



Ocular Discovery and Efficacy Services

Ocular expertise. Budget-conscious solutions. Commitment. Charles River's extensive experience in the development of ocular therapeutics, from early discovery to preclinical safety, provides an advantage for study design and management in a cost-effective manner. Our commitment to operational excellence and on-time reporting means studies are conducted to exacting standards and results are reported when you need them.

Efficacy Testing Services

Charles River has several validated disease models that can be used for non-GLP screening studies and more definitive proof-of-concept studies for which we can provide study designs.

Our scientists and technical staff have over 20 years of experience with a diverse range of therapeutics, including biologics, small molecules, gene therapy and cell therapy for ocular indications, and the ability to administer these agents via both common and novel ocular dose routes.

We have an extremely low incidence (<0.001%) of adverse complications due to intraocular dosing procedures. Board-certified veterinary ophthalmologists are readily accessible, and we maintain strong industry ties to leading experts in ophthalmology, neurophysiology and surgery.

Specialized Ocular Endpoints

We offer supplementary services for your ocular program, including optical coherence tomography (OCT), electroretinography (ERG), tonometry (IOP), digital fundus photography, pachymetry (corneal thickness measurement), specular microscopy, vitrectomy, quantitative autoradiography, drug metabolism techniques and enhanced microscopic evaluation.

Pharmacology/Efficacy Models

- Age-related macular degeneration (AMD)
 - Laser-induced choroidal neovascularization
- Corneal neovascularization
 - Suture model
 - Corneal micropocket
- Glaucoma: normotensive models
 - Normotensive eye, no manipulation
- Glaucoma: hypertensive models
 - Intravitreal hypertonic saline
 - Corticosteroid-induced
- Diabetic retinopathy
 - Streptozotocin (STZ)-induced diabetic retinopathy
- Neuroprotection
 - Blue light damage model
- Uveitis
 - Lipopolysaccharide (LPS)-induced anterior uveitis
- *In vitro* human corneal epithelium (HCE) eye irritation assay
 - SkinEthic HCE model

Administration Routes

- Topical instillation
- Intravitreal/subretinal injections
- Internal/external implants and transplants
- Intracameral injections
- Subconjunctival/subtenon injections



Ocular Tissue Distribution Studies

Quantitative whole-body autoradiography (QWBA) is a powerful tool used to assess target ocular tissue penetration of potential drug candidates. QWBA is suitable for use with all rodent species, as well as some nonrodent species (such as minipigs), and the technique can be used with a variety of radioisotopes. In addition to providing a quantitative measure of distribution, the high-resolution digital image obtained from a phosphorimager can be enlarged to provide greater depth and detail of distribution. Offered in collaboration with ImaBiotech, MALDI-MSI (matrix-assisted laser desorption/ionization mass spectrometry imaging) provides a label-free imaging alternative for the detection and localization of drugs and drug metabolites in the eye. Quantitative data can also be produced using proprietary software.

Ocular dissection is commonly used to isolate specific tissues of the eye for determination of drug levels or genomics and can be accomplished in rodents and nonrodents.

Safety Assessment Services

Allow your compound to flow seamlessly into GLP toxicology testing. For 20 years, Charles River has been conducting safety studies to support regulatory approval of ocular therapeutics as well as the evaluation of off-target ocular effects of compounds intended for other indications. Pathologists, ophthalmologists and toxicologists collaborate closely throughout the course of study; this multidisciplinary approach ensures accurate and timely interpretation of findings and contributes to a well-organized report that truly reflects the outcome of the study.

Laboratory Support

Laboratory scientists at Charles River utilize fully validated, networked data management systems at all laboratory locations for test article/item and sample management. We have made significant investments in highly trained chemists, facilities and instrumentation to increase our capabilities and capacity to produce rapid and reliable data.

- Formulation and analytical chemistry
- Bioanalysis HPLC
- LC/MS/MS
- ELISA
- Capillary gel electrophoresis
- Immunology