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Technical Data Sheet:

Quantitative Synthetic Influenza B Virus (Victoria Lineage) RNA

ATCC® Number	VR-3385SD™
Product Description	Quantitative Synthetic Influenza B Virus RNA is a synthetically derived preparation that can be used for assay development, verification, and validation as well as monitoring of day-to-day test variation and lot-to-lot performance of molecular-based assays. The quantitative format allows for the generation of a standard curve for quantitative PCR (qPCR) to determine viral load.
Genetic Target	The synthetic RNA preparation includes two constructs. One construct includes the full genes for the HA and NP regions. The other construct includes the full genes for the NA, M1/M2, and NEP/NS1 regions. This product is based on the B/Brisbane/60/2008 (Victoria lineage) influenza virus sequence with few modifications to accommodate manufacturing and product compatibility with diagnostically relevant assays.

Publication	Assay Target	Oligo	Sequence (5' to 3')	Number of mismatches with ATCC® VR-3385SD™ based on *in silico* analysis
World Health Organization. WHO information for the molecular detection of influenza viruses. Publish date: February 2021.	HA	Forward	AAATACGGTGGATTAAACAAAAGCAA	0
		Reverse	CCAGCAATAGCTCCGAAGAAA	0
		Probe	CACCCATATTGGGCAATTTCCTATGGC	0
World Health Organization. WHO information for the molecular detection of influenza viruses. Publish date: February 2021.	HA	Forward	ACATACCCTCGGCAAGAGTTTC	1
		Reverse	TGCTGTTTTGTTGTTGTCGTTTT	0

World Health Organization. WHO information for the molecular detection of influenza viruses. Publish date: February 2021.	HA	Forward	CCTGTTACATCTGGGTGCTTTCCTATAATG	0
		Reverse	GTTGATARCCTGATATGTTCGTATCCTCKG	0
		Probe	TTAGACAGCTGCCTAACC	0
World Health Organization. WHO information for the molecular detection of influenza viruses. Publish date: February 2021.	HA	Forward	ACCCTACARAMTTGGAACYTCAGG	0
		Reverse	ACAGCCCAAGCCATTGTTG	0
		Probe	ATCCGTTTCCATTGGTAA	0
Leong NKC, et al. A six-plex droplet digital RT-PCR assay for seasonal influenza virus typing, subtyping, and lineage determination. Influenza Other Respir Viruses 14(6): 720-729, 2020. PubMed: 32519796	HA	Forward	AGGRGAAGACCAAATTACYGTTTG	0
		Reverse	CRTTRGCAGATGAGGTGAACTT	0
		Probe	YARCGAGRYCCAAATGGHAARSCTCTATG	0
Tewawong N, et al. Lineage-specific detection of influenza B virus using real-time polymerase chain reaction with melting curve analysis. Arch Virol 161(6): 1425-1435, 2016. PubMed: 26923928	HA	Forward	TCTTCGCAACAATGGCTTGGGC	0
		Reverse	CTTCTTCTTCTGYACAAATGTATGG	1
Tewawong N, et al. Lineage-specific detection of influenza B virus using real-time polymerase chain reaction with melting curve analysis. Arch Virol 161(6): 1425-1435, 2016. PubMed: 26923928	HA	Forward	TCTTCGCAACAATGGCTTGGGC	0
		Reverse	CTTCTTCTTCTGYACAAATGTATGG	1
Van Elden LJ, et al. Simultaneous detection of influenza viruses A and B using real-time quantitative PCR. J Clin Microbiol 39(1): 196-200, 2001. PubMed: 11136770	HA	Forward	AAATACGGTGGATTAAATAAAAGCAA	1
		Reverse	CCAGCAATAGCTCCGAAGAAA	0
		Probe	CACCCATATTGGGCAATTTCCTATGGC	0
Lee HK, et al. A universal influenza A and B duplex real-time RT-PCR assay. J Med Virol 84(10): 1646-1651, 2012. PubMed: 22930514	NP	Forward	CCAGGGATTGCAGACATTGA	0
		Reverse	ACAGGTGTTGCCATATTGTAAAGAG	0
		Probe	TTGTTAGGCCCTCTGTGGCRAGCA	0
Yang Y, et al. Simultaneous typing and HA/NA subtyping of influenza A and B viruses including the pandemic influenza A/H1N1 2009 by multiplex real-time RT-PCR. J Virol Methods 167(1): 37-44, 2010. PubMed: 20304017	NP	Forward	AAGACCTRAGAGTTTTGTCTGCAYT	0
		Reverse	ATCAGAGCTGCYCCCATTC	0
		Probe	TGCAAGGGTTTCCAYGTTCCAGCA	0
Leong NKC, et al. A six-plex droplet digital RT-PCR assay for seasonal influenza virus typing, subtyping, and lineage determination. Influenza Other Respir Viruses 14(6): 720-729, 2020. PubMed: 32519796	M	Forward	GAGACACAATTGCCTACYTGCTT	0
		Reverse	CAAATTCTTTCCCACCRAACCAAC	0
		Probe	AGAAGATGGAGAAGGCAAAGCAGAACTAGC	0

Suwannakarn K, et al. Typing (A/B) and subtyping (H1/H3/H5) of influenza A viruses by multiplex real-time RT-PCR assays. J Virol Methods 152(1-2): 25-31, 2008. PubMed: 18598722	M	Forward	CTCTGTGCTTTRTGCGARAAAC	0
		Reverse	CCTTCYCCATTCTTTTGACTTGC	0
		Probe	TCAG+CA+AT+G+AA+CACAGCAA	0
Ward CL, et al. Design and performance testing of quantitative real time PCR assays for influenza A and B viral load measurement. J Clin Virol 29(3): 179-188, 2004. PubMed: 14962787	M	Forward	GAGACACAATTGCCTACCTGCTT	0
		Reverse	TTCTTTCCCACCGAACCAAC	1
		Probe	AGAAGATGGAGAAGGCAAAGCAGAACTAGC	0
World Health Organization. WHO information for the molecular detection of influenza viruses. Publish date: February 2021.	NA	Forward	GCACTCCTAATTAGCCCTCATAGA	0
		Reverse	TAAGGACAATTGTTCAAAC	0
Centers for Disease Control and Prevention (U.S.); National Center for Immunization and Respiratory Diseases (U.S.). Influenza Division. Virology Surveillance and Diagnosis Branch. Genomics and Diagnostics Team. Research Use Only CDC Influenza SARS-CoV-2 (Flu SC2) Multiplex Assay Real-Time RT-PCR Primers and Probes. Publish date: July 14, 2020.	NS1	Forward	TCCTCAAYTCACTCTTCGAGCG	0
		Reverse	CGGTGCTCTTGACCAAATTGG	0
		Probe	CCAATTCGAGCAGCTGAAACTGCGGTG	0
World Health Organization. WHO information for the molecular detection of influenza viruses. Publish date: February 2021.	NS1	Forward	GGAGCAACCAATGCCAC	0
		Reverse	GTKTAGGCGGTCTTGACCAG	0
		Probe	ATAAACTTYGAAGCAGGAAT	0
Selvaraju SB, Selvarangan R. Evaluation of three influenza A and B real-time reverse transcription-PCR assays and a new 2009 H1N1 assay for detection of influenza viruses. J Clin Microbiol 48(11): 3870-3875, 2010. PubMed: 20844230	NS1	Forward	TCCTCAACTCACTCTTCGAGCG	0
		Reverse	CGGTGCTCTTGACCAAATTGG	0
		Probe	CCAATTCGAGCAGCTGAAACTGCGGTG	0