

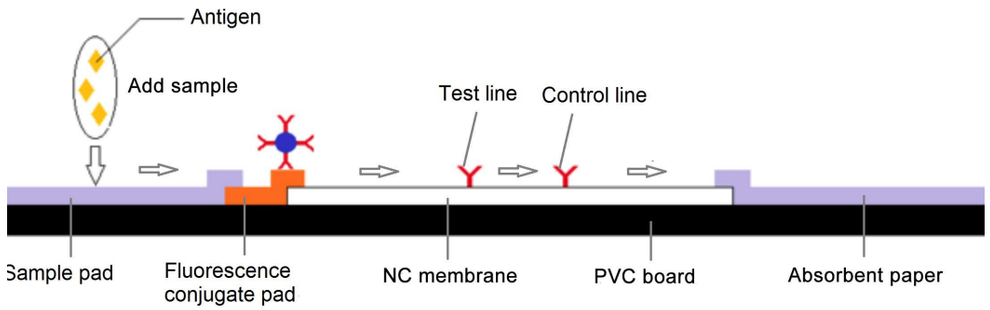
Your Best helper for Pet Diagnosis Care

ZKJ™ animal Care

Fluorescence Quantitative Analyzer



Products Schematic



Antigen　　Fluorescein　　Fluorescien-conjugated antibody 1

Test line: Antibody 2　　Control line: Sheep anti-rat antibodies

- **Minimum detection limit :** full range signal value is 0.05%
- **Stability :** after 10 tests, TC/CV< 0.5%
- **Signal-to-Noise Ratio :** 0.01% (1:10,000)
- **Supported Data Connection :** LAN, GPRS, COM

Technical parameters

- **User interface :** 7 inches, capacitive touch screen display
- **Storage :** 100,000 Patient Test Result
- **Item identification :** Intelligent identification of 1200 items and batches

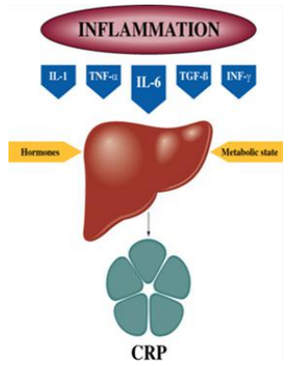


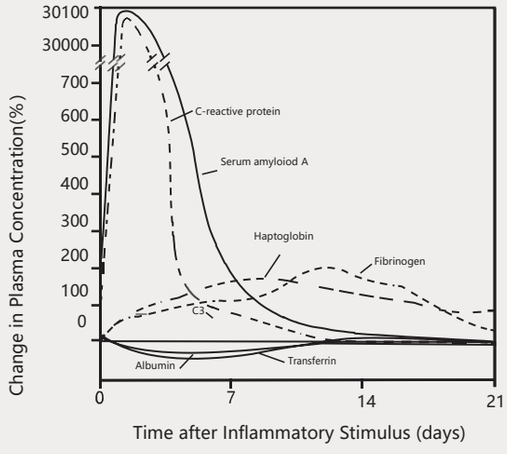
Products List

Item category	Product name	Abbreviation
Inflammatory Marker	Rapid detection kit for canine C-Reactive Protein	cCRP
	Rapid detection kit for feline Serum Amyloid A	fSAA
Reproductive Marker	Rapid detection kit for canine Progesterone	cProg
Kidney Disease Marker	Rapid detection kit for canine Cystatin C	cCys-C
	Rapid detection kit for feline Cystatin C	fCys-C
Myocardium Marker	Rapid detection kit for feline N-terminal pro-brain natriuretic peptide	fNT-proBNP
	Rapid detection kit for canine N-terminal pro-brain natriuretic peptide	cNT-proBNP
Digestive Tract Marker	Rapid detection kit for canine Pancreas-Specific Lipase	cPL
	Rapid detection kit for feline Pancreas-Specific Lipase	fPL
Endocrine Marker	Rapid detection kit for canine Cortisol	cCortisol
	Rapid detection kit for canine Total Thyroxine	cTT4
Thrombus Marker	Rapid detection kit for canine D-Dimer	cD-Dimer
Viral infectious disease Tests	Rapid detection kit for canine Distemper Virus IgG antibody	CDV IgG
	Rapid detection kit for canine Parvovirus IgG antibody	CPV IgG
	Rapid detection kit for feline Parvovirus IgG antibody	FPV IgG
	Rapid detection kit for canine Distemper virus	CDV
	Rapid detection kit for canine Parvovirus	CPV
	Rapid detection kit for canine Coronavirus	CCV
	Rapid detection kit for feline Parvovirus	FPV
	Rapid detection kit for feline Calicivirus	FCV
	Rapid detection kit for feline Herpesvirus	FHV
	Rapid detection kit for canine Parvovirus/canine Coronavirus	CPV/CCV

canine C-Reactive Protein (cCRP)

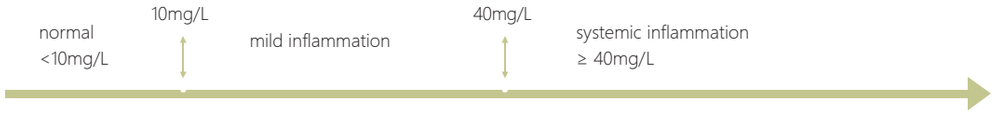
- Acute phase protein
- Synthesized by hepatocytes in the liver In
- response to inflammation cause by microbial invasion or tissue damage
- Triggered by various cytokines





- Increases with acute and chronic inflammation、tissue injury、malignant tumors
- Increases signifecantly 4-6h from onset, reach to peak within 24-48h
- Drops rapidly after recorvery (half life 19h), reach to normal after 3-7d

Result interpretation



Specification and parameter

- **Species :** Canine
- **Detection range :** 5mg/L-240mg/L
- **Sample types :** whole blood, serum or plasma
- **Sample volume :** 5 µL serum, plasma or 10 µL whole blood
- **Detection time :** 5min **Storage**
- **temperature :** 4-30℃ **Shelf life :**
- 18 months

CRP and WBC comparison

	C-reactive protein （CRP）	White blood cell （WBC）
The rate of response to inflammation	CRP increases significantly 4 ~ 6 hours after inflammation. It peaks at 48h (up to 100 to 1000 folds compared to the normal value) and drops rapidly when infection is controlled.	WBC responses slowly with an upward trend as long as 36 hours. After treatment, it decreases slowly with the elimination of inflammatory stimulation.
Influence factors	It is independent of individual differences, body states and therapeutic drugs.	It is influence by age, diurnal changes, body resistance, drug therapy and other confounding factors.
Activity of related diseases	The increase during bacterial infection is rapid while the increase during virus infection is not obvious. The extent of the increase is positively correlated with the degree of bacterial infection.	The base value range of WBC is wide. The base number of WBC in animals are different due to difference in breed, age and other factors and the slight increase will not exceed the upperlimit of the normal range. In the case of chronic bacterial infection, the WBC count will not increase in time and the count and classification index will not change significantly.
Identify bacterial or viral infections	Yes (significant difference)	Difficult (some differences are not significant) Not a reliable indicator

feline Serum Amyloid A (fSAA)

SAA introduction

- SAA is an acute phase protein used to evaluate the level of inflammation in the body. Bacterial infection, most viral infection, surgical injury or malignant tumor can lead to the increase of SAA and the increase of SAA is positively correlated with the number of necrotic cells and tissues.
- SAA can reach its peak within 4 ~ 6 hours after the occurrence of systemic inflammation and SAA level will be reduced or return to normal after the disease is treated or cured.



Clinical significance

Sensitive marker of inflammation and tissue damage

Continuous detection of SAA can monitor the progress of the disease Monitor

- surgical procedures
- Guide and monitor the efficacy of antibiotics Prognostic
- marker of diseases
-
-

Increase range of SAA in different diseases

Marked increase
Fungal or bacterial infections

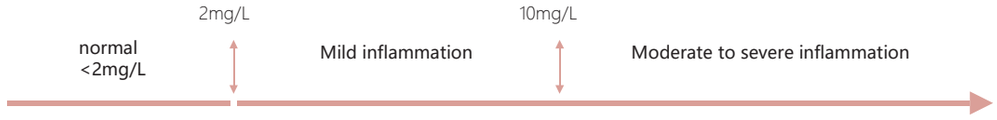
Moderate to severe elevation
Renal failure, viral infection, tissue damage, cachexia, autoimmune disease, arthritis, myocardial injury, vasculitis

Moderate elevation
Urinary tract infections, tumor, diabetes, local inflammation

No elevation
Enteritis, oral and liver diseases

The low level of SAA indicates no serious tissue injury or bacterial infection.

Result interpretation

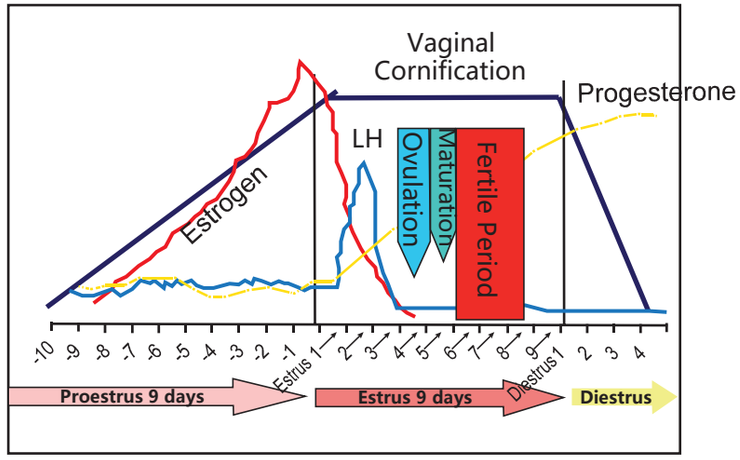


Specification and parameter

- **Species :** feline
- **Detection range :** 0.5mg/L-200mg/L
- **Sample types :** whole blood, serum or plasma
- **Samplevolume :** 5μL serum, plasma or 10μL whole blood
- **Detection time :** 5min
- **Storage temperature :** 4-30℃
- **Shelf life :** 18 months

canine Progesterone (cProg)

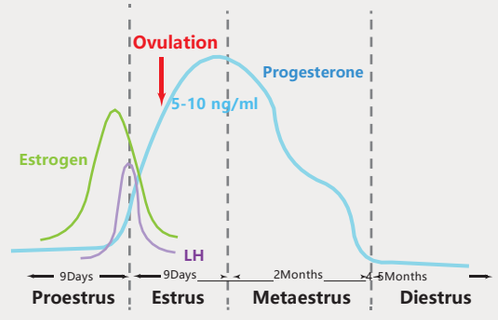
Progesterone is the most sensitive clinical indicator for the optimal mating period



Hormone changes during estrus in dogs

Progesterone levels in female dogs

- **LH peak :** 2ng/mL
- **Ovulation :** 5-10 ng/mL
- **Metestrus :** 15-80 ng/mL
- **Whelping :** 3 ng/mL +/- 2ng/mL
- **Anestrus :**<1ng/mL

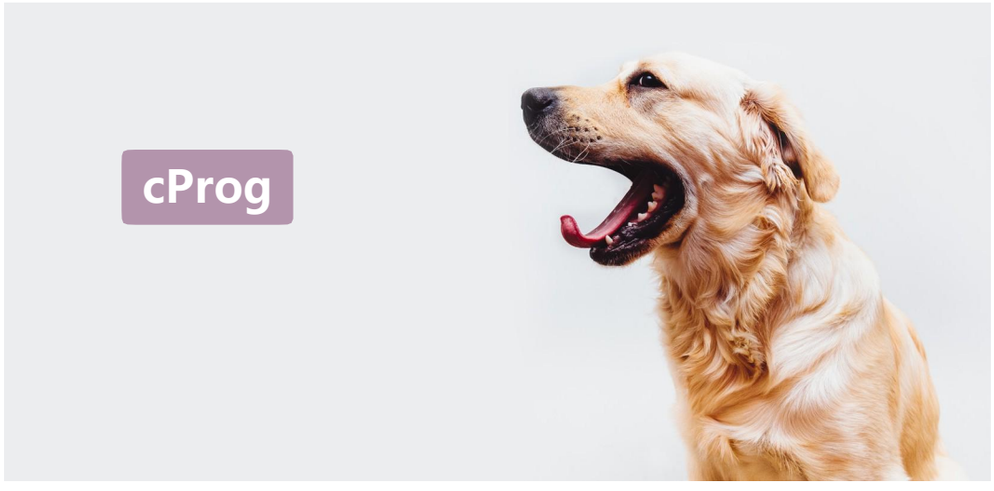


Result interpretation

- The progesterone value in unestrous dogs is less than 2ng/mL.
- The progesterone value increases slowly after oestrus. The dog begins to ovulate when progesterone value is at about 5ng/mL and the progesterone value increases rapidly afterwards;
- When progesterone value is 15-40ng/mL, it is the best mating period.
- When the progesterone value is higher than 70ng/mL, dogs will enter the later stage of estrus and mating is not recommended.
- The increase of progesterone is related to the breed, size and age of the dog.

Specification and parameter

- **Species :** Canine
- **Detection range :** 0.5ng/mL -80ng/mL
- **Sample types :** serum or plasma **Sample**
- **volume :** 50μL serum or plasma **Detection**
- **time :** 10 min
- **Storage temperature :** 2-8℃
- **Shelf life :** 18 months



N-Terminal pro-Brain Natriuretic Peptide (NT-proBNP)

NT-proBNP is recognized as the best marker for heart failure with high accuracy, good stability and strong objectivity.

Clinical significance

- Optimal biomarkers for the diagnosis and exclusion of heart failure;
- Prognostic assessment, risk classification and therapeutic effect monitoring of heart failure;
- Important prognostic factor of coronary heart disease; Monitoring
- tools before, during and after cardiac surgery.

Specification and parameter

Product parameter	cNT-proBNP	fNT-proBNP
Normal reference value	800pmol/L	150pmol/L
Detection range	150pmol/L-6000pmol/L	50pmol/L-1000pmol/L
Sample type	serum or plasma	serum or EDTA anticoagulant plasma
Sample volume	50μL	100μL
Detection time	10min	10min
Storage temperature	4-30℃	4-30℃
Shelf life	18 months	18 months

Pancreatitis specific lipase (cPL, fPL)

Pancreatitis

- Pancreatitis is one of the most common digestive diseases in both dogs and cats with acute and chronic forms as well as pancreatic tumors. Both acute pancreatitis and chronic pancreatitis have complicated clinical manifestations and the specific diagnosis is difficult.
- Laboratory enzyme testing for pancreatitis includes amylase, lipase and pancreatitis specific lipase (PL). PL is an endopeptidase secreted by the pancreas. It is pancreas- specific and is not affected by exogenous lipase of pancreas.
- cPL and fPL are currently the most sensitive (87%-94%) and specific (81%-88%) laboratory diagnostic biomarker for diagnosis of pancreatitis in dogs and cats. The sensitivity of PL is lower for chronic pancreatitis than for acute pancreatitis.

Result interpretation

cPL (ng/mL)	Interpretation	fPL (ng/mL)	Interpretation
< 200	normal	< 3.6	normal
200 - 399	gray zone	3.6 - 5.3	gray zone
400 - 599	positive	5.4 - 14.9	positive
≥ 600	strongly positive	≥ 15.0	strongly positive

Specification and parameter

Detection range	50ng/mL-1000ng/mL	2ng/mL-50ng/mL
Sample types	serum	serum
Sample volume	50μL	50μL
Detection time	10min	10min
Storage temperature	2-8℃	2-8℃
Shelf life	18 months	18 months

Cystatin C (Cys C)

Cys C is cleared by glomerular filtration, which is an ideal endogenous marker reflecting changes in glomerular filtration rate (GFR) and an early evaluation index of renal function injury with high specificity, accuracy and sensitivity.
Cystatin C is superior to creatinine and urea nitrogen and is not affected by gender, age, height, muscle mass, dietary structure, drugs and disease status of the body. Even in the state of inflammation, its production rate does not change.

Clinical significance

- Most sensitive marker for renal function evaluation
- Early diagnosis of chronic kidney disease and acute renal impairment Monitoring
- renal function recovery and evaluate therapy efficacy

Result interpretation

cCys C	fCys C	Interpretation
<1.2mg/L	<7mg/dL	Normal
1.2mg/L-1.5mg/L	7mg/dL-10mg/dL	Suspected renal injury
>1.5mg/L	>10mg/dL	Suggested renal injury

Specification and parameter

Detection range	0.1mg/L-10mg/L	3mg/dL-30mg/dL
Sample types	serum or plasma	serum or plasma
Sample volume	10μL	10μL
Detection time	10min	10min
Storage temperature	4-30℃	4-30℃
Shelf life	18 months	18 months

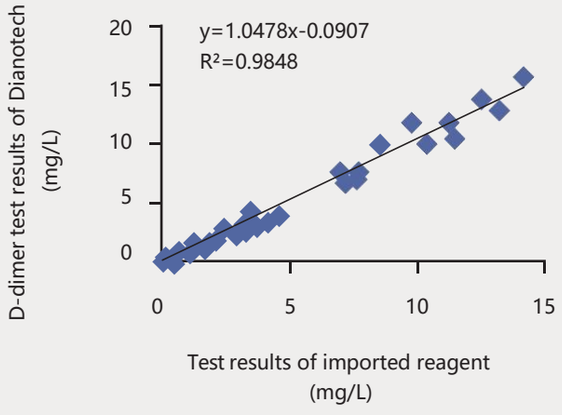
canine D-Dimer

D-Dimer is increased in any condition resulting in the formation and breakdown of fibrin; therefore, it is not specific for thromboembolic disease.

D-Dimer is a by-product of fibrinogen degradation and is an evidence of hypercoagulability in dogs with various thromboembolic diseases, including parvoviral enteritis, immune- mediated hemolytic anemia and Heartworm disease.

D-Dimer concentrations are increased in dogs after surgical procedures and in dogs with immune-mediated hemolytic anemia, cancer, liver disease, heart failure, renal failure, or internal hemorrhage.

Sample Citrated plasma 50μL	Normal value <0.55mg/L
Detection range 0-10mg/L	Detection time 10min



Total Thyroxine (TT4)

T4 is a type of thyroxine and a hormone synthesized and secreted by thyroid follicular cells, which is released into the blood circulation in a free form and rapidly binds to plasma proteins.

Hypothyroidism of dogs

Obesity, skin disease, lethargy, mental dullness, weak and feeble, frigolabile

Hyperthyroidism of cats

Weight loss, excessive excitement, mental disorders, dry hair, more hair or excessive hair loss; unilateral or bilateral enlargement of the thyroid gland may be observed



Low T4

Hypothyroidism, low TBG level (nephrotic syndrome, chronic liver disease, protein-loss bowel disease), hypohypopituitarism, hypothalamic disease.

High T4

Hyperthyroidism, high TBG level (pregnancy, oral estrogen and birth control pills, family history), acute thyroiditis, subacute thyroiditis, acute hepatitis, obesity, eating thyroid organs with rich thyroid hormones during the using of thyroid hormones.

Result interpretation

cTT4 (nmol/L)	Interpretation
< 13 *	Low
13 - 26 *	Gray zone
26 - 51	Normal
> 51	High

Gray zone: Suspected hypothyroidism; TSH should be tested in combination with the clinical symptoms of the dog.

fTT4 (nmol/L)	Interpretation
< 10	Low
10 - 30	Normal
30 - 60 *	Gray zone
> 60 *	High

Gray zone: Suspected hyperthyroidism; This should be combined with clinical symptoms and other diagnoses for evaluation.

Specification and parameter

Product parameters	cTT4	fTT4
Detection range	6.4-90nmol/L	6.4-90nmol/L
Sample types	serum or heparin lithium anticoagulant plasma	serum or heparin lithium anticoagulant plasma
Sample volume	100μL	100μL
Incubation time	5min	5min
Detection time	10min	10min
Storage temperature	4-30℃	4-30℃
Shelf life	18 months	18 months

Pet Infectious Disease（antigen detection）

The kits are used for rapid quantitative detection of canine Distemper virus, canine Parvovirus, canine Coronavirus and feline Distemper virus.

The kits can be used for epidemiological investigation of pet infectious diseases to provide accurate disease information for the owners and doctors, and to take preventive or therapeutic measures.

Clinical significance

- Early and latent infection of the virus can be detected during physical examination When
- clinical symptoms appear, the pathogen can be identified quickly.
- To eliminate and/or prevent infection quickly in cases which contacted with other infected pets.



Result interpretation

CDV (IU)	CPV (IU)	CCV (IU)	FPV (IU)	FCV (IU)	FHV (IU)	Interpretation
<10	<10	<10	<10	<10	<10	Negative
10-20	10-20	10-20	10-20	10-20	10-20	Carrier
20-40	20-40	20-40	20-40	20-40	20-40	mild positive
>40	>40	>40	>40	>40	>40	Positive

Specification and parameter

Product parameters	CDV	CPV	CCV	FPV	FCV	FHV
Detection range	5IU - 200IU	5IU - 200IU	5IU - 200IU	5IU - 200IU	5IU - 200IU	5IU - 200IU
Sample type	eye, mouth and nose discharge	faeces	faeces	faeces	eye, mouth and nose discharge	eye, mouth and nose discharge
Detection time	10min	10min	10min	10min	10min	10min
Storage Temperature	4-30℃	4-30℃	4-30℃	4-30℃	4-30℃	4-30℃
Shelf life	18 months	18 months	18 months	18 months	18 months	18 months



Pet Infectious Disease（IgG antibody detection）

The kits are used for rapid quantitative detection of IgG antibody against canine Distemper virus, Parvovirus and feline Distemper virus .

Vaccination is one of the effective way to prevent infectious diseases in pets. Vaccination can not only reduce the susceptibility to infectious diseases but also improve the specific resistance of cats and dogs to infectious diseases.

Successful immunization not only depends on the quality of vaccination, vaccination route and immunization procedures and other external conditions but also depends on the immune response ability of the body. Regular antibody measurement is important to the pet to maintain a healthy state.



Clinical significance

- Before vaccination :

  Timely detection of latent virus infection to ensure immunization safety; Determine titer of maternal source antibody to ensure immunization effect. After vaccination :
- Detect antibody titer to monitor immunization effect;
- Annual regular testing :

  Regular antibody titer test to ensure the safety and effectiveness of the immunobarrier.

Result interpretation

CDV IgG (U)	CPV IgG (U)	FPV IgG (U)	FCV IgG (U)	FHV IgG (U)	Grade	Interpretation
< 1.0	< 0.5	< 1.0	< 1.0	< 1.0	Grade 0	- , Recommend immunization
1.0 - 2.0	0.5 - 1.0	1.0 – 1.5	1.0 – 1.5	1.0 – 1.5	Grade 1	± , Insufficient immunization, Recommend immunization
2.1 - 5.0	1.1 - 2.5	1.6 - 2.0	1.6 - 2.0	1.6 - 2.0	Grade 2	
5.1 - 10.0	2.6 - 5.0	2.1 – 2.3	2.1 – 2.3	2.1 – 2.3	Grade 3	+ ,IgG antibody exists
10.1 - 20.0	5.1 - 10.0	2.4 – 5.5	2.4 – 5.5	2.4 – 5.5	Grade 4	
20.1 - 50.0	10.1 - 20.0	5.6 – 8.0	5.6 – 8.0	5.6 – 8.0	Grade 5	+ + , high titer IgG antibody
> 50.0	> 20.0	> 8.0	> 8.0	> 8.0	Grade 6	



Specification and parameter

Product parameters	CDV IgG	CPV IgG	FPV IgG	FCV IgG	FHV IgG
Detection range	1.0U - 50.0U	0.5U - 20.0U	1.0U - 8.0U	1.0U - 8.0U	1.0U - 8.0U
Sample type	serum or EDTA or sodium citrate anticoagulant plasma	serum or plasma	serum or EDTA anticoagulant plasma	serum or EDTA anticoagulant plasma	serum or EDTA anticoagulant plasma
Sample volume	10μL	10μL	10μL	10μL	10μL
Detection time	10min	10min	10min	10min	10min
Storage temperature	4-30℃	4-30℃	4-30℃	4-30℃	4-30℃
Shelf life	18 months	18 months	18 months	18 months	18 months