



**ABSORPTION
SYSTEMS®**

A Pharmaron Company

absorption.com

Pharmacokinetic Services

- ✔ Complete study support from formulation to PK parameters
- ✔ Rapid turnaround to support drug discovery
- ✔ Experienced team with more than 30 years supporting DMPK

End to End In-life with Bioanalytical Support

In-Life Capabilities

- » Species: Rodents, Rabbits, Sheep, Porcine, and Dogs
- » Dose Routes:
 - Routine:** IV, PO, SC, IM, IP
 - Standard:** Ophthalmic, Dermal, IN, SL, Buccal
 - Specialty:** GI (ID, IJ, IC), IT, Jugular Vein, and Portal Vein
- » Biofluid Sampling: Jugular vein Portal vein, bile cannula, ureteral catheters, lymph cannula (other suitable veins) and more

Bioanalytical Capabilities

- » Test Articles: Small and Large Molecules
- » Matrices: Plasma, Tissue, Urine, Feces, Bile, Lymph, CSF
- » Sample Analysis and Reporting: Measured concentrations and PK parameters
- » 72-hour turnaround time for plasma sample BA

Technical Platforms Include: Waters Xevo TQ Systems, Waters ACQITY UPLC Systems, Bertin Precellys® 24Tissue Homogenizer and VersaMax™ Microplate Readers



Pharmacokinetic Evaluation

Species	Mouse, Rat, Guinea Pig, Hamster
Standard Dose Routes	IV (bolus and infusion), PO, SC, IP, IM, Topical
Atypical Dose Routes	IA, IT, IN, SL, Intrathecal
Surgical Models	GI cannulations (ID, IC), Bile duct cannulation (BDC), lymph cannulation, Gastric bypass, Renal vessel
Specialty	CNS/Behavioral, Pain, Diabetes, Metabolic, Dermal (Psoriasis/Acne), Infectious
Sampling	Whole Blood (jugular vein, portal vein, sub-mandibular, retro-orbital, cardiac puncture), bile, lymph, urine, feces, CSF, synovial fluid, tissues
Formulation	Vehicle preparation, Formulation preparation
Bioanalytical (non-GLP)	Test Articles: Small Molecules, Proteins, and Peptides Matrices: Plasma, Tissues, Urine, Feces, Bile, Lymph, CSF Reporting: PK (NCA), TK
Regulatory	AAALAC, USDA, OLAW, DEA (Schedules 2-5), BSL2

Species	Rabbit, Dog, Minipig, Sheep, Cat (otic) , Farm Pig
Standard Dose Routes	IV (bolus and infusion), PO, SC, IP, IM, Topical
Atypical Dose Routes	IA, IN, Buccal, SL
Surgical Models	GI cannulations (ID, IJ, IC), Bile Duct Cannulation (BDC)
Specialty	Endoscope, Diabetes, Food Effect, Pentagastrin, Famotidine
Sampling	Whole Blood (jugular vein, femoral vein, portal vein), bile, urine, feces, tissues
Formulation	Vehicle preparation, Formulation preparation
Bioanalytical (non-GLP)	Test Articles: Small Molecules, Proteins, and Peptides Matrices: Plasma, Tissues, Urine, Feces, Bile, CSF Reporting: PK (NCA), TK
Regulatory	AAALAC, USDA, OLAW, DEA (Schedules 2-5), BSL2

Specialized Animals Models

Lymph Collection

Species

Sprague-Dawley Rat

Dose Route

Various routes including oral gavage, and intraduodenal infusion (ID)

Standard Formulations

Solution/Suspension

Collection Site

Mesenteric
Thoracic

Outcome

Lymphatic Disposition

Intraoral

Species

Rabbit
Rat
Dog
Minipig

Standard Formulations

Dissolving films
Sprays
Gel
Solution/Suspension

Outcome

Comparing exposure to other administration routes and absolute and relative bioavailability

Endoscopic & Surgical Gastrointestinal Dose Administration

Species

Dog
Minipig
Rat (Surgical only)

Dose Route

Intraduodenal (ID) – endoscopic or surgical

Intracolonic (IC) – endoscopic or surgical

Intrajejunal (IJ) – surgical

Standard Formulations

Liquid (ID & IC & IJ),
Capsule (ID)

Outcome

Regional absorption to assess GI effects on stability or as a barrier to bioavailability

Dermal

Species

Rat
Rabbit
Minipig
(Yucatan or Gottingen)

Standard Formulations

Patch, Gel, Cream
More

Accumulation Assessment in Tissue

Punch Biopsies – varying sizes and depths

Irritation Assessments

Modified Draize Scoring
(Erythema and Edema)

Outcome

Dermal and systemic disposition



Toxicity & Tolerability

- » Experts in Systemic and Specialty Tox
- » Non-GLP Safety/Tolerability (MTD, DRF)
- » GLP Toxicology – Local and Systemic

Standard Species	DRF/MTD Toxicity & Tolerability	Standard Endpoints
Rodent Rabbit Dog Minipig	7, 14, 28, and 90 day Chronic (6-9+ months)	Clinical Observations Body Weights Food Consumption TK Analysis Histopathology Clinical Pathology

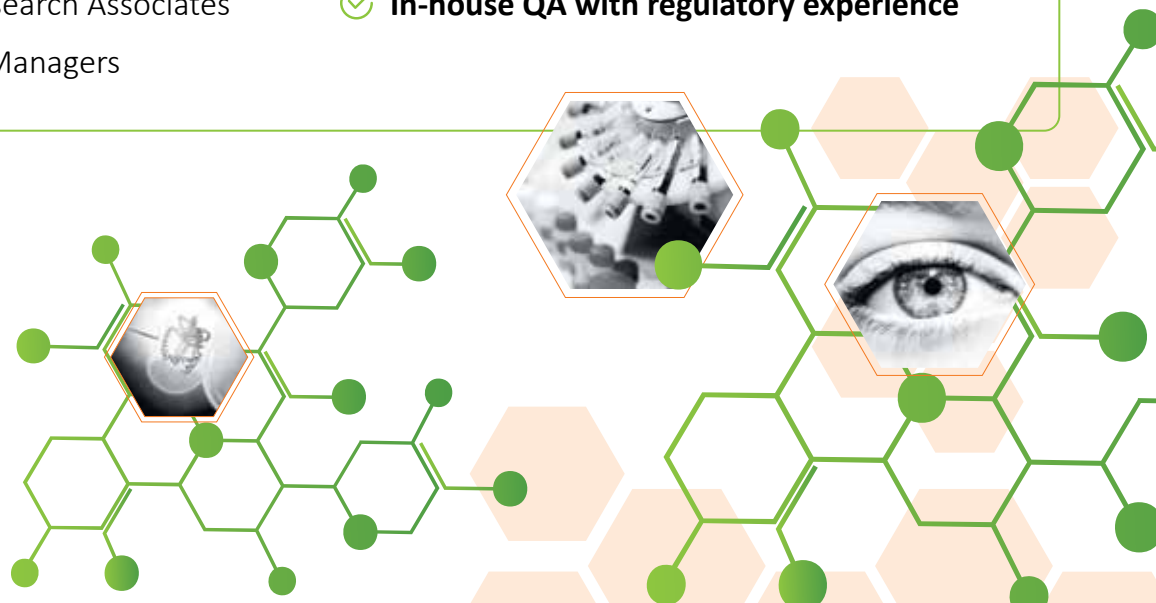
The Absorption Systems' Advantage

✔ **Dedicated Team**

Study Directors (PhD, DVM)
Board Certified Veterinarians
Highly Trained Research Associates
Dedicated Study Managers

✔ **State-of-Art Facilities**

- ✔ **FDA Inspected**
- ✔ **Quality standards (GLP/ISO) and SOP's**
- ✔ **In-house QA with regulatory experience**



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