

# T4 VET test kit



**Micro Vet Diagnostics**

## For veterinary use only!

Veterinary test kit for quantitative in vitro determination of T4 in serum, citrated plasma, EDTA plasma or lithium heparin plasma on a Micro-Cube analyser

MicroVet Diagnostics  
11210 Asheville Hwy Suite 1  
Inman, SC 29349, USA

Tel. 800.640.7780  
Fax 864.382.3131  
[www.microvetdiagnostics.com](http://www.microvetdiagnostics.com)



### Order information

Order number: C50140  
Order number: C50141  
Order number: C51400

### Indication

T4 VET test kit  
T4 VET test kit  
T4 VET control kit

### Kit size

16 tests  
6 tests  
1 x 5 ml (decision level)



**Test kit preparation: Allow single test at least 10 minutes to warm up to room temperature (20 - 25 °C) by placing the test into the test kit rack. Put test kit package back into refrigerator.**

## Summary

Thyroxine (T4) is produced by the thyroid. Controlled by a complex regulatory mechanism it is released into the bloodstream. Most of the T4 in blood is bound to various carrier proteins such as albumine, prealbumine and other specific binding proteins. Diseases of the thyroid with abnormal hormone concentrations occur more likely in older animals. Elevated or lowered concentrations of the thyroid hormones, e.g. T4, lead towards problems in numerous other systems. Hyperthyreoidism is almost exclusively found in cats, hypothyreoidism is found in all species.

## Method

The T4 VET test is a homogenous enzymatic immunoassay. By using an 8-anilino-1-naphthalene acid sulfure (ANS) the bound T4 is separated from its binding proteins. The separated thyroxine released from blood competes afterwards with a thyroxine that is linked to the glucose-6-phosphat dehydrogenase enzyme to a specified binding area. The G6PDH activity at 340 nm is associated with the complete thyroxine concentration in blood. If no T4 is existent in the blood sample the enzyme activity is inhibited by the binding of a specific antibody.

## Measurement Range

When using a 20 µl pipette: 0 - 8 µg/dl (0 - 104 nmol/l)  
When using a 5 µl pipette: 6 - 32 µg/dl (78 - 416 nmol/l)

## Sample Material

Serum or plasma (EDTA, lithium heparin, citrated).  
Sample volume according to the menu settings on the laboratory photometer and according to the use of a 20 µl or 5 µl pipette.

## Test Kit

R1 cuvette filled with monoclonal anti-thyroxine antibody and nicotinamide adenine dinucleotide (NAD) in TRIS buffer.  
R2 cap filled with enzyme conjugate reagent G6PDH labeled with thyroxine in tris buffer.

## Stability and Storage

Stable until the expiration date stated on the label when stored in unopened vacuum package at 2 - 8 °C. Opening the vacuum package may limit the reagent stability to three months (stored at 2 - 8 °C) from the date of opening. DO NOT FREEZE!

## Warnings and Precautions

DO NOT INGEST! Avoid contact with skin and eyes. Contains sodium azide, which may react with lead or copper plumbing to form explosive compounds. Observe all necessary precautions for the use of laboratory reagents.

## Waste Management

Please refer to local legal requirements.

## Reference Range

Dog: 1.3 - 4.5 µg/dl (17 - 58 nmol/l)  
Cat: 1.0 - 4.0 µg/dl (13 - 52 nmol/l)  
Horse: 1.3 - 4.1 µg/dl (17 - 53 nmol/l)  
Cattle: 3.8 - 8.2 µg/dl (49 - 106 nmol/l)

It is recommended that each laboratory establishes its own reference ranges.

## Quality Control

For internal quality control the MVD T4 VET control kit is recommended. Order number: C51400

## Precision

Reproducibility within-run:

Sample 20 µl:  
Dog; N = 10; mean = 1.03 µg/dl; SD = 0.04 µg/dl; CV = 3.8%;  
Cat; N = 10; mean = 1.93 µg/dl; SD = 0.08 µg/dl; CV = 4.1%;  
Cat; N = 14; mean = 7.98 µg/dl; SD = 0.35 µg/dl; CV = 4.4%;

Sample 5 µl:  
Cat; N = 5; mean = 7.79 µg/dl; SD = 0.27 µg/dl; CV = 3.5%;

## Correlation

Cat sample correlation:  
N = 43; y (MVD T4) = 0.978 x (IMMULITE 1000 Canine Total T4) + 0.116;  
R<sup>2</sup> = 0.965;

Dog sample correlation:  
N = 48; y (MVD T4) = 0.990 x (IMMULITE 1000 Canine Total T4) - 0.032;  
R<sup>2</sup> = 0.951;

## Interferences

The test system has been analysed for various interferences. Criterion was the recovery within 10% of initial values.

Bilirubin	30 mg/dl
Cholesterol	400 mg/dl
Haemoglobin	800 mg/dl
Triglycerides	1000 mg/dl

## References

1. PENNY, M., O'SULLIVAN, J. (1987) Clin Chem 33: 170-171;
2. HARRIS, P., MARLIN, D., GAY, J. (1992) Equine thyroid function tests: a preliminary investigation. Br Vet J; 148: 71-80;
3. THORESEN, S.I., WERGELAND, R., MOERKRID, L., STOKKE, O. (1996) Evaluation of an enzyme immunoassay for free



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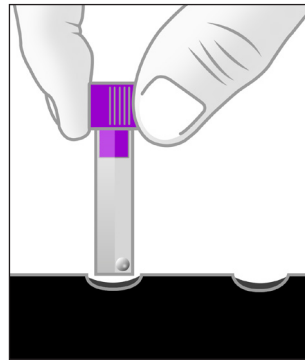
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# Processing of a T4 VET test

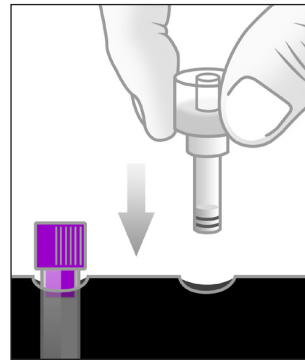
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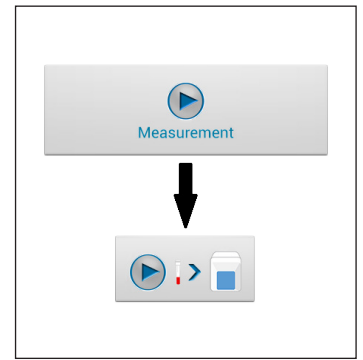
1.1



1.2

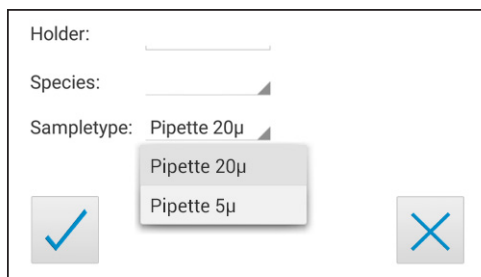


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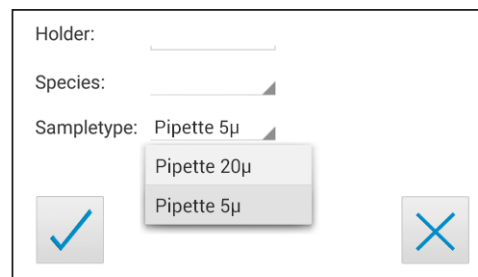
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## 2.

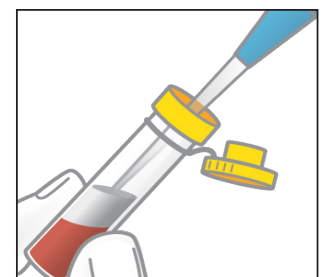


2.1a

OR

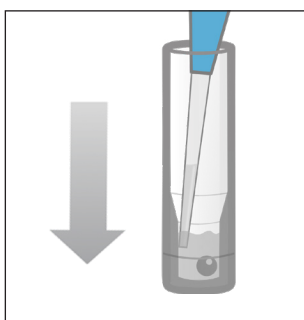


2.1b

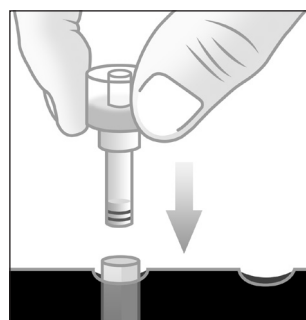


2.2

## 3.



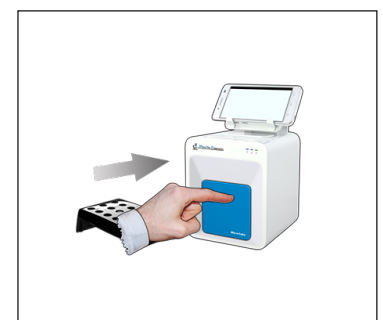
3.1



3.2



3.3



3.4

## ATTENTION!

Allow single test at least 10 minutes to warm up to room temperature (20 - 25 °C) before use!

### 1. Preparation of test system

- 1.1 Place RFID card
- 1.2 Place R1 cuvette in test kit rack
- 1.3 Place R2 cap in test kit rack
- 1.4 Press „Measurement“ button, enter required information using the touchscreen

### 2. Sample preparation

*Choose sample type:*

- 2.1a „Pipette20 $\mu$ “ for measurement range: 0 - 8  $\mu$ g/dl (0 - 104 nmol/l)  
**OR ...**
- 2.1b „Pipette5 $\mu$ “ for measurement range: 6 - 32  $\mu$ g/dl (78 - 416 nmol/l)
- 2.2 Aspirate 20  $\mu$ l **OR** 5  $\mu$ l sample material from centrifuged sample tube

### 3. Sample processing

- 3.1 Dispense sample INTO THE LIQUID in the R1 cuvette
- 3.2 Apply R2 cap firmly onto R1 cuvette
- 3.3 Place assembled cartridge into laboratory photometer
- 3.4 Start automatic sample processing by closing the door of the Micro-Cube laboratory photometer.