Syncytial Virus (RSV)

The most common cause of bronchiolitis (inflammation of the small airways in the lung) and pneumonia in children younger than 1 year of age in the United States. Several different types of laboratory tests are available for the diagnosis of an RSV infection including ELISA, rapid lateral flow, Direct Fluorescent Antibody Detection (DFA), neutralization assay and RT-PCR. Most clinical laboratories currently utilize EIA antigen detection tests, and many supplement antigen testing with cell culture or immunofluorescence assays to confirm diagnosis.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Respiratory Syncytial Virus (RSV) Antigen (strain Long) >10% Viral Protein	Ag	8175	FRhK Cells	EIA	Partially Purified	–
Respiratory Syncytial Virus: RSV Memphis 37	Ag	EV9508	N/A	ICC	Live Virus	–
Respiratory Syncytial Virus: RSV Memphis 37	Ag	EV9510	Hep-2 Cells	ICC	Live Virus	–
Respiratory Syncytial Virus (RSV) Long strain	Ag	R29124	Vero Cells	EIA	Purified	–
Respiratory Syncytial Virus (RSV) Long strain	Ag	R86900	MA104 Cells	EIA	Purified	–
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C01769M	Mouse	EIA	Purified	IgG2b
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C01777M	Mouse	EIA	Purified	IgG2a
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C01772M	Mouse	EIA	Purified	IgG1
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C01770M	Mouse	EIA	Purified	IgG2a
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C01771M	Mouse	EIA	Purified	IgG2a
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C01773M	Mouse	EIA,Pr	Purified	IgG1
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C01774M	Mouse	EIA	Purified	IgG2a
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C01775M	Mouse	EIA,Pr	Purified	IgG2a
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C01776M	Mouse	EIA	Purified	IgG1
Respiratory Syncytial Virus (RSV) 33kDa & 190kDa proteins	MAb	C01492M	Mouse	EIA,IFA,LF,WB	Purified	IgG2a
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C65063M	Mouse	EIA,IFA,Pr	Purified	IgG2a
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C65064M	Mouse	EIA,IFA,Neut,Pr	Purified	IgG1
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C65065M	Mouse	EIA,IFA,Neut,Pr	Purified	IgG2a
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C65816M	Mouse	EIA,IFA	Purified	IgG2b
Respiratory Syncytial Virus (RSV) Fusion Protein	MAb	C87610M	Mouse	IFA	Purified	IgG2b
Respiratory Syncytial Virus (RSV) Fusion Protein, Type A and B strains	MAb	C01624M	Mouse	EIA,IFA	Purified	IgG2a,k
Respiratory Syncytial Virus (RSV) Fusion Protein, Type A and B strains	MAb	C01626M	Mouse	EIA,FC,IFA,WB	Purified	IgG2a,k
Respiratory Syncytial Virus (RSV) Long strain	MAb	C01694M	Mouse	EIA,LF	Purified	IgG2b
Respiratory Syncytial Virus (RSV) Long strain	MAb	C86001M	Mouse	EIA,LF	Purified	IgG1
Respiratory Syncytial Virus (RSV) Nucleoprotein	MAb	C65067F	Mouse	EIA,IFA	FITC	IgG2a
Respiratory Syncytial Virus (RSV) Nucleoprotein	MAb	C65067M	Mouse	EIA,IFA	Purified	IgG2a
Respiratory Syncytial Virus (RSV) Nucleoprotein	MAb	C66432M	Mouse	DB,LF	Purified	IgG
Respiratory Syncytial Virus (RSV) Nucleoprotein	MAb	C87320M	Mouse	EIA,IHC(f)	Purified	IgG1
Respiratory Syncytial Virus (RSV)	PAb	B65820G	Goat	EIA,IFA,IHC(p), Neut	Biotin	–
Respiratory Syncytial Virus (RSV)	PAb	B65830G	Goat	EIA,FC,IHC(p), WB	FITC	–
Respiratory Syncytial Virus (RSV)	PAb	B65840G	Goat	EIA,ICC,IHC(p), Neut,WB	HRP	–
Respiratory Syncytial Virus (RSV)	PAb	B65860G	Goat	EIA,IFA,IHC(p)	Purified	–

Rhinovirus

The most common viral infectious agent in humans and is the predominant cause of the common cold. There are 99 recognized types of human rhinoviruses that differ according to their surface proteins. There are no vaccines against these viruses as there is a lack of cross-protection between serotypes. Most people recover within one week and infection is rarely serious. Historically, detection of rhinovirus has been performed by virus culture or immunofluorescence microscopy (IFA) but recently PCR assays have become more utilized.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Rhinovirus outer capsid Protein 3 (VP3)	MAb	C01696M	Mouse	EIA,IFA	Purified	IgG1
Rhinovirus outer capsid protein 3 (VP3)	MAb	C01697M	Mouse	EIA,IFA	Purified	IgG1
Rhinovirus outer capsid protein 3 (VP3)	MAb	C01698M	Mouse	EIA,IFA	Purified	IgG1

Product list *continued*

SARS-CoV (Coronavirus)

Severe acute respiratory syndrome is a viral respiratory illness caused by a coronavirus (SARS-CoV). It was first reported in Asia in February 2003 and subsequently the illness spread to more than two dozen countries in North America, South America, Europe, and Asia before the global outbreak was contained. SARS-CoV is often a severe illness marked initially by systemic symptoms including muscle pain, headache, and fever, followed in 2–10 days by the onset of respiratory symptoms, mainly cough, dyspnea, and pneumonia. In the SARS outbreak of 2003, about 9% of patients with confirmed SARS infection died. Since 2004, there have not been any known cases of SARS reported anywhere in the world. Laboratory testing includes EIA serolgical assays and RT-PCR.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Coronavirus Surface Antigen	MAb	C01754M	Mouse	EIA,HI	Purified	IgG2a
Coronavirus, peplomer	MAb	C86540M	Mouse	EIA,HI	Purified	IgG1
SARS-CoV, E protein Recombinant	Ag	R18520	E. coli	EIA,WB	Purified	–
SARS-CoV, M protein Recombinant	Ag	R18105	E. coli	EIA,WB	Purified	–
SARS-CoV, Nucleocapsid (a.a. 1-49/192-220) Recombinant	Ag	R18490	E. coli	EIA,WB	Purified	–
SARS-CoV, Nucleocapsid (a.a. 340-390) Recombinant	Ag	R18402	E. coli	EIA,WB	Purified	–
SARS-CoV, Spike protein (C-terminal) Recombinant	Ag	R18572	E. coli	EIA,WB	Purified	–
SARS-CoV, Spike protein (Middle)	Ag	R18526	E. coli	EIA,WB	Purified	–
SARS-CoV, Nucleoprotein	MAb	C65186M	Mouse	EIA,IFA,WB	Purified	IgG1
SARS-CoV, Nucleoprotein	MAb	C65509M	Mouse	EIA,IFA,WB	Purified	IgG2b
SARS-CoV, E protein (C-terminal)	PAb	B88335R	Rabbit	EIA	Aff.Pur.	–
SARS-CoV, E protein (N-terminal)	PAb	B88150R	Rabbit	EIA	Aff.Pur.	–
SARS-CoV, M protein (C-terminal)	PAb	B88590R	Rabbit	EIA	Aff.Pur.	–
SARS-CoV, M protein (N-terminal)	PAb	B88253R	Rabbit	EIA	Aff.Pur.	–
SARS-CoV, Spike protein (C-terminal)	PAb	B88502R	Rabbit	EIA	Aff.Pur.	–
SARS-CoV, Spike protein (Middle)	PAb	B88320R	Rabbit	EIA	Aff.Pur.	–
SARS-CoV, Spike protein (Middle)	PAb	B88413R	Rabbit	EIA	Aff.Pur.	–
SARS-CoV, Spike protein (Middle)	PAb	B88656R	Rabbit	EIA	Aff.Pur.	–
SARS-CoV, Spike protein (N-terminal)	PAb	B88139R	Rabbit	EIA	Aff.Pur.	–

Streptococcus Group A

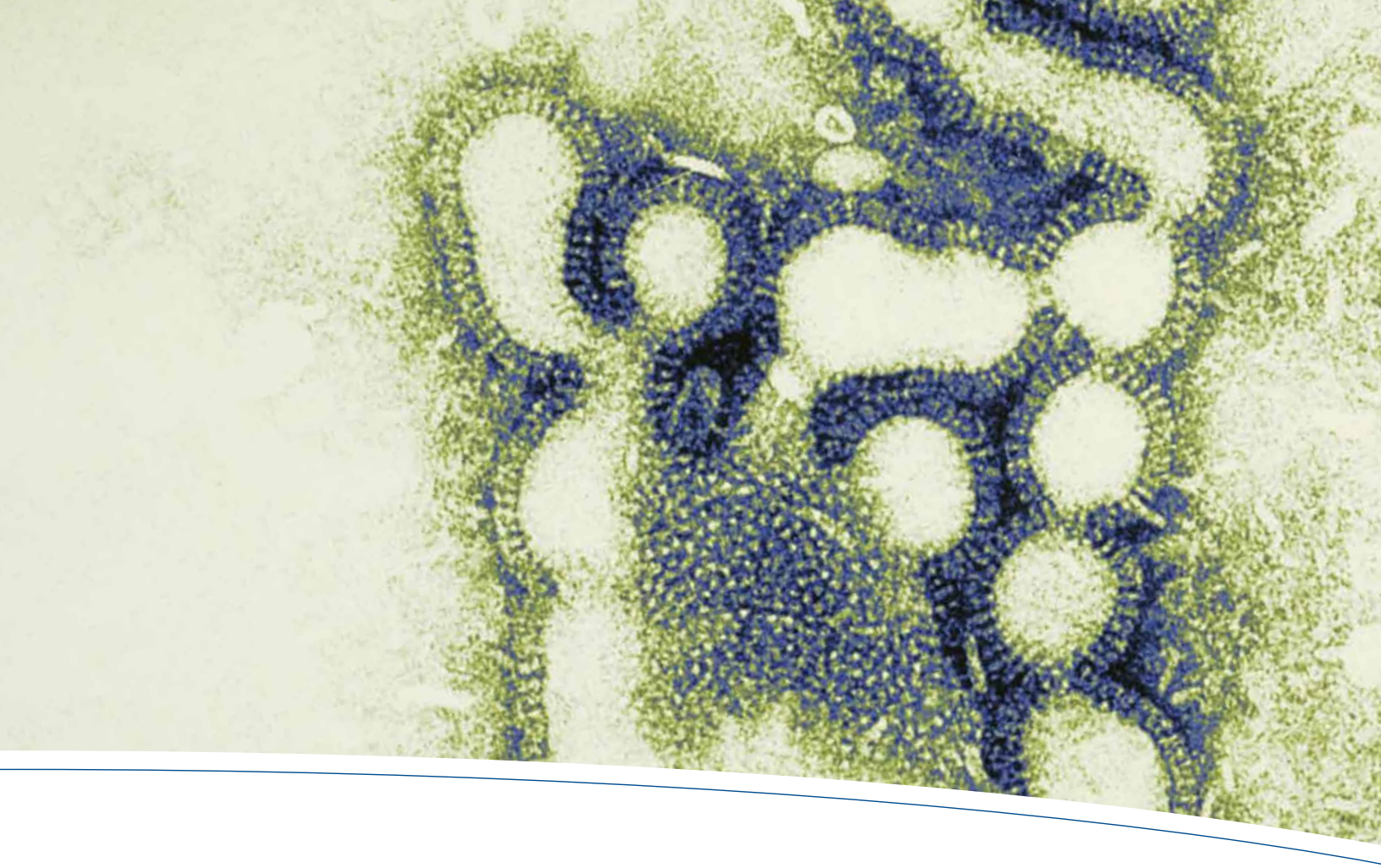
The most significant pathogen causing pharyngitis, contributing to 20% of infections of tonsillitis, pharyngitis, and scarlet fever. It typically occurs in young children, and prevalence is high in schools, nursing homes, and hospitals. For cases of pharyngitis and scarlet fever, the routine method of diagnosis is identification of the organism from a throat swab by using rapid antigen detection test (RADT) and/or culture.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Streptococcus Group A	MAb	C55504M	Mouse	EIA	Ascites	IgG2a
Streptococcus Group A	MAb	C55769M	Mouse	EIA	Ascites	IgG2a
Streptococcus Group A	MAb	C65421M	Mouse	EIA	Purified	IgG2
Streptococcus Group A	MAb	C01756R	Rabbit	EIA,LF,Pr	Purified	IgG1
Streptococcus Group A	PAb	B65150F	Goat	EIA,IFA	FITC	–
Streptococcus Group A	PAb	B65150G	Goat	EIA,LF	Aff.Pur.	–
Streptococcus Group A	PAb	B65150P	Goat	EIA,ICC	HRP	–
Streptococcus Group A	PAb	B65510R	Rabbit	EIA,IFA,LF	Aff.Pur.	–
Streptococcus Group A	PAb	B65514P	Rabbit	EIA,IFA,LF	HRP	–

Streptococcus pneumoniae

A gram positive bacteria that is one of the most common causes of bacterial meningitis in adults and young adults, along with Neisseria meningitidis, and is the leading cause of bacterial meningitis in adults in the USA. *S. pneumoniae* is part of the normal upper respiratory tract flora, but, as with many natural flora, it can become pathogenic under the right conditions, such as in immunodeficient individuals. Laboratory diagnosis includes antigen-based testing, culture, PCR and Gram staining.

Specificity	Type	Catalog #	Host / Source	Tested Apps	Format	Isotype
Streptococcus pneumoniae Common C-polysaccharide (CWPS)	MAb	C01758R	Rabbit	EIA,IFA,LF,Pr	Purified	IgG1
Streptococcus pneumoniae Common C-polysaccharide (CWPS)	MAb	C01759R	Rabbit	EIA,IFA,LF,Pr	Purified	IgG1
Streptococcus pneumoniae Common C-polysaccharide (CWPS)	MAb	C01636M	Mouse	EIA,IFA	Purified	IgG3
Streptococcus pneumoniae Common C-polysaccharide (CWPS)	MAb	C01637M	Mouse	EIA,IFA	Purified	IgG3
Streptococcus pneumoniae Common C-polysaccharide (CWPS)	MAb	C01638M	Mouse	EIA,IFA	Purified	IgG3
Streptococcus pneumoniae, Surface Protein A	MAb	C55220M	Mouse	EIA	Purified	IgG2b
Streptococcus pneumoniae, Surface Protein A	MAb	C55230M	Mouse	EIA	Purified	IgG1
Streptococcus pneumoniae	PAb	B01831R	Rabbit	EIA	Purified	–
Streptococcus pneumoniae	PAb	B47831P	Guinea Pig	EIA	Neat	–
Streptococcus pneumoniae	PAb	B47831R	Rabbit	EIA	Neat	–
Streptococcus pneumoniae	PAb	B65831R	Rabbit	EIA,IFA	Purified	–



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