

Towne .AY315197.2

5'	cratdrdaystmbamcctcgctctatTTAACCTCCACCCACTTCAACACACACCTGCCGACAATCATGC	
o	+ +	70
3'	gytahyhtrsakvytkggagcggataaattggaggtgggtgaagtTGTGTGTTGGACGGCGTGTAGTACG	
o		
5'	cagccacagccacaaacagcaccacaccacgcgcgttcaccacagtagcaaacacacgctacccttaca	
o	+ +	140
3'	gtcgggtgtcgggtgtttgtcgtgggtgtggtgCGGCgaagtgggtgtcatggttGTGTGCGATGGGAATGT	
o		
5'	ccacagcaacacacaaccgcctatccaaacctcggacaaacacgccaacgaagaacaccgcacgcagatg	
o	+ +	210
3'	ggTGTcgttGTGTGTTGGCGGATAGGTTTGGAGCCTGTTTGTGCGGTTGCTTCTTGTGGCGTGCCTCTAC	
o		
5'	gagctcgacgcccgcggattacgccgcttgcgcgcaggcccGCCAACACCTCTACGCTCCAACACAACCC	
o	+ +	280
3'	ctcgagctgcggcgcctaataTGCGGCGAACGCgcgtccgggCGGTTGTGGAGATGCGAGGTTGTGTGGGG	
o		
5'	aactacacgcataccccgacgccaacccctcaggaaagcgcctcattttccacagaacatcaccatcaact	
o	+ +	350
3'	ttgatgtgcgtatggggctgcgggtgggagtcctttcgcgagtaaaaaggtgtcttGTAGTGGTAGTTGA	
o		
5'	gacgcatctacttcacaacattggcgaaggcgcagcgcctcggctaccccgtccccgcgcggaaatccgc	
o	+ +	420
3'	ctgcgtagatgaagtgttgtaaccgcttcgcgctcgcgagccgatggggcagggggcgcgcctttagggc	
o		
5'	cgcgggcggtggcgaccgggcccGACAGCGCAAGCGACTTCGACGCCGACTGCTGGTGCATGTGGGGACGCT	
o	+ +	490
3'	gCGCCGCCACCgctggcccggctgtcgcgttcgctgaagctgcggctgacgaccacgtacaccccctgcga	
o		
5'	tcggaaccatgggcccGCAACCTATCGTGACCTTACTGTTGGCGGCCAACGCGACGGCCTCGCTGACTG	
o	+ +	560
3'	agccttGGTACCggcgggttgGATAGCACTGGAATGACAACCGCGCGGTTGCGCTGCCGGAGCGACTGAC	
o		
5'	gaacgtcgtagcgtgccgcggcacaggctttcgcgcacacgattccgaggacggcgtctgtgtctggcgt	
o	+ +	630
3'	cttgcagcatgcgacggcgcctgtccgaaagcgcgtgtgctaaggctcctgccgcagacacagaccgca	
o		
5'	cagcacctggttttttactcggagGCCACGGCCGCGCTGTACAGTTAGAAGTCCATCCGCGGGAGAAG	
o	+ +	700
3'	gtcgtggaccAAAAAATGAGCCTCCGGTGCcgggcggcacatgtcaatctTGCAGGTAGGCGCCCTCTTC	
o		
5'	cccaagctcgaggcctattgccacgcattccggatcacccecatctccacatctccacgcccAAAaccacc	
o	+ +	770
3'	gggttcgagctccggataaccgtgCGTAGGCCTAGTGGGGTAGAGGTGTAGAGGTGCCGGTtttGGTGG	
o		
5'	ccagcccacatatccaccgcacgacccacatgctacgactcgcccacatgacacgctctttcctatc	
o	+ +	840
3'	ggtcgggtggtatagggtggcgtagcgtgggtgtacgatgctgagcgggtgactgtgcgagaaaggatag	
o		
5'	ccttctacaccctcagccacggttcacaatccccgaaaccacgcccgtccaacttcacgcccGAAACGACC	
o	+ +	910
3'	ggaagatgtgggagtcgggtGCCAAGTGTtagggccttgggtgcggcaggttgaagtgcggcctttgctggg	
o		









Towne.AY315197.2

5'	cagtccaagcacgtccgggtcattgttctacacaggaaatctaactagggtcaacgtaacctaacactctct	
o	+++++	4620
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o		
5'	aaacctaatttttagtagtcaaataccataattcaccgctgtactcgtctttattctctccgaaccaacg	
o	+++++	4690
3'	ttggattaaaaatcatcagtttatggattaagtggcgacatgagcagaaataagagaggcttggttgc	
o		
5'	accaaggctcgacaacgccatcgttacccttcgtgatattgcacagatctaaagatgtatgagtacaattc	
o	+++++	4760
3'	tggttccagctggtgcggtagcaatgggaagcactataacgtgtctagatttctacatactcatgttaag	
o		
5'	gttacacaaacgcttgatccattattcactagagggtgcatgtctcctgttacattacataaccatcctt	
o	+++++	4830
3'	caatgtggttgcgaaactaggttaataagtgatctccacgtacagagggacaatgtaatgtattggtaggaa	
o		
5'	gattcagatggctccatttcgtagtcatcgggtcgtttttggttcaatggttacattgtcaccactttt	
o	+++++	4900
3'	ctaagtctaccgaggtaaagcatcagtagccagcaaaaacacaagttaccaatgtaacagtggtgaaaa	
o		
5'	aacctctactttattgaaaccgcaccttcatgtataaacaccgctcatgaaacacgctataagtacccc	
o	+++++	4970
3'	ttggagatgaaataactttgggcggtggaagtacatatgtggtgagcactttgtgacgatattcatggggg	
o		
5'	ccccccacaatggaatgctgccaaaccggttatttcccggttatagccatggcgttcctaagcaagagcta	
o	+++++	5040
3'	ggggggtgttaccttacgacggtttggccaataaagggcaatatcggtaccgcaaggattcgttctcgat	
o		
5'	acgccgaacctaatgcagtaaaaagcgcttgcagccagaaccagcttatgtaccagccacgataacatcc	
o	+++++	5110
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o	+++++	5180
3'	ccactaacaaggtgtcctttaggatggtccggttcggggcgaacaacacaaggactggtggaacaatc	
o		
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o	+++++	5320
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o	+++++	5390
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o		
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o	+++++	6020
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o		
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o	+++++	6300
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o		
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o	+++++	6370
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o		

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o		6650
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o		
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o		6720
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o		
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o		7210
3'	acgcccctcctagctgcacacgccacgaacacctgtgccacaaaattatacataggcgcacattacgtg	
o		
5'	gcggtgtgctttttagcactcggtttgataagctacgtggccggttgcgcccgaaaacacggttaccacca	
o		7280
3'	cgccacacgaaaatcgtgagccaaactattcgatgcaccggcaaacgcggcttttgtgccaatggtggt	
o		



Towne.AY315197.2

5'	attgtctcgtgaaaacagaaaataccacctaacaatgtaagtgcaatccgaatagcacatctaccaatgg	
o	+++++	7350
3'	taacagagcacttttgtcttttatgggtggattgtacattcacgttaggcttatcgtgtagatggttacc	
o		
5'	cagcaggtgccacgcgatgtgcaaagcgggtcacagaaccattacaatgctaggcgcatactcggcc	
o	+++++	7420
3'	gtcgtccacgggtgcgctacacgtttacggcccagtggtcttgggtaatgttacgatccgcgtatgagccgg	
o		
5'	tggggcgcgggctcgttcgtggccacgctgatagtcctgctgggtggtccttcttcgtaatttacgcgcgcg	
o	+++++	7490
3'	accccgcgccgagcaagcaccgggtgcgactatcaggacgaccaccagaagaagcattaatgcgcgcgc	
o		
5'	aggaggagaaaaacaacacgggcaccgaggtagatcaatgtctggcctatcggagcctgacacgcaaaaa	
o	+++++	7560
3'	tcctcctcttttggttgtgcccgtggctccatctagttacagaccggatagcctcggactgtgcgctttt	
o		
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o	+++++	7630
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o		
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o		
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o	+++++	7770
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o		
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o	+++++	7840
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o		
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o	+++++	7910
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o		
5'	gtagtctggcaacgttatgatatactacagcagatacatgcgctgcatgcccactttgcatcattacag	
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o		
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o	+++++	8120
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o		
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o	+++++	8190
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Towne.AY315197.2

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o		
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o	+++++	8330
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o		
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o	+++++	8400
3'	gacgccagcgttgcttagccccttgctcctgcgacttgccaacgcctgcctggatctatgccttgagaca	
o		
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o	+++++	8470
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o		
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o	+++++	8540
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o		
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o	+++++	8890
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o	+++++	8960
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o	+++++	9030
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o		
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o	+++++	9100
3'	ccgaatctgtaaaattatataggtgtgtgccttttatgtgggtagggtgtattctttaccttttatagt	
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Towne.AY315197.2

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5'	tatgatttatgttttacatgcgatcgtaatttatctttatctctgtacggtcttaatttactcattctg	
o		9240
3'	ataactaaatacaaaatgtacgctagcattaaatagaaatagagacatgccagaattaaaatgagtaagac	
5'	gtaaataatagctttcgatggttataaaaactgggcatccctccgaacaaaatcaaaactttaatctgcaa	
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o		9660
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5'	gttgcaatgacacgtgctcctgtccgtgcaattgctttacctccaccgctccactatcaciaattctt	
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o		9940
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o		10010
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o	+++++	10220
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5' ctggaactacggcagttgcaactttgtggatggaacggatacatacataaacagtaccacgaaaacaaa
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5' attatctttattttcacatgtgcctcatctgtctttactttaacgccgttgtattcctacccccatctc
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11620
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11760
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o
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3'	tatagtccttgcgtggtgtgtaataagaacctacgattaataacagtagtaagagtaataaaaaataatag	
o		

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5'	atctgtctgcgagcacctcgaaaagtttacgatcgctggaaagacagtaaacagtatggacaagtgttca	
o	+++++	15540
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o		
5'	tgacggacacagaactatgatgttccgggtacgcgttattacttcgatggataacaatcattctttgtaca	
o	+++++	15610
3'	actgcctgtgtcttgatactacaaggccatgcgcaataatgaagctacctattggttagtaagaaacatgt	
o		
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o	+++++	15680
3'	gcttttaggttaataaccttgatgtatagttgcggtacatgaagatatcaaccgatgtcaccggctttat	
o		
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o	+++++	15750
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o		
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o	+++++	15820
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o		
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o	+++++	15890
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o	+++++	15960
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o	+++++	16100
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o	+++++	16310
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o	+++++	16380
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o		



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5'	cgttacgttgaacgcggtagatggttctccccctcgcgatcaagttcggtggtcatacgggtccaggcggg	
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3'	gcaatgcaacttgcgccatctacaagaggggggagcgctagttcaagcaaccagtatgccagggtccgccc	
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3'	gttccgatgtacaatacgtaaaagtgaccgtgtagttggtggtgcaaattgctcgtgcgcgaaattaa	
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o	+++++	17570
3'	gtacagactcattaatgtcggaggaggagtaattgcaatggcgcgtcataatcatgatggatagcatgata	
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o	+++++	17640
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o	+++++	17710
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o	+++++	17780
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o	+++++	18200
3'	gaaactgcataaaacttcggtccgcgcgagagctatggctttcctaggttccccgaaagggttccggctgc	
o		

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5'	tccctgattcccttcataaagctgttgaccggccctagaaagaccaagagcatgctgtgggcccactgcg	
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3'	agggactaaggggaagtatttcgacaactggccgggatcttctggttctcgtacgacacccgggtgacgc	
o		
5'	gtcgcttcttgcggttatcatctgctcccgtgctactgtgtagactgccattcttactcttttttcagcg	
o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	18340
3'	cagcgaagaacgcaatagtagacgagggcgacgatgacacatctgacggtaagaatgagaaaaaagtgcg	
o		
5'	gccgcagtgggcccacggccttgacattgtcgaggaggacgagtgggtacgggaaatacaaggagcgcgcg	
o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	18410
3'	cggcgtcacccgggtgccgaacctgtaacagctcctcctgctcaccgatgcccttatgttcctcgctgc	
o		
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o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	18480
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o		
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o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	18620
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o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	18690
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o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	18760
3'	tcagcgcattacgctaaggctctgggagcaaggggggaggccctaggtggtagcgtcggcccgtctcctacg	
o		
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o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	18830
3'	tgctctgcgcccgtgcttctgacggccttagtggtggtggtcacgctcttctgctggcagtcggtgcccgcgtca	
o		
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o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	18900
3'	ctggtgagtcacgcccgtgccgtgctttctgcccgcgatattgcgagactgccaggcgctcgtcccctgagcg	
o		
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o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	18970
3'	acgaggactgcgcttatgcaagaggttggttgccacaaagcctgcgcccgcagactctgtagggcgccc	
o		
5'	aagcgggtcccaacacccggcggaccgcgaccggcggtgcgggactccgtcaactacgccaaacaactgacg	
o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	19040
3'	ttcgccaggggttggtggcgccctggcgctggggccgcccagcctgaggcagttgatgcggttgttactgc	
o		
5'	gtccgctggcagctggtccgcctacggtgccacggttgacacagcaagtctctagccagatcagaacc	
o	++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++ ++++	19110
3'	caggcagaccgtcgacaaggcggatgccacggtgccaaacctgtgtcgttcagagatcgggtctagctctggg	
o		

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5'	gctgggaggaagcaacgtcgtgagccagacggccacgcgagtacgtacgtggtttgcaagaaccac	
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o	+++++	19250
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o	+++++	19460
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o		
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o	+++++	19530
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o	+++++	19600
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o		
5'	tcgtgccctgtttcgtctatgcttaggactgtgggtctcgcgactacctggttcgacggcccatgacgatt	
o	+++++	19670
3'	agcacgggacaaagcagatacgaatcctgacaccagagctcgatggaccaagctgccgggtactgctaa	
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o	+++++	19740
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o		
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o	+++++	19810
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o		
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o		

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o
5'   tgggtggtgagcgcacgcagcgggtcaggtggttacacaacgcagcggcagctgttacatcgccggcgggcgctg
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3'   accaccacctgcggtgcgctgccagtcacacaatgtggtgctgcggtcgacaatgtagcggccgcccgcgac
o
5'   gcgcttcgaggacggcggcgcgggcgcagcggctgagcctctcgtttcggcttatcaccgagaccgcgggc
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3'   cgcgaagctcctgccgcccgcggcgctgccgactcggagagcaaagccgaatagtggctctggcgccccg
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5'   acctacacctgcggtgctgggcaacgagacccacagcctggcgcaccgagaccacggcgctggtggccgacg
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3'   acgtgctggacgcgggtgagcctggcgaggacgctggatcgaaagcctagagcgcgagtgctctgcgccatgga
o
5'   gtggacgcccgatccctccaggttgcgcagtataaactgtggttgggaggggtgaacggcaccgctggtc
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3'   cacctgcgggctagggaggtccaacgcgtcatatttgacaccaaccctcccacttgccgtggcgcaccag
o
5'   cactacatccccggcacctcgggtctgctgccctcgtgcgaggaggacgagcgcgaactgtgctgctgcct
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o
5'   tcatcagccagagcatcgcggaacaactgcagccaccggcatcgggtagacggcgctaggcggcgcta
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3'   agtagtcgggtctcgtagcgcctggtggtgacgctcgggtggccgtagcccatctgccgcatccgccgcat
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5'   tcatctgcggagggattactggctgacggatccgaagatcgggctgctggccgcgggatcgggtggcctg
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3'   agtagacgcctccctaataatgaccgactgcctaggcttctagcccgaacgaccggcgccctagccaccgggac
o
5'   acctccctctgccacctgctgtgctactggtggtccgaatcgtagccggcgtctgaacaccgaagaggaaa
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   tggagggagacggtggacgcacgatgaccacaaggcttagcatggccgcagacttgtggcttctccttt
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5'   acgaggcggcagaggaaactgccgcgggagaagcctctgcggtagcggcggcgccgctctctgaggaaga
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3'   tgctccgcgctctcctttgacggcgccctcttcggagacgccatcgccgcccggcagagactccttct
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5'   gcagcagcgggagtaaacgaggagagccatgaagcggatgattcgcagtcacggcaggaaaacggaatgt
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3'   cgtcgtcgcctcatttgctcctctcgggtacttcgcctactaagcgtcagtgccgctccttttgccttaca
o
5'   cagatgacgggcgccggcgcagcgcagcggctctgccgctcgggtgcgctcatctgcggcagcggtagccgac
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
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o

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3'   cgccgtcgccgcgggtgcttgcggcgctgaggtgacagccagggttagcggggtgcatcgccatggtctgc
o
5'   cggttcggcgaaatgaaacgtccgcctgtacgcggaccgatcaccagaaggcggacattgggctgtggttc
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   gccaagccgcttactttgcaggcgacatgcgccctggctagtggctcttcgcctgtaacccgacaccaag
o
5'   atgtttctggtttttggactgtgttcgtggttggcgatgcggtatcgcgcacataaattttgaatcgat
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   taaaagacaaaacctgacacaagcaccacccgctacgccatagcgcggtgattttaaacttagcta
o
5'   gtcaaggaacgcgtgttttgtatttattgggaatattggcggggataaacgggttccggatgtttacc
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   cagttccttgcgcacaaaacataaaataacccttataaccgccctatttggccaaagcctacaaatggg
o
5'   ttaatcttaccggggacctcgttgtcctctcctcctcctcctcctcggacacggggctccatgctgacgtag
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3'   aattagaatggccctggagcaacaggagagggaagaaggagcctgtgccccgaggtacgactgcatc
o
5'   gtaccgactggggtcaaaagcctgggtacttatggggagcgcgacaaaaggaccgtcaggcgcggcatg
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   catggctgacccagttttcgacccatgaataccctcgcgctgtttctggcagtcgcgcggccgtac
o
5'   gagcgtcgccgaggtacgggtaccgctgggatgggtgtttttgttctttgcttatctgcctcttccccgt
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   ctgagcaggctccatgccatggcgaccctaccacaaaaacaagaaacgaatagacggagaaggggca
o
5'   gtgctgttgacctgggtagcaagtcctcctaactcgacctgccgcttgaatgtgactgagttggcctcgat
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   cacgacaactggacccatcgttcaggaggttgagctggacgcgaacttacctgactcaaccggagcta
o
5'   ccatcctggggaaacgtggacggttacacgggatgtgtatcttctctctgctactacgagaatgtgaccgaa
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   gtaggacccttttgacactgcaatgtgcctacacataaagatagacgatgatgctcttacactggctt
o
5'   gacgagatcatcggcgtggcttttacttggcagcataacgagctctgtggttgacctgtggttgaccaga
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   ctgctctagtagccgcaccgaaaatgaaccgctcgatattgctcagacaccaactggacaccaacatggtct
o
5'   acgacacggatgatccgcaatttcagcgcacatcaccactaacatcttgcaagacggactgaaaatgcgaac
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   tgctgtgccactaggcgttaaagtcgctgtagtggtgattgtagaacgcttctgcctgacttttacgcttg
o
5'   cgccctgtgactaaactgtacaccagccgatggtcactaatcttaccgtgggcgctatgactgttta
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   gcagggacactgatttgacatgtggctcggcgctaccagtgattagaatggcaccggcgatactgacaaat
o
5'   cgctgcgagaacggtagcatgaaaataatcgagcgcctctacgtccgattgggctcactatatccgagac
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
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o

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o	+++++	
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3'	cgctgccggcctgtacggccgtcaggcgtgctaggtgctcctctgtttttcgtcttcgtcgtcatcaga	
o		
5'	cggcgacccgctccaccccgtcctccacacgctcagccgcgactgagcgcggggcgcccgtacttgg	
o	+++++	36050
3'	gccgctgggcgaggtggggcaggaggtgtgcccagtcgcccgcgctgactcgcggccccgcggcgatgaacc	
o		
5'	gtttttatagccatctgcccccgctcctggggcaccgggagcagatctacggagacctgacagcagttggg	
o	+++++	36120
3'	caaaaatatcggtagacggggggcagagcccgtgggcctcgttagatgcctctggactgtcgtcaacce	
o		
5'	caacacaagacagggaaatacaaaagacacttttaataaaaaacgagactactttgtgtgtgtgctccgta	
o	+++++	36190
3'	gtgtgttctgtccctttatgtttctgtgaaaattatttttgctctgatgaaacacacacacagggcat	
o		
5'	aactgtttattctccccctccgtcctcgtctctggatgggctccgggtccgtcaacacgcgaccgcgcggc	
o	+++++	36260
3'	ttgacaaaataagagggggaggcagagcagacacctaccggaggccaggcagttgtgcccgtgggcccgc	
o		
5'	aaaaggcacgctggtgacggcgcgagagcccgtcgtgatagtcctcatgccccggagatcgtgcacaaa	
o	+++++	36330
3'	tttccgctgcgacaactgccgcgctctggggcagcactatcaggtagtacggggcctctagcacgtgttt	
o		
5'	gcagctgtcggcgcgagaaaccgacgcagcgtctccacgtgctgcagctgtcggcgcgctatcaggagcc	
o	+++++	36400
3'	cgtcgacagcggcgcgctctttggctgctcgcagaggtgcacgacgctcagcagcccgcgcatagtcctcgg	
o		



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5'	gtcatcgccgatgtcgtcatctccctgacaggcgcgtagatggctccgagagatcatgcgcggtttcaac	
o	+++++	36470
3'	cagtagcggctacagcagtagaggactgtccgcgcatctaccgaggcgctctagtacgcgcaaaagt	
o		
5'	cgccgtgacacatcaggctccatcttgagctggcgccgggctcgcgaggtctcgcacgcggttgtagcg	
o	+++++	36540
3'	gcggaactgtgtagtccaggtagaactcgaccgcgcccgagcgcggtccagagcggtgcgcaaac	
o		
5'	ggaggcgagttcggcttcttctcgaactcctgctgctcactgtccgagagggtgcgataaaaggcggc	
o	+++++	36610
3'	cctccgctcaagccgaagaacgagcttgaggacgacgagtgcagggctctcccacgctattttccgcct	
o		
5'	aagtccccaagtcggctacatgcgccctgggtctgacgctccaaagcgtagcagctgatgaagcgga	
o	+++++	36680
3'	ttcaggaggttcagccgatgtacgcgggaccagactgcgaggtttcgcgatgcgctcagactacttcgcct	
o		
5'	cccatcgagcgtcacggcacgcccgtcttgaaacgcgggggccgggagaggttcttctcccggcgcgctc	
o	+++++	36750
3'	gggtagctcgcagtgccgtgcggaagaacttgccgcccgggccccttccaagaagaggggcccgcgag	
o		
5'	gggcccggcgaggccgacgcggttatatacaccgtctcggacggcgggacggagcccgcgccgccc	
o	+++++	36820
3'	cccggccgctccggctgcgcaaataatgtggcagagcctgcccggctcgggcccggcgcccgg	
o		
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o	+++++	36890
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o		
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o	+++++	36960
3'	tctaataccccctgttcgggtgcgaactgagggacaactggcagcggcacagcagcgcggtggcagcag	
o		
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o	+++++	37030
3'	cggcgacggcggagcagtcgaagtgcctcgacgacaatggcggcggcaggcagcggcgggcggcaccgc	
o		
5'	gcaacagcgcagcagcgaggtggggcgagaaaaccgcgagcaagaggtagcggctgcgggtccggagaccg	
o	+++++	37100
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o	+++++	37170
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o	+++++	37240
3'	ttccagcgtgctgcatagggagcgggtgacctctcgcggacggccgacacggcgggtgtacctggggctc	
o		
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o	+++++	37310
3'	gtcctgatagcagacggccgctcctgcaccactggagcacctagcttcgcgatgcgctgcccgtggcgc	
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5'	acaactacggtcgcctgctgctgcccacgccaagattcaccggttcggcctcgcacctgacggcctacgagtc	
o	+++++	37380
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o		
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5'	ggctgcactctttctctcgtttcccgctcatttacaacaacacgcagggctgcggctacaagtaacgactggc	
o	+++++	37520
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o		
5'	ccaacgtggtgacgcccaaggcggcgtacgccgagctcttctttctgctctgctccaccagcgcagagttc	
o	+++++	37590
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o		
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o	+++++	37660
3'	gcaccacgcagcttggcgagtagtggttcccgccgagacgcagcaggtaccgccaaatgctgctcctttgg	
o		
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o	+++++	37730
3'	tacgccgtcagcgtccgccacgtctagccaaaagacgtgtgtgttgaccagtaccacgggaagcagggcg	
o		
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o		
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o	+++++	37870
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o	+++++	37940
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o		
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o	+++++	38010
3'	tggagcgcgctcaaggcgcctgctacctgctgctgctccgccgcgatgggcccctcctgctccgcaccta	
o		
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o	+++++	38080
3'	gcccaggtttttgcacgtcatgcttaagtaccagagtaaaagtggcagttgcacctaaagtgatgcac	
o		
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o	+++++	38150
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o		
5'	cgccgcgcaacatgccgcgcgcctttctctacttgctaaccagcgcgcagcgcgggtacgacctgcg	
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3'	gccgcgcgctgtacggcgcgcggaaaaggaagatgaacgatgctcgcgcgctcgcgccatgctggacgc	
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5'	athtagccgcaaccgctcactcttttttagcggcgacgcgctcaactgtccgcttctcaacgagcccaac	
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o		
5'	gtgttttcgctcacgggtgcacgcgccttacgatatccacttcgggggtgcaaccgcgagcgggtggagt	
o	+++++	38360
3'	cacaaaagcgagtgccacgtgcgcggaatgctataggtgaagccccacgttggcgccgtctgccacctca	
o		
5'	tggacttgcgctacgtgcagatcacagaccgggtgtttcttggtggccaacttgccacacgaggacgcctt	
o	+++++	38430
3'	acctgaacgcgatgcacgtctagtgtctggccacaaagaaccaccgggtgaacgggtgtgctcctgcggaa	
o		
5'	ttacacagggcttagcgtgtggcgggcgagccgctcaaagtacgctgtggacgcgcacgcggttcc	
o	+++++	38500
3'	aatgtgtcccgaatcgcacaccgcgcccgcctcggcgagtttcagtgcgacacctgcgctgcgcaagg	
o		
5'	atcgtgatcccgcagggcactcccacgcttgatcaaatcaccgagggcgacggtaacgtgtact	
o	+++++	38570
3'	tagcactagggcgtcccgtgagggtagcgggtgcaacatagtttagtggctcccgtgccattgcatatga	
o		
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o	+++++	38640
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5'	gcaattgcccgcggacaactttctcagctctccccatccctgaccctccgtccgtcctctttcccgaca	
o	+++++	38710
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5'	cgtcactatccgatggtttcattaaaagtacgtctgcgctgtgtgtttattaactattcctccgtgttct	
o	+++++	38780
3'	gcagtgataggctaccaaagtaatttttcatgcagacgcacacacaaataattgataaggaggcacaaga	
o		
5'	taatcttctcgatcttttgaggatgttctgcacggcgtccgacggcgttttggcgcccccatgccggc	
o	+++++	38850
3'	attagaagagctagaaaacctcctacaagacgtgccgcaggctgccgcaaaaccgcgggggttacggccg	
o		
5'	agaaccgcggttgccgcccgtaccgctcttctggggagcagataggtcgaaagccaccgttttcatgcc	
o	+++++	38920
3'	tcttgggccaacgcggggcatggcgagaagaccgcctgctatccagctttcgggtggcaaaagtacggg	
o		
5'	gtcgtgctcttgacgggggaacctacggcggcggtcccgcgagcggcgtgattgcaaagccgcgctcg	
o	+++++	38990
3'	cagcacgagaactgcccccttgatgcccgcggcaggggcagctcggcgactaacgtttcggcgcgagc	
o		
5'	cccccggtttcaggatggagggggaggccacaggcggcgcatcagatagctgcttttgccgtagacga	
o	+++++	39060
3'	gggggccaagtcctacctccccctccggtgtccgcccgcgtaagctatgcgacgaaaaccggcatctgct	
o		
5'	cggtgggtaaacgggtggttaccgcgggatacgtcggcgtggtcgaggcggcccggctggtgccggacagg	
o	+++++	39130
3'	gccaccatttgccaccaatggcgccctatgcagccgcaccagctccgcccgggcccgaccacggcctgtcc	
o		

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5'      cgacccggcgcgctaccgctcacggggaccgagggcggtcgacctaccaccgccttgccgccccaaagtag
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      gctggggccgcgcatggcgagtgccctggctcccgccagctggatggcgggaacggcggttcatc
o
5'      gtttcaaagaaggaacaccgacgcggtgccccgaccttcaccggagacgaggggcactcttgcccg
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      caaagtttcttcttgtggctgcgccgacggggctggaaagtggcctctgcctccccgtgagaaccggcc
o
5'      ggacggagaggctgacgaaagcatggacagcggcgacgtgacgggggacacgacatcatcctccgtgggc
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      cctgcctctccgactgcttctgtacctgtcgccgctgcactgccccctgtgctgtagtaggaggacccg
o
5'      gacaaaacggacgccgaggctgacggctgtcgagccgaagcgggaagaggttctcgcgccagaagtacgt
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      ctgttttgctgcggctccgactgccgacagctcggcttctcctcaagagcgcggtcttcagtgca
o
5'      tccttgatgacggtgttttagacgaagccggttgaggttgcaacagcgtggcgggtaccgtcgacggcgt
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      aggaactactgcaacaaaatctgcttcggccaactccaacgttgctcgaccccccattggcagctgccgca
o
5'      gccgatacctgttctctaccctcctgaaccggtgtcgacgtcaccgtctgcgctcgggocggacgcg
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      cgggctatggacaaagagatgggaaggacttggccacagctgcagtggcagacgcgagcccgcctgcgc
o
5'      tgcggcgctcgcgactcgttgeccagcacccggttctggctcgtggatgtcgtcgtcattggagacgata
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      acgccgcagcgtgagcgaacgggctcgtggccaaagaccgagcacctacagcagcagtaacctctgctat
o
5'      acttagctttacgtattctggacggcgtcgactgctcgggctcgtactgggagggcgaatgacgctcgtt
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      tgaatcgaatgcataagacctgccgcagctgacgagcccgcagactgacctccgcttactgcagcaa
o
5'      gtaatcggacgacgggtgtgtgtgtcccaggctgacgacggagccggtgtccgaggagtcgctcgtcttcc
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      cattagcctgctgccacaacacacagggtccgactgctgcctcggccacaggctcctcagcagcagaagg
o
5'      tcctcgtcgtcttcgaccggtgactctgcagtttggcccttaaagcccaaacctcatcagcggcgcttct
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      aggagcgcagagaagctggccactgagacgtcaaaccaggggaatttcggggttgtagtagtcgccgcaaga
o
5'      gagacgctgttctgttcaccgcggcggtggagtcgacggcctccgaggggtggtaggacgcttcttctg
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      ctctgcgacaaacacagtggcgccgcacacctcagctgccggaggctccccaccacctgtgcaacaaaac
o
5'      agaagtcgtggaagtcgtaggcctcctgaagggttgaagccaggtgaggattcttgagggcccacgcg
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      tcttcagcaccttcagcatccgttaggacttccctaacattcggctccactcctaagaactcccgggtgcgc
o
5'      cgttcgcgccgagttggcggggttcatatccccgggcaaccggcgccgctcgagcccagggcgagttac
o      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3'      gcaagcgcgcgggtcaaccgcccgaagtataagggcccggtgcccggcagcctcgggtcccgctcaatg
o

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5'    cgttgaccggggtttgggtaccggaaggttaggtgtcggggccggagcgggggccgtggaaggattgac
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    gcaactggccccaaacctatgggctccatccacagccccggcctcgccccggcaccttcctaacctg
o
5'    aggcgtcggcgtgaggatggcagcgccggcgccagcagggacgttaactcgggcgccgaacgtcaacgtc
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    tccgcagccgcactcctaccgtcgcgggcgcggtcgtccctgcaattgaggccgcggcttgaggttgagc
o
5'    ggttgetcgaacttgtacgcggtggtgacggggcggtttggcgctcgtctcggtatccgtgatgtccaccg
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    ccaacgagcttgaacatgccccaccactgccccgcaaaccgcgagcagagccataggcactacaggtggc
o
5'    gcggtgctcgggtaaaccgagatcttgacgggtggggggatagccatccgagctgtcggaatcctcgtcgcc
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    cgcacagccactttgcgcctagaactgccaacccccctatcggtaggctcgacagccttaggagcagcgg
o
5'    cgagaaaagatccccctctgtctcgtgagcggcctcacgtcccacgcgctgtcccagcggacccttccc
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    gctcttttctaggggagaacagagcactcgccggagtgacaggggtgccccgacagggtgctgctaagg
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5'    gggctggccttgggtacctgcggggagacgagactgaaagccgcgtgacgctggttggtgctgcgggatgt
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3'    cccgaccggaaccaatggagccccctctgctctgactttcgcgccactgcgacaacaacgacgcctaca
o
5'    tcaagggaccgctgggtcggtttctgactgcccgaggataaacatgccgctgaaaatgctggaaacaccgtt
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    agttccctggcgaccagccaaagactgacgggtcctattgtacggcgacttttacgacctttgtggcaa
o
5'    gccactagcggcgcccttgccgctagttcccggtttcttgatggcgtaagatgtttttctcgtcatca
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    cgggtgatcgcggcggaacggcgatcaagggccaaagaactaccgcatttctacaaaagagcagtagt
o
5'    tcatcgtcgtcgtcctcatcggcactggagccaaagagcctccgggaggcgccccggtttacgtgtcgggg
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    agtagcagcagcaggagtagccgtgacctcggtttctcggaggccctcccggggccaatgcacagcccc
o
5'    gcgcggttgctgctgacgttgctgcaggttctgctgcctctcctcccaggccttcagctgctggtttctc
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    cgccgccaacgacgactgcaacgacgtccaagacgacggagaggaggggttcggaagtcgacgacaagag
o
5'    acgctgcaccacctcgctcgtccaccggtttctgccgctcgcgacgcttttctcttctcgtcgtaatagccg
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    tgcgacgtggtggagcagcagggtgggcaaaagacggcgagcgtcgcgaaaaggagaagcagcattatcggc
o
5'    acggccgcgaacgggcggtgggctcgccggccggtgcccagagaacctgagcctcgaagcgaacg
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'    tgccggcggttgcccggcaccgagccggccacggtctcttggtaccgagcttcgccttgc
o
5'    gtttgtgtccttccaggactggcgatccagctccagccgtccagcggctgctggtgggacatggtttctt
o    ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
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o

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5'	gggtaccgacgagaaggctgaaccgcccgcgagcgagaggagattggcgtcatcgtcaaactccaacgac	
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3'	cccatggctgctcttccgacttggcggcggtcgcctcctcctaaccgcagtagcagtttgaggttgctg	
o		
5'	ggcggggcgcgcgccccaaaagggtgtgcccgactgcggggaagctgtccacgtagatgtcaaagtcctcga	
o	+++++	41090
3'	ccgcccgcgcgcggggttttccacacgcgggtgacgcccttcgacaggtgcatctacagtttcaggagct	
o		
5'	tgagcagctccagcagcgtgtcggccgagtcaccgttttccacggcgtgtttgaggatattgcgacagta	
o	+++++	41160
3'	actcgtcgaggtcgtcgcacagccggctcagtgggaaaagggtgccgcacaaactcctataacgctgtcat	
o		
5'	gttggaatcaaaggaaaggcacatgcgacgctccttgaccagcagcttgacgcgctcctgaatgcgcgcc	
o	+++++	41230
3'	caaccttagtttcccttccgtgtacgcgtcgaggaactggtcgtcgaacgtcgcgaggacttacgcgcgg	
o		
5'	agacatttgcgctccagctcctcccaagacctgcgacggttcatgatgagacggcccgtgtacacgagct	
o	+++++	41300
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o		
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o	+++++	41370
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o	+ +	42140
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5'   ttccaccaccgccttcaccacggctcagggcggtagtctgtgccccgagaacctgtccgacgtaaac
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5'   aacgtcgtaacggaccgttgcgctgectcacctccatcaaacgcccgggctcacgcacacctggaggacgc
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5'   gggtgccgcattcctgctccagaaagtgcgttgagaccgttaaagtccccggctcggatggcgatgcagcc
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   cccacggcgtaaggacgaggtctttcagcaactctggcaatttcaggggcccgagcctaccgctacgtcgg
o
5'   gtaggccatcaacgtgtcccgtaggtcgtccatgacggactcctctaccttcgctcgcgagcgtgcgct
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   catccggtagttgcacagggcattcagcaggtactgcctgaggagatggaagcgcgagcggtgcgacgcga
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5'   tctccagccaccgctgcggtcgcagacctcctccgtccgccttcggagaactacggcgcggcggcagggc
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   agaggtcgggtggcgacgccagctgtctgaggagcgaggcggaagcctcttgatgccgcgcccgcgtgccg
o
5'   ctttatagacactatcagcgttgacgtcagacgatccgatgaacgtcgttttttgtgctggaacttcct
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   gaaatatctgtgatagtcgcaactgcagtctgctaggctacttgcaaaaaaacacgaccttgaagggga
o
5'   cgtdcccgacaaatgtagcggaaatcttcaagcaaatcgcgacgaagtccgatgaggaggatgcaaaagag
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   gcagggctgtttacatcgccctttagaagttcggttagcgcgtgcttcaggctactcctcctacgttttctc
o
5'   gctgagcaacgcgatgctgcccgcgcccacagtacatatgctcaacaacgcccgatgtcccaacgcgcga
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
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5'   cttttggctcggaggagagccgaacggcgggttttccacatgatggataacgtagttccaatacctccatc
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   gaaaaccgagcctcctctcggttgcgcgcaaaaaggtgtactacctattgcatcaggttatggaggtag
o
5'   ctctgcattccgatgtccacatgggaagcgcgatgtcatgtagtcccgtaaacggttgtgttttttttatt
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
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o		
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o		49280
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5'	aaatactacaaaaaaaaaagctgaacatggtcatctagcagcaagttctccttctagaccacgaccac	
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3'   gtagacatggtgcagcgggaggggcccggcacatgtagtgtaggaagtgggctggccgcccgttgccgccc
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5'   gacgaggacaactcgcctcgcacggaggcccgggacgacagaggacgggggggtgggctggcggcgaggacg
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5'   acgtgggagcgcacctccaccgggaacagagcgttccaatactccagcactatggcaccgtgccagaact
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o		
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**Sassenscheidt 2006**

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**Sa...06** **Sassenscheidt 2006** **Sassenscheidt 2006**

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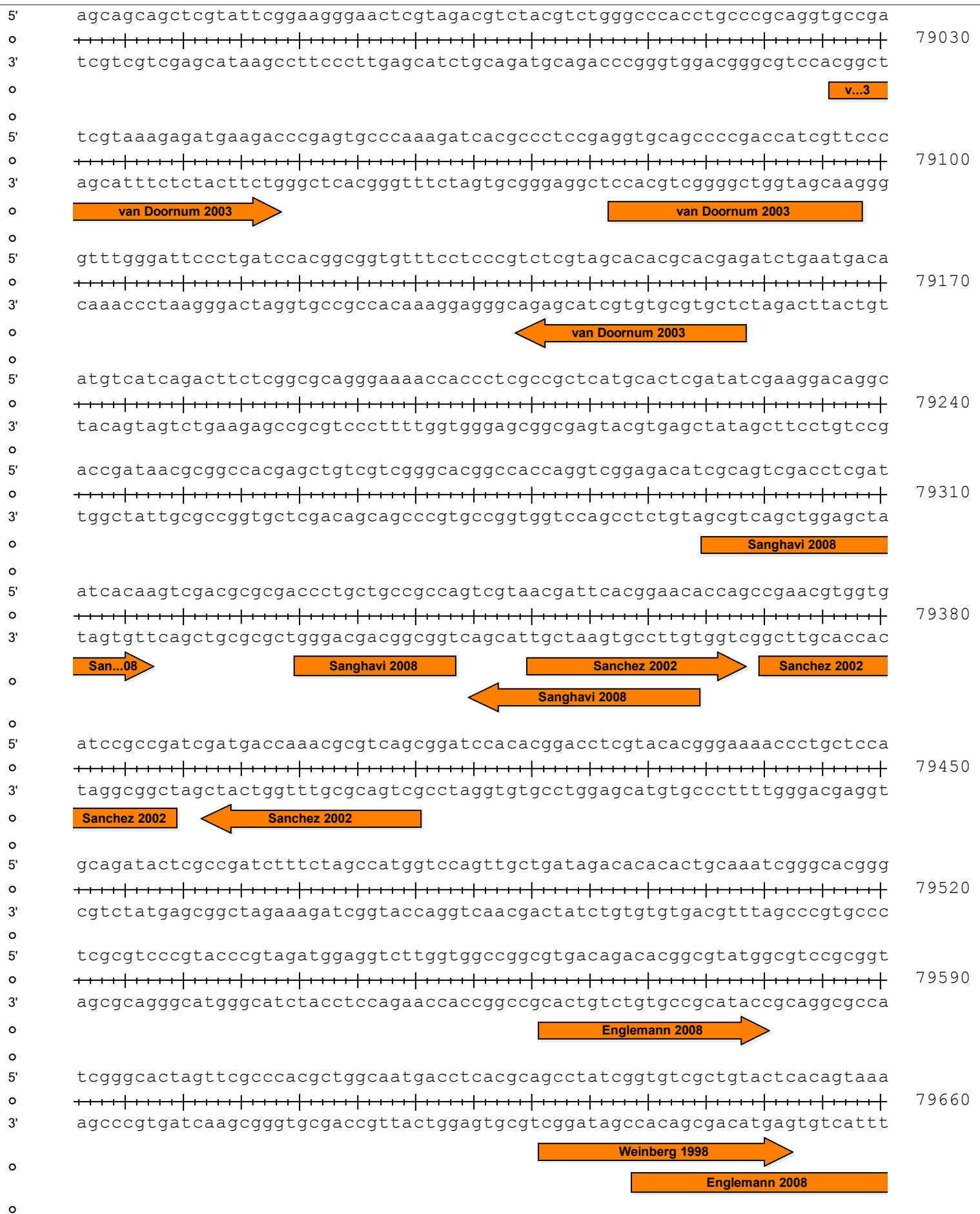
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Englem... 2008 Englemann 2008

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Englemann 2008

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Weinberg 1998

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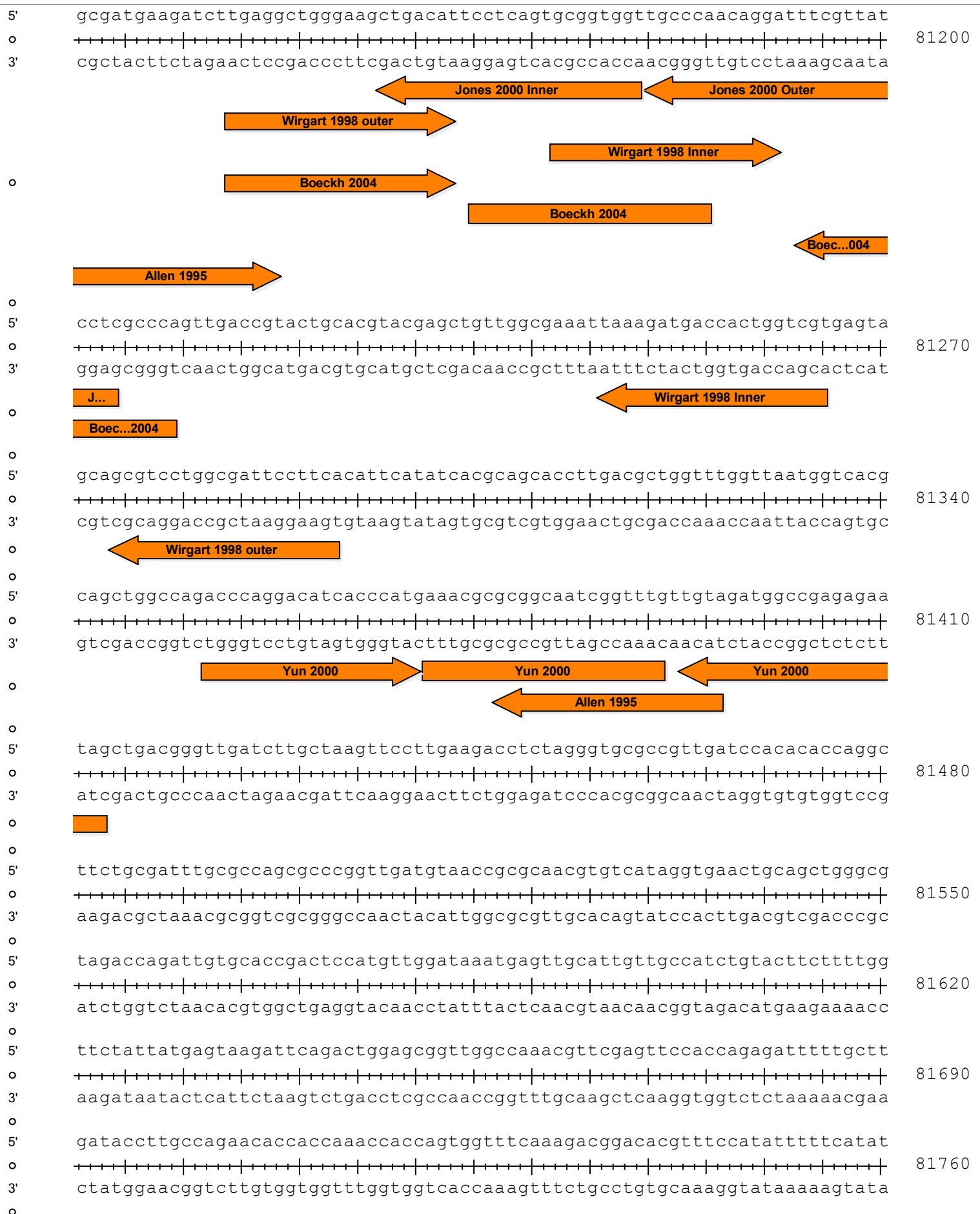
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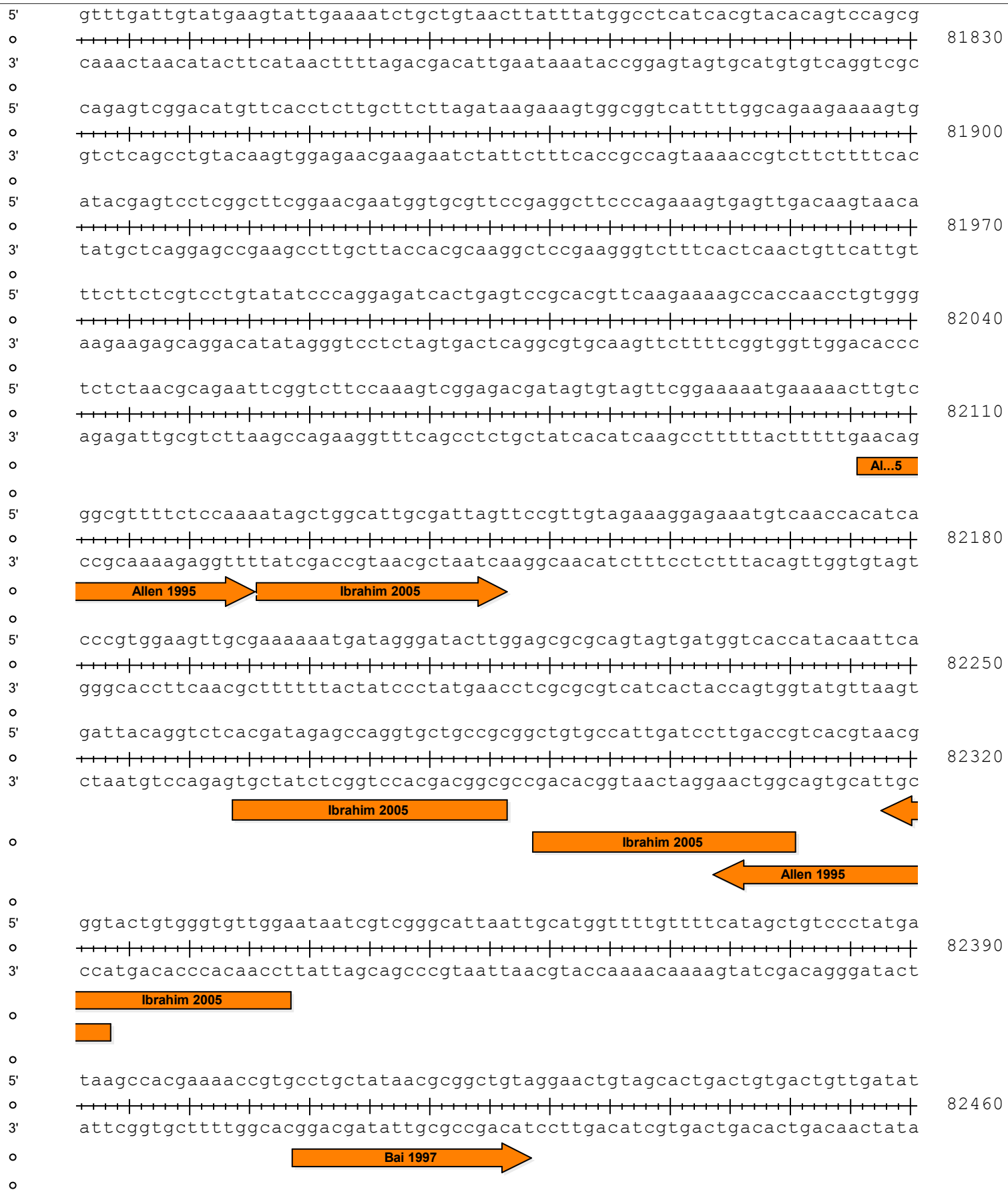
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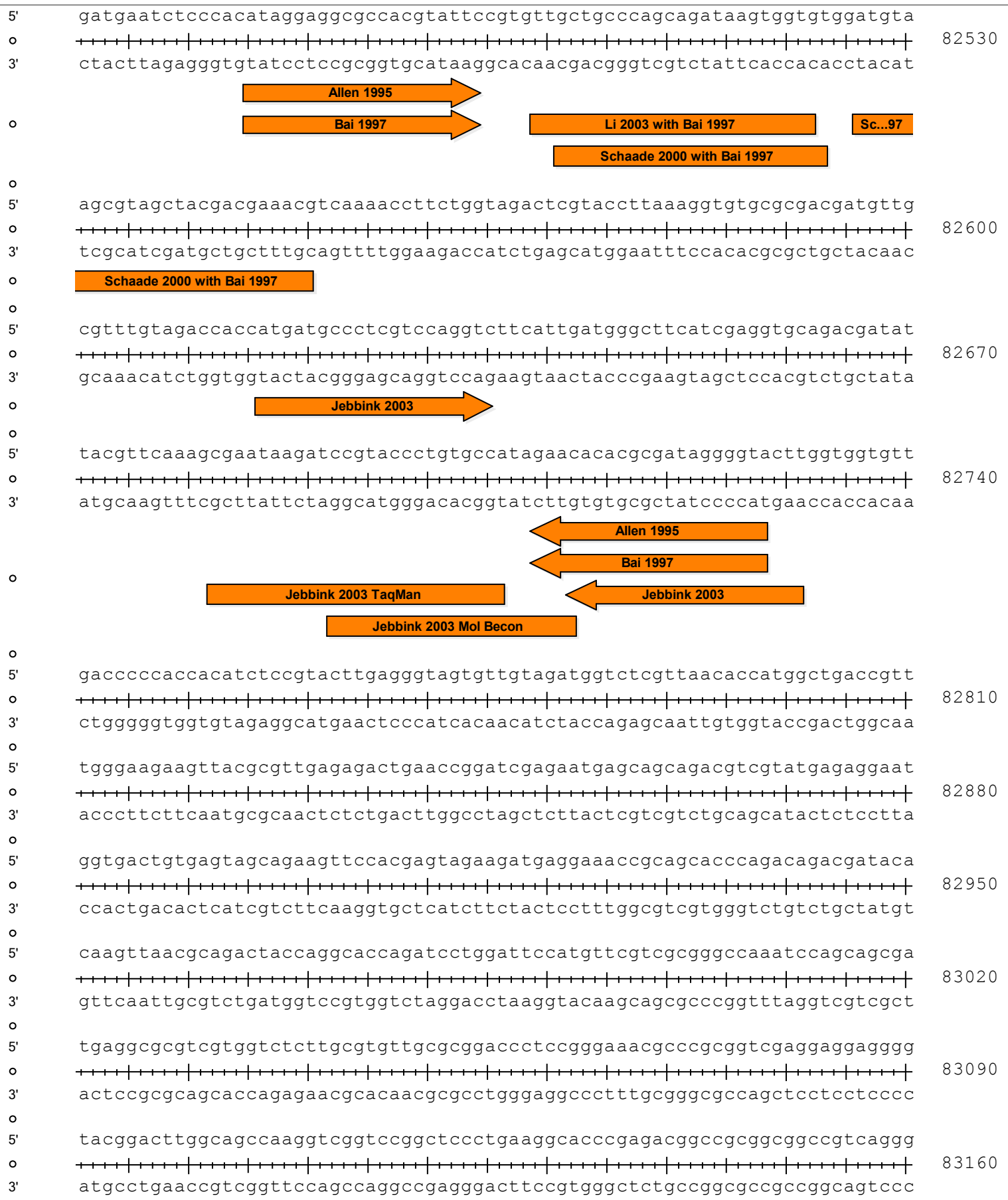
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**Ikew...2005**

**Ikewaki 2005**



**I...**

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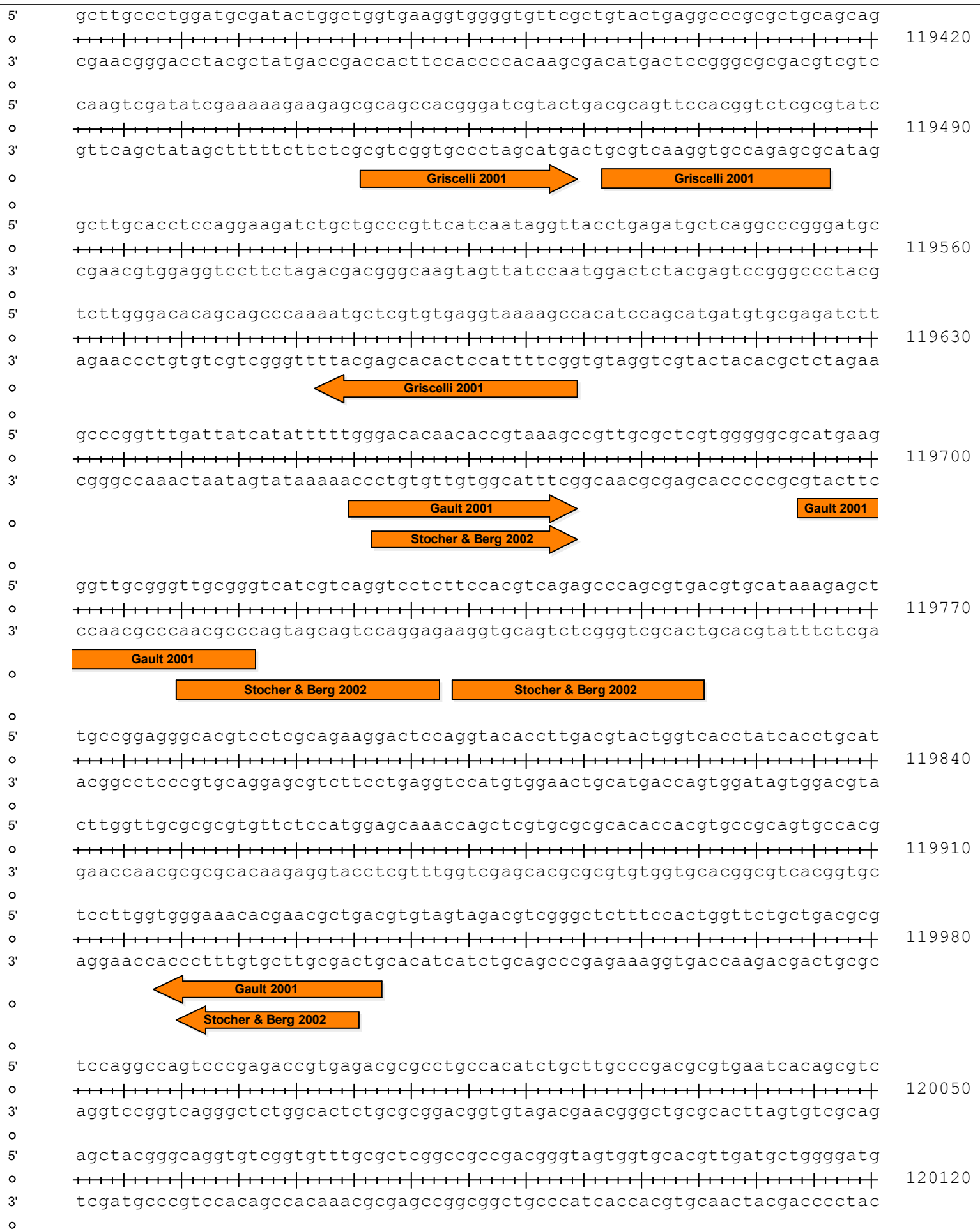
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3'   aacgactcctccatagcatgacgtgctaccccactctactccggcgctctcaggtttcttccgCGGgTcca
o
5'   ggtagccgaattgcaccttgacgtattgaaaaagacggcctcgatcagTaaaagtagatgatggagat
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'   ccatcggttaacgtggaactgcataactttttctgCGGagctagtcatTTTTcatctactacctta
o
5'   gatagcgtagaccacgaagacggctaacacatgtggcctgtacgcacgaaaaagtTgttctgaagcCG
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'   ctatcgcatctggTgcttctgccgatTgtggtacaccggacatgCGTgctTTTTcaacaagacttcggc
o
5'   tagcatagggccatggctaccacggTggtgTtgaaccaagCGctacctccaccaggtTgacgatgagCG
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'   atcgTatcccggTaccgatggTgccaccacaactTtggttcgCGatggaggTggtCCAactgctactcgc
o
5'   tgCGgaactgcaccGTacTTtgagctTggggtgcagacgcgagaagaaaaagagcGagcgtTtgtagct
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'   acgCcttgacgtggcatggaaactcgaacCCCCagTctgcgctcttctTTTTctcGctcGcaaacaTcga
o
5'   gCGgtactgcgtgaccatgctcacgtTgaaaatggTcaggcagaaaaagTgcacGGCGgccatgaagCG
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'   CGcatgacgcactggTACgagTgcaactTTTaccagTccgtctTTTTcagTgCCCGcgTacttcCGc
o
5'   atcatgctgggCagccGaaatgacatggTcagTgtgaatagTtggaaTgtgtccatgctgaggatgaaa
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'   tagTACgaccCGtCGGctTtactgtaccagTcacacttatcaacTtacacaggtACgactcctactTTT
o
5'   ggaaggctgtgaggctgtcGCCcatgtacgagatgtcCGgtgtcGactggTTtaggctcatgcctTtgtc
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++
3'   cTtccGacactccGacagCGggtacatgctctacagcgcacagctgaccAaatccgagTACggaaacag
o
5'   cTtgCGcatgctgatcttgatccagcataaccagTtagtagatggTcacGGctAAAagacgagctgcatg
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3'   gaacCGctACgactagaactaggtCGtatggTccatcatctaccagTgCCgattTTTTctgctcGacgtac
o
5'   aacacGGCGtagcacaccagctgcaccgagTctaaGaaaagcAtaggCGgtgtgcaggtgcattacgtTgt
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3'   tccggctgtacaactcggaaagtttcaggtgctgcactatcatctgctccccatcgggtccacgccttt
o
5'   attgctcagcaccagatgcacgctgacgttgacaaaagtcagcaccatgaaaacgatagaagcgctccat
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   taacgagtcgtggctctacgtgacgactgcaactgttttcagtcgtgggtacttttgctatcttcgagagga
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5'   gtccgtgtattcaccttatccacgtgacgagggggccatggcgatagcggcgggcccgcctcgcctcgggagge
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5'   cgaggatgaccgctcagccgcccgtgcaccaccgccaccaccgtagccctggttcgggaccagctgtca
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3'   gctcctactggcgagtcggcgggcgacgtgggtggcggtgggtgggcatgcccggacaagccctgggtcgacagt
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5'   tctcagctggtacggccttctggaggcctcgggtgcccatcgtacaatgtctgtttttggatctgggtggc
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'   agagtcgaccatgccggaagacctccggagccacgggtagcatgttacagacaaaacctagaccaccg
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3'   ccggcacggccttggcgcccgaagtgtgcaagcaccacgcgccactggcagacggcgggccgactccacgcac
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5'   ctgtgcatcgcgccagctacgccgctggcctcggccgtgactacggacgccgacgagcgcggcgcg
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5'   cctagagcagcgtagcgcctgttggcgcgcggtgttgctagaaggcagcgcgttaacccgctgttg
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3'   ggatctcgtcgcacgcggcacaaccgcgacacaacgatcttcgctcgcgcaattaggcgcacaaccgc
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3'   gcggtggaagtgcggccacgtctaagtctgcctgcgatcgcgcacactctagaacctccggcgcgccgta
o
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3'   accgcacctttggcgctcgcgacagcttgcgcgcaatcagaaaaggtgcatcggttcaatcaccagtagcc
o
5'   ctcgatcccgaagtgcacgagtcgcgtgtggtcacgcatgcccggaacgcgtctccgaagagtatggc
o   ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
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o		





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o	+++++	158340
3'	ttagtttttgttgctcgcattcttttagctcccaatgagatgctatttccacagagatgtttcaacttctaca	
o		



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5'   tacgttggtggtggaataataagactcgcggtgatcgatgagtgatcgagagcggctcgaaccttctttaag
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3'   atgcaacaccaccttattattctgagcgcactagctactcactagctctcgccgagcttggagaagaattc
o
5'   agctttgtttagtgcgaactttaaattacaaggagttagaaagctgaaatgaatctatgaagggtgctattct
o   +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|
3'   tcgaaacaaatcacgttgaaatttaatgttcctcatctttcgactttacttagatacttccacgataaga
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5'   ttgaatatcttactttgtacgcttcacattcgttatttggatagagagttgtctagagaaaatctgtgat
o   +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|
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o
5'   tctctatgagtgttatttttattatccttttggggactacgatttttcttcttgttctacataccactac
o   +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|
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5'   tactcgtaatcacatacatggacgaaaaaaaaattcgtcaggcagtagataaccagattctccgacgttac
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5'   gttactagtagttttgcacacagtttattcagtatagtttttcttcttgccatgatcaattgagcccacc
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5'   accttttttttaagagaggaggaatttcgtcttgatctccagccggagataacggcggtgggtgggtgg
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5'   cgggagagacttcaaggcaatgaaaaaaaaaatttcgttttgccatcaagtgggtgacgataaacccgtca
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5'   gattgataattggttcctacagaaactattctaaccgcggaagaaagaattgaaaaaaaaaattgaca
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5'   aaaaacatcataacataaaggaccacctacctgggacgcgcagttgggcggcggactggggcggcagtgct
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5'	g c g t g g a c g g g c g a t g g c a a g g t g c t g c a c c t c a a c a g g g c t g g c t c t g c g c t a c c a t t a t g c a g c a c g g	
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o		
5'	c g a g g c t t c g g c c g g c g c c a a g a c g c a g c a g g g c t t c a t g t c c a t t g a c a t t a c g g g c g a c g g g g a a c t t	
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3'	g t c c c g a a g c c g g c c g c g g t t c t g c g t c g t c c c g a a g t a c a g g t a a c t g t a a t g c c c g c t g c c c c t t g a a	
o		
5'	c a g g a g c a c c t c t t t g t a c g c g g c g g t a t c g t c t t t a a c a a a t c c g t c t c c t c g g t g g t g g g c t c c a g c g	
o	+++++	160370
3'	g t c c t c g t g g a g a a a c a t g c g c c g c c a t a g c a g a a a t t g t t t a g g c a g a g g a g c c a c c a c c c g a g g t c g c	
o		
5'	g a c c c a a t g a g a g c g c g c t g c t c a c t a t g a t t t c c g a g a a c g g t a a t t t g c a a g t g a c t t a c g t g c g g c a	
o	+++++	160440
3'	c t g g g t t a c t c t c g c g c g a c g a g t g a t a c t a a a g g c t c t t g c c a t t a a a c g t t c a c t g a a t g c a c g c c g t	
o		
5'	t t a c c t g a a a a c c a c g g c g a a t c c t c c a g c g g a g g c g g t g g t t g c g g c g c c g c g t c t a c t g c c t c c g c c	
o	+++++	160510
3'	a a t g g a c t t t t t g g t g c c g c t t a g g a g g t c g c c t c c g c c a c c a a c g c c g c g g c g c a g a t g a c g g a g g c g g	
o		
5'	g t c t g c g t g t c c t c g c t g g g t g g c a g c g g c g g g a c t c g c g a c g g c c c t t c t g c g g a g g a a c a g c a a c g g c	
o	+++++	160580
3'	c a g a c g c a c a g g a g c g a c c c a c c g t c g c c g c c c t g a g c g t g c c g g g a a g a c g c c t c c t t g t c g t t g c c g	
o		
5'	g a a g g c a g g a a c a g c g t c a c g a a g a a c g g c g c a a a a a t c g t c c t c g t c t g c c g g t g g t g g t g g a g g c g g	
o	+++++	160650
3'	c t t c c g t c c t t g t c g c a g t g c t t c t t g c c g c g t t t t t a g c a g g a g c a g a c g g c c a c c a c c a c c t c c g c c	
o		
5'	c g g c g c t g g t g g t g g c g g t g g c g g c g g c g g g a g c g g c g g t c a g c a c t c c t c g g a c t c c g c c a a c g g a c t g	
o	+++++	160720
3'	g c c g c g a c c a c c a c c g c c a c c g c c g c c c c t c g c c g c c a g t c g t g a g g a g c c t g a g g c g g t t g c c t g a c	
o		
5'	c t g c g g g a t c c c c g g t t g a t g a a c c g g c a g a a g g a g c g g c g g c c g c c t c c t c c t c c g a g a a c g a c g g t g	
o	+++++	160790
3'	g a c g c c c t a g g g g c c a a c t a c t t g g c c g t c t t c c t c g c c g c c g g c g g a g g g a g g a g g c t c t t g c t g c c a c	
o		
5'	a g t c c c g g c c c t c c t c g c g t c a c g g t g c t t t c c g a g t g g a c t c g t g a g c c c c c g t a g c g c a c g a g c g a g	
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3'	t c a g g g c c g g g a g g a g c g c a g t g c c a c g a a a g g t c a c c t g a g c a c t c g g g g g c a t c g c g t g c t c g t c	
o		
5'	c a g g c g a g c g g t g t t g g t g c g c t g g t g g t t g t g t g g a t g a t a a c c a t g t g c t t t t t c g t g c g c t a t g t g t	
o	+++++	160930
3'	g t c c g c t c g c c a c a a c c a c g c g a c c a c c a a c a c a c c t a c t a t t g g t a c a c g a a a a g c a c g c g a t a c a	
o		
5'	c g t c c c g t c t g t a g g c t c t c c t c c c c t c c g g g a g g c g a a g a g a c a a a a g a c c a c c g c a c a g c a c g a a g g c	
o	+++++	161000
3'	g c a g g g c a g a c a t c c g a g a g g a g g g g a g g c c c t c c g c t t c t c t g t t t t c t g g t g g c g t g t c g t g c t t c c g	
o		
5'	c a t g g c g g c g g c g g c a a g a a c g a g a c g g a g c a g c a g t c c g g t g g t g c t g g c g g t g g t g g t g g c g g c g g c a	
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3'	g t a c c g c c g c c g c c g t t c t t g c t c t g c c t c g t c g t c a g g c c a c c a c g a c c g c c a c c a c c a c c g c c g c c g t	
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o		
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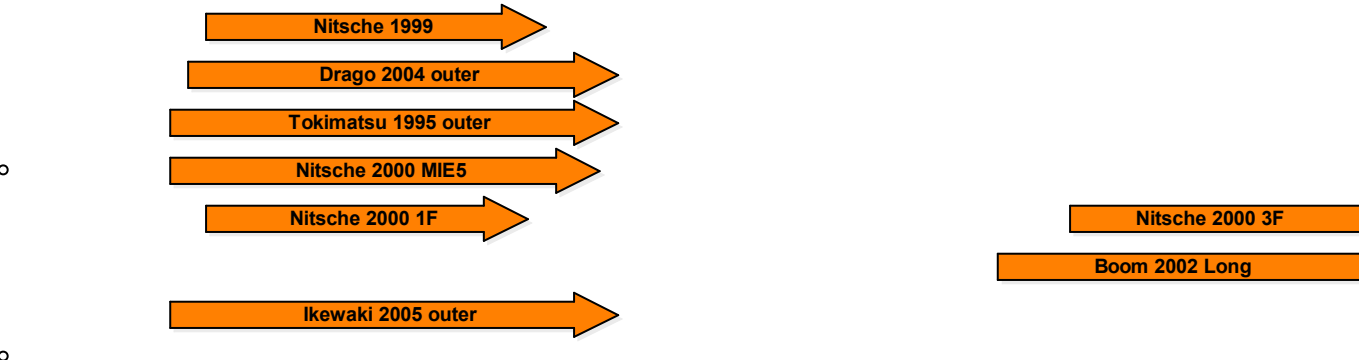
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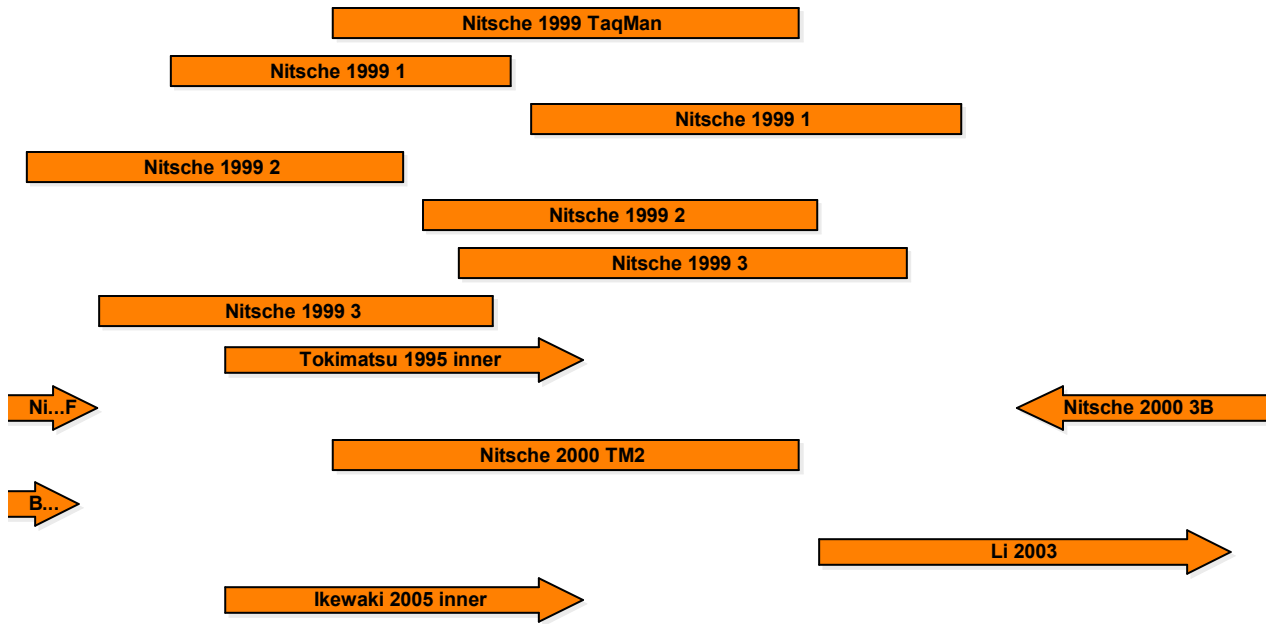
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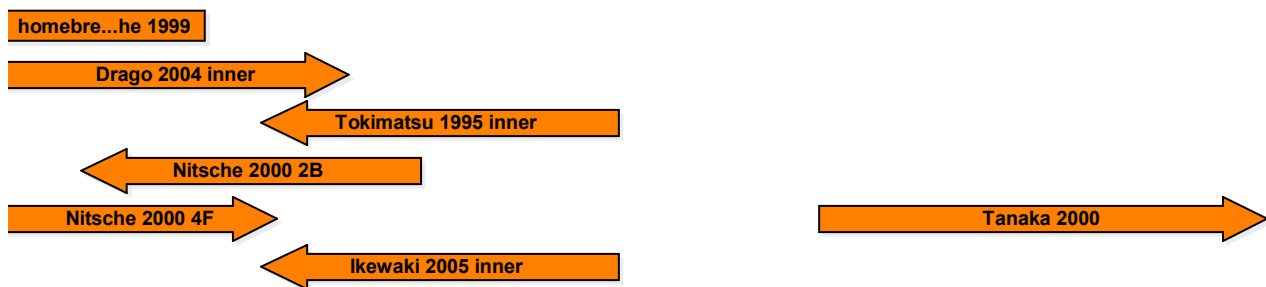
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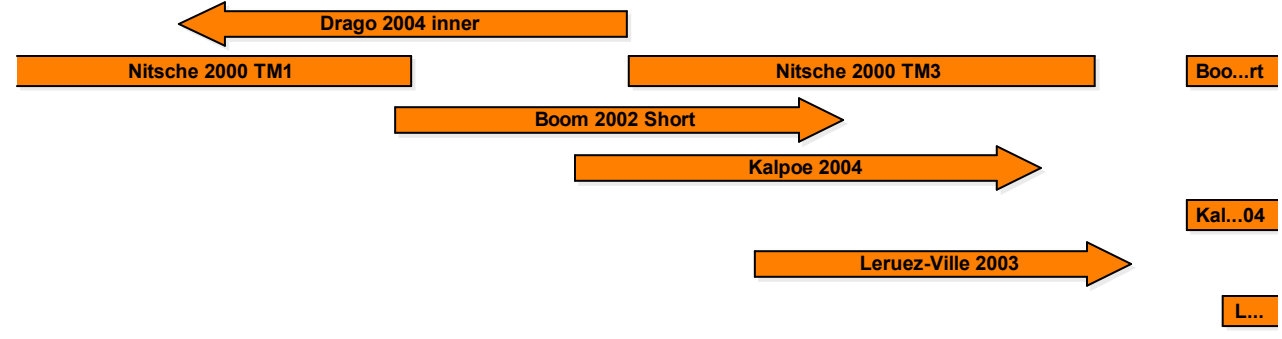
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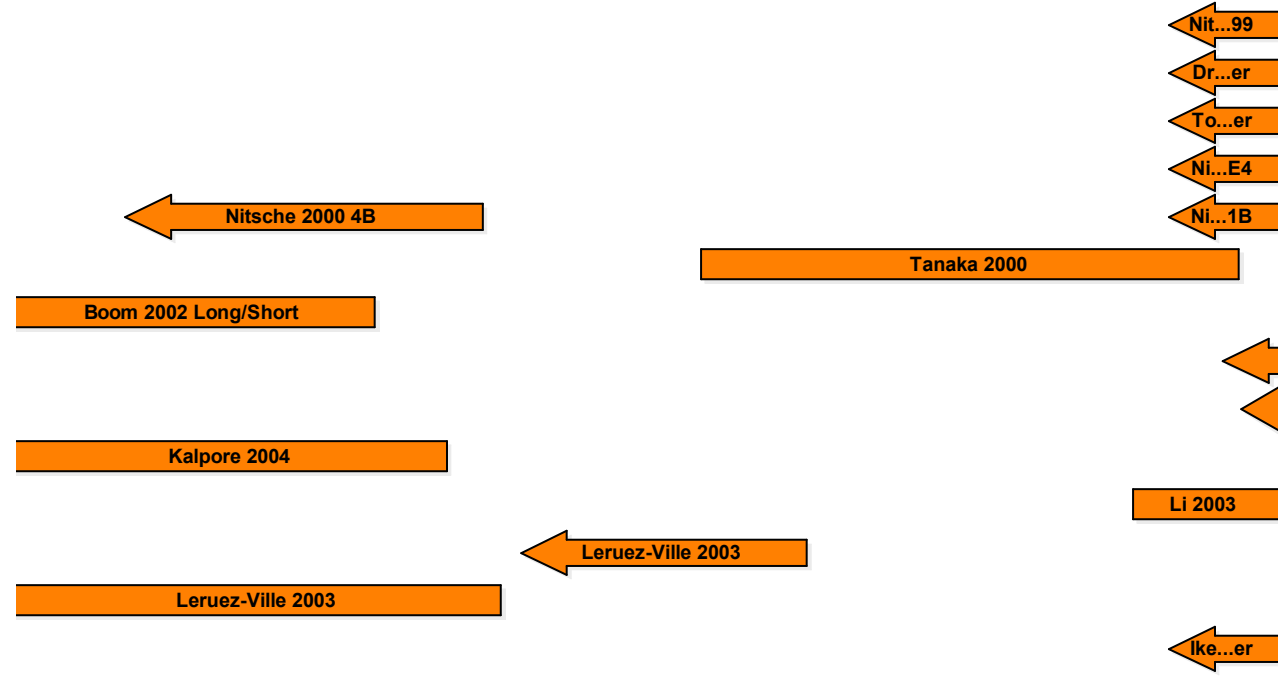
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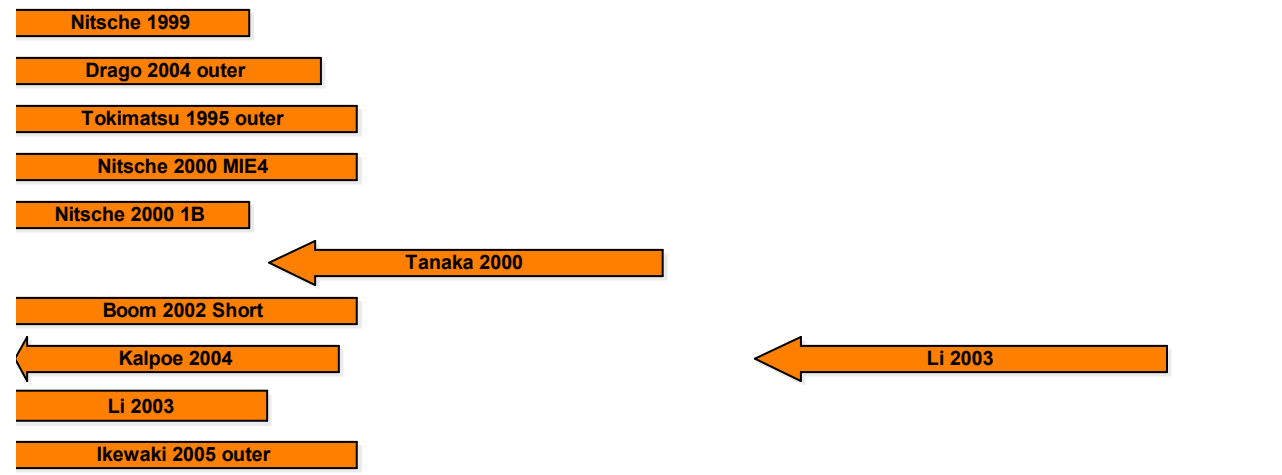
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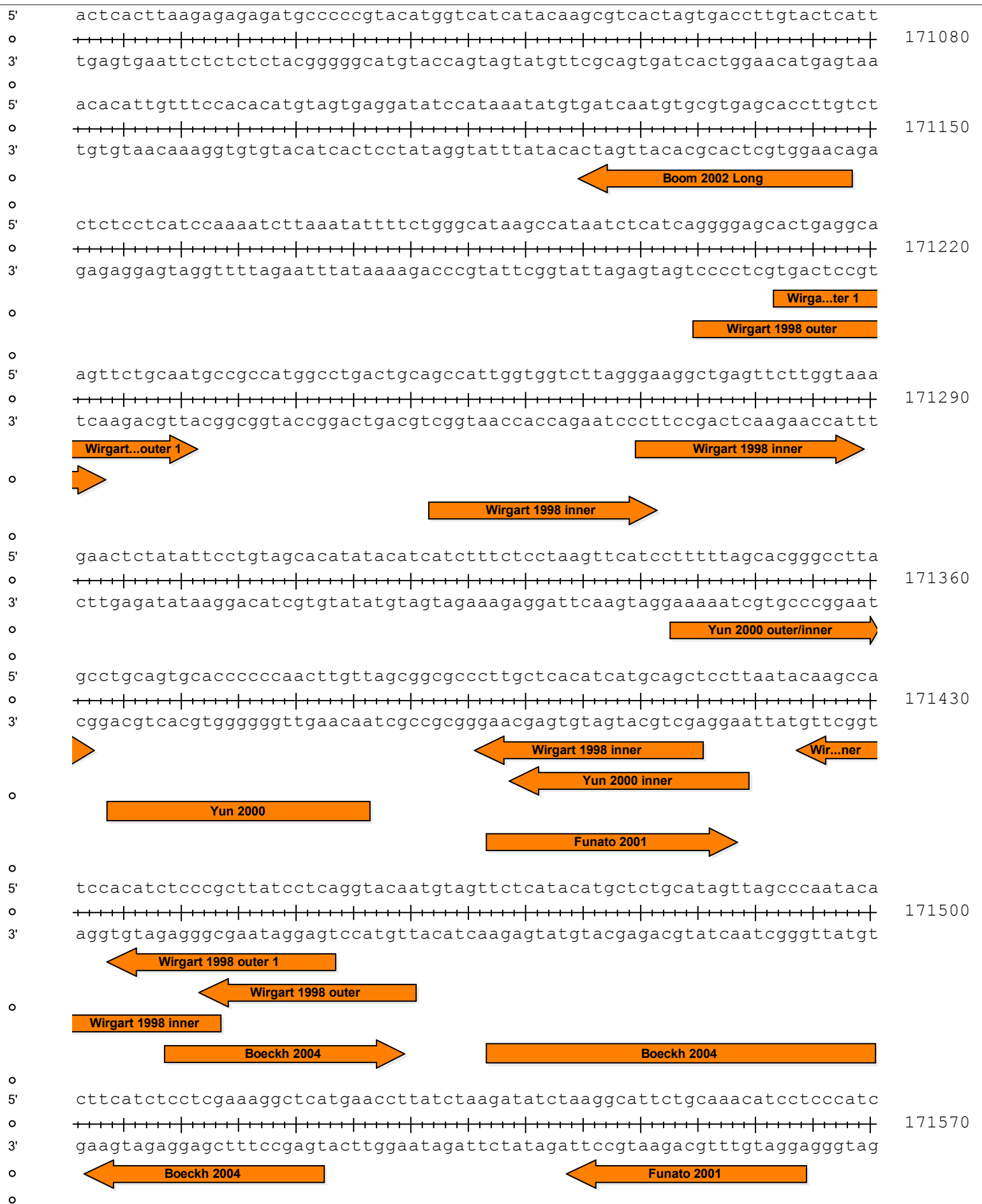
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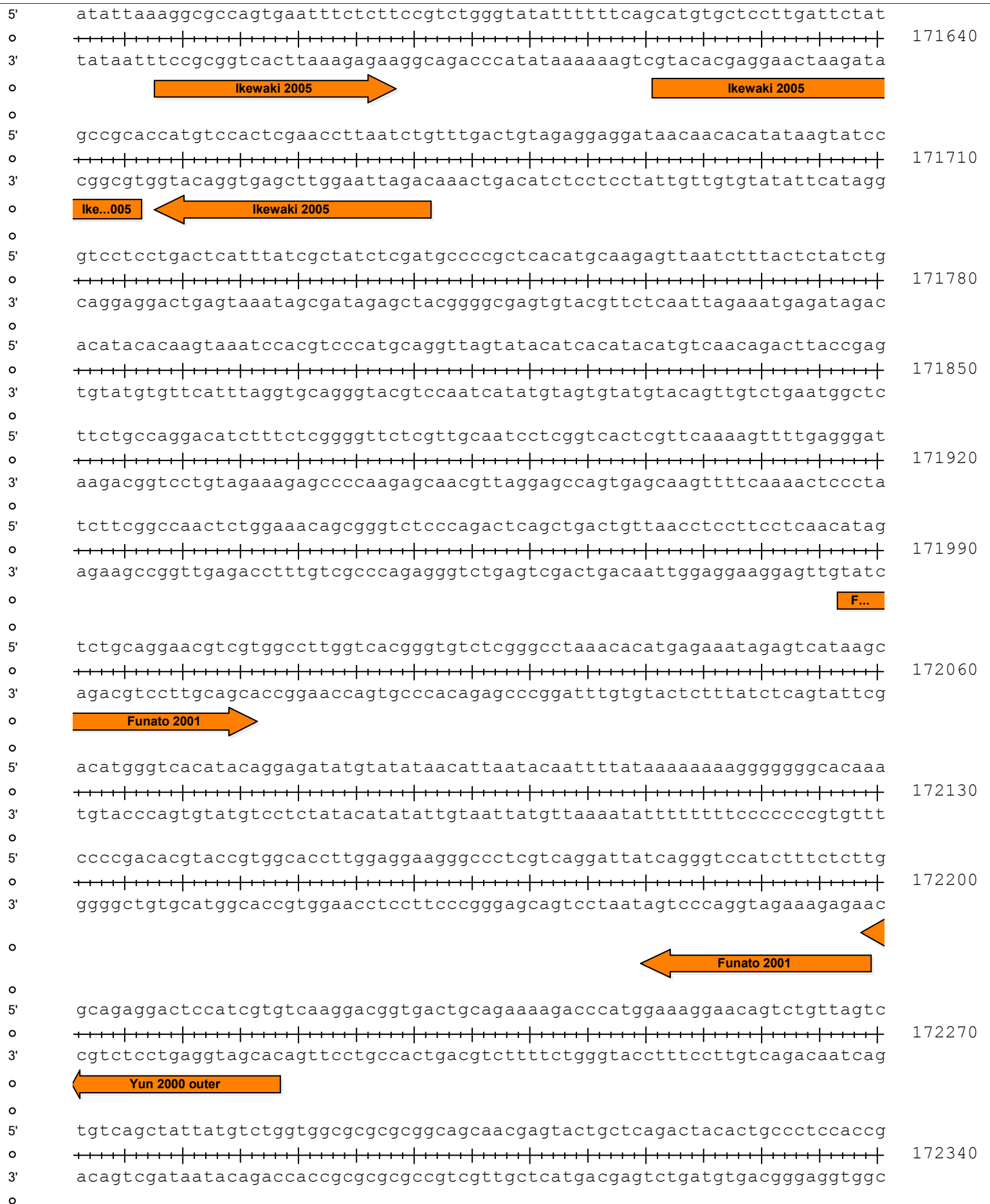


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3'   cgcaacttgcaccaggaaaacaaccacggcggcgtgccaaagactgcagatttcagcagactactcgttgc
o

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5'	acacctcgggtcacggttgattctgcaagcacaggttccaaacgtcatttcatacccccacggttacttag	
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3'	tgtggagaccagtgcaactaagacggttcgtgtccaaggttgcagtaaagtatggggtagccaatgaatc	
o		
5'	ccgttaccggttcgctcttaccttccggttggcatgcacaccttagcgcgtaccctcacctcttgagcacg	
o		176050
3'	ggcaatgggcaagcgagaatggaagggaacagtacgtggaaatcgcgcatggggagtggagaactcgtgc	
o		
5'	tcaaagttgtccaagccgtggctcgcacgtagtggttagttcaacgtgaggtccacgagctggtccacat	
o		176120
3'	agtttcaacaggttcggcaccgagcgtagcatcaccatcaagttgcactccaggtgctcgacaaggtgta	
o		
5'	acttgtaacgggtttggctcgggcagcgcgcgagagcacgcgtcccagtaatgcgggtactcggtaataatc	
o		176190
3'	tgaacattgcccaaaccagcccgtcgcgcgctctcgtgvcgagggtcattacgccaatgagccattattag	
o		
5'	gtttttttccgcggtttcccgctggcactgaccagcaccacggcgcacagacaaacagacagccacacc	
o		176260
3'	caaaaaaaggcgccaaaggcgaccgtgactgggtcgtgggtgcccgcgtgctctgtttgtctgtcgggtgtgg	
o		
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o		176330
3'	gctgtgtcggcgtacaacgtctgactctttctttcgaataataactctgtagtagtgtgtatcatatccgc	
o		
5'	aggtgatggggcggggaaagagttggaaccgaaagacaaaaaaagcctagtcgtactcgggatctct	
o		176400
3'	tccactacccgcccccttctcaaccttggtcttctggtttttttttcggatcagcatgagccctagaga	
o		
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o		176470
3'	ctcgtctctgcccaacgtaccggttgaaagtaatacaaaccttagacgggtcgaccacgacaagcttccaaga	
o		
5'	tccatttccgagggcgggtcagttcatcgtacaccgaaacgtagtacctgatggggctctcctcattgtccg	
o		176540
3'	aggtaaaggctccgccagtcaagtagcatgtggctttgcatcatggactaccccaggaggagtaaacaggc	
o		
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o		176610
3'	tctccactctaagctaccagtttccgctcggagaggggtattaaccctaagtgcttgctgcacaggttcaa	
o		
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o		176680
3'	cggtaggaaagactttatctactgcaagagtcctagtagcaaaagtacgcgagcgcggcgccctgcggagg	
o		
5'	tcctcctcgtcccagttcccaggtttccaaccgctgataagggtcgcaggaacaaaatccggcggggatct	
o		176750
3'	aggaggagcagggtcagggtcaaagggtggcgactattcccagctccttggttttaggccgccctaga	
o		
5'	gagaacctcgtcgggaaccgctgccaacgggctgctgcccactgtcgtccgtgctgctccaacaggtt	
o		176820
3'	ctcttgagacagcccttggcgacgggtttgcccgacgacggcggtgacagcaggcacagcaggttgtccaa	
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o	+++++	177100
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o		
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o	+++++	177170
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o		
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o	+++++	177240
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o		
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o	+++++	177450
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o	+++++	177520
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o	+++++	177590
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o	+++++	177660
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o		
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o	+++++	177730
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o		
5'	aactgttggtggcggttcaccgctcgttgaccacgtaagccacgtagaggccaacattttccaccacgggtt	
o	+++++	177870
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o	+++++	178640
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o		

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5'   gcgttggtcctcgtctaagattaaccgaaaaatagccggttgatgtgacgacgcacggcttgcgcgтта
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   cgcaacaaggagcagattctaattggcttttttatcggccaactacactgctgCGTgCCGAACGCGCAAT
o
5'   ggattgagacacttGGTgCccttGtcctttaaatagccagcacttccctgacgattgcagctttcgctcg
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   cctaactctgtgaaccacgggaacaggaaatTTTatcggTcgTgaaggactgctaacgTcgaaagcgagc
o
5'   ccgcgattggcttaagcaattcagttccgattggcagagtattcaacagaatttGGTtgttacaacgaca
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   ggcgctaaccgaattcgttaagtcaaggctaaccgtctcataagttgtcttaaaccaacaatgTtgctgt
o
5'   gcgTTTgtcgtaatcttccaattctaaaagatggacggctaggggacatacgacaaataacatgtatgca
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   cgaaaacagcattagaaggTTAagatTTTctacctgccgatcccctgtatgctgTTTattgtacatacgt
o
5'   gtcaattgcatatcgtaccgataaaatgTtagTgtgCGgattcagaatcggatgatgcaaccgtctta
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   cagttaacgtatatagcatggctatTTTacaatcacacgcctaagTcttagcctactacgttGGcagaat
o
5'   gcatcatatcgaaaaagtatacatattaccgattcattataattagggaattatttccaacgcggacgtt
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   cgtagtatagctTTTcatatgtataatggctaagtaatattaatcccttaataaaggTTgCGcctgcaa
o
5'   tgTtagtgacagcgTTTTcttctacatgcggtccactactcTTTactTTTaccaatactctgtgcca
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   acaatcactgTcgcaaaagaagatgtacgccaggtaatgataggaaatgaaatGGttatgagacacggT
o
5'   tgagttgtcTTTTTaccatccagccatttggacaaatgatgatcgggagctaaacatacaggtttacct
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   actcaacagaaaaatggtaggtcggTaaacctgTTTactactagccctcgatttGTatgtcCAAatgga
o
5'   cgaggaggcaatagataatgTtgaggTTTgtcacactcaggaggattgggagggtcacgaccaacccaaa
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   gTcctccgttatctattacaactccaaacagTgtgagTcctcctaaccctccagTgctggttgggttT
o
5'   ataagccacctataggatgatgtaaagcttTgtgggtacacggacaacgcaattctctactgtgaacccc
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   tattcggtggatatcctactacatttCGaaacacccatgtgcctgtTgCGttaagagatgacacttgggg
o
5'   atggtaatacataaatgccatcaaaagactaatcagcgaacccaaaattaatcgcattctaatTTtatta
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   taccattatgtatttacggtagTtttctgattagTcGctTggtTTTtaattagCGtaagattaaaataat
o
5'   actacgtcactatcagtaattcGtaatatccggTattcccggaaatcactcaaaactgcgtccatgaca
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   tgatgcagTgatagTcattaagcattataggccataagggcTTTTtagTgagTTTTgacgcaggtactgt
o
5'   catcaattcccgataagtaccccccttTgaaatcggatccccccacataccaatcaatcacacaacacac
o   +-----+-----+-----+-----+-----+-----+-----+-----+-----+
3'   gtagTtaaagggtattcatggggggaaactTTtagcctaggggggtgatggttagTtagTgtgtTgtgtg
o

```

178710  
178780  
178850  
178920  
178990  
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179270  
179340  
179410  
179480  
179550

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o		
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o	+++++	180180
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o	+++++	181090
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3'	CGCCATATTTACTAGATATCTACTACACCGACATAACAGAAGTATTAACCGCCAAATACTCTTCACAGG	
o		
5'	CATTGCGTGCTTTGGTTCTTCACATACCCAGGGATTACGTTGTTGTTCTTAGGATGTA	
o	+++++	181510
3'	GTAAGCACGAAACCAAGAAGTGTATGGGTCCTAAGTGCACACAGGGCAAACACAACAAGATCCTACAT	
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5'	TTGCGATTAAAGTTTTGATTTGTTCGGAGGGATGCCAGTTTTATAACATCGAAAGCTATAATTTACC	
o	+++++	181580
3'	AAAGTCTAATTTCAAACTAAAACAAGCCTCCCTACGGGTCAAATATTGTAGCTTTTCGATATAAATGG	
o		
5'	AGAATGAGTAAAATTAAGACCGTACAGAGATAAAGATAAATTACGATCGCATGTA AACATAAATCATAG	
o	+++++	181650
3'	TCTTACTCATTTTAATTCTGGCATGTCTCTATTTCTATTTAATGCTAGCGTACATTTTGTATTTAGTATC	
o		
5'	TGATGTTTTAGATAATTTGTGTGCCACTCACATAGTATACGCGAATGGAGGATTTTCAATGAATGGTTAT	
o	+++++	181720
3'	ACTACAAAATCTATTAACACACGGTGAGTGTATCATATGCGCTTACCTCTAAAAGTTACTTACCAATA	
o		
5'	GATATTTTCCATTTCTTATGTTGGGATGGGTGTATTTCCGTGTGTGGATATATTA AAAATGTCTAAGCCA	
o	+++++	181790
3'	CTATAAAAGGTAAAGAATAACAACCCTACCCACATAAAAGGCACACACCTATATAATTTTACAGATTCGGT	
o		
5'	GGCTGTTTTGTAGCACGATGTGATGGTTAGGTTGTGTGTTATAGTAATATTGTCTCCTTGTGCCGCTCC	
o	+++++	181860
3'	CCGACAAAACATCGTGCTACACTACCAATCCAACACACAATATCATTATAACAGAGGAACACGGCGGAGG	
o		
5'	AATAATGTTTCAGATTCCTTTGATATCGTATTATTGTACTGTTAGGCGATGAGCAAGTTGGAAGCGGTG	
o	+++++	181930
3'	TTATTACAAAGTCTAAGAAACTATAGCATAATAAACATGACAATCCGCTACTCGTTCAACCTTCGCCAC	
o		
5'	TAGTGACGTTTTCATTTGCATTTATCATAGTAGTAGTGTTGGTTGATAATGATATAGTTTGCAAAGTCAC	
o	+++++	182000
3'	ATCACTGCAAAAGTAAACGTA AATAGTATCATCATCACAACTATTACTATATCAAACGTTTCAGTG	
o		
5'	AGTACTATCGGTTACATGCTGTGTCGATGAATTCGTGTCGCCGTTTGGTGAAGTTGTTATTACAGTTACG	
o	+++++	182070
3'	TCATGATAGCCAATGTACGACACAGCTACTTAAGCACAGCGGCAAACCCTTCAACAATAATGTCAATGC	
o		
5'	TTAGTTGTAGATGTTTGGGTAGATATGGTGGAAATAGTTGAGGTCACGCTCTGTGCCTTTTACAGAGCTTG	
o	+++++	182140
3'	AATCAACATCTACAAACCCATCTATAACACCTTTATCAACTCCAGTGCAGACACGGAAATGTCTCGAAC	
o		
5'	CAGTGAATCCTGTGGATGTGTTGACGTTGCCATTGGAGGATGTGAACATAGTGGTAGACATTTTCGGTGGT	
o	+++++	182210
3'	GTCACCTTAGGACACCTACACA AACTGCAACGGTAACTCCTACACTTGATCACCATCTGTAAAGCCACCA	
o		
5'	TTGTAACGTAGATGTCAGTTGTGTAGTAGATATAAGCTTGTGGGTGTAATCGACGTTGGAAGTATTGGCG	
o	+++++	182280
3'	AACATTTGCATCTACAGTCAACACATCATCTATAATTCGAACACCCACATTAGCTGCACCTTCATAACCGC	
o		

5'	atagtgggtggtgttacacttgcttttctgcagaatccaaaaataataaacatgcatattatttgcgtat	182350
o		
3'	tatcaccacaacaatgtgaacgaaaagacgtcttaggttttttattatttgtacgtataataaacgcata	
o		
5'	atgatgacttgttccaccgtcgatggtgtggtgcatcttttactccaaatccccgtccaccgtcaacaa	182420
o		
3'	tactactgaacaagggtggcagctacaacacacgcgtagaaaatgaggtttaggggcaggtggcagttggt	
o		
5'	cagaggttccgtatctagggtccgtccgcaaccgttcagcgtcctggtccccgattcgttgcgaccgcaga	182490
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o		
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o		
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o		
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o		
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o		
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o		
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o		
3'	TGTGCGACTCTAAAACCGCGCACGTGCACCTTCAACGCGGTGGGACTACGCACCAAAGAAATATCCGCAG	
o		
5'	TGTAATGATGCAAAGTGGCGGCATACGACGCATGTATCTGCTGTAGATATCATAACGTTGCCAGACTACG	182910
o		
3'	ACATTACTACGTTTCACCGCCGTATGCTGCGTACATAGACGACATCTATAGTATTGCAACGGTCTGATGC	
o		
5'	CTGTGATGGCTAGTGTTAAGCCTGGTAACCAGAGTACGTGTACGGTCCTCGCAGGTGGCGCGGTAATTGG	182980
o		
3'	GACACTACCGATCACAATTCGGACCATTGGTCTCATGCACATGCCAGGAGCGTCCACCGCGCCATTAACC	
o		
5'	CGAGCTTtaggggtTTTTGGTTGGTTCGACGGCGTTCGATGAACCTCCCTGAGTTGTGAACAAAACAG	183050
o		
3'	GCTCGAAATCCCCAAAACCAACCAAGCTGCCGCAAGCTACTTGAAGGGACTCAACACTTGTTTTGTCT	
o		
5'	CGACGTGACTATGACAAGCGTGAGGGGGGTGCTGTAGGTCTGCATGGTGCAAAACACGTTCTCGCCTTCC	183120
o		
3'	GCTGCACTGATACTGTTCTGCACTCCCCCACGACATCCAGACGTACCACGTTTTGTGCAAGAGCGGAAGG	
o		
5'	TTGTCAGACGTGCTCGTCTCTCGTCTCTTCTCGTCTGTGCCCCTCGGTTTCGATCAACGGGGAGTTATCT	183190
o		
3'	AACAGTCTGCAGCAGCAGGAGCAGGAGAAGCAGCAGACACGGGCAGCCAAGCTAGTTGCCCTCAATAGA	
o		

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5'	t t c t g t c t g g a g g g t c g g t a t g g a a t c c g t t c g t a g a t g t t c t g c t t t t t a g c c g c g t g t t g t t c c a g c t	
o	+++++	183260
3'	a a g a c a g a c c t c c c a g c c a t a c c t t a g g c a a g c a t c t a c a a g a c g a a a a t c g g c g c a c a a c a a g g t c g a	
o		
5'	t t t t g c g t g t c a g g c t c c g a t a g g c c a g a c a t t g a t c t a c c t c g g t g c c c g t g t t g t t t t t c t c t c t c	
o	+++++	183330
3'	a a a a c g c a c a g t c c g a g g c t a t c c g g t c t g t a a c t a g a t g g a g c c a c g g g c a c a a c a a a a g a g a g a g a g	
o		
5'	g c g c g c g t a a a t t a c g a a g a a g a c c a c c a g c a g g a c t a t c a g c g t g g c c a c g a a c g a g c c c g c g c c c a g	
o	+++++	183400
3'	c g c g c g c a t t t a a t g c t t c t t c t g g t g g t c g t c c t g a t a g t c g c a c c g g t g c t t g c t c g g g c g c g g g g t c	
o		
5'	g c c g a g t a t g c g c c t a g c a t t g t a a t g g g t t c t g t g a c c c g g c a t t t g c a c a t c g c g t g g c a c c t g t g t c	
o	+++++	183470
3'	c g g c t c a t a c g c g g a t c g t a a c a t t a c c c a a g a c a c t g g g c c g t a a a c g t g t a g c g c a c c g t g g a c g a c g	
o		
5'	c a t t g g t a g a t g t g c t a t t c g g a t t g c a c t t a c a t g t t a g g t g g g t a t t t t t c t g t t t t c a c g a g a c a a t t	
o	+++++	183540
3'	g t a a c c a t c t a c a c g a t a a g c c t a a c g t g a a t g t a c a a t c c a c c a t a a a a g a c a a a a g t g c t c t g t t a a	
o		
5'	g g t g g t a a c c g t g t t t t c g g c g c a a a c g g c c a c g t a g c t t a t c a a a c c g a g t g c t a a a a g c a c a c c g c g	
o	+++++	183610
3'	c c a c c a t t g g c a c a a a a g c c g c g t t t g c c g g t g c a t c g a a t a g t t t g g c t c a c g a t t t t t c g t g t g g c g c	
o		
5'	t g c a t t a c a c g c g g a t a c a t a t t a a a a c a c c g t g t t c c a c a a g c a c c g c a c a c g t c g a t c c t c c c c g c a c	
o	+++++	183680
3'	a c g t a a t g t g c g c c t a t g t a t a a t t t t g t g g c a c a a g g t g t t c g t g g c g t g t g c a g c t a g g a g g g g c g t g	
o		
5'	g g t c t t c a g c c c g c c c a t g a c a t g a t c t c c c t c a c g t t a c c c t t c a a c a c t c t g t a g t a c t c t g t c t c g g	
o	+++++	183750
3'	c c a g a a g t c g g g c g g g t a c t g t a c t a g a g g g a g t g c a a t g g g a a g t t g t g a g a c a t c a t g a g a c a g a g c c	
o		
5'	c t t c c g g t c c c c a t g t c c t a a t c a t a a c a a a a c a c c g t g t c a c t g t c c a t c t c c c t g t c t t t t c g c g c g	
o	+++++	183820
3'	g a a g g c c a g g g g t a c a g g a t t a g t a t t g t t t t g t g g c a c a g t g a c a g g t a g a g g g a c a g a a a a g c g c g g c	
o		
5'	c c g g t c c c c c c a a a c c a t g t c t c t a g a t g c c g c c a g c c a c c a a c c g g c g g c a c g g c g g t c t t g g a t t c	
o	+++++	183890
3'	g g c c a g g g g g g t t t g g t a c a g a g a t c t a c g g c g g t c g g t g g t t g g c c g c c g t g c c g c c g a g a a c c t a a g	
o		
5'	g g c a t t g g t g c g c c g c g t c t t g g c c t g c a t g a t c a t c g t c a t c a t g a t c g c c a t t a g c a t c t g g a t c c t g	
o	+++++	183960
3'	c c g t a a c c a c g c g g c g c a g a a c c g g a c g t a c t a g t a g c a g t a g t a c t a g c g g t a a t c g t a g a c c t a g g a c	
o		
5'	a c c t a c g t g t g t t t t t c t a a t a a g a a c c c c g g c c c c t g a c g g t a a t t t t c c t t t c t t c t c c g t t t c t c c	
o	+++++	184030
3'	t g g a t g c a c g a c a a a a g a t t a t t c t t g g g g c c g g g a c t g c c a t t a a a a g g a a g a a g a g g c a a a g a g g	
o		
5'	t c a g c t g c c g t a c g t g a t g c c t c a c g g c c a t c t c c g a c a g g c c c t c t c c c c g a c c t c t g g a c a t g t g a g	
o	+++++	184100
3'	a g t c g a c g g c a t g c a c t a c g g a g t g c c g g t a g a g g c t g t c c g g g a g a g g g g c t g g a g g a c c t g t a c a c t c	
o		

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5'  ggcttggtgctcctcctgggattgctggtgctcttctttcaccaccacaaccagtcggccgtagagaggc
o  ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
3'  ccgaacaacgaggaggaccctaacgaccacgagaagaaagtggggtggtggtcagccggcatctctccg
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5'  gtcgcccgctctcgttcgtcagaggtcgatcgactgccgcatgagagcggtatcttccgatgacga
o  ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
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o  ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
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o  ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
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o  ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
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o  ++++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|+++++|
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o

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3'	tatagacttaaaatcctactactgatatcatattgagacccttgtttatagtatgcaattagtgaaatt	
o		

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5'	gttacgccgtaggaaaagaaaatcagtcgcaatgaagcatagtcagccgaatgatacagcaatagcttg	
o	+++++	186900
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o		
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o	+++++	187180
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o		
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o	+++++	187670
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o		
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3' ttcacgctagttcttgcgctattgcggttagtgttgtcgcactactactggacggtagctgccactaat  
Machida 2000 ←  
Sanghavi 2008 → Sanghavi 2008 ←  
Sanghavi 2008 ←  
5' tggcggcgtagaccgctgacgcagctgcagaggctaaaaagcacgcaagccaagaggcccgagaaggctca 199220  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
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Machida 2000 ←  
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o	+++++	213500
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o		
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