



TECHNICAL NOTE FOR SARS CoV2 OMICRON Primers and Probes

The primer and probe sequences designed by Bionivid specifically target a 6bp deletion in S gene (del 69-70) and a 9bp deletion in N gene (del 31-33). These deletions have been observed in most (> 98%) of the 700 Omicron sequences (Source: GISAID) analyzed at Bionivid.

FORWARD - REVERSE PRIMERS AND PROBE FOR S-GENE

The primers target upstream region of the Omicron specific S gene deletion common to all variants of SARS-CoV2 (including Omicron). However, the probe is designed to specifically detect Omicron variant (B1.1.529).

Target Genome	Target Gene	Primer Name	Forward Primer (5'-3')	Reverse Primer (3'-5')	Size (bp)
SARS-CoV2 (B1.1.529)	S	SARS-CoV2-S-BIONIVID	CAGATCCTCAGTTTTACATTCAACTC (Tm~55)	TGGTAGGACAGGGTTATCAAACC (Tm~58)	127
SARS-CoV2 (B1.1.529)	S	SARS-CoV2-S-Probe-BIONIVID	5'-FAM-GGTTCCATGTTATCTCTGGGACCA-BHQ1-3' (Tm~61)		
Amplicon	5'cagatcctcagttttacattcaactcaggactgttcttacccttcttccaatgttacttgggtccatgctatacatgtctctctgggaccaatggtactaagagtttgataacctgtcctacca 3'				

FORWARD - REVERSE PRIMERS AND PROBE FOR N-GENE

The primers target upstream region of the Omicron specific N gene deletion common to all variants of SARS-CoV2 (including Omicron). However, the probe is designed to specifically detect Omicron variant (B1.1.529).

Target Genome	Target Gene	Primer Name	Forward Primer (5'-3')	Reverse Primer (3'-5')	Size (bp)
SARS-CoV2 (B1.1.529)	N	SARS-CoV2-N-BIONIVID	TTTGGTGGACCCTCAGATTC (Tm~57)	GAACCAAGACGCAGTATTATTGG (Tm~56)	111
SARS-CoV2 (B1.1.529)	N	SARS-CoV2-N-Probe-BIONIVID	5'-FAM-TAACCAGAATGGTGGGCGCGAT-BHQ1-3' (Tm~66)		
Amplicon	5'tttgggtggaccctcagattcaactggcagtaaccagaatggagaacgcagtgggcgcgatcaaaacaacgtcgccccaaggtttaccaataatactgcgtcttggttc 3'				

Note: Probes can be labeled at the 5'-end with the reporter molecule 6-carboxyfluorescein (FAM) and with the quencher, Black Hole Quencher 1 (BHQ-1) or any other quencher at the 3'-end.

in silico VALIDATION:

in silico primer tests were performed on two websites, idtdna.com and genome.ucsc.edu using ~2000 Omicron sequences deposited in GISAID (<https://www.gisaid.org/>).

On idtdna.com (<https://sg.idtdna.com/pages/tools/oligoanalyzer>), the secondary structure of the primers and amplicon, the self- and hetero- dimerization tendencies of each primer set were predicted.

in silico PCR was performed on the genome.ucsc.edu site (<https://genome.ucsc.edu/cgi-bin/hgPcr>).

DISCLAIMER:

The sequences are intended to be used for the purposes of respiratory virus surveillance and research. The recipient agrees to use them in compliance with applicable laws and regulations. The sequences are *in silico* validated and subject to wet lab validation. Every effort has been made to assure *in silico* based accuracy of the sequences but Bionivid cannot provide any warranty regarding their accuracy.

Note: Oligonucleotide sequences are continually monitored to ensure performance and may be subject to future changes as the SARS CoV2 virus evolves.

FOR ANY QUERIES REACH US AT:

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