

Your reliable and trusted partner to help understand, track, and control infectious diseases

The global crisis caused by SARS-CoV-2 infections has brought researchers across the globe together to study the virus in an attempt to develop effective treatments, and to prepare and protect against potential future virus crises. Thermo Fisher Scientific has been at the forefront of supporting research, focusing on the molecular pathogenicity and epidemiology of SARS-CoV-2 infections with powerful genetic analysis tools and technologies. The portfolio of the solutions includes quantitative PCR (qPCR) using Applied Biosystems™ TaqMan® Assays; next-generation sequencing (NGS); Sanger sequencing and fragment analysis using

capillary electrophoresis; and microarray technology. These techniques have been key in the identification of host and virus targets for drug and vaccine development against SARS-CoV-2. Find out how our genetic analysis solutions can aid in your infectious disease research.

	Capillary electrophoresis: Sanger sequencing	Capillary electrophoresis: fragment analysis	qPCR: TaqMan Assays for gene expression	qPCR: TaqMan Assays for genotyping	NGS: targeted sequencing	Microarray: gene expression	Microarray: genotyping
Pathogen biology							
Detection of DNA- or RNA-based pathogen	X	X	X		X		
Sequencing of pathogen genome	X				X		
Identification of novel variants	X				X		
Confirmation of pathogen gene sequence	X						
Quantification of pathogen			X				
Host response							
Genomics of host susceptibility and severity					X		X
Host gene expression response			X		X	X	
T cell and B cell repertoire analysis			X		X		
Confirmation of host genotypes and gene expression	X		X	X	X		
Host genotype screening		X	X	X	X		
Vaccine/therapeutic discovery							
Pathogen—target discovery to find protein subunit for response	X		X		X		
Human—target discovery for treatment efficacy			X		X	X	
Verification of immune response			X		X	X	
Determination of gene expression response for compound screening			X		X	X	
Compound safety profiling			X		X		
Cell line authentication		X					
Patient stratification using pharmacogenomics				X	X		X
Host genome editing	X		X		X	X	
Vaccine/therapeutic production							
Cell line authentication		X					
Efficacy and quality control testing	X		X		X		
Genome editing confirmation	X		X		X	X	
Epidemiology							
Pathogen typing to identify novel variants	X	X			X	X	
Pathogen monitoring—detection and quantification		X	X		X		
Confirmation of pathogen gene sequence	X						
Genotyping of host susceptibility					X		X
Environmental monitoring (e.g., wastewater, companion animals)		X	X		X	X	

Find out more at thermofisher.com/infectious-disease-research-genetic-analysis