



Respiratory infections

ELISA tests for antibodies of IgA, IgG, and IgM class detection of diverse pathogens



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ELISA tests for antibodies of IgA, IgG, and IgM class detection of diverse pathogens of human respiratory tract

Infections of the respiratory tract can be caused by diverse groups of microorganisms

Viral (influenza, RSV, rhinoviruses, coronaviruses), bacterial (Chlamydia, Mycobacterium, Mycoplasma) and fungal (Pneumocystis jirovecii) pathogens cause infections of both the upper and lower respiratory tract. Diagnostics of such infections is complicated; hence symptoms are general, and most patients recover in several days post-infection. Direct identification using molecular biology techniques (e.g. PCR) is the method of choice for acute infection diagnostics. Serological methods provide valuable information for epidemiological monitoring or retrospective diagnostics based on increased IgG antibody levels.

Erba Mannheim provides a wide range of ELISA tests for antibodies of IgA, IgG, and IgM class detection of diverse pathogens of human respiratory tract.



COVID-19

Coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which was first identified amid an outbreak of respiratory illness cases in the city of Wuhan, China. This has since caused a global pandemic. Most infected individuals have only mild disease; however, some groups of patients are at higher risk for the development of so called 'long covid' or severe complications connected to other co-morbidities. This results in a 0,5% mortality rate worldwide. Molecular techniques are currently considered a gold standard of COVID-19 acute infection diagnostics; however, a large number of samples must be analyzed daily, which leads to laboratories reaching their capacity very quickly and easily becoming overwhelmed.

Erba Mannheim provides a full solution for COVID-19 diagnostics. Rapid antigen tests are an important tool for virus presence screening in public and private institutions prior to confirmation of positive results by molecular diagnostic techniques. ELISA tests combine benefits of a cost-effective and high throughput technique for epidemiological screening purposes using IgA, IgG, and IgM antibodies' detection, as well post-vaccination, and post-infection quantification of IgG antibodies. This provides important information about efficacy of vaccination and identification for potential donors of antibody-rich plasma for severe COVID-19 treatment.

Cat No	Product name	Parameters of the test
IME00136	COVID-19 IgG	ELISA assay for quantitative determination of COVID-19 IgG antibodies
IME00137	COVID-19 IgM	ELISA assay for qualitative determination of COVID-19 IgM antibodies
IME00235*	Cov19G Spike1 (96)	ELISA assay for semi or quantitative determination of COVID-19 IgG antibodies
IME00236*	ACE2-RBD (96)	ELISA assay for determination of neutralizing activity of anti SARS-COV-2 antibodies
IME00237*	COVID-19 IgA Nucleocapsid (96)	ELISA assay for qualitative determination of COVID-19 IgA antibodies
IME00238*	COVID IgG Nucleocapsid (96)	ELISA assay for semi or quantitative determination of COVID-19 IgG antibodies
IME00239*	COVID IgM Nucleocapsid (96)	ELISA assay for qualitative determination of COVID-19 IgM antibodies
IME00240*	COVID-19 IgG Confirmation (24)	Confirmatory COVID-19 antibody ELISA test, four-parameter test for detection of antigen specific IgG antibodies in individual wells
IME00241*	COVID-19 IgG/IgM Conf. and Typing (24)	Confirmatory COVID-19 antibody ELISA test, four-parameter test for detection of antigen specific IgG or IgM antibodies in individual wells
IMT00016*	ErbaQik COVID-19 Test	Rapid antigen test for detection of SARS-COV-2 in nasopharyngeal samples
PCR00001	ErbaMDx SARS-CoV-2 RT-PCR Kit	RT-PCR test for detection of SARS-COV-2 in nasopharyngeal samples

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Mycobacterium tuberculosis

Tuberculosis is a well-researched disease, firstly described by Robert Koch in 1882 after discovery of bacilli shaped bacteria Mycobacterium tuberculosis. The bacteria is in the most prevalent among respiratory tract pathogens which attack lungs; however, it can be found in any body parts such as the kidneys, bones, brain, and other tissues. Mycobacteria are an extremely stable and resistant bacilli, spread by inhaling bacteria from nearby contacts suffering from tuberculosis lung or throat infections. In many cases, tuberculosis remains a silent, latent infection for many years or for a whole lifetime without any symptoms of infection. However, this can later progress into symptomatic tuberculosis disease, especially in immunocompromised individuals. Today, tuberculosis is mostly associated with AIDS infection, which destroys patients' immune systems which opens a route for the development of severe tuberculosis in affected individuals. Such infections are life threatening and must be treated accordingly with specific antibiotics. Non-targeted and improperly managed treatment have led to a rise in multi-resistant mycobacteria in many regions due to extensive migration. This can increase mortality rates and result in economic losses connected to expensive treatment. Diagnostics play an important role in mitigating these negative medical and socioeconomic outcomes.

Standard diagnostics include a TB skin test, microscopy of acidoresistant bacilli in a patient's sample, and molecular techniques. Erba provides an ELISA test for detection of IgM and IgG antibodies against TB infection, which can be used for screening purposes of the disease and monitoring of the epidemiological situation in local areas.

Cat No	Product name	Parameters of the test
IME00242*	M. tuberculosis IgM	ELISA test for semi-quantitative determination of IgM antibodies against M. tuberculosis
IME00243*	M. tuberculosis IgG	ELISA test for semi-quantitative determination of IgG antibodies against M. tuberculosis

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Chlamydia pneumoniae

Chlamydia pneumonia, like other chlamydia strains, is an intracellular parasitic bacteria which infects and destroys the lining of the respiratory tract, including the throat, bronchi, and lungs. Most of the adult population may be diagnosed seropositive. The infection is widely spread worldwide in collectives and seropositivity increases with the age of the population. Chlamydia pneumoniae usually causes mild to moderate respiratory tract infection symptoms, including atypical pneumonia, bronchitis, pharyngitis, and sinusitis. Most infected individuals recover spontaneously, however in individuals suffering from asthma, the infection may worsen asthma symptoms and lead to prolonged infection. Such infection must be treated accordingly with antibiotics.

Erba provides reliable diagnostics in a form of ELISA tests targeting species specific antibodies in class IgA, IgG and IgM, that help clinicians to determine infectious agent and define targeted therapy.

Cat No	Product name	Parameters of the test
IME00192*	C. pneumoniae IgA	ELISA test for qualitative determination of IgA antibodies against C. pneumoniae
IME00193*	C. pneumoniae IgM	ELISA test for qualitative determination of IgM antibodies against C. pneumoniae
IME00194*	C. pneumoniae IgG	ELISA test for quantitative determination of IgG antibodies against C. pneumoniae

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Mycoplasma pneumoniae

Mycoplasma pneumoniae is a bacterial pathogen that causes infection of the respiratory tract and destroys lining of the throat, bronchi, and lungs. In most of patients, infection by *Mycoplasma pneumoniae* manifests as a self-limiting disease with sore throat, cough, chest pain, shortness of breath, fever, and chills. Most patients recover following a few weeks of illness, but – in some cases – *Mycoplasma* can cause atypical pneumonia, which complicates other diseases like asthma and must be treated with antibiotics according to the severity of such an infection.

General diagnostics is based on molecular techniques or serology testing. Direct identification by cultivation is complicated due to slow growth and the high probability of false negative results. Erba provides two ELISA tests targeting species-specific antibodies class IgG and IgM, which can be successfully integrated into standard diagnostics procedures to monitor recent ongoing infection and patient recovery.

Cat No	Product name	Parameters of the test
IME00106	Mycoplasma pneumoniae IgG	ELISA test for qualitative determination of IgG antibodies against <i>M. pneumoniae</i>
IME00107	Mycoplasma pneumoniae IgM	ELISA test for qualitative determination of IgM antibodies against <i>M. pneumoniae</i>

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