

Chikungunya, Dengue, Leptospira

Fever, Chills, Influenza-like illness
Differential diagnostic in
one tube



3 PATHOGENS, 1 WELL¹

Dengue

Chikungunya

Leptospira



CLINICAL CONTEXT

The increase in the incidence and geographical distribution of arboviral diseases, including Chikungunya and Dengue, is a major public health problem in some regions. Dengue and Chikungunya are endemic in most countries of Central America, South America, and the Caribbean. There have been 2.8 million Dengue cases reported in the Americas in 2022, which represents over a two-fold increase when compared to the 1.2 million cases reported in 2021. The same increasing trend has been observed for Chikungunya.²

Leptospirosis occurs worldwide but is endemic mainly in countries with humid subtropical and tropical climates.³ The number of human cases is not known precisely due to under- or misdiagnosis (Estimated 500 000 cases per year). Outbreaks can be associated with floods and hurricanes.

DIAGNOSIS

Dengue and Zika have similar symptoms to Chikungunya, making Chikungunya easy to misdiagnose. Chikungunya causes fever and severe joint pain, which is often debilitating and varies in duration; other symptoms include joint swelling, muscle pain, headache, nausea, fatigue and rash⁴. Viruses can be detected directly in blood samples collected during the first week of illness using RT-PCR ; antibody levels are detectable during the first week after illness onset and can be detected for 7 to 8 weeks.

Leptospirosis symptoms are easily confused with other common diseases in the tropics, such as Dengue and other hemorrhagic fevers.³ Negative real-time PCR must be followed by a serological investigation (micro-agglutination test is the reference technique for the leptospirosis confirmation).

It is in this particular context that multiplex PCR diagnosis comes into its full meaning.

Characteristics

Test principle ¹	Test procedure based on the amplification of the ribonucleic acid (RNA) of the Chikungunya and Dengue viruses and on the amplification of the deoxyribonucleic acid (DNA) coding for ribosomal RNA and ribosomal RNA of the Leptospire and an endogen control.
Sample Type ¹	Plasma, Serum or Urine
Time to Results ¹	Less than 90 min
Analytical Sensitivity ¹	Chikungunya WHO 7,5 IU/μl ; Dengue 5 copies/μl ; Leptospirosis 50 copies/μl
Diagnostic sensitivity ¹	Chikungunya > 99% ; Dengue 98 % ; Leptospirosis 94%
Diagnostic specificity ¹	> 99%

Reference	Designation	Format
EBX-050	EurobioPlex Chikungunya, Dengue, Leptospira	50 / 100 / 600 tests
EBX-018	EurobioPlex Dengue type 1, 2, 3, 4	24 / 48 / 96 tests

2. WHO, 23 March 2023. [07/2024] <https://www.who.int/emergencies/disease-outbreak-news/item/2023-DON448>

3. PAHO, [07/2024] <https://www.paho.org/en/topics/leptospirosis>

4. WHO, 8 December 2022 [07/2024] <https://www.who.int/news-room/fact-sheets/detail/chikungunya>