

Tropical vector-borne diseases

Direct identification and monitoring of antibody response



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Rapid testing and monitoring of antibody response to causative agents for tropical vector-borne diseases

Tropical diseases are a diverse group of infectious agents, prevailing predominantly in tropical and subtropical areas and affecting hundreds of millions of people every year.

The majority of the most widespread tropical diseases have a zoonotic origin. Viral, bacterial, and parasitic agents are transmitted predominantly via insect bites (mosquitoes, ticks, triatomine bugs, sandflies, and blackflies). Erba provides a wide range of rapid tests for direct detection of causative agents of particular diseases, as well as ELISA tests to monitor the presence of antibodies in affected individuals:

Dengue hemorrhagic fever

Dengue virus is spread through a bite of an infected mosquito of Aedes species; endangering almost half of world population. Each year, more than 400 million people get infected by one of four Dengue virus subtypes, resulting in more than one million cases of progressive infection. Major concern of dengue infection is connected to the development of hemorrhagic fever in individuals with existing antibodies to a certain subtype of the virus. Severity of such infection is exacerbated in individuals suffering from infection with a different subtype. This leads to tens of thousands of deaths worldwide each year. Early detection of the virus and monitoring of seroconversion can help save thousands of lives via prompt action with supportive treatment in affected individuals. In countries with endemic occurrence of disease, dengue is an obligatory parameter for blood bank screening. Erba provides rapid antigen and antibody tests for early, accurate detection of viral infection, as well as reliable ELISA tests for seroprevalence screening and confirmation of acute or post infection status of patients.

Cat No	Product name	Parameters of the test
IMT00009*	ErbaQik Dengue IgG/IgM Test	Rapid detection of IgG or IgM antibody using lateral flow test – 25 tests
IMT00010*	ErbaQik Dengue Duo (NS1+IgG/IgM)	Combined test for rapid detection of virus antigen and IgG or IgM antibody using lateral flow test – 25 tests
IMT00011*	ErbaQik Dengue Duo (NS1+IgG/IgM)	Combined test for rapid detection of virus antigen and IgG or IgM antibody using lateral flow test – 10 tests
IMT00012*	ErbaQik Dengue Alpha NS1 Ag Test	Rapid detection of NS1 antigen using lateral flow test – 25 tests
IME00090	Dengue IgG	Qualitative determination of IgG antibodies in ELISA test format
IME00091	Dengue IgM	Qualitative determination of IgM antibodies in ELISA test format
IME00226*	Dengue IgG	Qualitative/semi-quantitative determination of IgG antibodies in ELISA test format
IME00227*	Dengue IgM	Qualitative determination of IgM antibodies in ELISA test format
IME00228*	Dengue NS1 Ag	ELISA based determination of NS1 antigen present in serum samples

Malaria

Malaria is caused by a parasite of Plasmodium species, transmitted via the bite of an infected mosquito of Anopheles gambiae species. Typical flu-like symptoms including high fever, chills, and overall sickness are present in millions of cases each year, leading to more than 600 000 deaths annually. The highest mortality rates are connected to children in the Sub-Saharan African region. Early diagnosis and proper Plasmodium species determination is crucial for choosing targeted treatment due to risk of treatment failure and the subsequent rise in resistant strains. Erba provides a full solution for direct identification of infected individuals, as well as tests for monitoring seropositive individuals. ErbaQik rapid antigen or antibody tests are a useful tool for fast detection of Malaria infection and differentiation between Plasmodium falciparum-vivax from other less virulent species. In endemic areas, malaria is listed as one of the obligatory parameters for blood bank screening. In blood banks, ELISA tests are an important tool for screening large samples numbers; combining the benefits of a cost-effective and reliable solution.

Cat No	Product name	Parameters of the test
IME00222*	Malaria Ab 96	3rd generation of ELISA for determination of total antibodies against Plasmodium spp. – 96 tests
IME00223*	Malaria Ab 192	3rd generation of ELISA for determination of total antibodies against Plasmodium spp. – 192 tests
IME00224*	Malaria Ab 480	3rd generation of ELISA for determination of total antibodies against Plasmodium spp. – 480 tests
IME00225*	Malaria Ab 960	3rd generation of ELISA for determination of total antibodies against Plasmodium spp. – 960 tests
IMT00013*	ErbaQik Malaria Pan Ag Test	Rapid antigen test for determination of malarian PAN antigen using lateral flow test – 25 tests
IMT00014*	ErbaQik Malaria Pf/Pv Ag Test	Rapid antigen test for differentiation between Plasmodium falciparum and vivax using lateral flow test – 25 tests
IMT00015*	ErbaQik Malaria Pf/ Pan Ag Test	Rapid antigen test for differentiation between Plasmodium falciparum and PAN using lateral flow test – 25 tests



Chagas disease

Chagas disease, also known as American trypanosomiasis, is caused by a parasitic organism called *Trypanosoma cruzi*. The infection is spread during contact with contaminated excrements of the triatome bug, endemically present on the American subcontinents. Although eradication programs have led to a decrease in infection rates, more than eight million people still suffer from Chagas disease, often with diagnosis late at the chronic stage of the infection.

Chagas disease is divided into two forms, acute and chronic. Acute infection lasts for few weeks and patients can be diagnosed via blood smear and microscopy. Later, parasitic infection remains silent and can't be detected by blood smears. An estimated 20–30% of infected people will develop severe and sometimes life-threatening medical problems over the course of their lives. Diagnosis of Chagas disease chronic form is established based on clinical findings and circulating antibodies detection. Erba offers different formats of ELISA tests for Chagas disease diagnostics. These can be used either for standard diagnostics, or easily implemented into standard blood bank panels in specific endemic areas where determination of antibodies against *Trypanosoma* infections remain an obligatory test to ensure blood products safety.

Cat No	Product name	Parameters of the test
IME00173*	T. cruzi Ab 96	3rd generation of ELISA for determination of total antibodies against <i>Trypanosoma cruzi</i> – 96 tests
IME00174*	T. cruzi Ab 192	3rd generation of ELISA for determination of total antibodies against <i>Trypanosoma cruzi</i> – 192 tests
IME00175*	T. cruzi Ab 480	3rd generation of ELISA for determination of total antibodies against <i>Trypanosoma cruzi</i> – 480 tests
IME00176*	T. cruzi Ab 960	3rd generation of ELISA for determination of total antibodies against <i>Trypanosoma cruzi</i> – 960 tests

West-Nile virus

West-Nile virus is a causative agent of a severe neuroinvasive disease called West Nile encephalitis or poliomyelitis. This life-threatening condition develops in minor percentages of infected individuals. Most infected patients develop no symptoms at all (80%) or mild flu-like symptoms lasting for several days. The infection is naturally maintained in birds' life cycle – *Culex pipiens* mosquitos – , with humans and horses infected as dead-end hosts. It is endemically present in Europe, Africa, North America, and South-East Asia. Erba offers different ELISA tests formats for diagnostics of West Nile virus. General diagnostics is based on IgM and IgG antibody determination from blood or cerebrospinal fluid. ELISA tests remain an important tool to diagnose an early infection with IgM antibodies appearing 3-8 days post infection.

Cat No	Product name	Parameters of the test
IME00256*	West Nile Virus IgM	ELISA test for qualitative determination of IgM antibodies against West Nile virus – 96 tests
IME00257*	West Nile Virus IgG	ELISA test for qualitative determination of IgG antibodies against West Nile virus – 96 tests
IME00258*	West Nile Virus Ab 96	ELISA test for qualitative determination of total antibodies against West Nile virus – 96 tests
IME00259*	West Nile Virus Ab 192	ELISA test for qualitative determination of total antibodies against West Nile virus – 192 tests

Yellow fever

Yellow fever disease, most well-known from the history of building the French canal in the 18th century - where it caused tens of thousands of deaths - still amounts to thousands of new cases yearly today. Yellow fever virus can be successfully controlled by vaccination. Despite all efforts to control the disease spreading, Yellow fever virus still spreads rapidly by *Aedes aegypti* mosquitos in endemic areas of South America and Africa. In many cases, yellow fever may be easily mistaken for other viral infections as a self-limiting disease. In 15% of cases, yellow fever manifests itself in high fevers, chills, severe headache, and typical jaundice, with further risk of development of hemorrhagic fever. Diagnostics is based primarily on the clinical outcome with typical symptoms and determination of IgM specific or virus neutralization antibodies. Erba provides ELISA tests for determination IgG antibodies for seroprevalence screening programs.

Cat No	Product name	Parameters of the test
IME00265*	Yellow Fever IgG	ELISA test for qualitative determination of IgG antibodies against Yellow fever virus – 96 tests

Zika virus

Zika virus is a member of the genus Flavivirus which appeared in general population most recently. It brought international attention during the 2015 outbreak in South American countries, when it appeared to be connected to a sudden increase of newborns affected by microcephaly. Similarly, like other Flaviviruses, Zika is transmitted by infected mosquitoes *Aedes aegypti*, typically transmitted in American subcontinents, Africa, and Asia. Proper diagnostics is essential in endemic areas where all pregnant women with potential risk of Zika infection shall be tested either by molecular or serological methods. IgM antibodies appear a few days after the onset of symptoms and lasts for 12 weeks. Erba offers ELISA tests for determination of IgM antibodies for early diagnostics of current infection, as well ELISA IgG antibody tests for long-term monitoring of seroprevalence in the population. In some endemic areas, determination of Zika virus may be an obligatory parameter in blood bank screening guidelines.

Cat No	Product name	Parameters of the test
IME00251*	Zika IgM	ELISA test for qualitative determination of IgM antibodies against Zika virus – 96 tests
IME00252*	Zika IgG	ELISA test for qualitative or semi-quantitative determination of IgG antibodies against Zika virus – 96 tests
IME00253*	Zika IgG Avidity	ELISA test for determination of avidity of IgG antibodies against Zika virus - 96 tests
IME00129	Zika IgG	ELISA test for qualitative determination of IgG antibodies against Zika virus – 96 tests
IME00130	Zika IgM	ELISA test for qualitative determination of IgM antibodies against Zika virus – 96 tests

Chikungunya virus

Chikungunya is another member of the Flavivirus genus that is transmitted by the bite of infected mosquito *Aedes* spp. In comparison to other vector borne diseases, Chikungunya appears to show lower mortality in general population. Nevertheless, symptoms including high fever, headache, overall sickness and specific polyarthralgia, with joint pain lasting for months is a burden of peoples' life in endemic areas of Europe, Africa, Asia, Oceania, and Caribbean countries. Diagnostics is based on clinical outcomes and molecular biology tests to detect viral RNA, and detection of antibodies in patients' serum. Shortly after onset of symptoms, IgM antibodies appear and can be detected after seven days post-infection. For acute-phase negative patients, it is recommended to test convalescent-phase samples to rule out diagnosis of Chikungunya infection. Erba offers ELISA tests for detection of both IgM and IgG antibodies against Chikungunya virus.

Cat No	Product name	Parameters of the test
IME00229*	Chikungunya IgG	ELISA test for qualitative/ semi-quantitative determination of IgG antibodies against Chikungunya virus – 96 tests
IME00230*	Chikungunya IgM	ELISA test for qualitative determination of IgM antibodies against Chikungunya virus – 96 tests

* Please, contact your local representative regarding details on availability of the product in your area.

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