

ATTACHMENT

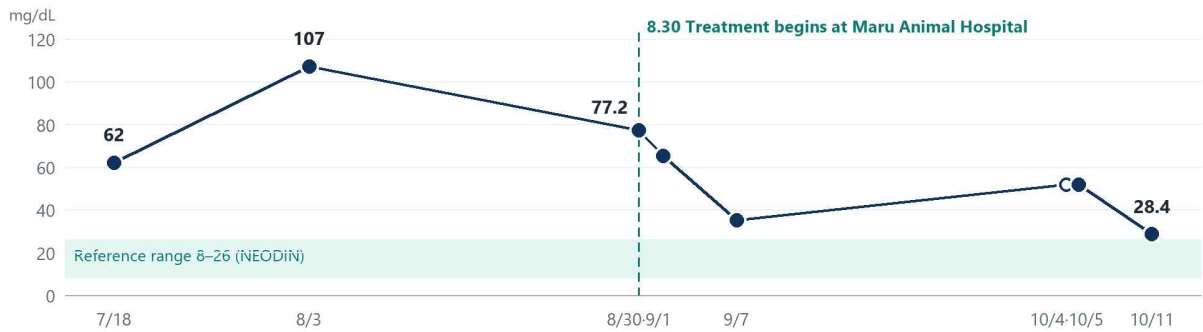
Teddy's Kidney Disease Test and Treatment Records

13 pages of test and treatment records for Teddy, a Yorkshire Terrier, July–October 2023 — U.S. → Maru Animal Hospital → university animal hospitals

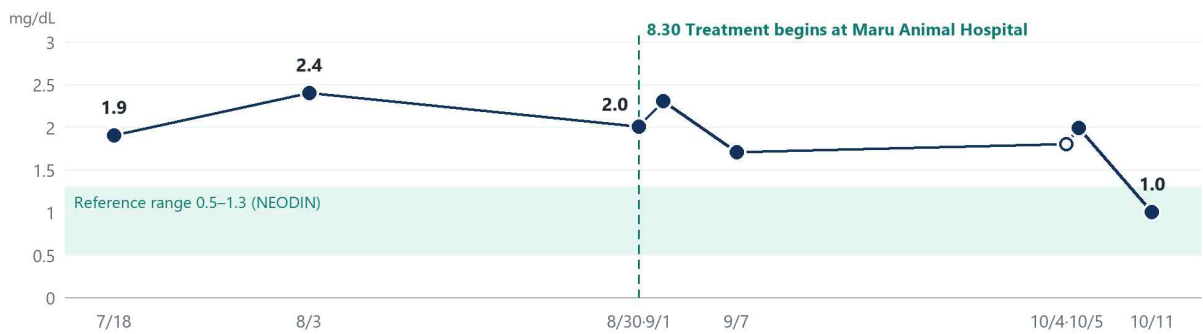
107 → 28.4 BUN mg/dL · 8.3 → 10.11	2.4 → 1.0 Creatinine mg/dL · same period	4 institutions Testing institutions	13 pages Original test & treatment records
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01 Test value trends

BUN (blood urea nitrogen)



Creatinine



○ marks a value recorded only in the blood test log (10.04, Haemaru Animal Hospital; no lab report). Reference ranges differ by institution.

02 Patient & care overview

Patient	Teddy · Dog (Yorkshire Terrier) · Neutered male · Born September 1, 2010 (13 years old in 2023)
Period	July 18 – October 11, 2023 (13 pages of test and treatment records)
Institutions	ANTECH (USA; Veterinary Care of Bedford) · Maru Animal Hospital (tests referred to NEODIN) · Konkuk University Animal Hospital · Seoul National University Animal Hospital
Diagnosis (Konkuk Univ. report)	Severe systemic hypertension, chronic kidney disease (CKD) IRIS stage 2/4, gallstones
Diagnosis by primary vet in the U.S. (owner's account)	Chronic renal failure, liver cirrhosis [ascites] · no diagnosis certificate

03 Test values by date

Date	Institutions	BUN	Creatinine	Notes
2023.07.18	ANTECH (USA)	62	1.9	Before entering Korea
2023.08.03	ANTECH (USA)	107	2.4	8.29 arrived at Incheon Airport, 8.30 arrived at Maru Animal Hospital (log)
2023.08.30	NEODIN veterinary laboratory (referred by Maru Animal Hospital; treatment start date)	77.2	2.0	Weight 6kg, BCS 4/9
2023.09.01	Konkuk Univ. Animal Hospital	65	2.3	Diagnosed hypertension · CKD 2/4 · gallstones
2023.09.07	Konkuk Univ. Animal Hospital	35	1.7	
2023.10.04	Haemaru Animal Hospital	51.7	1.80	Recorded in log only (no lab report)
2023.10.05	SNU Animal Hospital	51.7	1.99	Weight 5.30kg, BCS 4/9
2023.10.11	NEODIN (referred by Maru Animal Hospital)	28.4	1.0	Weight 5.2kg, BCS 1/9
2023.12.30	Owner's account (no lab report)	–	–	About 60~70% improved by this time; self-treatment ongoing

Notes on the data

- Units are mg/dL. Reference ranges differ by institution (e.g., NEODIN: BUN 8~26, Creatinine 0.5~1.3).
- The last date in the blood test log (10/16) is the date the results e-mail was received; the blood was drawn on October 11.
- At the bottom of the log is written: "Treatment discontinued due to the caretaker's circumstances."
- During the same period, oral medication and subcutaneous fluids prescribed by the university animal hospitals were also given.
- Lab report images are reproduced unaltered from the originals.

04 Original test and treatment records (13 pages)

Teddy 혈액검사 일지						
항목	BUN	Creatinine	ALT	AST	ALP	검사기관
일시						
23.07/18	62.0	1.90	x	x	x	미국 (Veterinary Care of Bedford)
23.08/03	107	2.40	x	x	x	미국 (23.08/29인원공함도착, 8/30마주사(노약))
23.08/30	77.2	2.00	156	39	1045	NEODIN
23.09/01	65.0	2.30	x	x	906	한국대용금(Dr.신)
23.09/07	35.0	1.70	x	x	593	한국대내과
23.10/04	51.7	1.80	138 (간염복수)		579	해마루(Dr.오봉훈)
23.10/05	51.7	1.99	110	22	598	서울대용금(Dr.남궁)
23.10/16	28.4	1.00	99	23	554	NEODIN
(관리인의 사정에 의하여 치료중지 함)						

① Blood test log (2023.07.18 ~ 10.16)

One-page printout of BUN·Creatinine·ALT·AST·ALP values and testing institutions by date

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② 2023.07.18 · ANTECH (USA)

Test before entering Korea. BUN 62, Creatinine 1.9 (both HIGH)

ANTECH 800.872.1001									
Chemistry Renal Profile w/SDMA Complete Blood Count Urinalysis-Complete Urine Protein-Creatinine Ratio									
Veterinary Care of Bedford 156 Route 117 Bypass Rd, Bedford Hills, NY, 10507, USA									
Dr. Uchenna Okeke									
	Patient Name Teddy	Owner Dorville Miaoou	Species Canine	Breed Yorkshire Terrier	Reported 8/3/2023	Reported 8/3/2023	Accession# NYAG0487353	Patient ID E82NC65	
Test Requested		Results		Adult Reference Interval Units					
Chemistry Renal Profile w/SDMA									
TOTAL PROTEIN		6.7		5.0-7.4		g/dL			
ALBUMIN		3.7		2.7-4.4		g/dL			
GLOBULIN		3.0		1.6-3.6		g/dL			
A/G RATIO		1.2		0.8-2.0					
BUN		107 (HIGH)		8-31		mg/dL			
Creatinine		2.4 (HIGH)		0.6-1.6		mg/dL			
SDMA		22.7 (HIGH)		<14.0		UG/dL			
As increased SDMA (>20.0 ug/dL) in cats and >16.0 ug/dL in dogs should be interpreted in light of the patient's history, clinical presentation and hydration status. Additional diagnostic testing may be warranted to differentiate acute kidney injury versus chronic kidney disease and/or identify the presence of underlying conditions that can cause a significant increase in SDMA. Refer to the Antech SDMA algorithm for guidance regarding further diagnostics, treatment and/or monitoring. It is recommended to recheck SDMA and creatinine in 2-4 weeks to assess for persistence or trends in SDMA, and interpret in light of the creatinine.									
To access the SDMA algorithm, please visit: https://tinyurl.com/tyupaw									
BUN/CREAT RATIO		45 (HIGH)		27-38					
PHOSPHORUS		5.8		2.5-6.0		mg/dL			
CALCIUM		10.5		8.8-11.4		mg/dL			
SODIUM		145		139-154		mEq/L			
POTASSIUM		5.8 (HIGH)		3.8-5.5		mEq/L			
NA/K RATIO		26 (LOW)		27-38					
Test Requested		Results		Adult Reference Interval Units					
Complete Blood Count									
WBC		4.9		4.0-15.5		10 ³ /uL			
RBC		8.9		4.8-8.3		10 ⁶ /uL			
HGB		14.2		12.1-20.3		g/dL			
HCT		46		36-60		%			
MCV		57		59-79		fL			
MCH		20.7		19-28		pg			
MCHC		31		30-38		g/dL			
Platelet Count		344		170-400		10 ³ /uL			
Platelet Estimate		Adequate							
Differential		Absolute		%					
Neutrophils		3,479		71		2,000-10,000		x10 ⁹ /L	
Bands		0		0		0-3		%	
Lymphocytes		980		20		600-4,500		x10 ⁹ /L	
Monocytes		245		6		0-400		x10 ⁹ /L	
Eosinophils		198		4		0-1,200		x10 ⁹ /L	
Basophils		0		0		0-150		x10 ⁹ /L	
Test Requested		Results		Adult Reference Interval Units					
Urinalysis-Complete									
Page 1 of 2									
Accession ID: NYAG0487353 (FNAU)									
8/3/2023 3:00:09 PM (UTC)									

③ 2023.08.03 · ANTECH (USA)

BUN 107, Creatinine 2.4 (both HIGH). 8.29 arrived at Incheon Airport, 8.30 arrived at Maru Animal Hospital (log)

검사결과보고서				
병원명	마루동물병원(송파)	보호자명	-	
환자명	teddy	접수번호	20230830-085	
종	개	품종	믹스	
성별	남	나이	11년 9개월	
BCS	4/9	체중	6kg	
검사일	2023-08-30	검사보고일	2023-08-30	
검사결과보고서				
검사코드	검사명	검사결과	이상유무	참고치
NO002	Total protein	7.6	H	5.4 - 7.4 g/dL
NO003	Albumin	3.8	정상	2.9 - 4.2 g/dL
NO004	Bilirubin total	0.1	정상	0.0 - 0.4 mg/dL
NO005	Glucose	100	정상	70 - 118 mg/dL
NO006	BUN	77.2	H	8 - 26 mg/dL
NO007	Creatinine	2.0	H	0.5 - 1.3 mg/dL
NO008	Uric acid	0.1	정상	0 - 2 mg/dL
NO009	AST(GOT)	39	정상	15 - 43 U/L
NO010	ALT(GPT)	156	H	19 - 70 U/L
NO011	ALP	1045	H	15 - 127 U/L
NO012	γ-GTP(GGT)	4	정상	0 - 6 U/L
NO013	LDH	246	H	0 - 200 U/L
NO014	CK/CPK	147	정상	46 - 320 U/L

④ 2023.08.30 · NEODIN (referred by Maru Animal Hospital)

Referred on the day of arrival. BUN 77.2, Creatinine 2.0, ALT 156, ALP 1045 (H). Weight 6kg, BCS 4/9

진료 소견서

건국대학교 부속 동물병원 응급중환자학과

담담 수의사 신준호 담당 교수 한현정

보호자 이종방 이종방 914-714-2692

환자 이종방 Breed Yorkshire Terrier 품종 5.7kg

Species Canine Age/DOB 10.09.01 (13Y) 성별 M CM

CC 기적저하, 식욕저하

본원 내원일 2023.09.01

HPI 올해 2월부터 단백뇨, 고혈압을 진단받고 약물관리(benzepiril, telmisartan, MMD) 받았으나 최근 4주간 내복약 후유증 증대함

지적행동 일련 중 수축, 식욕 저하 및 기적저하 확인됨

Dx. - Systemic hypertension (severe)
- CKD IRIS stage 2/4 (severe hypertension, proteinuria)
- Cholelithiasis

DDx. - Adrenomegaly (PDH/ADH)
- Liver mass / Pancreas nodule / Spleen nodule (malignant, benign)
- Renal secondary hyperparathyroidism

의용소견 - 본원 내원 당시, 신체 검사 상 심한 고혈압(SBP >180mmHg) 확인되었고, 혈액검사 상 SDMA(28ug/dL), Creatinine(2.3mg/dL), BUN(65mg/dL), Phosphorus(8.2mg/dL) 수치 상승, 노 검사상 심한 단백뇨(UPC >5.4), 복부 초음파 검사 상 방광 신장 수피질 경계 소실, 피질 에코 상승 및 피질 내 다수의 낭종과 고에코 focus 확인되었습니다.

- 따라서 본 환자는 전신 고혈압에 의한 표적 기관 손상 (Target organ damage)으로 신장에 영향을 주므로 일단적인 치료 (Target organ) 보호를 위해 혈관 확장제(ACE 억제제), 인슐린, 피하수액, 신장보호제 처방하였습니다. 또한 Ca x Phosphorus 88 (>60), 방사선 상 주폐 전반벽으로 밀도가 감소한 점을 고려하여 신부전에 의한 이차성 부갑상선항진증으로 진행할 가능성도 높았습니다.

- 추가로 혈액검사 상 ALKP, Cholesterol 수치 상승, 복부초음파 상 방광 부신 크기 비대, 간 정맥, ACTH 자극 시험 검사 상 Post-test cortisol 26.7ug/dL로 확인되어 뇌하수체 외분비 부신비대/기능항진증의 가능성 높아 blood count를 처방하였습니다. 하지만 부신 비대의 경우, 심한 고혈압의 원인으로 크로민화 세포종(phenochromocytoma) 기능성도 배제할 수 없어 메타테스트 (metanephrine) 검사를 의뢰하였습니다.

건국대학교 부속 동물병원
02-450-3664

진료 소견서

건국대학교 부속 동물병원

1. 환자정보
Maropitant 1mg/kg SID PO(PM)
Ondansetron 1mg/kg BID PO

2. 위장관보호제
Omeprazole 1mg/kg BID PO

3. 인슐린제
Sevelamer 75mg/kg BID PO(w/meal)
Lantanium 20mg/kg BID PO(w/meal)

4. 보조제
Renal advanced 1spoon/dog BID PO
Azodyl 1capsule/dog BID PO
probiotics 1stick BID PO

5. 혈관확장제(ACE 억제제)
Rampril 0.125mg/kg SID PO(PM)

6. 부신 치료제
Trilostane 1mg/kg BID PO

7. 방광제
Metronidazole 15mg/kg BID PO

8. 피하수액
Normal saline 100mL BID SQ

* 혈액 검사 및 영상 검사 자료는 요청 시 송부해 드립니다. 아래의 연락처로 문의하여 주시기 바랍니다.
02-450-3664 kumeth.ec@gmail.com건국대학교 부속 동물병원
02-450-3664

⑤ 2023.09.01 · Konkuk Univ. medical report 1/2

Dept. of Emergency & Critical Care. Systolic blood pressure over 180mmHg; elevated SDMA 28-Creatinine 2.3-BUN 65-phosphorus 8.2; proteinuria (UPC over 5.4). Diagnosis: severe systemic hypertension, chronic kidney disease IRIS stage 2/4, gallstones

⑥ Konkuk Univ. medical report 2/2 · Prescriptions

Abdominal ultrasound: liver mass (30×30mm), pancreatic nodule (7×10mm), multiple small splenic nodules. Prescriptions: antiemetic-GI protectant-phosphate binder-renal supplement-ACE inhibitor-Cushing's medication-antibiotic-subcutaneous fluids

서울강진구 농동로 120 (99동), 건국대학교 수의학과 1층 건국대학교 동물병원
02-450-3664

진료 내역

Client: 양미숙 Client No: 234101
Address: Tel: 010-9072-0690

Patient: Teddy(남) Species: Canine
Breed: Yorkshire Terrier
Sex: Castrated Male Birth: 2010-09-01(13YD)
Color:

Lab Examination

Date/Time: 2023-09-07 오후 1:43:50 Performed By (ProCyte-DX)

Name	Unit	Min	Max	Result
BBC	10 ⁶ /μL	5.65	6.07	5.65 NORMAL
HCT	%	37.3	45.7	48.0 NORMAL
HGB	g/dL	10.7	15.5	16.7 NORMAL
HCV	%	89.4	75.5	10.4 LOW
WBC	/μL	21.2	25.9	25.3 LOW
MONO	%	38	27.9	34.8 NORMAL
EOS	%	13.6	21.7	22.4 HIGH
NEUT	%			
NEUTC	%	10	150	12.2 NORMAL
NEUTC-HSD	%	22.3	29.6	27.2 LOW
PLT	/μL	1.05	16.25	11.47 NORMAL
PLTR	%			89.1
PLTRC	%			2.8
PLTRC-HSD	%			0.5
PLTRC-HSD	%			0
PLT	/μL	235	11.64	10.4 NORMAL
PLTR	%	1.06	5.1	0.56 LOW
MONO	%	0.16	1.12	0.67 NORMAL
EOS	%	0.06	1.23	0.06 NORMAL
PLT	%	0	0.21	0 NORMAL
PLT	%	148	484	300 NORMAL
MPV	fL	8.7	13.2	12.2 NORMAL
PDW	%	8.1	18.4	12.7 NORMAL
PCT	%	0.14	0.46	0.37 NORMAL

Date/Time: 2023-09-07 오후 1:50:56 Performed By (Coag Dx)

Name	Unit	Min	Max	Result
APTT	sec	72	165	100 HIGH

Printed: 2023-09-08 오전 10:42:09 Page 1 of 3

⑦ 2023.09.07 · Konkuk Univ. treatment record

Complete blood count (CBC) results from a follow-up visit to the same hospital

Date/Time: 2023-09-07 오후 1:54:26 Performed By (Coag Dx)

Name	Unit	Min	Max	Result
APTT	sec	11	17	14 NORMAL

Date/Time: 2023-09-07 오후 2:02:33 Performed By (Catalyst-DX)

Name	Unit	Min	Max	Result
Creatinine	mg/dL	0.5	1.8	1.7 NORMAL
BUN	mg/dL	7	27	25 NORMAL
BUN: Creatinine Ratio				2.9
Phosphorus-Inorganic	mg/dL	2.5	6.8	5.8 NORMAL
Calcium-Total	mg/dL	11.9	12	12.0 NORMAL
Albumin	g/L	2.7	27.2	26.0 NORMAL
Sodium	mmol/L	144	160	154 NORMAL
Potassium	mmol/L	3.5	5.8	5.1 NORMAL
Na: K Ratio				3.0
Chloride	mmol/L	108	120	112 NORMAL
CRP	mg/dL	0.1	1	0.2 HIGH

Date/Time: 2023-09-07 오후 2:16:02 Performed By (VertStat)

Name	Unit	Min	Max	Result
CRP	mg/dL	1.25	1.50	1.27 LOW

Date/Time: 2023-09-07 오후 2:19:39 Performed By (Catalyst-DX)

Name	Unit	Min	Max	Result
SDMA	μg/dL	0	14	22 HIGH

Date/Time: 2023-09-07 오후 2:55:23 Input By (Manual)

Name	Unit	Min	Max	Result
CRP	mg/dL	0.01	0.05	0.02 NORMAL

Date/Time: 2023-09-07 오후 2:55:45 Input By (Manual)

Name	Unit	Min	Max	Result
CRP	mg/dL	50	250	229.24 HIGH

Printed: 2023-09-08 오전 10:42:09 Page 2 of 3

⑧ 2023.09.07 · Konkuk Univ. blood test

BUN 35 (high), Creatinine 1.7 (within normal range), SDMA 22 (high)

[illegible]

⑩ 2023.10.05 · SNU medical record (SOAP)

Chief complaint: elevated liver values. Vomiting, anorexia and lethargy after coming to Korea, but 80~90% recovered; defecation and urination good; able to go on walks. BUN decreased to about 50 with oral medication and subcutaneous fluids; liver values high. Weight 5.30kg, BCS 4/9

검사결과				
보낸사람	NEODIN-test@test.co.kr	주소주가	수신처간	23.10.16 (월) 11:01
받은사람	손학집 <sonh101@hanmail.net>	주소주가		
병명명	마루동물병원(송파)	보호자명		
환자명	테디	김순호	20231011-123	
종	개	품종	요크셔 테리어	
성별	남	나이	13년 0개월	
BCS	1/9	체중	5.2kg	
검사뢰의뢰일	2023-10-11	검사보고일	2023-10-12	
검사결과보고서				
검사코드	검사명	검사결과	이상유무	참고치
NO002	Total protein	5.2	L	5.4 - 7.4 g/dL
NO003	Albumin	2.8	L	2.9 - 4.2 g/dL
NO004	Bilirubin total	0.1	정상	0.0 - 0.4 mg/dL
NO005	Glucose	93	정상	70 - 118 mg/dL
NO006	BUN	28.4	H	8 - 26 mg/dL
NO007	Creatinine	1.0	정상	0.5 - 1.3 mg/dL
NO008	Uric acid	0.0	정상	0 - 2 mg/dL

⑫ Blood drawn 2023.10.11 · NEODIN 1/2

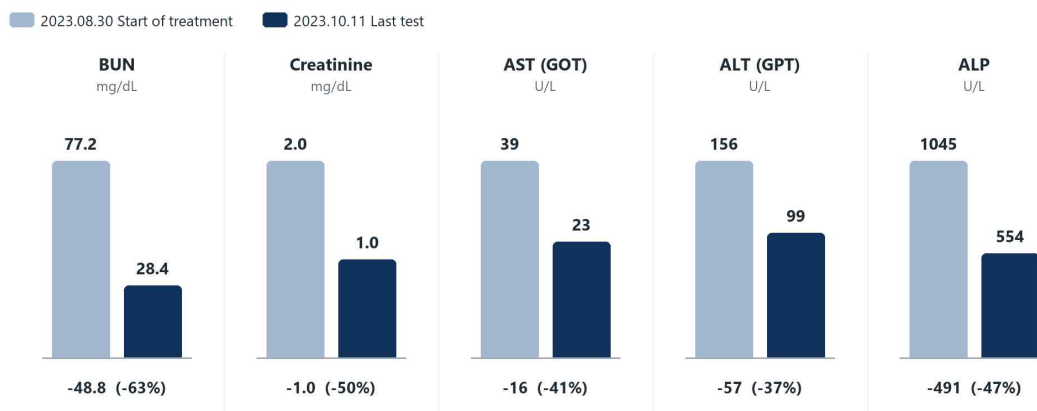
Reported 10.12, results e-mailed 10.16. BUN 28.4 (ref. 8~26), Creatinine 1.0 (normal), total protein 5.2-albumin 2.8 (L). Weight 5.2kg, BCS 1/9

NO009	AST(GOT)	23	정상	15 - 43 U/L
NO010	ALT(GPT)	99	H	19 - 70 U/L
NO011	ALP	554	H	15 - 127 U/L
NO012	γ-GTP(GGT)	10	H	0 - 6 U/L
NO013	LDH	119	정상	0 - 200 U/L
NO014	CK(CPK)	99	정상	46 - 320 U/L
NO015	Cholesterol	265	정상	135 - 345 mg/dL
NO016	Triglyceride(TG)	119	정상	19 - 133 mg/dL
NO017	Amylase	1802.2	H	185 - 900 U/L
NO018	Sodium	145.9	정상	144 - 154 mmol/L
NO019	Potassium	3.84	L	4.1 - 5.3 mmol/L
NO020	Chloride	121.2	H	105 - 116 mmol/L
NO021	Calcium	8.0	정상	7.8 - 12.0 mg/dL
NO022	Inorganic phosphate	3.8	정상	3.0 - 6.2 mg/dL
NO023	Globulin	2.4	정상	2.3 - 4.4 g/dL
NO024	Lipase	100	정상	0 - 450 U/L
NO025	응집여부	clear	양표	

⑬ Blood drawn 2023.10.11 · NEODIN 2/2

AST 23 (normal), ALT 99, ALP 554 (H)

05 Start of treatment vs. last test — NEODIN 2023.08.30 → 10.11



Item	Unit	2023.08.30 Start of treatment	2023.10.11 Last test	Change
BUN	mg/dL	77.2	28.4	-48.8 (-63%)
Creatinine	mg/dL	2.0	1.0	-1.0 (-50%)
AST (GOT)	U/L	39	23	-16 (-41%)
ALT (GPT)	U/L	156	99	-57 (-37%)
ALP	U/L	1045	554	-491 (-47%)

Both tests were NEODIN tests requested by Maru Animal Hospital; values are as printed on the lab reports (④ · ⑫ · ⑬). The items shown are those marked in red on the reports.

06 Testing laboratory: NEODIN BioVet — as of the tests (2023)

NEODIN BioVet is a dedicated veterinary diagnostic laboratory founded in 1997. It performed Teddy's blood tests (August and October 2023); its track record and recognition up to that time are summarized below.

26 years In veterinary diagnostics (1997–2023)	Gov. designated Clinical trial site for veterinary medical devices (2020)	KRW 6.5 bn Investment from Yuhan Corp. (2021)	70+ tests Real-time PCR tests for pet infectious diseases
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Year	Details
1997	Opened as a dedicated veterinary diagnostic laboratory
2020	Designated by the Animal and Plant Quarantine Agency (Korea) as a clinical trial site for veterinary medical devices
2021	Secured investment from Yuhan Corporation (approx. KRW 6.5 billion)
2021	Introduced 70+ real-time PCR tests for pet infectious diseases, and tests in partnership with VDI Lab (USA)
2022	Signed a veterinary diagnostics business agreement with i-SENS
—	Its academic department contributed articles, such as reports on pathogens detected in pets, to the veterinary news outlet DailyVet

Sources: Daily Gaewon (2021.2.10), Edaily (2022.12.11), Korea Economic Daily (2022.4.14), DailyVet. Years and details are as reported.