Sample Handling – Vet abc

Time after time during university studies and in clinical practice, the scil Vet ABC has proven to be one of the most precise and accurate hematology analyzers available. ***Despite this reliable performance, the scil Vet ABC (as with any analyzer) can only produce results as good as the sample provided.***

It is important to remember that daily quality controls will not only assure the user that the scil Vet ABC is operating at its peak performance, it is also a method of assessing proper sample handling techniques. If the analyzer is passing start-up and controls are within normal range, then any aberrant sample results often indicate *improper sample handling*.

Sample handling can be the limiting factor in producing accurate results so here are some helpful tips that will assure sample quality and results.

Venipuncture : 22 gauge or larger bore needles if possible. Small bore needles result in greater likelihood of cell damage (hemolysis) and clotting activation. Hemolysis = low RBC and HCT results.

EDTA Tubes: EDTA is the anti-coagulant of choice. There are two common forms of EDTA:
K2EDTA: ideal choice for hematology. Used in Vacutainer brand tubes
K3EDTA: excess RBC shrinkage, increased cell volume, and sample dilution since it is a liquid
Used in Monoject brand tubes and a series of discontinued Vacutainer brand tubes.
No Heparin as it fails to prevent platelet clumping and causes WBC morphologic changes
**The scil Vet ABC is a sensitive analyzer, changes to cell size or dilution could give aberrant results.

Sample Transfer: Sample needle and EDTA tube tops *should be* removed prior to the sample transfer unless a direct collection method is used. Slowly express the sample so the blood runs down the side of the tube. This should prevent cell damage due to another needle pass through and turbulence from spraying into the tube which = cellular damage and clotting activation.

Sample amount: It is crucial to adequately fill the EDTA tube for a proper a*nticoagulant:blood ratio*.
Too much EDTA (1 mL in a 2 mL tube) = over dilution = decreased cell counts.
It will also cause excessive RBC shrinkage which will cause low MCV and HCT results.
Smaller EDTA tubes are available for situations where it is difficult to collect adequate blood.
These tubes hold from 0.1 mL to 0.5 mL and are excellent for small patient samples. These tubes are available from companies including BD and StatSpin.

Sample Mixing: After the EDTA tube has been adequately filled it is vital that the sample be mixed *immediately*. Invert the tube 8 -10 times to ensure that *all* EDTA mixes with the blood. Inadequate mixing may result in premature clot activation. It's also very important to thoroughly mix directly before testing on the ABC.

Clotted Samples: If clotting is a concern due to prolonged draw or delayed sample transfer, it is advisable to check prior to continuing. A clotted sample should never be introduced to the system - it could plug the apertures and cause untimely delays. To check for clots put two cotton-tip applicators into the sample and immediately pull them out. Any clots or strands that adhere to them suggests this sample should be discarded.

scil Vet ABC sample needle: Once the sample needle is down, put it into the sample until it *touches the bottom of the tube.* Some people then back the tube off the needle very slightly thinking the needle opening may be flush with the tube bottom. While this technique may work, it could create problems. Backing off too far results in an inadequate sample being drawn into the needle. A better method is to *tilt the tube* once contact has been made between the bottom and the sample needle. This creates a *pool* of blood the needle can draw, it prevents backing off too far and needle won't be flush with the bottom of the tube.

Please contact us at 1-866-382-6937 if you have any questions or concerns!