

# Product information

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## Users Manual

# CRP canine ELISA

**RUO**

**REF** DE931CRP01D

**Σ** 96

**C-REACTIVE PROTEIN**

C-reactive protein (CRP) is an acute-phase protein produced by the liver in conditions of inflammation, bacterial infection, and/or tissue trauma. Quantification of CRP is useful in determining inflammatory conditions difficult to diagnose, detect abnormalities in patients with chronic inflammatory conditions, and to monitor patients' response to treatment.

**INTENDED USE**

The DEMEDITEC Canine C-Reactive Protein Assay is a sandwich-based enzyme-linked immunoassay intended for the detection and quantification of canine CRP in canine samples.

**ASSAY PRINCIPLE**

The DEMEDITEC Canine C-Reactive Protein Assay is species specific and provides a quantitative assessment of CRP levels in canine serum or plasma. The DEMEDITEC Canine C-Reactive Protein Assay is a sandwich-based enzyme-linked immunoassay in which the microtiter plates are coated with pneumococcal C-polysaccharide. After samples are prepared following the listed specimen collection procedure, they are applied to the antigen coated plate alongside the prepared standards. After incubation, the wells are decanted and washed to remove unreacted serum or plasma proteins, and an enzyme labeled anti-canine CRP antibody (conjugate) is added and reacts with the antigen-antigen complexes. Following another incubation period, the wells are decanted and washed to remove unreacted conjugate. A hydrogen peroxide substrate with TMB as a chromogen is added to start color development. The intensity of the color is directly proportional to the amount of canine CRP in the sample. Therefore, the greater the intensity of the blue color, the higher the canine CRP concentration in the sample. The reaction is interrupted with a stop solution that turns the blue product yellow. The absorbance is read at a wavelength of 450 nm on a spectrophotometer or plate reader.

**REAGENTS PROVIDED**

1 X Pouch	<b>Antibody Coated Microwell Plate</b>		96 wells (12 eight well strips) in a microwell holder coated with pneumococcal C-polysaccharide, <i>Ready-to-Use</i> .
1 X Vial	<b>Canine CRP Standard (10X)</b>	Green Cap	0.25mL of canine serum with elevated CRP concentration at 400µg/mL. Dilute standard stock 10X in Tris-T followed by three 3-fold serial dilutions to prepare standards at the following concentrations: 40.0, 13.3, 4.4, and 1.5 µg/mL.
1 X Vial	<b>Anti-Canine CRP Conjugate (100X)</b>	Amber Cap	0.13mL of 100X anti-canine CRP-IgG protein conjugated to peroxidase in buffer with preservative. Dilute conjugate in Tris-T to 1X prior to use.
1 X Bottle	<b>Substrate Reagent</b>	Blue Cap	12mL stabilized tetramethylbenzidine (TMB), <i>Ready-to-Use</i> .
1 X Bottle	<b>Stop Solution</b>	Red Cap	12mL Acidic Solution, <i>Ready-to-Use</i> .
1 X Pouch	<b>Washing Buffer</b>		Tris with 0.05% Tween20, bring to 1L with distilled water and store refrigerated.

**MATERIAL REQUIRED BUT NOT SUPPLIED**

- Distilled or deionized water
- Wash bottle
- Dilution tubes
- Pipettor with tips: 2µL to 1000µL
- Adhesive cover for microplate
- Microplate reader with 450nm filter

## PRECAUTIONS

1. Bring all reagents to room temperature (19°-27°C) before use.
2. Store reagents at 2-8°C, and do not use beyond expiration date(s). Never freeze kit components.
3. Do not return unused reagents back into their original vials or bottles.
4. Do not interchange kit components between different lots of the same assay.
5. Adhere to all time and temperature conditions stated in the procedure.
6. Never pipette reagents or samples by mouth.
7. The Stop Solution contains acid. Do not allow to contact skin or eyes. If exposed, flush with water.
8. The standard serum and conjugate have not been screened for infectious agents. Since no testing can assure the absence of infectious agents, consider all materials, containers, and devices that are exposed to sample, standard, and conjugate to be contaminated with rat serum proteins. Wear protective gloves and safety glasses when using this kit.
9. The coated microwells have been prepared with inactivated antigens; however, they should be considered potentially infectious and handled accordingly.
10. Dispose of all materials, containers, and devices in the appropriate receptacle after use.
11. HRP-labeled conjugate and TMB substrates are photosensitive and are packaged in protective opaque bottles. Store in the dark and return to storage after use.

## SPECIMEN COLLECTION AND PREPARATION

Specimens that are able to be used for this assay include: serum, plasma, urine, culture supernatant, tissue extracts, and synovial fluids.

### Blood Samples

Blood samples should be collected using approved venipuncture techniques by qualified personnel. Allow sample to clot and separate serum by centrifugation. Transfer serum aseptically to a tightly closing sterile container. Store at 2-8°C. Alternatively, plasma extracted from blood drawn in heparin, EDTA, or ACD-containing tubes is acceptable. If testing is to be delayed longer than 5 days, freezing the sample at -20°C or below is recommended.

Upon specimen collection, dilute the sample 1:500 in Tris-Tween wash buffer (i.e. add 2µL of sample to 1 mL of wash buffer). The final dilution for use in calculation is 1:500.

### Specimens other than Blood (Serum or Plasma)

Samples other than blood (serum or plasma) should be prepared at higher concentrations. It is recommended to begin diluting the sample 1:2 in Tris-Tween wash buffer (i.e. add 100 µL of sample to 200 µL of wash buffer) and increasing the dilution factor accordingly. Dilution factor must be accounted for in the final calculation.

**ASSAY PROCEDURE**

**Note: It is recommended that a multi-channel pipettor be utilized to perform the assay if more than 16 samples and standards (2 test strips) are run.**

1. Bring all the reagents to room temperature before use. Reconstitute the Tris-Tween packet by washing out the contents with a gentle stream of distilled or deionized water into a 1-Liter container. Q.S. to 1 Liter with distilled or deionized water and store refrigerated when not in use.
2. Dilute 10X standard stock to 1X working concentration in Tris-Tween to prepare 40.0µg/mL standard. Prepare remaining standards by serially diluting standards 3-fold three times to yield 13.3, 4.4, and 1.5 µg/mL. Use Tris-Tween wash buffer for 0.0µg/mL standard. Consider the following dilution scheme as a guide:

Standard Concentration (µg/mL)	Tris-Tween Volume	Volume Transferred	Total Volume	Final Volume *After serial dilution
40.0	162µL	18µL	180µL	120µL
13.3	120µL	60µL	180µL	120µL
4.4	120µL	60µL	180µL	120µL
1.5	120µL	60µL	180µL	120µL

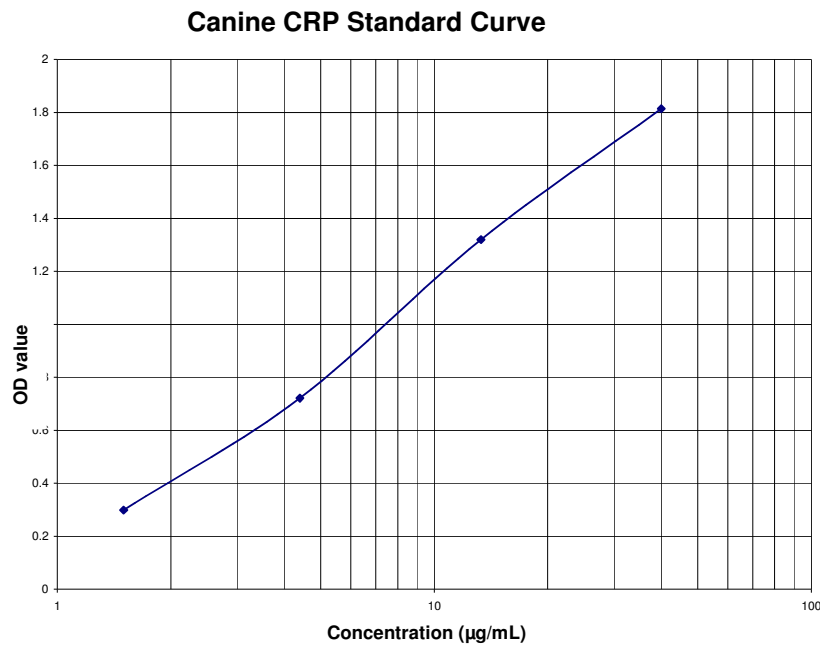
3. Using a new pipette tip for each, add 100µL of each standard and prepared sample into the appropriate wells. Samples and standards can be run in duplicate if desired. Incubate at room temperature for 30 minutes.
4. Decant the contents from the microwells into a discard basin. Wash the microwells by filling each with Tris-Tween wash buffer, then decanting the wash buffer into a discard basin. Repeat for a total of 5 washes.
5. Tap the microwells (face down) on a layer of absorbent towels to remove residual wash buffer.
6. Determine the required volume of conjugate (1mL/strip or 120µL/well) to prepare. Dilute stock conjugate (100X) to working concentration (1X) with Tris-Tween wash buffer.
7. Add 100µL of conjugate to each well. Incubate at room temperature for 30 minutes. Cover to avoid direct light.
8. Repeat steps 4 and 5.
9. Add 100µL of Substrate Reagent to each well. Incubate at room temperature for 10 minutes. Cover to avoid direct light.
10. Add 100µL of Stop Solution to each well in the same sequence and at the same pace as the Substrate Reagent was added.
11. Read the optical density (OD) of each microwell with a microtiter plate reader using a 450nm filter. Record the optical density (OD) of each microwell.

**INTERPRETATION OF RESULTS**

Construct a standard curve using the OD values against the concentration of the standards. Unknowns are measured by interpolation from the standard curve. Final concentration must be multiplied by the dilution factor at which samples were prepared to get the actual concentration (µg/mL). If a sample contains CRP at a greater concentration than the highest standard, it should be diluted appropriately in Tris-Tween and re-tested. The extra dilution step should be taken into account when expressing the final result.

**ASSAY CHARACTERISTICS**

Below is an example of a typical standard curve.

**Intra-assay reproducibility**

A typical example of the DEMEDITEC Canine CRP Assay run in 12 replicates yielded the following within assay variation.

Standard (µg/mL)	%CV
High (40.0)	3.5%
Low (1.5)	3.0%

**Inter-assay reproducibility**

The DEMEDITEC Canine CRP Assay exhibited the following variability with two different kit lots performed 12 times.

Standard (µg/mL)	%CV
High (40.0)	2.7%
Low (1.5)	1.8%

**Limitations**

Lipemic sera may interfere with specific antibody reaction.

**Limit of Detection**

The lower and upper limit of quantitation is 1.5 and 40.0µg/mL, respectively.

**Sensitivity**

The DEMEDITEC Canine CRP Assay is designed to detect elevated levels of CRP. The following data was produced to generate data on the sensitivity of the assay and may be useful in research applications where sensitivity parameters need to be defined (n=11).

Mean OD	Standard Deviation	Detection Limit (ng/mL)
0.056	0.007	3.6

**Quality Control**

It is recommended to routinely run at least two controls, each giving values at the top or bottom regions of the standard curve. An occasional prozone may be encountered in sera with high CRP values. In this situation, due to antigen excess, all the CRP available may not have reacted with the conjugate. Therefore, test at higher dilution (e.g. 1:1,000 and 1:2,000) to obtain more accurate results.

**Cross-Reactivity**











Species	# of Runs	% Cross-reactivity
Rat	15	0%

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## SYMBOLS USED WITH DEMEDITEC ELISAS

Symbol	English	Deutsch	Français	Español	Italiano
	European Conformity	CE-Konformitätskennzeichnung	Conforme aux normes européennes	Conformidad europea	Conformità europea
	Consult instructions for use	Gebrauchsanweisung beachten	Consulter les instructions d'utilisation	Consulte las Instrucciones	Consultare le istruzioni per l'uso
	In vitro diagnostic device	In-vitro-Diagnostikum	Usage Diagnostic in vitro	Para uso Diagnóstico in vitro	Per uso Diagnostica in vitro
	For research use only	Nur für Forschungszwecke	Seulement dans le cadre de recherches	Sólo para uso en investigación	Solo a scopo di ricerca
	Catalogue number	Katalog-Nr.	Référence	Número de catálogo	No. di Cat.
	Lot. No. / Batch code	Chargen-Nr.	No. de lot	Número de lote	Lotto no
	Contains sufficient for <n> tests/	Ausreichend für "n" Ansätze	Contenu suffisant pour "n" tests	Contenido suficiente para <n> ensayos	Contenuto sufficiente per "n" saggi
	Storage Temperature	Lagerungstemperatur	Température de conservation	Temperatura de conservación	Temperatura di conservazione
	Expiration Date	Mindesthaltbarkeitsdatum	Date limite d'utilisation	Fecha de caducidad	Data di scadenza
	Legal Manufacturer	Hersteller	Fabricant	Fabricante	Fabbricante
<i>Distributed by</i>	Distributor	Vertreiber	Distributeur	Distribuidor	Distributore
<i>Content</i>	Content	Inhalt	Contenu	Contenido	Contenuto
<i>Volume/No.</i>	Volume / No.	Volumen/Anzahl	Volume/Numéro	Volumen/Número	Volume/Quantità
<i>Microtiterwells</i>	Microtiterwells	Mikrotiterwells	Plaques de microtitration	Placas multipocillo	Micropozzetti
<i>Antiserum</i>	Antiserum	Antiserum	Antisérum	Antisero	Antisiero
<i>Enzyme Conjugate</i>	Enzyme Conjugate	Enzymkonjugat	Conjugué enzymatique	Conjugado enzimático	Tracciante enzimatico
<i>Enzyme Complex</i>	Enzyme Complex	Enzymkomplex	Complexe enzymatique	Complex enzimático	Complesso enzimatico
<i>Substrate Solution</i>	Substrate Solution	Substratlösung	Solution substrat	Solución de sustrato	Soluzione di substrato
<i>Stop Solution</i>	Stop Solution	Stopplösung	Solution d'arrêt	Solución de parada	Soluzione d'arresto
<i>Zero Standard</i>	Zero Standard	Nullstandard	Zero Standard	Estándar cero	Standard zero
<i>Standard</i>	Standard	Standard	Standard	Estándar	Standard
<i>Control</i>	Control	Kontrolle	Contrôle	Control	Controllo
<i>Assay Buffer</i>	Assay Buffer	Assaypuffer	Tampon d'essai	Tampón de ensayo	Tampone del test
<i>Wash Solution</i>	Wash Solution	Waschlösung	Solution de lavage	Solución de lavado	Soluzione di lavaggio
<i>1N NaOH</i>	1N NaOH	1N NaOH	1N NaOH	1N NaOH	1N NaOH (idrossido di sodio 1N)
<i>1 N HCl</i>	1 N HCl	1 N HCl	1N HCl	1 N HCl	
<i>Sample Diluent</i>	Sample Diluent	Probenverdünnungsmedium	Solution pour dilution de l'échantillon	Solución para dilución de la muestra	Diluyente dei campioni
<i>Conjugate Diluent</i>	Conjugate Diluent	Konjugatverdünnungsmedium	Solution pour dilution du conjugué	Solución para dilución del conjugado	Diluyente del tracciante