

PRIMER PICKING RESULTS FOR *Puccinia_recondita*_beta-tubulin _consensus_group_5

OLIGO	<u>start</u>	<u>len</u>	<u>tm</u>	<u>gc%</u>	<u>any th</u>	<u>3' th</u>	<u>hairpin</u>	<u>seq</u>
LEFT PRIMER	344	21	58.93	52.38	4.00	0.00	0.00	ctgtacgagctggtccttttg
RIGHT PRIMER	508	20	59.10	55.00	0.00	0.00	0.00	gacagtcacatccctctgct
INTERNAL OLIGO	396	20	60.67	55.00	0.00	0.00	32.08	cggacaatctggagcaggaa
SEQUENCE SIZE: 514								
INCLUDED REGION SIZE: 514								

PRODUCT SIZE: 165, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00

1 aaaccaaatacggtagccgcgttctgttcgtaNaatctaaagcttctgNctcaNctcgctca

61 caccactttacagggcaaacaatttctggtgaacatggactNgatggttcaggagtgt

121 agttccctcgcaNaacgaggtatccgcaNccatcaacaaattataatgactctattagct

181 aNaatggtacatcagatttacaacttgagaggatgaacgtatacttttaaNgagggtctgat

241 gaatctctcaaaggagacgttatagctaaccctctNaaggcttctggcaacaanTtatgtt

301 cctcgtgctgtttctcgTNgaNttagagccaggataccatggatgctgtacgagctggtcct
>>>>>>>>>>>>>>>>

361 tttggccagctattcagaccagacaactttgttttcggacaatctggagcaggaaataat
 >>>> ~~~~~

421 tgggcaaaagggtcactatactgagggagcggagcttgtcgaccaagtactagatgtgggtg

481 cgaagagaagcagagggatgtgactgtcttcagg
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KEYS (in order of precedence):
>>>>> left primer
<<<<< right primer
^^^^^ internal oligo
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ADDITIONAL OLIGOS

	<u>start</u>	<u>len</u>	<u>tm</u>	<u>gc%</u>	<u>any_th</u>	<u>3'_th</u>	<u>hairpin</u>	<u>seq</u>
1 LEFT PRIMER	296	20	57.91	50.00	0.00	0.00	0.00	atgttcctcgtgctgttctc
RIGHT PRIMER	491	20	59.28	55.00	0.00	0.00	0.00	gcttctcttcgcaccacatc
INTERNAL OLIGO	362	20	59.95	50.00	5.67	0.00	0.00	ttggccagctattcagacca
PRODUCT SIZE: 196, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								
2 LEFT PRIMER	332	21	58.26	52.38	21.47	0.00	0.00	gtaccatggatgctgtacgag
RIGHT PRIMER	499	20	59.54	55.00	0.00	0.00	0.00	atccctctgcttctcttcgc
INTERNAL OLIGO	362	20	59.95	50.00	5.67	0.00	0.00	ttggccagctattcagacca
PRODUCT SIZE: 168, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								
3 LEFT PRIMER	55	20	58.85	55.00	0.00	0.00	0.00	cgctcacacccactttacag
RIGHT PRIMER	220	21	57.25	42.86	2.11	0.00	0.00	acgttcatacctctcaagttgt
INTERNAL OLIGO	112	20	60.03	55.00	0.00	0.00	34.41	aggagtgttaagttccctcgc
PRODUCT SIZE: 166, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								
4 LEFT PRIMER	200	21	57.25	42.86	0.00	0.00	0.00	acaacttgagaggatgaacgt
RIGHT PRIMER	373	20	59.30	50.00	7.01	0.00	0.00	atagctggccaaaaggacca
INTERNAL OLIGO	324	20	59.80	55.00	26.45	11.61	41.14	agagccaggtaccatggatg
PRODUCT SIZE: 174, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								

Statistics

	con	too	in	in	not		no	tm	tm	high	high	high		high	
	sid	many	tar	excl	ok	bad	GC	too	too	any_th	3'_th	hair-	poly	end	
	ered	Ns	get	reg	reg	GC%	clamp	low	high	compl	compl	pin	X	stab	ok
Left	1140	219	0	0	0	82	0	470	133	0	0	102	0	0	134
Right	1580	125	0	0	0	82	0	760	156	0	0	18	0	0	439
Intl	3020	244	0	0	0	15	0	884	821	0	0	48	0	0	1008

Pair Stats:

considered 33512, unacceptable product size 33505, primer in pair overlaps a primer in a better pair 19709, ok 7
libprimer3 release 2.4.0

(primer3_results.cgi release 4.1.0)