

In Vitro Antiviral Testing Service

Introduction

The team of professionals at Creative Diagnostics utilizes state-of-the-art technology and equipment to provide accurate and reliable antiviral services. We understand the importance of developing effective antiviral therapies and are committed to helping our clients advance their research efforts. Our antiviral services are designed to evaluate the inhibitory activity of candidate inhibitors and to elucidate the action mechanism of new antiviral drugs. We also offer a variety of tailor-made antiviral detection methods to meet the specific needs of our clients, as we have extensive experience in developing and optimizing new antiviral assays for a wide range of viruses. All antiviral studies can be performed in transformed cells or primary cells for cytotoxicity testing to ensure accurate and reliable results. We are dedicated to providing our clients with the highest quality antiviral services and will ensure that you receive the support you need to accelerate your research.

Service Projects

• **Cytopathic Effect (CPE) Inhibition Assay:**

The cytopathic effect (CPE) inhibition assay is a laboratory technique used to assess the antiviral activity of drugs or other compounds. In this assay, cells are infected with a virus and the compound being tested is added to the cells at various concentrations. The cells are then observed for any changes in morphology and the degree of viral growth is assessed by measuring the amount of CPE, which is a change in the appearance of cells that occurs as a result of viral infection. These changes can include cell rounding, detachment, and cell death. By measuring the amount of CPE produced, we can determine the effectiveness of a compound in preventing viral replication.

• **Cell-based ELISA:**

Cell-based ELISA measures the reduction of viral antigens in infected cells using anti-virus monoclonal antibodies. The abundance of viral proteins in infected cells treated with the test article compared to the untreated control is used as a measure of antiviral activity. The cell-based ELISA can measure the antiviral activity of a compound by comparing the amount of virus detected in the treated and untreated cells. The assay is highly sensitive and specific and can be used to test the antiviral activity of compounds against a wide range of viruses.

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♥ Hemagglutination Assay and Hemagglutination-Inhibition Test:

In the hemagglutination assay, a virus-containing sample is mixed with red blood cells, which causes the virus to agglutinate (clump) the red blood cells. The degree of agglutination is measured and used to determine the viral titer and the ability of the virus to infect red blood cells. The hemagglutination-inhibition test is used to detect the presence of neutralized antibodies against a virus in a sample.

♥ IC50/CC50/TCID50:

The CC50 / IC50 Assay is highly sensitive and accurate. CC50 and IC50 are plotted using sigmoidal dose-response curves, and the selectivity index (SI) of each compound was evaluated by dividing the CC50 with the IC50. TCID50 stands for Tissue Culture Infective Dose 50%. It is a measure of the concentration of a virus in a solution and represents the amount of virus required to cause infection in 50% of tissue cultures exposed to the virus. The TCID50 assay is commonly used in virology to quantify viral titers and determine the infectivity of a virus.

♥ Microneutralization Assay:

Micro-neutralization test is a highly sensitive and specific test for detecting virus-specific neutralizing antibodies in human and animal sera, suitable for high-density microplates and their corresponding titers. Virus neutralization provides the most accurate answer to whether an individual has antibodies that can neutralize the infectivity of a particular virus strain.

♥ Neuraminidase Assay:

The neuraminidase assay measures the activity of neuraminidase, an enzyme essential for the replication of influenza viruses. The assay is commonly used to assess the effectiveness of influenza vaccines by comparing the activity of neuraminidase in the vaccine to that of a standard reference. It can also be used to evaluate the efficacy of antiviral drugs by measuring the ability of the drug to inhibit neuraminidase activity in the virus.

♥ Plaque Testing and Plaque Reduction Assay:

In the plaque testing method, a sample containing the virus is diluted and added to a monolayer of cells. The cells are then incubated to allow the virus to infect the cells and form plaques, which are visible areas of cell death. The number of plaques is counted and the antiviral activity of compounds can be measured by comparing the number of plaques in the presence of the compound.

♥ qPCR Assay:

qPCR is widely applied in experimental study and clinical diagnosis. Creative Diagnostics provides qPCR services for virus detection and quantification, drug/therapy response, gene expression analysis, relative/absolute quantification, mutation analysis, and genotyping.

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• Single Radial Immunodiffusion (SRID) Testing:

Single radial immunodiffusion (SRID) is an agar gel precipitation test used in immunology to determine the quantity or concentration of an antigen in a sample, to estimate the immunoglobulin classes and IgG/IgM antibodies in serum, to measure the relative purity of an antigen preparation, and to perform serologic procedures.

• Viral Replicon Assay:

Isolation of viruses from cultured cells and subsequent use of immunofluorescence and molecular biology techniques for viral nucleic acid detection have been successfully used for virus identification. Among them, the common method of using molecular biology technology for virus nucleic acid detection is based on the analysis and identification of polymerase chain reaction (PCR) technology. In virus research, by amplifying and sequencing the the type of virus can be identified quickly and in a high-throughput manner.

• Virus Yield Reduction Assay:

The virus yield reduction assay is used to measure the effectiveness of antiviral drugs or other compounds in reducing the amount of virus produced by infected cells. Cells are infected with viruses and treated with different concentrations of the antiviral compound being tested. After incubation, the amount of virus produced by the infected cells is measured and compared to a control group not treated with the compound. Virus titers can be determined by plaque assay, TCID50, or quantitative real-time PCR.

Virus Available

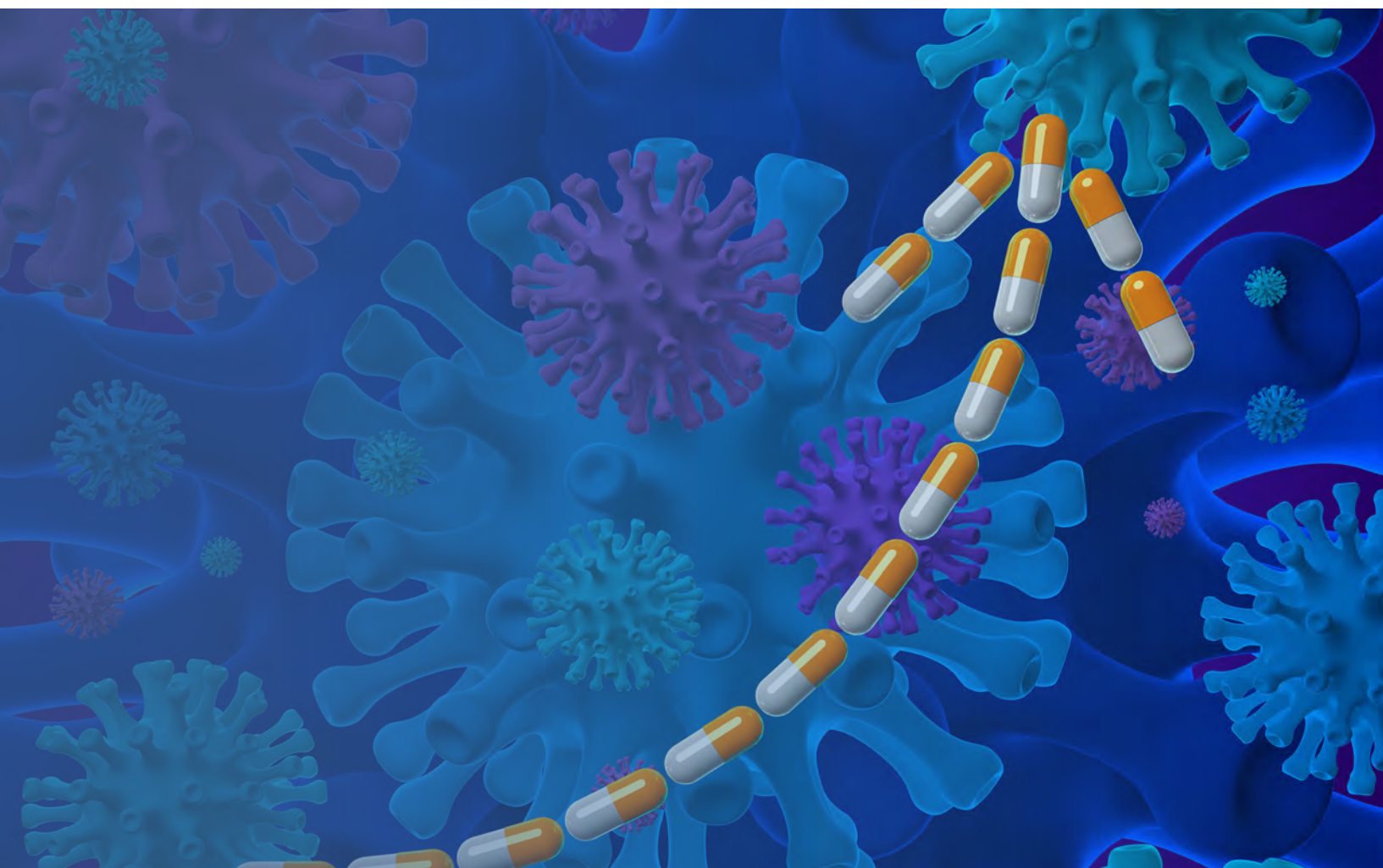
Virus	Type / Specific strain	Virus	Type / Specific strain
Hepatitis Virus	HBV	Coxsackie Virus	CV A16
	HCV		CV B16
Retroviruses	HIV		CV A6
Retroviruses	IAV		CV A10
	IBV		CV B3
Herpes Simplex Virus	HSV1	Enterovirus Virus	EV70
	HSV2		EV71
Human Cytomegalovirus	HCMV	Epstein-Barr Virus	EBV
Human Herpes Zoster Virus	HHV	Adenovirus	AdV

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Virus	Type / Specific strain	Virus	Type / Specific strain
Coronavirus	NL63	Parainfluenza Virus	PIV 1-4
	229E	Rhinovirus	HRV
	OC43		DENV-1
	SARS-CoV		DENV-2
	SARS-CoV-2		DENV-3
Vesicular Stomatitis Virus	VSV	Flavivirus	DENV-4
Respiratory Syncytial Virus	RSV A2 Strain		Japanese Encephalitis Virus
	RSV Long Strain		Zika Virus
	RSV B Strain		Yellow Fever Virus
Human Papillomavirus	HPV	Bovine Herpesvirus 1	BoHV-1
Ross River Virus	RRV	Bovine Parainfluenza Virus Type 3	BPIV3
Sindbis Virus	SINV	Bovine Respiratory Syncytial Virus	BRSV
Semliki Forest Virus	SFV	Duck Hepatitis B Virus	DHBV
Bovine Viral Diarrhea Virus	BVDV	Murine Leukemia Virus	MLV

CREATIVE DIAGNOSTICS

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