LOVELACE BIOMEDICAL

# CHEMICAL AGENTS/HAZARDOUS CHEMICALS

Lovelace Biomedical Research Institute (LBRI), a 501(c)(3) corporation, performing animal model development and efficacy studies with hazardous chemicals for over 50 years, with the inclusion of chemical threat agents (including sarin, soman, Vx, sulfur mustard, phosgene, and chlorine). We have a Good Laboratory Practice (GLP 21 CFR 58) compliant facility with superior capabilities in animal model development and evaluation of medical countermeasures (MCMs) against chemical exposure. LBRI bas been a contract for a variety of government agencies conducting research as prime contractors or subcontractors in support of drug development. Our team includes a multidisciplinary group of toxicologists, physiologists, veterinarians, pathologists, statisticians, chemists and aerosol scientists with strong experience in MCM development.

## KEY CAPABILITIES

| Chemical Threat Agents (Type of Chemicals) and Symptoms/Organs | Model Animal Species/ Strain (i.e., rodents, Guinea pigs, minipigs, rabbits, ferrets, NHPs) | Model Route of Exposure (i.e., Inhalation Ingestion, Topical) | Chemical Assay Capabilities for the Agent |
|---|---|---|---|
| Nerve Agents (Sarin, Soman, Vx) | Guinea pigs, rats | Inhalation | GC/FID, GC/MS, bioanalytical |
| Vesicants (SM) | Guinea pigs, rats, NHPs, swine, rabbits | Inhalation, ocular, dermal | GC/FID, GC/MS, bioanalytical, radioanalytical |
| Pulmonary Agents (Chlorine, Phosgene, Sulfur Mustard) | Rats, mice, swine, NHP | Inhalation | GC/FID |
| Peripheral Nerve System (Sarin, Soman, Vx, SEB toxin, Microcystin, T2 toxin) | Mice, rats, Guinea pigs, NHPs | Inhalation, IM | GC/FID, GC/MS, radioanalytical |
| Pulmonary Fibrosis (SM, Ricin) | Rats, NHPs, mice | Inhalation, IP, Oral | GC/FID, GC/MS |
| Upper Repiratory Damage/Irritation (SM, Sarin, Chlorine) | Mice, rats, NHPs, swine | Inhalation | GC/FID, GC/MS |

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# CHEMICAL AGENT

## Our Capabilites

- Animal models of hazardous or toxic industrial chemicals including chemical agents
- Models of low-dose and high-dose exposure scenarios with short-term and long-term injuries
- Dermal, ingestion, inhalation, and systemic
- Broad range of animal species: rats, mice, guinea pigs, swine, and non-human primates
- Treatments include: orogastric, nasal/nasogastric, subcutaneous, inhalation, intravenous, intraperitoneal, intramuscular routes of administration
- Analytical capabilities for measuring drug administration and exposure
- Pharmacology, non-terminal and terminal, endpoints for model characterization and efficacy evaluation
- Histopathology and imaging capabilities

## General Program Support

- Chemical, Biological, Radiological, and Nuclear threat animal model and countermeasure testing
- Full range of pharmaceutical R&D activities
- Wide species range: rodents, rabbits, ferrets, dogs, nonhuman primates, swine, guinea pig, hamster
- Pharmacology
- Analytical chemistry
- Bioanalytical chemistry
- ADME
- Pharmacokinetics
- PMPK modeling
- GLP Safety Studies (acute, 3-8 day, 14-28 day, 60-90 day, 6 mon-2 yr chronic)

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