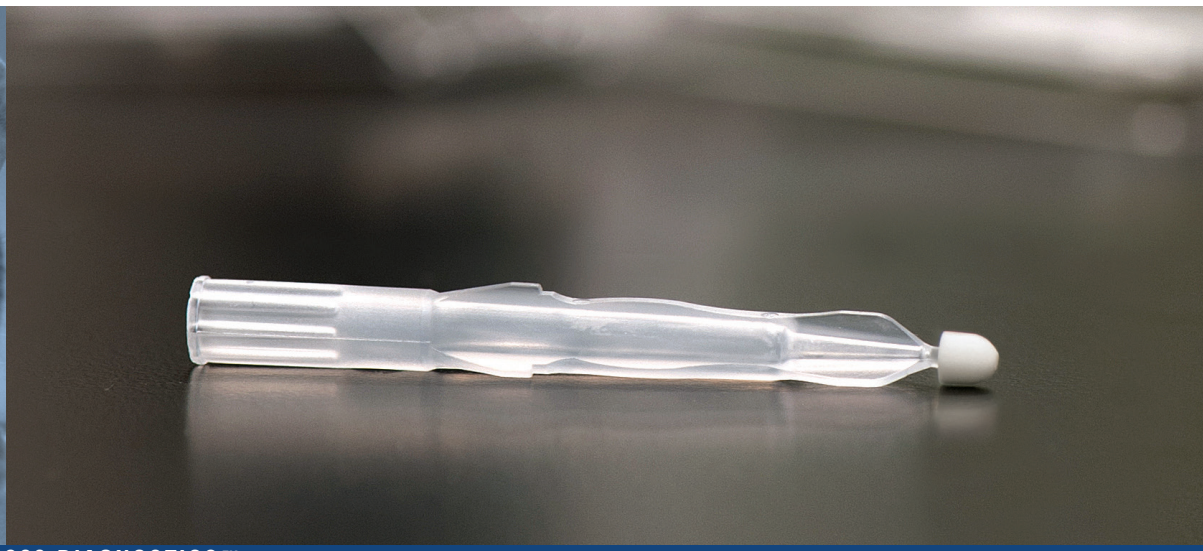
charles river



360 DIAGNOSTICS™

HemaTIP™ Microsampler

HemaTIP™ Advantages

- Minimal set-up
- Reduced stress to the animal
- Rapid collection
- Ergonomic design

For over 50 years, serologic immunoassays have been the standard method for screening serum samples for specific antibodies to infectious agents. Often, small research animals, such as mice or rats, had to be euthanized to obtain enough blood to conduct larger panels of assays. However, recent advances in multiplexing technology have made it possible to perform comprehensive testing with smaller amounts of blood. This reality has given rise to the development of alternative methods of sampling that can facilitate survival blood collection; – this is an example of efficiency and refinement that is aligned with Charles River's mission to observe the 3Rs in the use of animals in biomedical research.

Blood Sampling Technology

Collecting blood from research animals can be a cumbersome and time consuming process that often leads to an increased level of stress in the animal. The HemaTIP™ blood microsampler simplifies this process by placing the collection media on the tip of an easy-to-hold stylus. Once the sample is ready to be collected, a technician need only touch the tip of the stylus to the blood and its super absorptive matrix media wicks the sample in 3-6 seconds.

HemaTIP™ was originally used for human sampling. However, Charles River adapted and further qualified this technology for collecting samples in rodent laboratory species. The collection tip is engineered to draw only 20 μl, enough for preliminary and confirmatory serology testing by our laboratory.

Method Comparison

There are several methods for collecting blood samples; these range from survival to terminal collection and differ in required equipment and training. The following chart demonstrates the benefits of HemaTIP™ when compared to two widely used blood collection methods. The comparisons were based on the following: a range of animals, qualification protocols performed by Charles River, and sample volumes required to perform an *Assessment Plus MFIA® Serology Profile*.

	HemaTIP™	Dried Blood Spot (DBS)	Standard Serum Collection
Materials	HemaTIP™ Microsampler	DBS Card	Buffering solution
	Lancet	Lancet/capillary tube or needle/syringe*	Needle/syringe
			Serum vial
			Centrifuge
			Pipette
Volume Required	20 µL blood	25-50 µL blood	1 mL blood
Sampling Time	2-6 seconds	> 10 seconds (based on technique used)	30 minutes (includes sample centrifugation)
Hematocrit Bias	No	Yes	Unknown
Species Range	Mouse	Mouse	Rodent
	Rat	Rat	Rabbit
			Nonhuman primates
			Other
Ease of Use	Gently restrain animal	Gently restrain animal	Euthanize animal
	Expose blood	Expose blood	Collect sufficient blood volume
	Touch HemaTIP™ to blood	Align collection site with spot on card or use a capillary tube or needle and syringe to transfer blood drop to spot	Centrifuge
			Separate serum
Collection Type	Survival collection	Survival collection	Terminal collection**
Shipping	Ambient	Ambient	Frozen/cool/ambient
Dry Time	60 minutes	60 minutes	N/A

* Lancet (with or without a capillary tube) or needle/syringe are used to collect sufficient blood and precisely fill the entire spot on the collection paper.

** Often the case in small animal models (e.g., mice)