



Preclinical Pharmaceutical Sciences: Drug Metabolism and Pharmacokinetics (DMPK)

*Specialized, personalized,
preclinical product
development for regulatory
submissions, out-licensing,
and investor relations*

RTI Health Solutions is a leader in metabolism and pharmacokinetic studies of pharmaceuticals and other xenobiotics in mammalian systems. With more than 30 years of experience conducting DMPK studies, RTI-HS's highly trained scientific staff offers innovative approaches to unique drug development issues. From protocol development through data interpretation, all studies are directed by senior DMPK scientists. Several of our scientists are adjunct faculty at local universities, including the University of North Carolina at Chapel Hill, Duke University, and North Carolina State University.

In Vivo Capabilities

RTI-HS uses Debra, LabLogic Systems' validated, industry-standard data collection system, ensuring accuracy, speed, and cost-efficiency in reporting GLP-compliant ADME studies. Our capabilities in whole-animal studies include the following:

- Canines, pigs, rabbits, rats, mice, and other rodents
- Dose routes—oral (gavage and dosed feed/water), intravenous (bolus and infusion [rodent]), dermal, and other routes of administration
- Radiolabeled studies (absorption, distribution, mass balance, excretion)
- Fast-turnaround discovery pharmacokinetic studies
- Pharmacokinetic modeling (classical and physiologically-based)

- Bioavailability
- Drug interactions (induction and inhibition)
- Metabolic profiling, metabolite identification
- Biomarkers of exposure (hemoglobin and DNA adducts)
- Specialized cannulations (vascular, biliary, and lymphatic)

In Vitro Capabilities

- CYP inhibition (competitive and mechanism-based)
- CYP induction (with optional cytotoxicity, mRNA expression, and western blots)
- CYP reaction phenotyping (HLM or rhCYPs)
- Intestinal permeability in Caco-2 cells (Pgp substrate and/or inhibitor)
- Metabolite profiling and identification in hepatocytes or microsomes
- Metabolic stability in hepatocytes or microsomes
- Protein binding (equilibrium dialysis)
- Cytotoxicity in hepatocytes (necrotic or apoptotic)

Contact

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Analytical Capabilities

- LC/MS/MS (API 3000, two API 4000s, and API 5000)
- Hybrid API 4000 triple quad with linear ion trap
- HPLC with UV, fluorescence, electrochemical, and radiometric detection
- Agilent 1100 and 1200 autosamplers
- UPLC
- GC/MS and GC with EC and FID detection
- Preparative HPLC
- 300- and 500-MHz nuclear magnetic resonance spectrometers

Additional Resources

- AAALAC-accredited animal research facility
- Quality Assurance Unit
- DEA Schedule 1 certificate
- Radiolabel synthesis

Working Closely with Our Clients

RTI-HS technical, research, and development services meet the highest standards of professionalism. We take pride in our scientific stature and our reputation for excellence and meeting the unique requirements of each project. We work closely with our clients to understand their needs and develop a detailed plan that defines the project scope. We have a history of completing projects on time and within budget.

RTI-HS extends its excellence in research and technical services to its business systems and processes. We make it easy for you to partner with us. Our processes and standard operating procedures are developed to protect our clients' intellectual property. We have the contractual, legal, and business structures to efficiently implement your projects, no matter their size.

Let RTI-HS Help You

To learn more about our capabilities, please visit us online at www.rtihs.org, or contact Paul Borron (pborron@rti.org). You can also send us an e-mail at rtihealthsolutions@rti.org, or call one of our international offices listed on the front.