Your partner for clinical pathology, histopathology and immunohistochemistry
Citoxlab histology laboratories offer all routine procedures, along with special techniques such as immunohistochemical including immunofluorescence staining on paraffin, frozen or plastic blocks. State-of-the-art equipment including GLP-validated software (Provantis, Pathdata, ImageScope, Bone) are dedicated to histology operations. We also offer a complete range of clinical pathology investigations and specialized laboratory services to meet your development requirements.

Our team of certified and experienced pathologists, clinical pathologists and technical staff has a large expertise in evaluating the safety of pharmaceutical, veterinary pharmaceutical, biotechnological, medical device, chemical, agrochemical, food and consumer products, in rodents and non-rodents.

**Coagulation capabilities**
- In vitro and in vivo Platelet Aggregometry (CHRONO LOG 700tm, multiplate™)
- Thromboelastometry: rOTem®
- Hemostasis testing including cWA (clot Waveform Analysis)

**Hemoglobin capabilities**
- (Avoximeter 4000Tm)
  - Methemoglobin
  - Oxyhemoglobin
  - Carboxyhemoglobin
  - Total hemoglobin
  - Oxygen content

**Histopathology**
- Special staining
  - Ultramicrotome
  - Electron microscopy
  - Laser capture microdissection
  - Confocal microscopy
  - Immunofluorescence staining
  - Multiplexing

**Digital slide scanning**
(Aperio AT2 - Leica™)
- External sharing and remote collaboration
- Powerful image analysis on ImageScope™
- Consistent, high quality eSlide scanning

**Tissue cross reactivity**
- GLP or exploratory screening
- Standard list of 42 tissues (according to FDA & EMEA guidance) and blood smears for 3 unrelated donors
- Tissue banks available for: Human, Cynomolgus, Rhesus, Marmoset, Rat, Mouse, Minipig, Dog and Rabbit
- Experience with antibodies:
  - Classical Ab,
  - Fab fragment,
  - Biotinylated Ab,
  - IgG4 Ab,
  - Peg-fab,
  - Bispecific Ab,
  - Human single chain variable fragment (scFv), - Cytotoxic conjugated Ab (ADC),
  - Vaccine induced Abs

**Immuno-histochemistry**
- A wide range (> 150) of human and animal tissue biomarkers
- In situ hybridization (ISH) for mRNA, viruses and microRNA (PNA/scope) detection
- Tissue Cross Reactivity (TCR)
- Access to human samples
  - State of the art instruments
  - Discovery Ultra Ventana™
  - Discovery Ventana™ Automat
  - Discovery Ventana™

**Clinical pathology**
- Clinical chemistry
  - On serum or plasma
  - Supervised by veterinary clinical pathologists
- Hematology, clinical chemistry
- Coagulation, hemostasis
- Uriage

**Qualified and experienced staff**
- Board certified pathologists
- Expertise in carcinogenicity studies, toxicological and mechanistic studies
- Study evaluation, peer-review, consultancy

**Citoxlab histology laboratories**
Your partner for clinical pathology, histopathology and immunohistochemistry
TOXICOLOGY SERVICES
- General toxicology in all species
- Special toxicology
  - Inflammation, Inhalation, Dermal, Ocular
- Immunotoxicology
- Regenerative medicine
- Reproductive toxicology including minipigs and NHPs
- Carcinogenicity studies also in rhesus and p53+/−/− mice
- Genetic toxicology: ICH compliant package
- In vitro toxicology: BCRP, h-CAT, hARNT, PPARγ, CYP
- Agrochemical / chemical / REACH
- QSAR
- Physico-chemical testing
- Ecotoxicology: wide range of test species

SAFETY PHARMACOLOGY
- Integrated safety pharmacology in toxicology studies
  - CV (UET, BP)
  - Respiratory (UET), plethysmography
  - CNS (FOB) and JET-EEG
  - Safety pharmacology core battery
  - In vitro assays
- GLP compliant ion channel testing panel (hERG +h5)
- CNS ex vivo models for seizure liability screening
- Screening and follow-up models
  - Rodent and non-rodent UTP telemetry
  - Anesthetized models
- Polysomnography
- Gastrointestinal motility

DMPL, BIOANALYSIS, BIOMARKERS
- ICH and "4 ADME studies in all species
- In vitro toxicokinetic, metabolite ID and profiling, DDI package
- Bioanalysis: LC-MS/MS, GC-MS/MS, LC-MS/IS/MS, LC-Radiodetection, ELISA, RIA
- Toxigenomics, mRNA: Affymetrix® accredited service provider, next generation sequencing (Illumina®)
- Immunology: 10-color flow cytometer, LumineX, Meso Scale

MEDICAL DEVICE
- Biocompatibility testing
- Cardiovascular stents, electrophysiology

and structural heart studies
- Long bone defects and cranio-maxillo-facial/ dental models
- Spinal fusion models
- Joint and cartilage repair models
- Regenerative medicine (growth factors, biomaterials, cell and gene therapy)

SPECIALIZED EXPERTISE
- Juvenile studies including minipigs
- Ototoxicity in rats
- Fertility studies in rodents and NHPs
- Radiation safety and efficacy studies
- Drug transporter studies and Drug-Delivery Interactions
- Tissue Cross Reactivity (TCR): human and animal tissue banks
- Gene therapy vector biodistribution via qPCR
- ES cell testing: devTOX® and cardioTOX™ (with Stemina)
- Lead optimization and predictive toxicology services: Leadscreen™

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