

## Guidelines for the serological diagnosis of Zika virus infection

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**Detection of ZIKV IgM antibodies is an important tool in confirming Zika virus infection associated to complications, including neurological and congenital syndromes.**

ZIKV serological diagnosis can be performed by **ELISA IgM** starting from the 6th day of onset of symptoms through several months after the infection.

### Serological diagnosis

In primary infections with flaviviruses have shown that there is **no** cross-reactivity of antibodies (or very low) with other antigenically related virus. However, in individuals with a previous history of infection by other flaviviruses (dengue, sylvatic yellow fever or vaccine yellow fever, West Nile Virus, etc.) the possibility of cross-reactivity is high. For this reason, the use of serology for routine surveillance (outpatients with suspected ZIKV infection) in endemic areas for different flavivirus is limited.

**Nonetheless, serological diagnosis must be implemented for the study of severe cases or complications associated with ZIKV infection including:**

- Neurological syndromes
- Congenital syndromes
- Fatal cases

In these cases the clinical and epidemiological criteria are essential for the interpretation of the results.

### Serological diagnosis of ZIKV in Guillain-Barré and other neurological complications

Generally, suspicion of a neurological syndrome occurs outside the viremia period; accordingly IgM antibody detection by ELISA in serum sample (or cerebrospinal fluid collected -LCR- under medical supervision) is recommended.

### Serological diagnosis of ZIKV in cases of microcephaly and other congenital syndromes

Given the low possibility of a previous flavivirus infection in a newborn, detection of IgM antibodies ZIKV serum (or CSF) demonstrates intrauterine infection of the fetus (low probability of cross-reactivity). Given the immaturity of the immune system, a negative result does not rule out intrauterine infection. For this reason and to find an epidemiological link, it is recommended to carry out parallel detection of IgM antibodies in maternal serum to determine recent infection.

## **Laboratory diagnosis of ZIKV associated with still births indicative of congenital infection**

In cases of spontaneous abortion and stillbirths, we recommend taking a serum sample (if possible) for detection of IgM antibodies (ELISA) and in any case ensure a sample of tissue (brain, kidney, liver, or different samples of undifferentiated tissue). Since a negative result does not rule out intrauterine infection, it is recommended to carry out parallel detection of IgM antibodies in maternal serum to determine recent infection.