

PRIMER PICKING RESULTS FOR *Puccinia_recondita*_beta-tubulin _consensus_group_0

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>seg</u>
LEFT PRIMER	255	20	58.56	50.00	0.00	0.00	0.00	tgagccatacaacgcaactc
RIGHT PRIMER	420	20	59.03	50.00	0.00	0.00	0.00	acctgacattacggcagaca
INTERNAL OLIGO	297	20	59.96	50.00	0.00	0.00	42.13	aaactccgacgagacgttct
SEQUENCE SIZE: 449								
INCLUDED REGION SIZE: 449								

PRODUCT SIZE: 166, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00

1 ggagcaggaaataattgggcaaaagggtcactatactgagggagcggagcttgtcgaccaa

61 gtactagatgtggtgcgaagagaagcagagggatgtgactgtcttcagggattccaaata

121 acacattctcttgggggtggtacaggtgccggtatgggtacattattaatttcaaaaatc

181 cgggaagaNtttcctgatcgaatgatggcaaccttctcggttgtgccatccccNaaggtt

[illegible]

301 tccgacgagacgttctgtatcgacaatgaggctctNtacgatatctgtatgaggacgtta
 ^^^^^^^^^^^^^^^^^^

[illegible]

421 gtaactacctgtcttcgattccctgggtca

ADDITIONAL OLIGOS

start len tm gc% any th 3' th hairpin seg

1	LEFT PRIMER	75	20	59.54	55.00	0.00	0.00	0.00	gcgaagagaagcagagggat
	RIGHT PRIMER	274	20	58.56	50.00	0.00	0.00	0.00	gagttgcgttgatatggctca
	INTERNAL OLIGO	126	20	59.58	55.00	0.00	0.00	42.52	ttctcttgggggtggtacag
	PRODUCT SIZE: 200, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								
2	LEFT PRIMER	257	21	58.50	42.86	0.00	0.00	0.00	agccatacaacgcaactcttt
	RIGHT PRIMER	417	20	59.32	50.00	0.00	0.00	0.00	tgacattacggcagacacca
	INTERNAL OLIGO	297	20	59.96	50.00	0.00	0.00	42.13	aaactccgacgagacgttct
	PRODUCT SIZE: 161, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								
3	LEFT PRIMER	1	21	58.61	47.62	0.00	0.00	0.00	ggagcaggaaataattgggca
	RIGHT PRIMER	164	20	59.82	55.00	0.00	0.00	0.00	aatgtacccataccggcacc
	INTERNAL OLIGO	85	20	60.03	55.00	9.94	0.00	33.99	gcagagggatgtgactgtct
	PRODUCT SIZE: 164, PAIR ANY_TH COMPL: 0.86, PAIR 3'_TH COMPL: 0.37								
4	LEFT PRIMER	28	20	58.02	55.00	0.00	0.00	0.00	cactatactgagggagcgga
	RIGHT PRIMER	213	21	59.39	52.38	0.00	0.00	0.00	ggttgccatcattcgatcagg
	INTERNAL OLIGO	85	20	60.03	55.00	9.94	0.00	33.99	gcagagggatgtgactgtct
	PRODUCT SIZE: 186, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								
5	LEFT PRIMER	81	20	58.05	50.00	0.00	0.00	0.00	agaagcagagggatgtgact
	RIGHT PRIMER	278	21	58.15	47.62	0.00	0.00	0.00	gaaagagttgcgttgatatggc
	INTERNAL OLIGO	126	20	59.58	55.00	0.00	0.00	42.52	ttctcttgggggtggtacag
	PRODUCT SIZE: 198, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								
6	LEFT PRIMER	57	21	58.46	52.38	0.00	0.00	0.00	ccaagtactagatgtggtgcg
	RIGHT PRIMER	216	21	57.38	47.62	0.00	0.00	0.00	gaaggttgccatcattcgatc
	INTERNAL OLIGO	85	20	60.03	55.00	9.94	0.00	33.99	gcagagggatgtgactgtct
	PRODUCT SIZE: 160, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								
7	LEFT PRIMER	139	18	57.15	61.11	1.90	0.00	0.00	ggtacaggtgccggtatg
	RIGHT PRIMER	304	20	58.41	50.00	17.39	0.00	0.00	cggagttttcaaccagctga
	INTERNAL OLIGO	255	20	59.47	50.00	0.00	0.00	0.00	tgagccatacaacgcaactc
	PRODUCT SIZE: 166, PAIR ANY_TH COMPL: 1.68, PAIR 3'_TH COMPL: 0.00								
8	LEFT PRIMER	259	22	57.93	45.45	0.00	0.00	0.00	ccatacaacgcaactctttcag
	RIGHT PRIMER	423	20	57.33	50.00	0.00	0.00	0.00	tacacctgacattacggcag
	INTERNAL OLIGO	297	20	59.96	50.00	0.00	0.00	42.13	aaactccgacgagacgttct
	PRODUCT SIZE: 165, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								
9	LEFT PRIMER	198	21	58.37	47.62	10.15	0.00	0.00	tcgaatgatggcaaccttctc
	RIGHT PRIMER	383	22	57.86	45.45	0.00	0.00	0.00	ccgtatgaagggttagaaagct
	INTERNAL OLIGO	297	20	59.96	50.00	0.00	0.00	42.13	aaactccgacgagacgttct
	PRODUCT SIZE: 186, PAIR ANY_TH COMPL: 5.04, PAIR 3'_TH COMPL: 0.00								
10	LEFT PRIMER	114	23	57.67	43.48	0.00	0.00	0.00	ccaaataacacatttctttgggg
	RIGHT PRIMER	307	20	59.77	55.00	0.00	0.00	0.00	cgtcggagttttcaaccagc
	INTERNAL OLIGO	255	20	59.47	50.00	0.00	0.00	0.00	tgagccatacaacgcaactc
	PRODUCT SIZE: 194, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00								
11	LEFT PRIMER	16	22	58.05	45.45	0.00	0.00	0.00	tgggcaaaaggctcactatactg
	RIGHT PRIMER	210	21	57.72	42.86	0.00	0.00	0.00	tgccatcattcgatcaggaaa

INTERNAL OLIGO 85 20 60.03 55.00 9.94 0.00 33.99 gcagagggatgtgactgtct
 PRODUCT SIZE: 195, PAIR ANY_TH COMPL: 0.00, PAIR 3'_TH COMPL: 0.00

12 LEFT PRIMER 2 23 58.17 39.13 0.00 0.00 0.00 gagcaggaaataattgggcaaaa
 RIGHT PRIMER 161 20 61.62 60.00 0.00 0.00 0.00 gtaccataccggcacctgt
 INTERNAL OLIGO 85 20 60.03 55.00 9.94 0.00 33.99 gcagagggatgtgactgtct
 PRODUCT SIZE: 160, 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	1440	46	0	0	0	94	0	584	158	0	0	279	24	0	255
Right	1418	64	0	0	0	83	0	657	75	0	0	173	7	0	359
Intl	3681	81	0	0	0	34	0	1000	1075	0	0	59	0	0	1432

Pair Stats:
 considered 44584, unacceptable product size 44568, primer in pair overlaps a primer in a better pair 29852, ok 16
 libprimer3 release 2.4.0

(primer3_results.cgi release 4.1.0)