

Canine CRP

– inflammation marker in serum and plasma



Turbidimetric immunoassay ➡ Rapid detection of inflammation ➡ Canine-specific antibodies

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Early and rapid detection of inflammation in dogs

C-reactive protein (CRP) is a sensitive biomarker in serum and plasma to detect inflammation of various conditions, including infections, surgical trauma, gastrointestinal diseases, autoimmune diseases, and neoplasia¹. Early detection of canine CRP enables precise diagnosis and quick individualised patient decisions, which results in reduced care time and improved patient outcomes.



«CRP is not only a marker for diagnosing inflammation but can also monitor disease activity and prognosis. These diverse functionalities have contributed to CRP being a well-used marker for inflammation in dogs in our clinical laboratory»

Bente Sævik, Veterinarian at AniCura

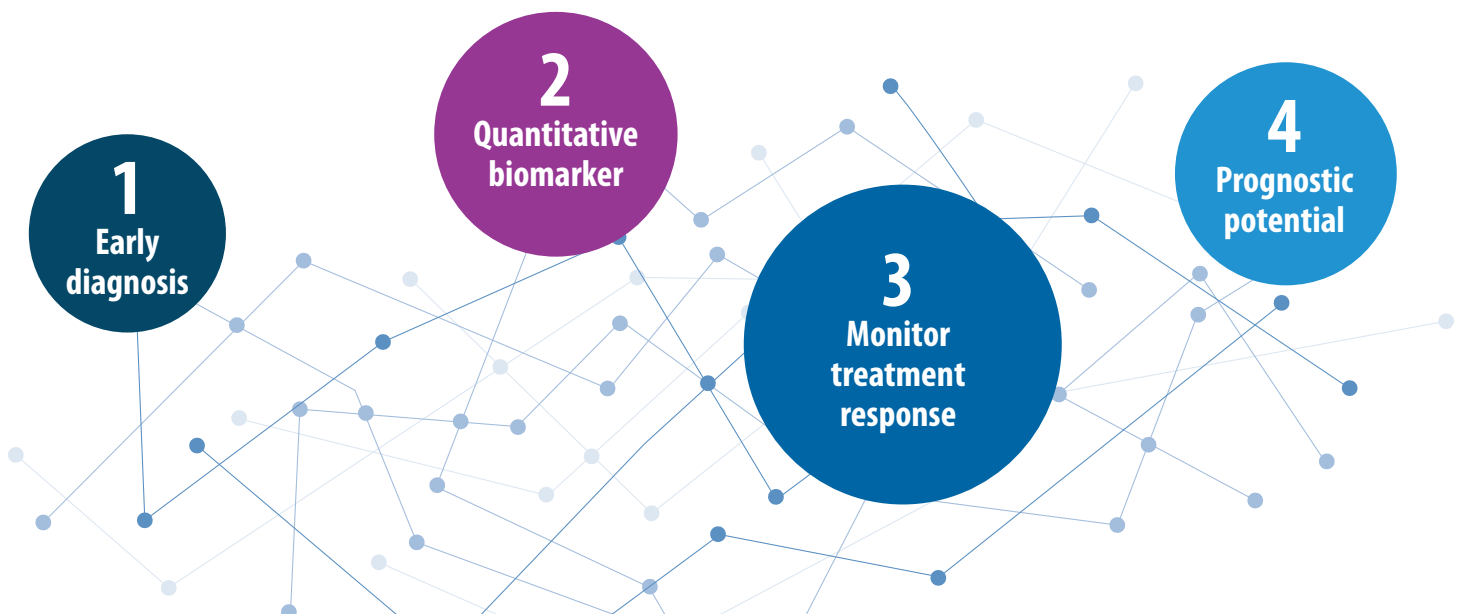
CRP is one of the major acute phase proteins produced by the hepatocytes in the liver as a response to inflammation². Basal CRP levels are very low, but rise substantially during inflammation. The acute phase response is activated very quickly and increased CRP levels can often be detected even before the onset of the clinical signs¹. CRP is secreted into the bloodstream and the concentration increases by 100-1000 times during the acute phase, starting to rise within only 6 hours after disease onset reaching maximum levels after 24-48 hours^{2,3}.

Canine CRP in the clinical setting

Canine CRP can not only be analysed to detect and quantitate the degree of systemic inflammation, but also to monitor the treatment response of the patient. If the cause of inflammation is successfully removed, the serum CRP levels drop rapidly due to its half-life of about 19 hours⁴. The levels of CRP will thus directly reflect the extent of inflammation.

Compared to classical inflammation markers, such as WBC (white blood cell count) and ESR (erythrocyte sedimentation rate), CRP has been shown to have higher sensitivity and better monitoring abilities. This is due to the rapid reduction in CRP levels compared to WBC and ESR when the patient receives efficient treatment⁵.

Due to the fast expression of canine CRP in cases of inflammation, CRP is also often used for prognostic purposes. One example is monitoring dogs after surgery when they are especially prone to infection⁶.



Canine CRP in the laboratory setting

The Gentian Canine CRP assay is rapidly performed in only 10 minutes and can be run on all major clinical chemistry instruments. The assay has a wide measuring range from 10–300 mg/L, with a security zone up to 1000 mg/L. Healthy dogs usually have levels below 10 mg/L with the Gentian Canine CRP assay. The CRP biomarker is often included in canine health screening profiles, at the same time as being offered as a stand-alone test.

Canine CRP is, in contrast to human CRP, glycosylated at two of five subunits of the CRP protein⁷. One of the major benefits of the Gentian Canine CRP assay is the use of canine-specific CRP antibodies produced using the CRP antigen from canine origin in the immunisation process. This leads to antibodies with lower batch-to-batch variability than the CRP antibodies of human origin, as those will have varying degrees of cross-reactivity towards canine CRP⁸. In addition, since the Gentian Canine CRP Immunoassay utilises avian antibodies obtained from the egg yolk of immunised hens, the assay has the advantage of providing reduced interference with mammalian rheumatoid factors, mammalian IgG antibodies, and bacterial or mammalian Fc receptors, compared to assays utilising mammalian antibodies⁹.

Why Gentian Canine CRP Immunoassay?

- ➔ Particle-Enhanced Turbidimetric Immunoassay (PETIA) for quantitation of CRP in canine serum and plasma
- ➔ Canine-specific antibodies ensure consistent specificity to the canine CRP antigen
- ➔ Avian origin of the antibodies contributes to reduced interference
- ➔ Instrument-independent and verified for a wide range of clinical analysers



**Fast &
accurate**



**Canine-
specific**



**Avian
antibodies**



**Instrument
independent**

Efficient and affordable

The Gentian Canine CRP assay can be run in 10 minutes on a wide range of clinical chemistry instruments. The cost effectiveness of the assay is underlined by the ability to analyse several samples within a short time-frame with minimal hands-on activity.

Performed in
10
minutes

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References: 1. Ceron et al. Vet Clin Pathol. 2005; 34:85–993 2. Eckersall et al. Vet J. 2010; 185:23–27 3. Pepys et al. J Clin Invest. 2003; 111(12): 1805–1812 4. Vigushin et al. J. Clin. Invest. 1993; 91:1351–1357 5. Matijatko et al. Vet Parasitol. 2007; 144(3–4):242–50 6. Christensen et al. Acta Vet Scand 2015; 57:71 7. Caspi et al. Immunology 1984; 53(2):307–13 8. Hindenberg et al. BMC Vet Res. 2017; 13, 146 9. Larsson et al. Poultry science. 1993; 72:1807–12

Immunoassay performance

Gentian Canine CRP Immunoassay Performance	
Sample type	Serum and plasma
Assay type	PETIA
Format	Two reagents ready to use
Precision*	Total CV < 5%
LoQ*	7 mg/L
Reference range	< 10 mg/L
Security zone*	Up to 1000 mg/L
Measuring range	10-300 mg/L
Calibration stability*	4 weeks
Assay Time	~ 10 minutes

*Instrument specific, results from AU400 application validation

Calibrator standardisation

The calibrator for the Gentian Canine CRP Immunoassay is available as a 6-point pre-diluted calibrator kit. The calibrator is adjusted against a commercially available human CRP assay used for canine CRP determination at the Swedish University of Agriculture Sciences Animal Hospital. No international standard is available for canine CRP.

Product range

Product no.	Product	Content
1501	Gentian Canine CRP Reagent Kit	R1 Reaction buffer 45 ml + R2 Immunoparticles 10.5 ml
1519	Gentian Canine CRP Control Kit	2 levels: 2 x 0.5 ml
1551	Gentian Canine CRP Calibrator Kit	6 levels: 6 x 0.5 ml



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Contact information: marketing@gentian.com • www.gentian.com

Gentian Diagnostics AS
PO Box 733,
1509 Moss
Norway

Gentian Diagnostics AB
Kungsgatan 8
11143 Stockholm
Sweden

Gentian USA Inc
215 N Eola Dr
Orlando
Florida USA

Beijing Rep. Office
Zhongren Building Rm. 4076
Chaoyangmen Outer St Jia No.10
Chaoyang District, Beijing, China

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