

# Inflammation CLIA Microparticles

- IL-6
- PCT
- hs-CRP

## Sepsis

Sepsis is a systemic inflammatory response syndrome caused by bacterial and other pathogenic microorganisms invading the body. Sepsis arises when the body's response to an infection injures its own tissues and organs. It may lead to shock, multi-organ failure, and death – especially if not recognized early and treated promptly. Sepsis is the final common pathway to death from most infectious diseases worldwide, including viruses such as SARS-CoV-2.

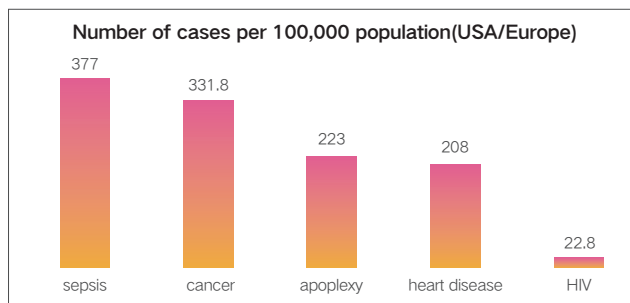


Fig1: Sepsis is one of the most common diseases  
\*<https://www.worldsepsisday.org/sepsis>

## Clinical Application

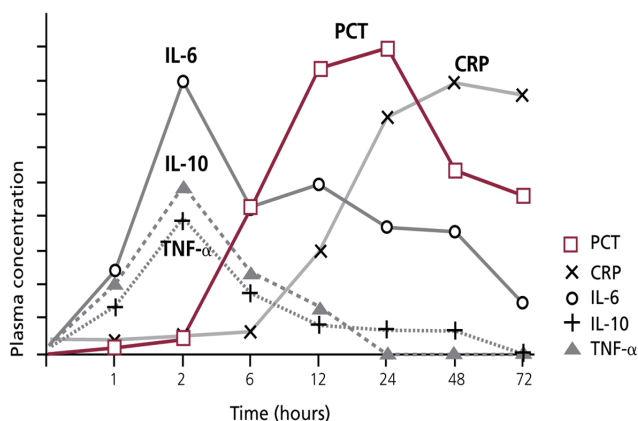


Fig2: Kinetics of different inflammatory markers following bacterial infection  
\*K Reinhart, et al. Critical Care Clinics. 2006; 22(3):503-519. Dong W, et al. Diagnostic Microbiology and Infectious Disease. 2013; 75:342 – 347.

- IL-6 is an important inflammatory mediator involved in sepsis and other infections. It is released into the blood soon after the occurrence of infection and can be used as an indicator of the degree of infection, contributing to the early understanding of infection status.
- Under inflammatory stimulation, especially bacterial infection or sepsis, PCT can be produced by various tissues and various cell types in the body and released into the blood circulation system, presenting rapid and highly specific growth (detectable within 3-6 hours).
- As a sensitive indicator of inflammation, CRP usually increases at 6-8 hours after the onset of the disease and peaks at 24-48 hours, with a positive correlation with the severity of infection/inflammation.

## Clinical value of joint detection of PCT+IL-6

Clinical value of joint detection of PCT+IL-6: enhance early warning and rapid diagnosis of sepsis

PCT Concentration	IL-6 Concentration	Clinical Application Advice
< 0.5ng/mL	< 250pg/mL	Normal or slight infection
> 0.5ng/mL	< 250pg/mL	Signal the possibility of bacterial infection or systemic inflammation
> 0.5ng/mL	> 250pg/mL	Signal high possibility of sepsis infection
When IL-6 concentration > 1000pg/mL, signal poor prognosis		
Expert consensus on the emergency use of PCT: Expert consensus on the emergency clinical use of PCT, Chinese Journal of emergency medicine, 2021, 21(9):944-951		

Item	PCT	IL-6	Clinical meaning
PCT+IL-6	↑ ↑	↑ ↑	High possibility of G+ bacteria infection
	↑ ↑	↑	High possibility of G- bacteria infection
	↑	↑ ↑	High possibility of sepsis infection
	-	↑ ↑	More early advance warning of infection

The joint detection of PCT+IL-6 could evaluate the severity of bacterial infection, judge the prognosis of the disease, as well as evaluate the effect of antibiotic use and guide the clinical diagnosis

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