

Advance your anti-Zika drug development program with ImQuest Biosciences' IND-directed antiviral services. Our suite of *in vitro* assays includes anti-Zika virus screening assays as well as assays to evaluate promising drug candidates for their range of action, efficacy in drug combinations, potential for resistance selection, and phenotypic/genotypic characterization of resistant strains. For *in vivo* efficacy studies, we offer mouse and non-human primate Zika virus models.

Customized *In Vitro* Assay Development

Rapidly identify high potential anti-Zika drug candidates with our anti-Zika virus screening assay with parallel evaluations of efficacy and cellular toxicity. A variety of cell lines may be used in our assay including Vero, BHK21, LLCKMK2, and Huh7. Assays using primary PBMC and primary dermal fibroblasts are in development. The antiviral assay has been optimized for commonly used Zika virus strains such as MR766 (Uganda), PRVRABC59 (Puerto Rico), and IBH30635 (Nigeria). Optimization is currently in progress for additional strains, including virus isolates from Honduras, Panama and Mexico. We will customize and optimize the assay to meet your development needs.

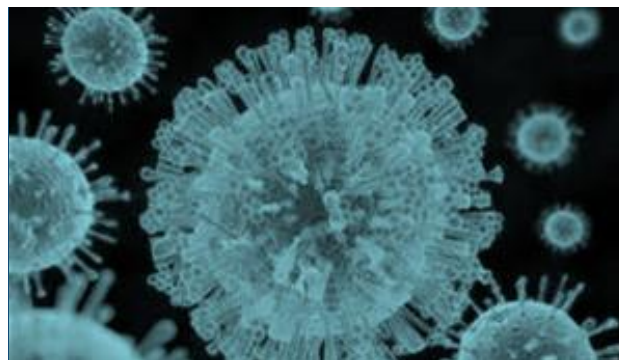
Other Emerging and Tropical Viruses

Screen your drug candidates for activity against other mosquito-borne viral infections such as Dengue, Chikungunya, West Nile and Yellow Fever with our optimized assays. The assays can readily be customized to fit your needs. ImQuest also provides *in vivo* models.

Vaccine Development Services

For your vaccine development program, take advantage of our virus stock production. The service includes virus propagation, concentration, and characterization. To assist with your development efforts, we will develop, qualify, and validate GLP-compliant immunoassays for detection and immunogenicity and run your samples. Our team can also perform customized neutralization assays.

Contact us for more information



The table below shows results of the anti-Zika efficacy and toxicity screening assay* using ribavirin as the test compound, three strains of Zika virus, and two cell lines.

Cell Line	Zika Strain MR766		
	EC ₅₀ (µM)	TC ₅₀ (µM)	Therapeutic Index
Vero	4.13	57.1	13.8
BHK21	2.32	48.2	20.8

Cell Line	Zika Strain PRVABC59		
	EC ₅₀ (µM)	TC ₅₀ (µM)	Therapeutic Index
Vero	4.72	41.9	8.88
BHK21	0.62	9	14.5

Cell Line	Zika Strain IBH30635		
	EC ₅₀ (µM)	TC ₅₀ (µM)	Therapeutic Index
Vero	2.76	30.4	11.00
BHK21	10.9	14.8	1.36

* Also available for Dengue, Chikungunya, Yellow Fever, and West Nile viruses.

About ImQuest BioSciences

ImQuest BioSciences is a preclinical contract research and development company that evaluates the potential of new and novel pharmaceutical products. We specialize in the development of drugs, vaccines and biologics for the treatment and prevention of infectious disease, cancer and inflammatory disease.

Using state-of-the-art and established *in vitro*, *ex vivo* and *in vivo* models, ImQuest BioSciences helps our clients rapidly identify antiviral agents with the potential to inhibit the replication of viruses.

Services

- Determination of efficacy and toxicity in established and fresh human cells
- Range of Action Assays, including:
 - Efficacy evaluation in a variety of phenotypically distinct human cell types
 - Efficacy evaluation against drug-resistant virus isolates
 - Efficacy evaluation in chronic and latent models of infection
 - Cell-to-cell virus transmission assays
 - Virucidal activity evaluation
 - Effect of serum and serum protein on antiviral activity
 - Effect of time-of-drug addition and viral multiplicity of infection
 - Efficacy against a range of infectious viruses
- Mechanism of action evaluations using cell-based, molecular/biochemical and enzymatic assays
- Combination therapy evaluation with other FDA-approved and experimental inhibitors
- Drug resistant virus selection and characterization analysis
- Pharmaceutical product characterization and formulation

Approach

Our work begins with drug discovery screening programs and follows a well-defined antiviral developmental pathway, guided by documents such as the FDA Points to Consider. We provide support from initial discovery to lead identification and IND-directed preclinical development.

Virus Panels

Human Immunodeficiency Viruses

- Hundreds of clinical and laboratory HIV-1 strains representative of Group M and O
- Drug-resistant and multi-drug resistant HIV-1 isolates
- Clinical and laboratory HIV-2 strains

Hepatitis and Flaviviruses

- Hepatitis C Virus
- Zika Virus
- Chikungunya Virus
- West Nile Virus
- Surrogate Hepatitis C Virus - Bovine Viral Diarrhea Virus (BVDV)
- Dengue Virus subtypes 1 through 4
- Yellow Fever Virus

Respiratory Viruses

- Influenza Virus (A & B)-Numerous wild-type and drug-resistant strains
- Human Parainfluenza Viruses
- Respiratory Syncytial Viruses
- Human Rhinoviruses
- Measles Virus
- Human Adenoviruses

Herpes Viruses

- Herpes Simplex Virus type 1 and 2
- Human Cytomegalovirus
- Varicella Zoster Virus

Enteric Viruses

- Enteroviruses
- Echoviruses
- Coxsackie Viruses
- Poliovirus