Vcheck SDMA 2.0

Renal biomarker, simpler than ever
— with the performance you trust

BIONOTE

What is SDMA?

Symmetric dimethylarginine (SDMA) is a methylated form of the amino acid arginine. It is released into the circulation during the normal catabolism of body proteins[1].
This biomarker has been recognized as a useful indicator for the early diagnosis of chronic kidney disease (CKD) in dogs and cats.

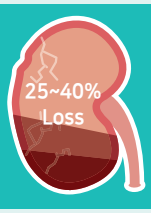
The Advantage of SDMA

Unlike traditional markers, SDMA is almost exclusively eliminated by renal excretion, making it a sensitive and reliable indicator of glomerular filtration rate (GFR).

Traditional Blood Test

VS.

SDMA Test



BUN (Blood Urea Nitrogen)

- **Non-specific**
  Can be increased in several non-renal conditions such as high-protein diet, gastrointestinal bleeding, or drug administration[2]
- **Non-sensitive**
  Can be decreased in hepatic insufficiency, polyuria and polydipsia, or low-protein diets[2]

Creatinine

- **Non-specific**
  Can be influenced by factors such as muscle mass, age, breed, and hydration status[3]
- **Non-sensitive**
  May remain within the normal range until approximately 75% of nephron function is lost[3]

- **More specific**

1) SDMA is less affected by extrarenal factors such as body condition, age, breed, sex, exercise, or disease state[4,5,6].

2) Unlike creatinine, **SDMA is not affected by lean body mass**, making it a more reliable marker for animals with muscle loss, such as those with hyperthyroidism[6].

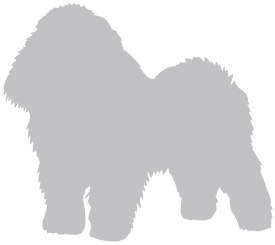
- **More sensitive**

1) **SDMA increases with a 40%, or even as little as a 25%, decrease in GFR[7].**

2) On average, it detects CKD 17 months earlier in cats and 9.8 months earlier in dogs compared to creatinine[7,8].

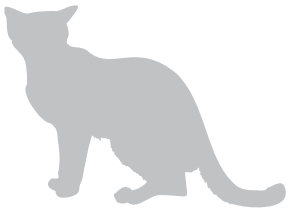
High Prevalence of CKD

Chronic kidney disease (CKD) is a common condition in dogs and cats, especially in senior animals. It affects up to **15% of dogs over 10 years of age and 30–40% of cats in the same age group**[9,10]. CKD is typically progressive and irreversible, regardless of the underlying cause.



1 in **7**
Has CKD

Senior Dogs



1 in **3**
Has CKD

Senior Cats

Clinical Utility of SDMA

SDMA is a valuable biomarker that enables early detection of kidney disease. It can be used for screening and monitoring of both acute kidney injury (AKI) and chronic kidney disease (CKD) in dogs and cats[11].

- **Regular check-up : early screening of renal dysfunction**
- **Assessment of renal function in senior animals (>10 years)**
- **Renal evaluation in patients with:**
  - Critical illness
  - Non-specific signs (e.g., weight loss, anorexia)
  - Low muscle mass (e.g., cachexia, hyperthyroidism)
- **Monitoring renal function in patients with kidney disease**

Reference

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2. Drug-Dosing Adjustment in Dogs and Cats with Chronic Kidney Disease. Animals 2022, 12(3), 262.
3. Plasma Symmetric Dimethylarginine Concentration in Dogs with Acute Kidney Injury and Chronic Kidney Disease. J Vet Intern Med. 2017 May;31(3):799-804.
4. Body size, but neither age nor asymptomatic mitral regurgitation, influences plasma concentrations of dimethylarginines in dogs. Res Vet Sci 2006;80:336–342.
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6. Relationship between lean body mass and serum renal biomarkers in healthy dogs. J Vet Intern Med. 2015 May-Jun;29(3):808-14.
7. Comparison of serum concentrations of symmetric dimethylarginine and creatinine as kidney function biomarkers in cats with chronic kidney disease. J Vet Intern Med 2014;28:1676–1683.
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9. Urinary biomarkers of renal function in dogs and cats: a review. Veterinarni Medicina, 60, 2015 (11): 589–602.
10. Renal biomarkers in cats: A review of the current status in chronic kidney disease. J Vet Intern Med. 2022 Mar;36(2):379-396.
11. Evaluation of symmetric dimethylarginine in cats with acute kidney injury and chronic kidney disease. J Vet Intern Med. 2022 Sep;36(5):1669-1676.
12. ISFM consensus guidelines on the diagnosis and management of feline chronic kidney disease. Journal of Feline Medicine and Surgery 18, 219-239.
13. IRIS (International Renal Interest Society) Staging of CKD (Modified 2019).
14. Internal data on file, Bionote.
15. Comparison of 2 point-of-care analyzers and the Eurolyser assay with an IDEXX reference laboratory method for measurement of SDMA in dogs. Am J Vet Res. 2025 Jan 30;86(3):ajvr.24.07.0204.

Diagnostic Algorithm

Normal	Gray zone	Abnormal
≤ 14 µg/dL (* ≤ 16 ug/dl in puppies)	14.1 – 19.9 µg/dL	≥ 20 µg/dL
Monitor every 6 months	Recheck in 2 weeks to confirm initial value	
	Persistent high value	

Check other evidences of low GFR[12]

Clinical sign	Biochemistry	Complete urinalysis
· Polyuria/polydipsia · Inappetence · Lethargy · Weight loss	· BUN ↑ · Creatinine ↑ · Phosphorus ↑	· Urine specific gravity (USG) · Urine protein:creatinine (UPC) ratio · Urine sediment · Diagnostic imaging

IRIS Staging of CKD (modified 2019)[13]

CKD Staging should be based on fasting creatinine or SDMA concentration or both measured (recommended) on at least 2 occasions in a hydrated and stable patient, preferably after 12h of fasting with free access to water.

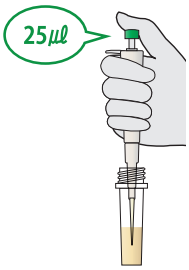
IRIS International Renal Interest Society CKD Staging		Stage 1 (No azotemia) * Persistently high SDMA (>14 µg/dL) for early CKD	Stage 2 (Mild azotemia)	Stage 3 (Moderate azotemia)	Stage 4 (Severe azotemia)
Canine	Creatinine mg/dL (µmol/L)	< 1.4 (< 125)	1.4 – 2.8 (125 - 250)	2.9 – 5.0 (251 - 440)	> 5.0 (> 440)
	SDMA µg/dL	**< 18**	**18 - 35**	**36 - 54**	**> 54**
	UPC ratio	< 0.2 (Non-proteinuric) 0.2 – 0.5 (Borderline) > 0.5 (Proteinuric)			
	Blood pressure	< 140 (Normotensive) 140 - 159 (Prehypertensive) 160 - 179 (Hypertensive) ≥ 180 (Severely hypertensive)			
Feline	Creatinine mg/dL (µmol/L)	< 1.6 (< 140)	1.6 – 2.8 (140 - 250)	2.9 – 5.0 (251 - 440)	> 5.0 (> 440)
	SDMA µg/dL	**< 18**	**18 - 25**	**26 - 38**	**> 38**
	UPC ratio	< 0.2 (Non-proteinuric) 0.2–0.4 (Borderline) > 0.4 (Proteinuric)			
	Blood pressure	< 140 (Normotensive) 140 - 159 (Prehypertensive) 160 - 179 (Hypertensive) ≥ 180 (Severely hypertensive)			

Vcheck SDMA 2.0

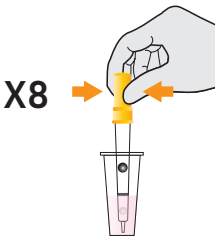
Specifications

- Species : Dog, Cat
- Sample : Serum or Plasma (heparin) 25 µL
- Testing Time : 10 minutes
- Measurement Range : 10 – 100 µg/dL
- Storage Condition : 2 – 8°C

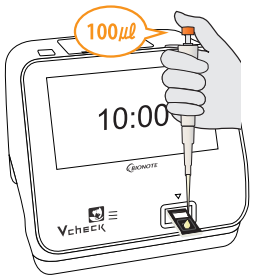
Test procedure



Add 25 µl of serum or plasma (heparin) to the assay diluent



Using the tablet pipette, mix at least 8 times to fully dissolve the tablet



Apply 100 µl of the mixed sample, and read the result after 10 minutes

Reference Ranges

≤ 14 µg/dL	14.1 – 19.9 µg/dL	≥ 20 µg/dL
Normal (≤ 16 µg/dL in puppies*)	Gray zone (Check other evidence of kidney disease)	Abnormal (Kidney disease probable)

* Mildly increased SDMA concentrations (14 – 16 µg/dL) in puppies should be interpreted in light of the growth phase as well as other evidence of kidney disease.

Ordering Information

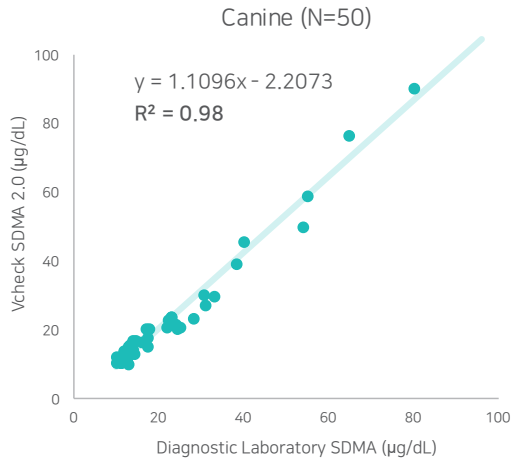
Product No.	Product Name	Storage Condition	Packing Unit
VCF147DD	Vcheck SDMA 2.0	2 - 8 °C	10 Tests/Kit

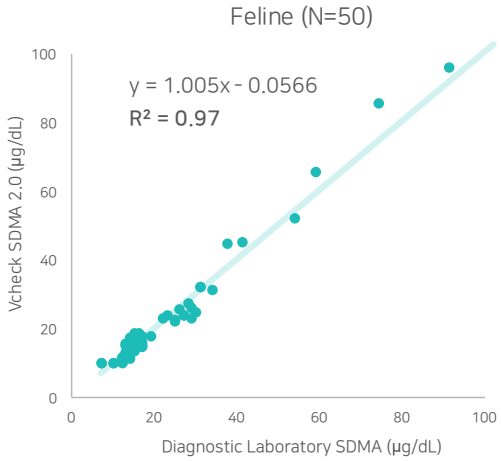
Performance

Correlation[14]

The Vcheck SDMA 2.0 Test Kit demonstrated a strong correlation with reference laboratory SDMA results, with R^2 values exceeding 0.97 for both canine and feline samples.

- Canine (n = 50): y = 1.1096x - 2.2073, **R^2 = 0.98**
- Feline (n = 50): y = 1.005x - 0.0566, **R^2 = 0.97**





Agreement Based on IRIS CKD Staging[15]

When comparing Vcheck SDMA with reference laboratory SDMA, **93% of samples (65/70) showed concordant IRIS CKD staging.**
Vcheck SDMA supports accurate and reliable IRIS CKD staging in clinical settings.

IRIS CKD Stage		Vcheck SDMA			
		Stage 1	Stage 2	Stage 3	Stage 4
Lab SDMA	Stage 1	**44**	2	0	0
	Stage 2	1	**18**	0	0
	Stage 3	0	2	**2**	0
	Stage 4	0	0	0	**1**

Accuracy
in IRIS CKD Staging
93%

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