

## Canine CRP handbook



## Why use CRP in critical clinical situations?

- ▶ CRP picks up on a systemic inflammation when no other signs are clear.
- ▶ To determine the extensiveness of the inflammation.
- ▶ To determine if selected treatment is effective.
- ▶ To use as a rule in / rule out marker for inflammatory diseases.
- ▶ CRP can monitor the inflammation activity “behind” symptom suppressive treatment.
- ▶ To monitor the post-operative effects and recovery after surgery.
- ▶ A high CRP value should be an indication to start treatment for relapse, even if other signs are absent.

## CRP's part in systemic inflammation

CRP is one of the major acute phase proteins (APP) in Canine and is part of the acute phase response, initiated when the immune system is alerted. This occurs when an inflammation can not be retained locally and “spills over” – the inflammation goes systemic, the immune system is “notified” and the liver starts to produce CRP.

It is important to know that CRP is not increased in a local inflammation, ex skin cuts etc.

# Key benefits of C-Reactive Protein (CRP) as “the Systemic Inflammatory Marker” in dogs

- ▶ Specific and objective marker for systemic inflammation.
- ▶ Real time marker – starts after 4h, peaks after 24h and clears 48–72h.
- ▶ Large diagnostic window – 10 fold increase in concentration.
- ▶ An elevated serum value always indicates pathology.
- ▶ Not induced/effect by steroid or NSAID therapy.
- ▶ Use CRP to monitor the post-operative effects and recovery after surgery.

All diseases stimulating a systemic inflammation can be monitored such as IMHA, IBD, leishmaniasis, polyarthritis, pancreatitis and pyometra.



# Important situations where CRP gives you additional valuable information!

## 1. Pre-Diagnostic

Use CRP as a “first-line parameter” when you:

- Suspect systemic inflammation
- Clinical signs are unclear or contradicting
- Need a rule in/ rule out marker for inflammatory diseases

### ***How to:***

Perform CRP on every patient where you suspect systemic inflammation, or at least on all critically ill dogs. This will give you a fast method to rule in/ rule out inflammatory diseases. *In most cases the disease is either inflammatory or metabolic so a large part of possible scenarios can be excluded by a simple CRP measurement.*

CRP also has a large diagnostic window – usually healthy dogs are well below 10mg/L. A general cut-off for definite systemic inflammation is 20 mg/L. CRP concentrations  $\geq 35\text{mg/L}$  should be seen as a strong indication for systematic inflammation. With a fully developed systemic inflammation values normally goes above 100mg/L.

### **Key Feature**

CRP picks up on a systemic inflammation when no other signs are clear.

Use this as a rule in / rule out marker for inflammatory diseases.

Important situations where CRP gives you additional valuable information!

### Key Feature

CRP can monitor the inflammation activity “behind” symptom suppressive treatment.

## 2. Post-Diagnosis/Monitoring

Use CRP as an objective marker for monitoring the efficiency of the treatment.

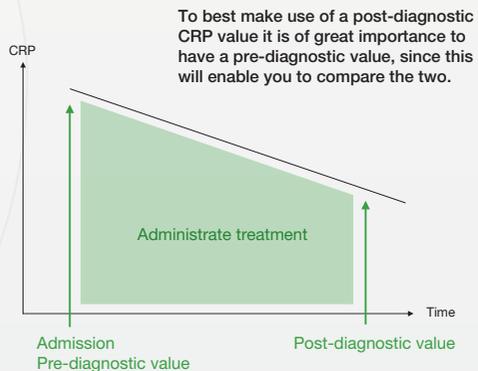
### How to:

Many treatments can effect normal clinical symptoms (rectal temp) as well as blood composition (WBC) but CRP will stay unaffected and thereby truly reflect the inflammation scenario. For example CRP continues to be a good marker since it is not effected by steroid therapy. It is also unbiased to NSAID and opiod therapy since these drugs do not target the inflammation itself but strictly mitigates the symptoms.

Note: CRP is only effected when immunosuppressive doses are administrated since this removes the bodies ability to make us of it’s immunsystem – hence no CRP is synthesized.

### leishmaniasis

The CRP has been proved very useful in treatment monitoring of leishmaniasis in dogs. It has been seen that the CRP levels decreased when dogs have a favorable response to treatment , being more sensitive for treatment follow up than using the immunoglobulin levels.



### 3. Post-Operative/Post-surgery

Use CRP to monitor the post-operative effects and recovery after surgery.

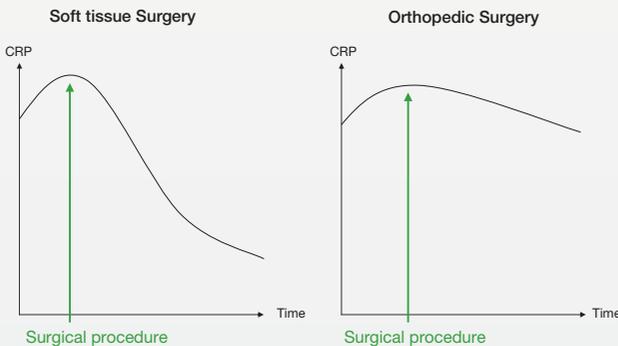
**How to:**

After a surgery there will always be an initial increase directly after due to the surgical procedure. Recovering dogs will show decreasing / normalizing CRP values. It is also important to know that different pattern depending on the type of surgery.

For example soft tissue surgery will have a rapid CRP normalization (24-72h) where orthopedic and other more invasive surgery will have a longer normalization period.

**Key Feature**

Use CRP to monitor the post-operative effects and recovery after surgery.



Important situations where CRP gives you additional valuable information!

#### Key Feature

A high CRP value should be an indication to start treatment for relapse, even if other signs are absent

## 4. Post-Treatment / Detect Relapse

Use CRP to detect a relapse of an immune mediated disease, since these types of diseases have a tendency to reappear once primary infected.

#### ***How to:***

Studies show that the CRP-levels were elevated as long as ten days before any clinical signs or other inflammatory markers were present/detectable in cases of relapse.

## Conclusion

- ▶ CRP does not alone act as a diagnostic parameter but add additional information and help veterinarians finding the way to the right diagnosis.
- ▶ CRP is of great importance and help for veterinarians where the patients leukocyte response is not elevated. This is due to the rapid and real-time features of CRP.
- ▶ CRP helps veterinarians to move forward and choose the correct therapeutic and diagnostic plan.
- ▶ CRP should act as a supplement in the daily work for veterinarians and bring extra value for the patient by giving quick and accurate results.

Check your dog's health  
with a simple blood test.

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