BV-BRC Test Report

A12. Service – Primer Design

Item to test	Primer Design Service using bacterial and viral genes
URL	https://www.bv-brc.org/app/PrimerDesign
Prerequisites	Bacterial Fasta contig files in Workspace
References	https://www.bv-brc.org/docs/quick_references/services/primer_design_service.html https://www.bv-brc.org/docs/tutorial/primer_design/primer_design.html
Tester(s)	Rebecca Wattam, Maulik Shukla
Test date	08-May-2022 (follow-up from original test)
Test result	**Passed**

Overview

- Test the Primer Design Service using exemplar bacterial and viral genes.
- Test input options, i.e., using FASTA sequence as query or a FASTA sequence file from the workspace.
- For each job submitted, verify successful completion of the job, presence of output files, and quality of the results.

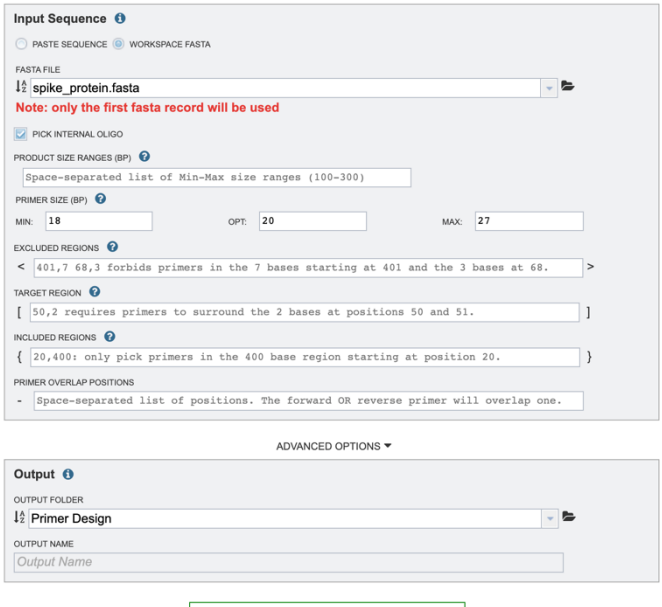
Test Data

Dataset	Rational	Input Format	Input
SARSCoV2 Spike protein	Viral gene of interest	FASTA sequence	sarscov2_spike_protein_na.fasta
MTB ahpD gene	Bacterial gene of interest	FASTA sequence	mtb_ahpd_protein_na.fasta

- All test datasets and corresponding job results are available in the following public workspace: https://www.bv-brc.org/workspace/BVBRC@patricbrc.org/BVBRC%20Tests/Primer%20Design

Test Results

- All jobs completed successfully, without any errors.
- All jobs resulted in expected output files in corresponding job output directory, providing primer report in HTML format.
- The primer report was informative and provided a concise summary of the primers and their sequences.
- All test datasets and corresponding job results are available in the following public workspace: https://www.bv-brc.org/workspace/BVBRC@patricbrc.org/BVBRC%20Tests/Primer%20Design
- Below are a series of screenshots showing successful completion of the jobs, availability of the result files in the workspace, and the primer report.



Status	ID	Service	Output Name	Submit	Start	Completed
completed	7747572	PrimerDesign	mtb aphd protein primers	5/8/22, 10:01 AM	5/8/22, 10:01 AM	5/8/22, 10:01 AM
completed	7747571	PrimerDesign	sarscov2 spike protein primers	5/8/22, 10:01 AM	5/8/22, 10:01 AM	5/8/22, 10:01 AM

BVBRC / BVBRC Tests / Primer Design (1 item)

UPLOAD ADD FOLDER SHOW HIDDEN

Name	Size	Owner	Members	Created
Parent folder			-	
mtb aphd protein primers	8.3 kB	me	Public	5/8/22, 10:01 AM
mtb_ahpd_protein_na.fasta	690 B	me	Public	5/8/22, 10:00 AM
sarscov2 spike protein primers	8.4 kB	me	Public	5/8/22, 10:01 AM
sarscov2_spike_protein_na.fasta	4.0 kB	me	Public	5/8/22, 10:00 AM

Name	Size	Owner	Members	Created
Parent folder			-	
sarscov2 spike protein primers_Primer3_input.txt	4.2 kB	me	Public	5/8/22, 10:01 AM
sarscov2 spike protein primers_Primer3_output.txt	9.2 kB	me	Public	5/8/22, 10:01 AM
sarscov2 spike protein primers_primers.fasta	606 B	me	Public	5/8/22, 10:01 AM
sarscov2 spike protein primers_table.html	6.5 kB	me	Public	5/8/22, 10:01 AM

Sequence ID: fig|83332.12.peg.2721|Rv2429|VBIMycTub87468_2721|
Sequence length: 534
Note: sequence positions and pair indexes are 1-based here, but 0-based in Primer3 output.

Pair#	Region	Sequence (5′→3′)	Start	End	Len	T_m	GC%	Any Compl.	End Compl.
1	Forward primer	aacctgagctcaatcacccg	58	77	20	60.04	55	18.85	3.79
	Reverse primer	tcagcgccaatgtcagctaa	173	154	20	60.04	50	2.29	0.00
	Internal oligo	gcagcgtgctcgaccaggaa	80	99	20	59.70	65	10.15	0.00
	Product/Primer pair		58	173	116			0.00	0.00
2	Forward primer	aacctgagctcaatcacccg	58	77	20	60.04	55	18.85	3.79
	Reverse primer	ttcagcgccaatgtcagcta	174	155	20	60.04	50	2.29	0.00
	Internal oligo	gcagcgtgctcgaccaggaa	80	99	20	59.70	65	10.15	0.00
	Product/Primer pair		58	174	117			0.00	0.00
3	Forward primer	aacctgagctcaatcacccg	58	77	20	60.04	55	18.85	3.79
	Reverse primer	ggccacggtagaacacgtta	262	243	20	60.04	55	0.00	0.00
	Internal oligo	gcagcgtgctcgaccaggaa	80	99	20	59.70	65	10.15	0.00
	Product/Primer pair		58	262	205			0.00	0.00
4	Forward primer	tagctgacattggcgctgaa	155	174	20	60.04	50	15.94	0.20
	Reverse primer	ggccacggtagaacacgtta	262	243	20	60.04	55	0.00	0.00
	Internal oligo	gagccgcggccatcatggg	218	236	19	60.54	73	40.62	3.56
	Product/Primer pair		155	262	108			0.00	0.00
5	Forward primer	ttagctgacattggcgctga	154	173	20	60.04	50	15.94	7.63
	Reverse primer	ggccacggtagaacacgtta	262	243	20	60.04	55	0.00	0.00
	Internal oligo	gagccgcggccatcatggg	218	236	19	60.54	73	40.62	3.56
	Product/Primer pair		154	262	109			0.00	0.00

Sequence ID: fig|2697049.107626.CDS.3|GU280_gp02|
Sequence length: 3822
Note: sequence positions and pair indexes are 1-based here, but 0-based in Primer3 output.

Pair#	Region	Sequence (5′→3′)	Start	End	Len	T_m	GC%	Any Compl.	End Compl.
1	Forward primer	tgcagatgctggcttcatca	2484	2503	20	60.03	50	17.30	5.36
	Reverse primer	tgtacccgctaacagtgcag	2643	2624	20	60.04	55	0.00	0.00
	Internal oligo	acggccttactgttttgccacct	2567	2589	23	59.00	52	0.00	0.00
	Product/Primer pair		2484	2643	160			0.00	0.00
2	Forward primer	tttcaaacacgtgcaggctg	1927	1946	20	59.90	50	17.22	10.94
	Reverse primer	ctagctacactacgtgcccg	2066	2047	20	59.97	60	0.00	0.00
	Internal oligo	tgtgacatacccattggtgcaggt	1984	2007	24	58.31	50	0.00	0.00
	Product/Primer pair		1927	2066	140			6.99	2.17
3	Forward primer	tttcaaacacgtgcaggctg	1927	1946	20	59.90	50	17.22	10.94
	Reverse primer	cccgccgaggagaattagtc	2050	2031	20	59.97	60	0.00	0.00
	Internal oligo	tgtgacatacccattggtgcaggt	1984	2007	24	58.31	50	0.00	0.00
	Product/Primer pair		1927	2050	124			0.00	0.00
4	Forward primer	tgcagatgctggcttcatca	2484	2503	20	60.03	50	17.30	5.36
	Reverse primer	tctgtgagcaaaggtggcaa	2600	2581	20	60.11	50	0.00	0.00
	Internal oligo	tgctgctagagacctcatttgtgca	2532	2556	25	58.47	48	0.00	0.00
	Product/Primer pair		2484	2600	117			0.00	0.00
5	Forward primer	tgcagatgctggcttcatca	2484	2503	20	60.03	50	17.30	5.36
	Reverse primer	atctgtgagcaaaggtggca	2601	2582	20	59.89	50	0.00	0.00
	Internal oligo	tgctgctagagacctcatttgtgca	2532	2556	25	58.47	48	0.00	0.00
	Product/Primer pair		2484	2601	118			0.00	0.00

References

- Primer Design Service Quick Reference Guide
- Primer Design Service Tutorial