HOW THE CULEX AUTOMATED BLOOD SAMPLING SYSTEM AND THE RATURN MOVEMENT RESPONSIVE CAGING SYSTEM REVOLUTIONIZED RODENT PK/PD STUDIES

The Culex NxT Automated Blood Sampling System and the Raturn Movement Responsive Caging System are advanced tools used in pharmacokinetic (PK) and pharmacodynamic (PD) studies, particularly for small animal models like rats.

CULEX NXT AUTOMATED BLOOD SAMPLING SYSTEM

Culex NxT collects precise blood samples at programmable intervals, enabling real-time drug concentration monitoring, and reducing variability due to human error. This ensures consistent sampling for accurate PK profiling, and it reduces the need for frequent handling thereby mitigating stress-induced physiological changes that could affect drug metabolism.

The system's accuracy and automation result in cleaner, more reliable data, enhancing the sensitivity of PK/PD modeling.

RATURN MOVEMENT RESPONSIVE CAGING SYSTEM

The Raturn system uses a counter-balanced arm that engages the cage to rotate as the animal moves, preventing tubing twisting or tangling. Each animal can move freely, and by allowing for natural behavior and reducing restraint, the system minimizes stress responses and movement restrictions that might alter drug kinetics and thus leads to more physiologically relevant data.

The Raturn is available in configurations to enable the collection of feces, urine, interstitial fluid, and bile for comprehensive metabolic studies, and it enables continuous sampling and infusion over extended periods without compromising animal welfare or data integrity.

COMBINE WITH AUTOMATED INFUSION

Incorporating an automated infusion system, such as the Empis® Automated Drug Infusion system allows for automation of drug delivery and/or bile salt replacement alongside automated sampling. Automated infusion ensures consistent and accurate drug delivery, minimizing human error and reducing variability in dose administration. For drugs with narrow therapeutic windows or those requiring sustained exposure, automated infusion allows for controlled release over time, mimicking clinical conditions more closely. Infusion can be easily incorporated with the Culex NxT and Raturn systems for optimized rodent dosing and sampling with minimal animal handling and human inference.

Bile sampling can also be optimized using these systems. Bile plays a crucial role in certain types of studies, especially those involving drugs that rely on hepatic metabolism or intestinal absorption. Automation of bile salt replacement ensures steady bile salt levels, mimicking physiological conditions and supporting accurate PK profiling. In liver disease models or bile duct ligation studies, automated bile salt replacement helps stabilize gut-liver dynamics, allowing for better interpretation of drug effects and metabolism.

RETURN OF INVESTMENT

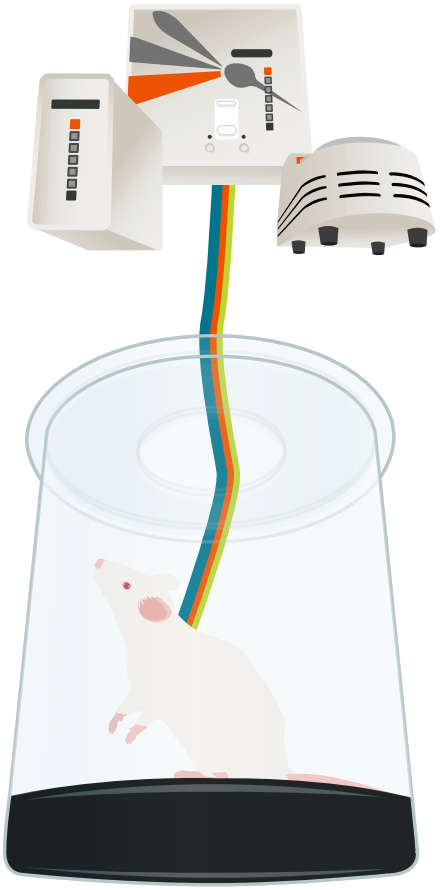
The goal of automated sampling is to enhance data accuracy and quality, reduce animal stress, and increase study efficiency and regulatory compliance.

Several laboratories have discovered that the return on investment is significant when automated blood sampling was incorporated into their rodent study designs.

- **Reduction in animal numbers** due to the ability to draw more frequent and precise serial samples from individual animals in small volumes (≤ 50µL) without over-handling or exceeding blood volume limits.
- **Increased efficiency and throughput** due to the ability to sample multiple animals simultaneously on an automated schedule with reduced downtime.
- **Decreased labor costs** due to the ability to monitor collections remotely and collect automated samples without requiring staff be physically present, including the ability to collect preprogrammed samples overnight, which also results in increased staff morale.
- **Refined data** due to precisely programmed sampling to avoid missed samples and ensure collection of critical timepoints, as well as elimination of stress-induced changes in metabolism and immune responses, and automatically generated sampling logs.

OUR COMMITMENT TO QUALITY

We are committed to the quality of our products, as well as the quality of your research. Our comprehensive service and support packages ensure continuity of your research. These packages include options for annual onsite preventative maintenance, onsite training for your staff, technical support, expedited replacement of parts, discounts on consumables, and software upgrades.



CULEX-NxT FOR PHARMACOKINETIC AND PHARMACODYNAMIC STUDIES

Blood Collection

Infusion/Dosing

Feces Collection

Urine Collection

Bile Collection

Bile Salt Replacement

BASi EMPIS Programmable Infusion System

RATURN™ CULEX NxT™

Our team can be reached at invivo@basinc.com, and we are eager to collaborate with you to determine if the Culex NxT Automated Blood Sampling System and associated accessories will make an impact on your rodent studies and overall drug development pipelines.