

Twist Respiratory Virus Controls

Synthetic viral controls covering a broad range of human respiratory viruses

Research into human respiratory viruses has become a focal point with the advent of the SARS-CoV-2 pandemic. Respiratory viruses such as influenza viruses, rhinoviruses and coronaviruses often overlap symptomatically. It is therefore critical to positively identify each pathogen present and distinguish between subtypes of infectious agents. It is also important to understand the source of the viral infection, and the subtleties of key variants that cause infectious diseases. The Twist Respiratory Virus Controls enable investigation into the biology of a broad range of viruses by NGS and NAATs such as RT-qPCR.

KEY HIGHLIGHTS

- Positive controls compatible for both Nucleic Acid Amplification Tests (such as RT-qPCR or Digital PCR) and NGS-based assays
- Can be useful in the development of assays to sub-type syndromic pathogens with similar symptoms
- Cover a broad range of respiratory viruses, with similar content captured by the Twist Respiratory Virus Panel
- Fully synthetic RNA & DNA generated from Twist gene fragments
- >99.9 base coverage of target viral genome regions, including most controls with complete genome coverage
- NGS sequence verified

Positive controls are essential for quality control of a wide range of applications, including environmental testing, assay development, and quantification standards using NGS and qPCR. Synthetic viral controls are a powerful alternative to “live virus”, which are often derived from an infected organism or from live virus propagated in culture. Synthetic controls created through synthetic gene synthesis broaden access across diverse strains while mitigating safety and security concerns.

The Twist Synthetic Respiratory Virus Controls are a broad range of important RNA and DNA viruses relevant to respiratory disease research. Table 1 lists the viruses that are available individually or as a comprehensive bundle. The controls are aligned with the content of the Twist Respiratory Virus Research Panel (PN 103067) and are suitable for use with Twist Fixed Panel NGS workflows or for use with NAAT experiments of your own design. Additional viral controls may be available for custom synthesis. Please contact your local sales representative for more details.

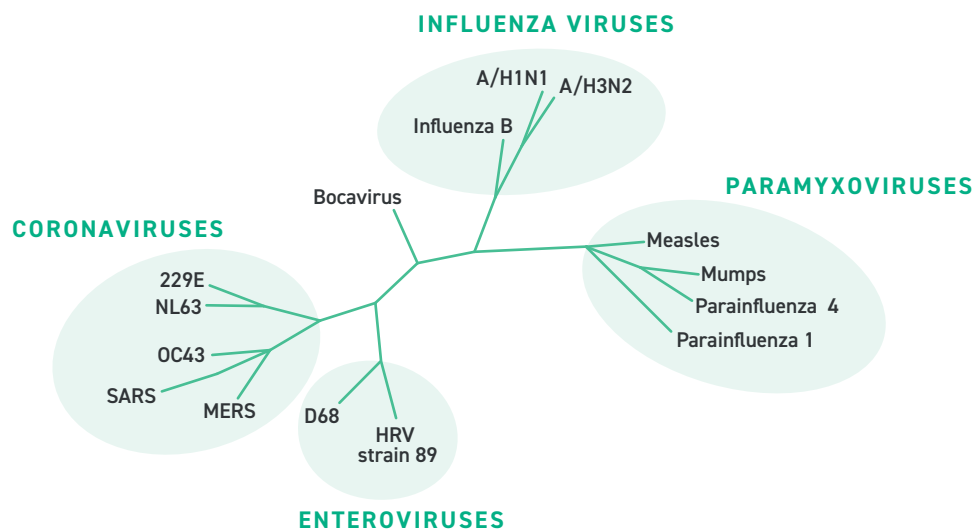


Figure Description: Taxonomic tree of selected viruses covered on the Twist Respiratory Virus Controls spanning the major respiratory viral clades.

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The viral controls are generated by Twist's powerful silicon-based DNA writing platform. Each RNA control is created by synthesis of single or multiple DNA fragments that are transcribed into ssRNA. The ssDNA viral control is then enzymatically derived from ssRNA. Each control provides >99.9 base coverage of target viral genome regions, including most controls with complete genome coverage and is supplied in a volume of 100 µL at a concentration of approximately one million copies per microliter.

PART NUMBER	NAME	ACCESSION	VIRUS TYPE	LENGTH (BASES)
109012	Twist Synthetic Influenza A (H5N1) RNA Control	OR051630.1, OR051629.1	ssRNA (- sense)	HA Segment: 1,695, NA Segment: 1,410
103001	Twist Synthetic Influenza H1N1 (2009) RNA control	NC_026431, NC_026432, NC_026433, NC_026434, NC_026435, NC_026436, NC_026437, NC_026438	ssRNA (- sense)	13158
103002	Twist Synthetic Influenza H3N2 RNA control	NC_007366, NC_007367, NC_007368, NC_007369, NC_007370, NC_007371, NC_007372, NC_007373	ssRNA (- sense)	13627
103003	Twist Synthetic Influenza B RNA control	NC_002204, NC_002205, NC_002206, NC_002207, NC_002208, NC_002209, NC_002210, NC_002211	ssRNA (- sense)	14452
103004	Twist Synthetic Human bocavirus 1 DNA control	MG953830.1	ssDNA	5164
103005	Twist Synthetic Human enterovirus 68 RNA control	NC_038308.1	ssRNA (+ sense)	7367
103006	Twist Synthetic Human rhinovirus 89 RNA control	NC_001617.1	ssRNA (+ sense)	7152
103007	Twist Synthetic Mumps virus RNA control	NC_002200.1	ssRNA (- sense)	15384
103008	Twist Synthetic Human parainfluenza virus 1 RNA control	NC_003461.1	ssRNA (- sense)	15600
103009	Twist Synthetic Measles virus RNA control	NC_001498.1	ssRNA (- sense)	15894
103010	Twist Synthetic Human parainfluenza virus 4 RNA control	NC_021928.1	ssRNA (- sense)	17052
103011	Twist Synthetic Human coronavirus 229E RNA control	NC_002645.1	ssRNA (+ sense)	27317
103012	Twist Synthetic Human coronavirus NL63 RNA control	NC_005831.2	ssRNA (+ sense)	27553
103013	Twist Synthetic Human coronavirus OC43 RNA control	NC_006213.1	ssRNA (+ sense)	30741
103730	Twist Respiratory Virus Controls (13 Count)	N/A	N/A	N/A

Table Description: Virus name GenBank IDs, virus type, and length for each virus included in the Twist Respiratory Virus Controls.

Twist Respiratory Virus Controls is a component of the Twist Infectious Disease portfolio of products.

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DOC-001197 REV 2.0

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