

ACTube™ Modified Procedure for Determination of Activated Clotting Time (For Veterinary Use Only)

Materials: 12 X 75 AcTube containing diatomaceous earth
Syringe and needle
Water Bath or Heat Block standardized to 37⁰ C
Thermometer
Stopwatch

Summary: The Activated Clotting Time (ACT) can be run in the office to quickly evaluate secondary hemostasis. The ACT parallels the Activated Partial Thromboplastin Time (APTT) in that it tests for every clinically significant clotting factor except Factor VII. As a result, the ACT may be useful in the diagnosis and monitoring of rodenticide toxicosis, hepatopathy, and Hemophilia A and B. Unlike the APTT however, patients with severe thrombocytopenia may exhibit a slight to moderately prolonged ACT. Special note: This procedure utilizes a non-vacuum tube as a replacement for the discontinued Becton Dickinson ACT Vacutainer. The use of this tube requires that samples be drawn with a syringe and transferred to the tube in contrast to the former method of direct draw. Although there is the possibility of clotting prior to dispensing the sample into the tube, those patients of greatest interest will be those with prolonged clotting times. As a result, the clinical usefulness of this modified test as a screening device should be minimally affected.

Precautions: Diatomaceous earth is a light powder that contains crystalline silica which can irritate eyes, throat, and nasal passages. Use care when opening tubes. Clean up spills with water to prevent aerosols.

Procedure:

1. Pre-incubate one empty AcTube at 37⁰ C for 5-10 minutes.
2. Perform a clean venipuncture preferably from the jugular vein with the syringe. Collect approximately 3 ml. of blood. Begin timing the test at this point.
3. Remove the cap from the AcTube and quickly transfer 2 of the 3 ml of blood from the syringe into the tube. Recap the tube, gently invert 5 times, and place in the heat block or water bath. Continue timing.
4. At 60 seconds and at each 5 second interval thereafter, withdraw the tube from the heat block and gently tilt it so that blood flows along its length while observing closely for any clots.
5. The endpoint is the elapsed time to the nearest 5 seconds between sample draw and the occurrence of the first unmistakable clot.

Normal Values:

- Dogs < 120 seconds
- Cats < 100 seconds
- Cow < 145 seconds
- Horse < 40 seconds

*The above values are taken from the literature and should only be used as a guideline. Good laboratory practice dictates that each clinic should establish its own reference values by running 5 to 10 known normal animals.

Legal Notice: **ACTube has not been validated in any controlled animal studies. Although side by side comparisons with the original Becton Dickinson ACT Vacutainer® have yielded comparable results, the manufacturer makes no claims of performance or suitability as a screening test for coagulopathy. The responsibility for achieving accurate and clinically useful results with ACTube rests solely with the Veterinarian and/or individual performing the test. ACTube is restricted to veterinary use only.**

References: Meyer, Coles and Rich: Evaluation of Hemostasis and Coagulation Disorders in Veterinary Laboratory Medicine. Philadelphia, W.B. Saunders, 1987, 43-49

Tvedten, Harold: Hemostatic Abnormalities in Small Animal Clinical Diagnosis by Laboratory Methods edited by Willard, Tvedten, and Turnwald. Philadelphia, W.B. Saunders 1989, pp. 86-101

Riley, J.H. and E. D. Lassen: Activated Coagulation Times of Normal Cows. Veterinary Clinical Pathology 1979; VIII, p. 31

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