Version 03/2022

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ACT-*VET*ube

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***In vitro* diagnosticum**

Screening test for evaluation of secondary hemostasis disorders of the dog, cat and horse

INSTRUCTIONS FOR USE

Supplied Excusively To The UK
Veterinary Market By
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1. INFORMATION ON THE TEST-KIT

TEST-KIT COMPONENTS

1 test-kit **ACT-*VET*ube** contains:
- 10 **ACT-*VET*ube** tubes filled with diatomaceous earth
- 1 instructions for use

STABILITY AND STORAGE

Store at 15–25 °C

Expiry date – see label

APPLICATION

For veterinary use only

Lot number

In vitro diagnosticum

Do not use test-kit components from different kits, lot numbers or beyond stated expiry date.

Follow instructions for use precisely

LIABILITY

The entire risk due to the performance of this product is assumed by the purchaser. The manufacturer shall not be liable for indirect, special or consequential damages of any kind resulting from the use of this product.

2. INTRODUCTION

Hemostasis is a complex physiological reaction to all kinds of bleedings. Hemostatic disorders base on defects or causes of the primary (cellular hemostasis via thrombocytes) and secondary (plasmatic clotting factors) hemostasis.

The Activated Clotting Time (ACT) is, like the activated Partial Thromboplastin Time (aPTT), an important coagulation marker for screening of the individual status of hemostasis, especially of the intrinsic and common path of the coagulation cascade.

With ACT, suspicion of secondary hemostasis disorder can be confirmed quickly and easily on-site. Prolonged ACT occurs in the dog and cat during internal bleedings in body cavities, by genetically inherited factor deficiencies like hemophilia A and B as well as by acquired causes like rodenticide intoxication, liver diseases, administration of drugs like coumarin or heparin and lack of vitamin K. In the horse, prolonged ACT occurs especially in hemostatic disorders connected with DIC (disseminated intravasal coagulation: shock, colic, laminitis, thromboses etc.).

Being fast, simple and reliable, **ACT-*VET*ube** enables the veterinarian to measure the time (in seconds) needed by a blood sample mixed with diatomaceous earth at 37 °C to show first signs of blood clots.

3. INFORMATION ON THE SPECIMEN MATERIAL PATIENT PREPARATION

Usual preparations of the patient for blood withdrawal. First choice of venipuncture site (optimally with 20-gauge needle) is the Vena jugularis. Alternatively, also cephalic and saphenous venipuncture are possible.

It is essential that a single puncture and a steady and fast flow of blood is guaranteed. Thereby, the first drops/stream must be discarded to avoid contamination of the sample with tissue factors like factor III, thromboplastin etc., because these may hasten the clotting process.

4. TEST PREPARATION

a. Warm up the **ACT-*VET*ube** tube to ca. 37 °C (in water bath, in hand, under the armpit, fig.1).
b. Blood withdrawal from the V. jugularis (fig.2), V. cephalica antebrachii or V. saphena lateralis. Discard the first drops (ca. 0.25–0.5 ml).

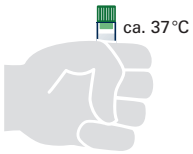

fig.1


fig.2

5. TEST PROCEDURE

1. Add 2.0 ml native blood (freshly drawn, without anticoagulant!) from V. jugularis, V. cephalica or V. saphena up to the mark into the hand-hot (ca. 37 °C) **ACT-*VET*ube** tube (fig.3).
2. Start stop-watch immediately (fig.4).
3. Close **ACT-*VET*ube** tube and tilt once per second in the direction of the longitudinal axis during the first 30 seconds. Then shake/flick until **a first clot** is forming (fig.4).

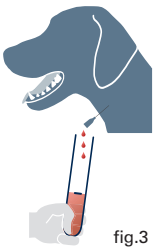
fig.3

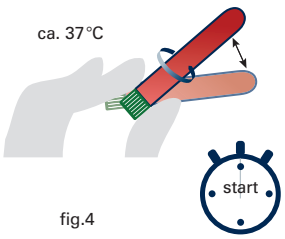

fig.4

6. READING OF THE TEST RESULT

At **first visible clot formation** stop the stop-watch and read coagulation time (ACT, fig.5).

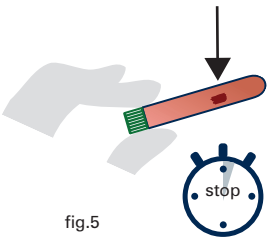

fig.5

7. PRECAUTIONS FOR USERS

- The guidelines for working in medical laboratories must be observed. It is recommended to wear disposable gloves and other personal protective equipment (protective clothing, possibly a face mask). Wash and disinfect hands after completing the test.
- Use a new **ACT-*VET*ube** tube for each patient.
- The sample material must be seen as potentially infectious and disposed of accordingly, together with the used test-kit components.

NOTE:
Performing **ACT-*VET*ube** in cats can be difficult. To obtain reliable test results, the **ACT-*VET*ube** tube should be directly filled with fresh blood from a vacutainer system, preferable under sedation! Therefore, determining PT or aPTT in cats, e.g. using qLabs or in a veterinary laboratory, can be advantageous.

8. TEST PRINCIPLE

The Activated Clotting Time (ACT) is defined as the time in seconds for whole blood mixed with diatomaceous earth until the appearance of the first unmistakable clots at 37 °C. Fresh native blood from V. jugularis is directly added into the **ACT-*VET*ube** tube filled with diatomaceous earth, closed and mixed carefully. Activating the intrinsic cascade, diatomaceous earth will coagulate native blood in a definite time due to the coagulation status of the animal. Once first clot signs form, the test is complete and the required time (= ACT) has to be noted.

9. INFORMATION FOR THE INTERPRETATION

ACT, in combination with platelet count, can facilitate a statment about the function of the endogen and common hemostasis system and about the existence of a DIC.

Standard ACT (seconds)

60–110 50–75 130–200

Prolonged ACT

- DIC (Disseminated Intravascular Coagulation: Infections, shock, colic, laminitis, etc.)
- advanced rodenticide or fungal poisoning, snake bite
- severe thrombocytopenia (< 10.000/µl blood)
- diverse thrombocytopathies
- inhibitors preventing clot formation (heparin, coumarin, uraemia, etc.)
- severe factor deficiencies (sensitivity < than aPTT!) – intrinsic or common (XII, XI, IX, VIII, X, V, II, I)

Therapy monitoring via ACT

- Heparin, marcumar or warfarin therapy (podotrochlosis, thrombophlebitis, DIC etc.)
- Vitamin K therapy (coumarin poisoning)

The determination of ACT or aPTT is a reasonable and simple approach for screening the coagulation status of a bleeding animal. Both tests detect all coagulopathies except for hereditary factor VII deficiency (extrinsic path).
If the ACT or aPTT is prolonged, a PT test is recommended to differentiate between a defect in the intrinsic or the common pathway or whether a combined coagulopathy involving several coagulation factors is present.