LOVELACE BIOMEDICAL

Analytical & Bioanalytical Chemistry

Key Capabilities

formulation development • method development or transfer of analytical methods • GLP validation

Lovelace Biomedical has **extensive expertise in analytical chemistry**, with specialized laboratories and experienced analysts in chromatography, mass spectrometry and solid-state analysis. Whether working with a small molecule, protein, peptide, RNA, oligonucleotide, antibody or other agent, Lovelace has experience developing new assays or transferring existing methods. These methods can support pharmacokinetic, toxicokinetic and in vivo metabolism studies, and analyses can be conducted to evaluate parent molecules or metabolites in a full range of matrices, including blood, plasma, serum, urine, CSF, pleural fluid and tissue.

Instrumentation

- Gas chromatography
  - – Agilent 7890 and 6890, MS, FID, TCD and ECD detectors, liquid and head space autosampler
- Liquid chromatography
  - – Agilent 1100 / 1200; DAD, VWD, RID, FLD detectors
  - – UPLC Acquity PDA; FLD, ECD detectors
- Mass spectrometer systems
  - – API 5000 – Waters/Shimadzu UPLC
  - – API 4000 – Waters UPLC
- Molecular devices and biotek plate readers
- Spectrophotometers
- Solid state analysis
  - – TA Instruments TGA
  - – Thermo FTIR
- Tecan/Eppendorf liquid handlers
- TomTec Quadra extraction system
- Quantitative PCR

General Expertise

- Analytical/Bioanalytical Chemistry
- Animal model development, including small and large animal surgical models
- Carcinogenicity/GenTox
- Chronic infusion
- Cytokine/chemokine assays
- DMPK
- Drug delivery by IV, IM, IP, SC, PO, IT, IN, ocular, inhalation, local delivery and other specialized routes
- Histopathology, immunohistochemistry and histomorphometry
- IND-enabling toxicology
- IV, intrathecal, ICV catheterization (for delivery and collection)
- Mathematical modeling
- Pharmacology
- Serum and tissue-based biomarkers
- Telemetry (heart rate, blood pressure, respiratory rate, ECG, EEG, temperature, activity, etc.)

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Pharmacokinetics/ Toxicokinetics

Lovelace has broad capabilities in determining the in vivo pharmacokinetics/toxicokinetics and tissue distribution of **small and large molecules delivered by all exposure routes**. Lovelace is widely known for leadership in inhalation and other specialized routes of delivery, and excels in the development and implementation of novel delivery, tracer and analytical approaches to resolve dosimetric and metabolic questions. This expertise can be integrated with our broad capabilities in pharmacology and toxicology to understand relationships between exposure levels and physiologic effects. Studies in this area can be run in compliance with GLP standards in species ranging from rodents to nonhuman primates.

Key Capabilities

- Collection of blood, lymph, urine, bile, cerebrospinal fluid and other fluids and tissues
- Extrapolation of results in research animals to humans using physiologically-based PK
- Iterative mathematical modeling of pharmacokinetics and pharmacodynamics
- Radiolabeling of compounds and evaluation of ADME with analysis by gamma scintigraphy and radiochemical analysis

Dosing Routes

- Arterial (hepatic artery, carotid artery or femoral artery)
- Inhalation (nose-only, head-only or whole body)
- Intracerebral or intraventricular
- Intravenous infusion: Bolus, intermittent, continuous
- Ocular
- Oral or nasogastric
- Standard routes: IV, IM, IP, SC, PO

Accreditations and Licenses

- AAALAC
- CDC Select Agent Program registration
- OLAW
- State of New Mexico radiation license

Species

- Canine
- Ferret
- Gottingen, Yucatan or Yorkshire swine
- Guinea pig
- Hamster
- Mouse
- Non-human primate
- Rabbit
- Rat

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