

# CLUSTAL 2.1 multiple sequence alignment

KC470218.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470214.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470215.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470216.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470217.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470219.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470220.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470221.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470222.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470223.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470225.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470226.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470227.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470228.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470230.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470229.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470224.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KX514433.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KU298886.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
KC470213.1	ATGGCGCGCTTTGAGGATCCAACACGGCGACCCCTACAAGCTACCTGATCT
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KC470218.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470214.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470215.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470216.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470217.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470219.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470220.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470221.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470222.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470223.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470225.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470226.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470227.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470228.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470230.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470229.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470224.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KX514433.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KU298886.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
KC470213.1	GTGCACGGAAGTGAACACTTCACTGCAAGACATAGAAATAACCTGTGTAT
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KC470218.1	ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
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# CLUSTAL 2.1 multiple sequence alignment

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KC470214.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470215.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470216.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470217.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470219.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470220.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470221.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470222.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470223.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470225.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470226.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470227.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470228.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470230.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470229.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KC470224.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTCAAA
KX514433.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTTAAA
KU298886.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTTAAA
KC470213.1      ATTGCAAGACAGTATTGGAACCTTACAGAGGTATTTGAATTTGCATTTAAA
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KC470218.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470214.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470215.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470216.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470217.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470219.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470220.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470221.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470222.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470223.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470225.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470226.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470227.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470228.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470230.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470229.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470224.1      GATTTATTTGTAGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KX514433.1      GATTTATTTGTGGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KU298886.1      GATTTATTTGTGGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
KC470213.1      GATTTATTTGTGGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAA
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KC470218.1      ATGTATAGATTTCTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470214.1      ATGTATAGATTTCTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470215.1      ATGTATAGATTTCTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470216.1      ATGTATAGATTTCTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
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# CLUSTAL 2.1 multiple sequence alignment

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KC470217.1      ATGTATAGATTTCTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470219.1      ATGTATAGATTTCTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470220.1      ATGTATAGATTTCTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470221.1      ATGTATAGATTTCTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470222.1      ATGTATAGATTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470223.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470225.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470226.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470227.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470228.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470230.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470229.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470224.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KX514433.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KU298886.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
KC470213.1      ATGTATAGATTTTTTATTCTAGAATTAGAGAATTAAGACATTATTCAGACT
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KC470218.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470214.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470215.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470216.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470217.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470219.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470220.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470221.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470222.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470223.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470225.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470226.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470227.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470228.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470230.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470229.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KC470224.1      CTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTTATACAAT
KX514433.1      CTGTGTATGGAGACACATTGAAAACTAACTAACACTGGGTTATACAAT
KU298886.1      CTGTGTATGGAGACACATTGAAAACTAACTAACACTGGGTTATACAAT
KC470213.1      CTGTGTATGGAGACACATTGAAAACTAACTAACACTGGGTTATACAAT
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KC470218.1      TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470214.1      TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470215.1      TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470216.1      TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470217.1      TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470219.1      TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470220.1      TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
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# CLUSTAL 2.1 multiple sequence alignment

KC470221.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470222.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470223.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470225.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470226.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470227.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470228.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470230.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCATTTGAATCCAGCAGAAAA
KC470229.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCATTTGAATCCAGCAGAAAA
KC470224.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KX514433.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KU298886.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA
KC470213.1	TTATTAATAAGGTGCCTGCGGTGCCAGAAACCGTTGAATCCAGCAGAAAA

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KC470218.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470214.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470215.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470216.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470217.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470219.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470220.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470221.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470222.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470223.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470225.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470226.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470227.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470228.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACT
KC470230.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAACATAGCTGGGCACT
KC470229.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAACATAGCTGGGCACT
KC470224.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAACATAGCTGGGCACT
KX514433.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAACATAGCTGGGCACT
KU298886.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAACNNNGCTGGGCACT
KC470213.1	ACTTAGACACCTTAATGAAAAACGACGATTCCACAACATAGCTGGGCACT

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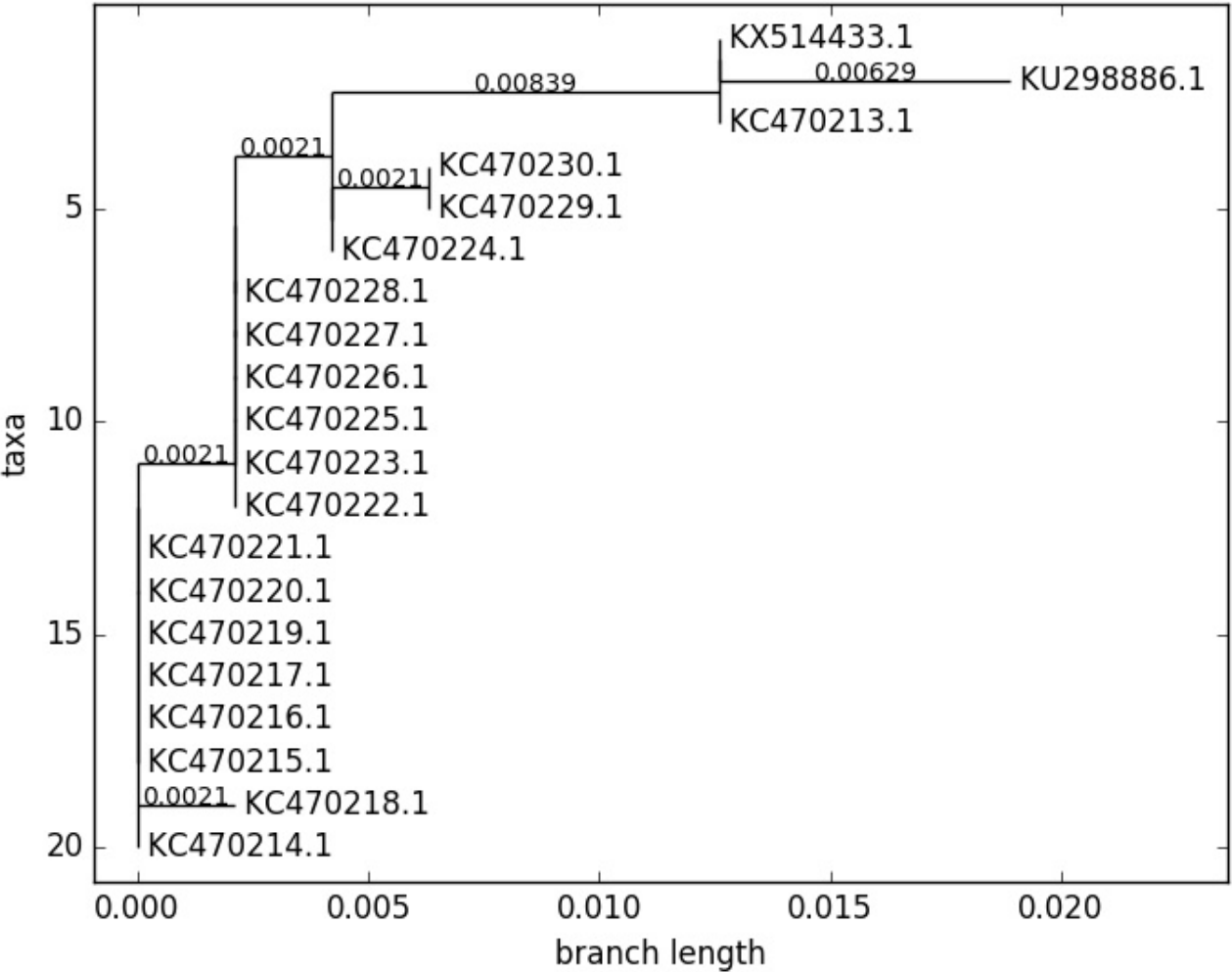
KC470218.1	ATAGAGGCCAGTGCCATTTCGTGCTGCAACCAAGCACGACAGGAGAGACTC
KC470214.1	ATAGAGGCCAGTGCCATTTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470215.1	ATAGAGGCCAGTGCCATTTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470216.1	ATAGAGGCCAGTGCCATTTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470217.1	ATAGAGGCCAGTGCCATTTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470219.1	ATAGAGGCCAGTGCCATTTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470220.1	ATAGAGGCCAGTGCCATTTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470221.1	ATAGAGGCCAGTGCCATTTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470222.1	ATAGAGGCCAGTGCCATTTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470223.1	ATAGAGGCCAGTGCCATTTCGTGCTGCAACCGAGCACGACAGGAGAGACTC

**CLUSTAL 2.1 multiple sequence alignment**

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KC470225.1      ATAGAGGCCAGTGCCATTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470226.1      ATAGAGGCCAGTGCCATTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470227.1      ATAGAGGCCAGTGCCATTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470228.1      ATAGAGGCCAGTGCCATTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470230.1      ATAGAGGCCAGTGCCATTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470229.1      ATAGAGGCCAGTGCCATTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KC470224.1      ATAGAGGCCAGTGCCATTCGTGCTGCAACCGAGCACGACAGGAGAGACTC
KX514433.1      ATAGAGGCCAGTGCCATTCGTGCTGCAACCGAGCACGACAGGAAAGACTC
KU298886.1      ATAGAGGCCAGTGCCATTCGTGCTGCAACCGAGCACGACAGGAAAGACTC
KC470213.1      ATAGAGGCCAGTGCCATTCGTGCTGCAACCGAGCACGACAGGAAAGACTC
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KC470218.1      CAACGACGCAGAGAAACACAAGTATAA
KC470214.1      CAACGACGCAGAGAAACACAAGTATAA
KC470215.1      CAACGACGCAGAGAAACACAAGTATAA
KC470216.1      CAACGACGCAGAGAAACACAAGTATAA
KC470217.1      CAACGACGCAGAGAAACACAAGTATAA
KC470219.1      CAACGACGCAGAGAAACACAAGTATAA
KC470220.1      CAACGACGCAGAGAAACACAAGTATAA
KC470221.1      CAACGACGCAGAGAAACACAAGTATAA
KC470222.1      CAACGACGCAGAGAAACACAAGTATAA
KC470223.1      CAACGACGCAGAGAAACACAAGTATAA
KC470225.1      CAACGACGCAGAGAAACACAAGTATAA
KC470226.1      CAACGACGCAGAGAAACACAAGTATAA
KC470227.1      CAACGACGCAGAGAAACACAAGTATAA
KC470228.1      CAACGACGCAGAGAAACACAAGTATAA
KC470230.1      CAACGACGCAGAGAAACACAAGTATAA
KC470229.1      CAACGACGCAGAGAAACACAAGTATAA
KC470224.1      CAACGACGCAGAGAAACACAAGTATAA
KX514433.1      CAACGACGCAGAGAAACACAAGTATAA
KU298886.1      CAACGACGCAGAGAAACACAAGTATAA
KC470213.1      CAACGACGCAGAGAAACACAAGTATAA
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Multiple Sequence Alignment tree



## Consensus sequence

ATGGCGCGCTTTGAGGATCCAACACGGCGACCCTACAAGCTACCTGATCTGTGCACGGAAGTGAACACTTCACTGCAAGAC  
ATAGAAATAACCTGTGTATATTGCAAGACAGTATTGGAACCTACAGAGGTATTTGAATTTGCATTCAAAGATTTATTTGT  
AGTGTATAGAGACAGTATACCGCATGCTGCATGCCATAAATGTATAGATTTTTATTCTAGAATTAGAGAATTAAGACATT  
ATTCAGACTCTGTGTATGGAGACACATTAGAAAACTAACTAACACTGGGTATACAATTTATTAATAAGGTGCCTGCGG  
TGCCAGAAACCGTTGAATCCAGCAGAAAACTTAGACACCTTAATGAAAAACGACGATTCCACAAAATAGCTGGGCACTA

# Primers data

ACCEPTABLE LEFT PRIMERS

#	sequence	0-based		#	GC%	Tm	self		self hair-	qual-
		start	ln				any_th	end_th		
0	GCGCTTTGAGGATCCAACAC	5	20	0	55.00	59.831	13.26	2.92	0.00	0.169
1	CGCTTTGAGGATCCAACACG	6	20	0	55.00	59.556	8.43	5.26	0.00	0.444
2	CTTTGAGGATCCAACACGGC	8	20	0	55.00	59.195	6.97	0.00	33.14	0.805
3	GCTTTGAGGATCCAACACGG	7	20	0	55.00	59.195	10.97	7.33	0.00	0.805
4	TTTGAGGATCCAACACGGCG	9	20	0	55.00	60.953	13.26	4.80	33.14	0.953
5	GCGCGCTTTGAGGATCCAACA	4	20	0	55.00	61.298	13.26	9.79	0.00	1.298
6	TTGAGGATCCAACACGGCG	10	19	0	57.89	60.375	13.26	4.80	33.14	1.375
7	GCGCGCTTTGAGGATCCAAC	4	19	0	57.89	59.575	8.27	2.56	0.00	1.425
8	GAGGATCCAACACGGCGAC	12	19	0	63.16	60.810	9.28	0.00	33.14	1.810
9	TTGAGGATCCAACACGGCGA	10	20	0	55.00	61.822	16.62	0.00	33.14	1.822
10	GATCCAACACGGCGACCCTA	15	20	0	60.00	61.952	0.00	0.00	33.14	1.952
11	ATCCAACACGGCGACCCTA	16	19	0	57.89	60.986	16.62	0.00	33.14	1.986
12	ATGGCGCGCTTTGAGGAT	0	18	0	55.56	60.125	14.45	0.00	0.00	2.125
13	ATGGCGCGCTTTGAGGATC	0	19	0	57.89	61.183	14.45	0.00	0.00	2.183
14	ATCCAACACGGCGACCCTAC	16	20	0	60.00	62.235	16.62	0.00	33.14	2.235
15	TGAGGATCCAACACGGCG	11	18	0	61.11	59.736	13.26	4.80	33.14	2.264
16	AGGATCCAACACGGCGAC	13	18	0	61.11	59.735	15.82	0.00	33.14	2.265
17	TGAGGATCCAACACGGCGA	11	19	0	57.89	61.280	16.62	0.00	33.14	2.280
18	CAACACGGCGACCCTACA	19	18	0	61.11	59.659	16.62	0.00	0.00	2.341
19	GCGCGCTTTGAGGATCCAA	3	19	0	57.89	61.399	26.67	0.00	0.00	2.399
20	CCAACACGGCGACCCTAC	18	18	0	66.67	60.434	16.62	0.00	0.00	2.434
21	TGAGGATCCAACACGGCGAC	11	20	0	60.00	62.501	13.26	0.00	33.14	2.501
22	GCGCTTTGAGGATCCAACA	5	19	0	52.63	58.445	13.26	9.79	0.00	2.555
23	GAGGATCCAACACGGCGA	12	18	0	61.11	59.423	16.62	0.00	33.14	2.577
24	GCGCGCTTTGAGGATCCAAC	3	20	0	60.00	62.584	26.67	2.56	0.00	2.584
25	TCCAACACGGCGACCCTA	17	18	0	61.11	60.601	16.62	0.00	33.14	2.601
26	GATCCAACACGGCGACCC	15	18	0	66.67	60.818	0.00	0.00	33.14	2.818
27	GGATCCAACACGGCGACC	14	18	0	66.67	60.818	6.95	0.00	33.14	2.818
28	GCGCGCTTTGAGGATCCA	3	18	0	61.11	60.820	26.67	0.00	0.00	2.820
29	TGGCGCGCTTTGAGGATC	1	18	0	61.11	60.820	32.29	11.34	0.00	2.820
30	CTTTGAGGATCCAACACGGCG	8	21	0	57.14	61.862	6.97	4.80	33.14	2.862
31	CGCTTTGAGGATCCAACACGG	6	21	0	57.14	61.862	10.97	7.33	0.00	2.862
32	TCCAACACGGCGACCCTAC	17	19	0	63.16	61.935	16.62	0.00	33.14	2.935
33	TTTGAGGATCCAACACGGC	9	19	0	52.63	58.059	13.26	0.00	33.14	2.941
34	GCTTTGAGGATCCAACACGGC	7	21	0	57.14	62.138	14.76	14.22	33.14	3.138
35	CCAACACGGCGACCCTACA	18	19	0	63.16	62.229	16.62	0.00	0.00	3.229
36	GATCCAACACGGCGACCCT	15	19	0	63.16	62.311	0.00	0.00	33.14	3.311
37	AGGATCCAACACGGCGACC	13	19	0	63.16	62.311	15.82	0.00	33.14	3.311
38	TTTGAGGATCCAACACGGCGA	9	21	0	52.38	62.314	16.62	0.00	33.14	3.314
39	ATCCAACACGGCGACCCT	16	18	0	61.11	61.319	16.62	0.00	33.14	3.319
40	GCGCTTTGAGGATCCAACACG	5	21	0	57.14	62.439	13.68	12.53	0.00	3.439
41	GCGCGCTTTGAGGATCCAACAC	4	21	0	57.14	62.439	13.26	2.92	0.00	3.439
42	GGCGCGCTTTGAGGATCC	2	18	0	66.67	61.577	32.29	5.91	0.00	3.577
43	GCGCGCTTTGAGGATCCAA	4	18	0	55.56	58.111	15.82	0.00	0.00	3.889
44	TTGAGGATCCAACACGGCGAC	10	21	0	57.14	62.955	13.26	0.00	33.14	3.955



Primers data

45 TTGAGGATCCAACACGGC 10 18 0 55.56 57.286 13.26 0.00 33.14 4.714

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ACCEPTABLE RIGHT PRIMERS

#	sequence	0-based start	ln	# N	GC%	Tm	self any_th	self end_th	hair- pin	qual- lity
0	ACTGGCCTCTATAGTGCCCA	411	20	0	55.00	60.031	15.67	7.83	37.93	0.031
1	TTCTCTGCGTCGTTGGAGTC	464	20	0	55.00	60.039	9.66	0.00	0.00	0.039
2	TGTTTCTCTGCGTCGTTGGA	467	20	0	50.00	59.897	0.00	0.00	0.00	0.103
3	GTGTTTCTCTGCGTCGTTGG	468	20	0	55.00	59.768	0.00	0.00	0.00	0.232
4	GCACTGGCCTCTATAGTGCC	413	20	0	60.00	60.250	26.85	21.72	38.72	0.250
5	TTTCTCTGCGTCGTTGGAGT	465	20	0	50.00	59.612	9.66	0.00	0.00	0.388
6	CACTGGCCTCTATAGTGCCC	412	20	0	60.00	59.605	24.00	12.62	37.93	0.395
7	GAGTCTCTCCTGTCTGTGCTC	449	20	0	60.00	59.550	0.00	0.00	0.00	0.450
8	CTCTGCGTCGTTGGAGTCTC	462	20	0	60.00	60.455	4.08	0.00	0.00	0.455
9	CTGCGTCGTTGGAGTCTCTC	460	20	0	60.00	60.455	0.00	0.00	0.00	0.455
10	CTGGCCTCTATAGTGCCCAG	410	20	0	60.00	59.316	18.76	14.40	37.93	0.684
11	GTTTCTCTGCGTCGTTGGAG	466	20	0	55.00	59.215	5.37	5.37	0.00	0.785
12	GCAGCATGCGGTATACTGTC	190	20	0	55.00	59.138	14.57	0.71	37.60	0.862
13	TCTCTGCGTCGTTGGAGTCT	463	20	0	55.00	60.890	9.66	0.00	0.00	0.890
14	TCTGCGTCGTTGGAGTCTCT	461	20	0	55.00	60.890	0.00	0.00	0.00	0.890
15	TGTGTTTCTCTGCGTCGTTG	469	20	0	50.00	59.072	0.00	0.00	0.00	0.928
16	ATTCAACGGTTTCTGGCACC	338	20	0	50.00	59.041	0.00	0.00	0.00	0.959
17	GGAGTCTCTCCTGTCTGTGCT	450	20	0	60.00	60.963	8.38	0.00	46.41	0.963
18	GGATTCAACGGTTTCTGGCAC	340	21	0	52.38	60.069	0.00	0.00	0.00	1.069
19	GATTCAACGGTTTCTGGCACC	339	21	0	52.38	60.069	0.00	0.00	0.00	1.069
20	AGTGCCCAGCTATTTTGTGGA	399	21	0	47.62	59.925	0.00	0.00	0.00	1.075
21	GGCCTCTATAGTGCCCAGCT	408	20	0	60.00	61.124	19.28	0.00	34.65	1.124
22	CTCGGTTGCAGCACGAATG	432	19	0	57.89	59.867	13.22	2.38	0.00	1.133
23	GTCTCTCCTGTCTGTCTCG	447	19	0	63.16	59.864	0.81	0.81	38.55	1.136
24	GCTGGATTCAACGGTTTCTGG	343	21	0	52.38	59.800	0.00	0.00	0.00	1.200
25	CTGGATTCAACGGTTTCTGGC	342	21	0	52.38	59.800	0.00	0.00	0.00	1.200
26	ACTTGTTGTTTCTCTGCGTCG	472	20	0	50.00	58.791	0.00	0.00	0.00	1.209
27	CTTGTTGTTTCTCTGCGTCGT	471	20	0	50.00	58.791	0.00	0.00	0.00	1.209
28	TGGATTCAACGGTTTCTGGC	341	20	0	50.00	58.756	0.00	0.00	0.00	1.244
29	GGATTCAACGGTTTCTGGCA	340	20	0	50.00	58.756	0.00	0.00	0.00	1.244
30	AGTCTCTCCTGTCTGTCTCG	448	20	0	60.00	61.302	0.81	0.81	38.55	1.302
31	TTGTGTTTCTCTGCGTCGTTG	470	21	0	47.62	59.674	0.00	0.00	0.00	1.326
32	GGCCTCTATAGTGCCCAGC	408	19	0	63.16	59.627	19.28	8.03	34.65	1.373
33	TGGCCTCTATAGTGCCCAGC	409	20	0	60.00	61.411	15.67	2.73	37.93	1.411
34	ACTTGTTGTTTCTCTGCGTCGT	472	21	0	47.62	60.471	0.00	0.00	0.00	1.471
35	TGGATTCAACGGTTTCTGGCA	341	21	0	47.62	60.478	0.00	0.00	0.00	1.478
36	GGAGTCTCTCCTGTCTGTGC	450	19	0	63.16	59.491	8.38	0.00	46.41	1.509
37	GCAGCATGCGGTATACTGTCT	190	21	0	52.38	60.539	14.57	1.67	37.60	1.539
38	GTGCCAGCTATTTTGTGGA	398	20	0	50.00	58.455	0.00	0.00	0.00	1.545
39	AGTGCCCAGCTATTTTGTGG	399	20	0	50.00	58.451	0.00	0.00	0.00	1.549

# Primers data

40	TCTCTGCGTCGTTGGAGTC	463	19	0	57.89	59.420	9.66	0.00	0.00	1.580
41	TCTGCGTCGTTGGAGTCTC	461	19	0	57.89	59.420	0.00	0.00	0.00	1.580
42	TGCGTCGTTGGAGTCTCTC	459	19	0	57.89	59.420	0.00	0.00	0.00	1.580
43	CTCTGCGTCGTTGGAGTCT	462	19	0	57.89	59.418	4.08	0.00	0.00	1.582
44	CTGCGTCGTTGGAGTCTCT	460	19	0	57.89	59.418	0.00	0.00	0.00	1.582
45	CTTGTGTTTTCTCTGCGTCGTT	471	21	0	47.62	59.407	0.00	0.00	0.00	1.593
46	TTTCTCTGCGTCGTTGGAGTC	465	21	0	52.38	60.602	9.66	0.00	0.00	1.602
47	GCCTCTATAGTGCCAGCTA	407	20	0	55.00	58.366	5.93	0.00	0.00	1.634
48	TTGTGTTTTCTCTGCGTCGTT	470	20	0	45.00	58.353	0.00	0.00	0.00	1.647
49	GTTGCAGCACGAATGGCAC	428	19	0	57.89	60.731	0.00	0.00	0.00	1.731
50	CTCCTGTCGTGCTCGGTTG	443	19	0	63.16	60.734	0.00	0.00	37.69	1.734
51	GGCCTCTATAGTGCCAGCTA	408	21	0	57.14	60.828	19.28	0.00	34.65	1.828
52	CTCTCCTGTCGTGCTCGGTT	445	20	0	60.00	61.868	0.00	0.00	37.69	1.868
53	TGTTTTCTCTGCGTCGTTGGAG	467	21	0	52.38	60.868	5.37	5.37	0.00	1.868
54	GTTTTCTCTGCGTCGTTGGAGT	466	21	0	52.38	60.869	9.66	0.00	0.00	1.869
55	TGCTGGATTCAACGGTTTTCTG	344	21	0	47.62	59.121	0.00	0.00	0.00	1.879
56	GTGCCAGCTATTTTGTGGAA	398	21	0	47.62	59.108	0.00	0.00	0.00	1.892
57	TTGCAGCACGAATGGCACT	427	19	0	52.63	60.898	0.00	0.00	0.00	1.898
58	TCTCCTGTGCTGCTCGGTT	444	19	0	57.89	60.902	0.00	0.00	37.69	1.902
59	CAGCATGCGGTATACTGTCTCT	189	22	0	50.00	59.965	6.85	0.00	0.00	2.035
60	ACTGGCCTCTATAGTGCCAG	411	21	0	57.14	61.037	21.88	20.23	37.93	2.037
61	TTCTCTGCGTCGTTGGAGT	464	19	0	52.63	58.961	9.66	0.00	0.00	2.039
62	TCTCTCCTGTGCTGCTCGG	446	19	0	63.16	61.041	8.49	0.00	37.69	2.041
63	CTGCTGGATTCAACGGTTTTCTG	345	22	0	50.00	60.096	0.00	0.00	0.00	2.096
64	GGTTGCAGCACGAATGGC	429	18	0	61.11	60.126	2.05	0.00	0.00	2.126
65	GTGTTTTCTCTGCGTCGTTGGA	468	21	0	52.38	61.132	0.00	0.00	0.00	2.132
66	TTGCAGCACGAATGGCACTG	427	20	0	55.00	62.133	0.00	0.00	0.00	2.133
67	GTTGCAGCACGAATGGCACT	428	20	0	55.00	62.134	0.00	0.00	0.00	2.134
68	TCTCCTGTGCTGCTCGGTTG	444	20	0	60.00	62.142	0.00	0.00	37.69	2.142
69	TCTGCTGGATTCAACGGTTTC	346	21	0	47.62	58.849	0.00	0.00	0.00	2.151
70	CTGCTGGATTCAACGGTTTCT	345	21	0	47.62	58.846	0.00	0.00	0.00	2.154
71	CGGTTGCAGCACGAATGG	430	18	0	61.11	59.823	5.71	0.00	0.00	2.177
72	GCAGCACGAATGGCACTG	425	18	0	61.11	59.822	0.00	0.00	0.00	2.178
73	GCCTCTATAGTGCCAGCTAT	407	21	0	52.38	58.816	5.93	0.00	0.00	2.184
74	GCCCAGCTATTTTGTGGAATCG	396	22	0	50.00	60.224	0.00	0.00	0.00	2.224
75	TACTTGTGTTTTCTCTGCGTCGT	473	22	0	45.45	60.224	0.00	0.00	0.00	2.224
76	TCTGCTGGATTCAACGGTTTCT	346	22	0	45.45	60.225	0.00	0.00	0.00	2.225
77	CTCGGTTGCAGCACGAATGG	432	20	0	60.00	62.244	0.00	0.00	0.00	2.244
78	GTCTCTCCTGTGCTGCTCGG	447	20	0	65.00	62.260	8.49	0.00	37.69	2.260
79	TTTCTGCTGGATTCAACGGT	348	20	0	45.00	57.730	0.00	0.00	0.00	2.270
80	TTCTGCTGGATTCAACGGTT	347	20	0	45.00	57.730	0.00	0.00	0.00	2.270
81	TCTGCTGGATTCAACGGTTT	346	20	0	45.00	57.730	0.00	0.00	0.00	2.270
82	TGCTGGATTCAACGGTTTCT	344	20	0	45.00	57.730	0.00	0.00	0.00	2.270
83	TGCAGCACGAATGGCACT	426	18	0	55.56	60.282	0.00	0.00	0.00	2.282
84	TCTCCTGTGCTGCTCGGT	444	18	0	61.11	60.282	0.00	0.00	37.69	2.282
85	TGCCAGCTATTTTGTGGAA	397	20	0	45.00	57.699	0.00	0.00	0.00	2.301
86	TAGTGCCCAGCTATTTTGTGGA	400	22	0	45.45	59.693	0.00	0.00	0.00	2.307

# Primers data

87	CACTGGCCTCTATAGTGCCCA	412	21	0	57.14	61.311	15.67	7.83	37.93	2.311
88	AGCATGCGGTATACTGTCTCT	188	21	0	47.62	58.689	13.01	0.00	0.00	2.311
89	TCGGTTGCAGCACGAATGG	431	19	0	57.89	61.324	0.00	0.00	0.00	2.324
90	GATTCAACGGTTTCTGGCAC	339	20	0	50.00	57.668	0.00	0.00	0.00	2.332
91	CTCTCCTGTCGTGCTCGGT	445	19	0	63.16	61.336	0.00	0.00	37.69	2.336
92	TCCTGTCGTGCTCGGTTG	442	18	0	61.11	59.661	0.00	0.00	37.69	2.339
93	TACTTGTGTTTCTCTGCGTCG	473	21	0	47.62	58.609	0.00	0.00	0.00	2.391
94	TGTGTTTCTCTGCGTCTGTTG	469	21	0	52.38	61.396	0.00	0.00	0.00	2.396
95	CAGCATGCGGTATACTGTCTC	189	21	0	52.38	58.602	6.85	0.00	0.00	2.398
96	TTCAACGGTTTCTGGCACC	337	19	0	52.63	58.590	0.00	0.00	0.00	2.410
97	TTCTCTGCGTCGTTGGAGTCT	464	21	0	52.38	61.422	9.66	0.00	0.00	2.422
98	GCCTCTATAGTGCCAGCT	407	19	0	57.89	58.553	5.93	0.00	0.00	2.447
99	CTCTCCTGTCGTGCTCGG	445	18	0	66.67	59.513	8.49	0.00	37.69	2.487
100	AGTGCCAGCTATTTTGTGGAA	399	22	0	45.45	60.491	0.00	0.00	0.00	2.491
101	GTGCCCAGCTATTTTGTGGAAT	398	22	0	45.45	59.503	0.00	0.00	0.00	2.497
102	CAGCATGCGGTATACTGTCT	189	20	0	50.00	57.484	9.90	1.67	0.00	2.516
103	TTCTGCTGGATTCAACGGTTTC	347	22	0	45.45	59.448	0.00	0.00	0.00	2.552
104	GAGTCTCTCCTGTCGTGCT	449	19	0	57.89	58.438	0.00	0.00	0.00	2.562
105	AGTCTCTCCTGTCGTGCTC	448	19	0	57.89	58.438	0.00	0.00	0.00	2.562
106	GCCTCTATAGTGCCAGCTATT	407	22	0	50.00	59.431	5.93	0.00	0.00	2.569
107	TTTTCTGCTGGATTCAACGGT	349	21	0	42.86	58.418	0.00	0.00	0.00	2.582
108	TTTCTGCTGGATTCAACGGTT	348	21	0	42.86	58.418	0.00	0.00	0.00	2.582
109	TTCTGCTGGATTCAACGGTTT	347	21	0	42.86	58.418	0.00	0.00	0.00	2.582
110	CTTGTGTTTCTCTGCGTCGTTG	471	22	0	50.00	60.598	0.00	0.00	0.00	2.598
111	TGTTTCTCTGCGTCGTTGG	467	19	0	52.63	58.400	0.00	0.00	0.00	2.600
112	CTGCTGGATTCAACGGTTTC	345	20	0	50.00	57.381	0.00	0.00	0.00	2.619
113	GCTGGATTCAACGGTTTCTG	343	20	0	50.00	57.381	0.00	0.00	0.00	2.619
114	TGCAGCACGAATGGCACTG	426	19	0	57.89	61.619	0.00	0.00	0.00	2.619
115	GTTGCAGCACGAATGGCA	428	18	0	55.56	59.356	0.00	0.00	0.00	2.644
116	TTGCAGCACGAATGGCAC	427	18	0	55.56	59.356	0.00	0.00	0.00	2.644
117	CTCCTGTCGTGCTCGGTT	443	18	0	61.11	59.349	0.00	0.00	37.69	2.651
118	CTGTCGTGCTCGGTTGCA	440	18	0	61.11	60.662	3.16	0.00	41.05	2.662
119	TGTCGTGCTCGGTTGCAG	439	18	0	61.11	60.662	3.16	0.00	44.20	2.662
120	CTGTCGTGCTCGGTTGCAG	440	19	0	63.16	61.662	7.90	7.90	44.20	2.662
121	GCTCGGTTGCAGCACGAAT	433	19	0	57.89	61.681	13.22	0.00	0.00	2.681
122	TAGTGCCAGCTATTTTGTGG	400	21	0	47.62	58.278	0.00	0.00	0.00	2.722
123	TCTCTCCTGTCGTGCTCGGT	446	20	0	60.00	62.750	0.00	0.00	37.69	2.750
124	TGCCCAGCTATTTTGTGGAATC	397	22	0	45.45	59.240	0.00	0.00	0.00	2.760
125	AGCATGCGGTATACTGTCTC	188	20	0	50.00	57.197	13.01	0.00	0.00	2.803
126	GCATGCGGTATACTGTCTCT	187	20	0	50.00	57.197	3.72	0.00	0.00	2.803
127	TCTCTGCGTCGTTGGAGTCTC	463	21	0	57.14	61.806	9.66	0.00	0.00	2.806
128	TCTGCGTCGTTGGAGTCTCTC	461	21	0	57.14	61.806	0.00	0.00	0.00	2.806
129	CTCTGCGTCGTTGGAGTCTCT	462	21	0	57.14	61.810	4.08	0.00	0.00	2.810
130	TGCCCAGCTATTTTGTGGAAT	397	21	0	42.86	58.181	0.00	0.00	0.00	2.819
131	GCTCGGTTGCAGCACGAATG	433	20	0	60.00	62.839	0.00	0.00	0.00	2.839
132	CTGGCCTCTATAGTGCCCA	410	19	0	57.89	58.160	15.67	7.83	37.93	2.840
133	TGGCCTCTATAGTGCCAG	409	19	0	57.89	58.160	15.67	0.00	37.93	2.840

# Primers data

134	ACTGGCCTCTATAGTGCCC	411	19	0	57.89	58.158	24.00	12.62	37.93	2.842
135	CAGCACGAATGGCACTGG	424	18	0	61.11	59.127	0.00	0.00	0.00	2.873
136	GGAGTCTCTCCTGTGCTGCTC	450	21	0	61.90	61.878	8.38	0.00	46.41	2.878
137	GTTTCTCTGCGTCGTTGGA	466	19	0	52.63	58.105	0.00	0.00	0.00	2.895
138	GGTTGCAGCACGAATGGCA	429	19	0	57.89	61.918	2.05	0.00	0.00	2.918
139	TTTTTCTGCTGGATTCAACGGT	350	22	0	40.91	59.044	0.00	0.00	0.00	2.956
140	TTTTCTGCTGGATTCAACGGTT	349	22	0	40.91	59.044	0.00	0.00	0.00	2.956
141	TTTCTGCTGGATTCAACGGTTT	348	22	0	40.91	59.044	0.00	0.00	0.00	2.956
142	ATACTTGTGTTTTCTCTGCGTCG	474	22	0	45.45	59.013	0.00	0.00	0.00	2.987
143	GCAGCATGCGGTATACTGT	190	19	0	52.63	58.008	14.57	0.00	37.60	2.992
144	ACTTGTGTTTTCTCTGCGTCGTT	472	22	0	45.45	60.994	0.00	0.00	0.00	2.994
145	TTTCTGCTGGATTCAACGGTTTC	348	23	0	43.48	59.996	0.00	0.00	0.00	3.004
146	AGTTTTTCTGCTGGATTCAACGG	352	23	0	43.48	59.995	0.00	0.00	0.00	3.005
147	GCCTCTATAGTGCCCAGCTATTTT	407	23	0	47.83	59.992	5.93	0.00	0.00	3.008
148	CCCAGCTATTTTGTGGAATCGT	395	22	0	45.45	58.983	0.00	0.00	0.00	3.017
149	ATAGTGCCCAGCTATTTTGTGGA	401	23	0	43.48	60.054	0.00	0.00	0.00	3.054
150	AGCACGAATGGCACTGGC	423	18	0	61.11	61.058	0.00	0.00	40.13	3.058
151	CCCAGCTATTTTGTGGAATCGTC	395	23	0	47.83	59.935	0.00	0.00	0.00	3.065
152	GGCCTCTATAGTGCCCAGCTAT	408	22	0	54.55	61.156	19.28	0.00	34.65	3.156
153	GAGTCTCTCCTGTGCTGCTCG	449	21	0	61.90	62.184	0.81	0.81	38.55	3.184
154	TTTCTCTGCGTCGTTGGAG	465	19	0	52.63	57.805	5.37	5.37	0.00	3.195
155	CCAGCTATTTTGTGGAATCGTCG	394	23	0	47.83	60.242	0.00	0.00	0.00	3.242
156	GTTTTTCTGCTGGATTCAACGGT	351	23	0	43.48	60.243	0.00	0.00	0.00	3.243
157	TAGTGCCCAGCTATTTTGTGGAA	400	23	0	43.48	60.245	0.00	0.00	0.00	3.245
158	TCGGTTGCAGCACGAATG	431	18	0	55.56	58.747	0.00	0.00	0.00	3.253
159	CAGCATGCGGTATACTGTCTCTA	189	23	0	47.83	59.747	6.85	0.00	0.00	3.253
160	ATAGTGCCCAGCTATTTTGTGG	401	22	0	45.45	58.709	0.00	0.00	0.00	3.291
161	GCACTGGCCTCTATAGTGC	413	19	0	57.89	57.703	24.35	24.35	32.60	3.297
162	GTTTTTCTGCTGGATTCAACGG	351	22	0	45.45	58.691	0.00	0.00	0.00	3.309
163	CTGGCCTCTATAGTGCCCAGC	410	21	0	61.90	62.318	19.19	7.12	37.93	3.318
164	GCAGCACGAATGGCACTGG	425	19	0	63.16	62.332	3.18	0.00	0.00	3.332
165	CAGCACGAATGGCACTGGC	424	19	0	63.16	62.332	0.00	0.00	40.13	3.332
166	GCTCGGTTGCAGCACGAA	433	18	0	61.11	61.346	13.22	1.56	0.00	3.346
167	TTGTGTTTCTCTGCGTCGT	470	19	0	47.37	57.644	0.00	0.00	0.00	3.356
168	TGTGTTTCTCTGCGTCGTT	469	19	0	47.37	57.644	0.00	0.00	0.00	3.356
169	CAGCTATTTTGTGGAATCGTCGT	393	23	0	43.48	59.629	0.00	0.00	0.00	3.371
170	TTTTTCTGCTGGATTCAACGGTT	350	23	0	39.13	59.617	0.00	0.00	0.00	3.383
171	TTTTCTGCTGGATTCAACGGTTT	349	23	0	39.13	59.617	0.00	0.00	0.00	3.383
172	TGCTGGATTCAACGGTTTCTGG	344	22	0	50.00	61.392	0.00	0.00	0.00	3.392
173	CTGGATTCAACGGTTTCTGGCA	342	22	0	50.00	61.392	0.00	0.00	0.00	3.392
174	CCTGTGCTGCTCGGTTGC	441	18	0	66.67	61.415	0.00	0.00	37.69	3.415
175	GTGCCCAGCTATTTTGTGGAATC	398	23	0	47.83	60.429	0.00	0.00	0.00	3.429
176	GCAGCATGCGGTATACTGTCTC	190	22	0	54.55	61.430	14.57	0.00	37.60	3.430
177	GCCCAGCTATTTTGTGGAATC	396	21	0	47.62	57.557	0.00	0.00	0.00	3.443
178	AGCATGCGGTATACTGTCTCTA	188	22	0	45.45	58.513	13.01	0.00	0.00	3.487
179	ATACTTGTGTTTTCTCTGCGTCGT	474	23	0	43.48	60.552	0.00	0.00	0.00	3.552
180	CTCGGTTGCAGCACGAAT	432	18	0	55.56	58.434	13.22	0.00	0.00	3.566

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181	TCTCTCCTGTCGTGCTCG	446	18	0	61.11	58.420	0.81	0.81	38.55	3.580
182	GCACTGGCCTCTATAGTGCCC	413	21	0	61.90	62.584	26.85	12.62	37.93	3.584
183	AGCTATTTTGTGGAATCGTCGT	392	22	0	40.91	58.404	0.00	0.00	0.00	3.596
184	TTTTTCTGCTGGATTCAACGG	350	21	0	42.86	57.359	0.00	0.00	0.00	3.641
185	TGGATTCAACGGTTTCTGGCAC	341	22	0	50.00	61.648	0.00	0.00	0.00	3.648
186	CCCAGCTATTTTGTGGAATCG	395	21	0	47.62	57.302	0.00	0.00	0.00	3.698
187	GTGTTTCTCTGCGTCGTTG	468	19	0	52.63	57.290	0.00	0.00	0.00	3.710
188	GTTTCTCTGCGTCGTTGGAGTC	466	22	0	54.55	61.732	2.30	0.00	0.00	3.732
189	TACTTGTTGTTTCTCTGCGTCGTT	473	23	0	43.48	60.736	0.00	0.00	0.00	3.736
190	TTCTGCTGGATTCAACGGTTTCT	347	23	0	43.48	60.747	0.00	0.00	0.00	3.747
191	TCTCTGCGTCGTTGGAGT	463	18	0	55.56	58.240	9.66	0.00	0.00	3.760
192	TCTGCGTCGTTGGAGTCT	461	18	0	55.56	58.240	0.00	0.00	0.00	3.760
193	TGCGTCGTTGGAGTCTCT	459	18	0	55.56	58.240	0.00	0.00	0.00	3.760
194	TGGCCTCTATAGTGCCCAGCT	409	21	0	57.14	62.801	15.67	0.00	37.93	3.801
195	AGTGCCCAGCTATTTTGTGGAAT	399	23	0	43.48	60.819	0.00	0.00	0.00	3.819
196	TCCTGTGCTGCTCGGTTGC	442	19	0	63.16	62.859	0.00	0.00	37.69	3.859
197	TTGTGTTTCTCTGCGTCGTTGG	470	22	0	50.00	61.873	0.00	0.00	0.00	3.873
198	TTTCTCTGCGTCGTTGGAGTCT	465	22	0	50.00	61.907	9.66	0.00	0.00	3.907
199	GCATGCGGTATACTGTCTCTA	187	21	0	47.62	57.083	3.72	0.00	0.00	3.917
200	CAGCTATTTTGTGGAATCGTCG	393	22	0	45.45	58.072	0.00	0.00	0.00	3.928
201	CGGTTGCAGCACGAATGGC	430	19	0	63.16	62.952	5.71	0.00	0.00	3.952
202	CTCTCCTGTGCTGCTCGGTTG	445	21	0	61.90	62.980	0.00	0.00	37.69	3.980
203	GTGTTTCTCTGCGTCGTTGGAG	468	22	0	54.55	61.982	5.37	5.37	0.00	3.982
204	CACTGGCCTCTATAGTGCC	412	19	0	57.89	57.002	21.72	21.72	38.72	3.998
205	AGCTATTTTGTGGAATCGTCGTT	392	23	0	39.13	58.999	0.00	0.00	0.00	4.001
206	TGTCTCCATACACAGAGTCTGA	264	22	0	45.45	57.966	26.86	4.71	35.18	4.034
207	GTCGTGCTCGGTTGCAGC	438	18	0	66.67	62.077	0.00	0.00	44.20	4.077
208	CAGCATGCGGTATACTGTCTCTAT	189	24	0	45.83	60.083	6.85	0.00	0.00	4.083
209	AGCATGCGGTATACTGTCTCTAT	188	23	0	43.48	58.917	13.01	0.00	0.00	4.083
210	GGTGTCTAAGTTTTTCTGCTGGA	360	23	0	43.48	58.865	0.00	0.00	0.00	4.135
211	AGGTGTCTAAGTTTTTCTGCTGG	361	23	0	43.48	58.862	0.00	0.00	0.00	4.138
212	AGGTGTCTAAGTTTTTCTGCTGGA	361	24	0	41.67	60.141	0.00	0.00	0.00	4.141
213	TTTTTCTGCTGGATTCAACGGTTT	350	24	0	37.50	60.142	0.00	0.00	0.00	4.142
214	CAGCTATTTTGTGGAATCGTCGTT	393	24	0	41.67	60.143	0.00	0.00	0.00	4.143
215	TCAACGGTTTCTGGCACC	336	18	0	55.56	57.849	0.00	0.00	0.00	4.151
216	CTCTGCGTCGTTGGAGTC	462	18	0	61.11	57.845	4.08	0.00	0.00	4.155
217	CTGCGTCGTTGGAGTCTC	460	18	0	61.11	57.845	0.00	0.00	0.00	4.155
218	TATACTTGTTGTTTCTCTGCGTCG	475	23	0	43.48	58.836	0.00	0.00	0.00	4.164
219	TATAGTGCCCAGCTATTTTGTGGA	402	24	0	41.67	59.835	0.00	0.00	0.00	4.165
220	CACTGGCCTCTATAGTGCCCAG	412	22	0	59.09	62.185	21.88	20.23	37.93	4.185
221	AGTTTTTCTGCTGGATTCAACG	352	22	0	40.91	57.771	0.00	0.00	0.00	4.229
222	TTCTCTGCGTCGTTGGAGTCTC	464	22	0	54.55	62.268	9.66	0.00	0.00	4.268
223	GGATTCAACGGTTTCTGGCACC	340	22	0	54.55	62.279	0.00	0.00	0.00	4.279
224	CCAGCTATTTTGTGGAATCGTC	394	22	0	45.45	57.721	0.00	0.00	0.00	4.279
225	TATACTTGTTGTTTCTCTGCGTCGT	475	24	0	41.67	60.321	0.00	0.00	0.00	4.321
226	GCTATTTTGTGGAATCGTCGTT	391	22	0	40.91	57.663	0.00	0.00	0.00	4.337
227	TCTGCTGGATTCAACGGTTTCTG	346	23	0	47.83	61.360	0.00	0.00	0.00	4.360

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228	CGTGCTCGGTTGCAGCAC	436	18	0	66.67	62.375	15.86	15.86	44.20	4.375
229	GTGCTCGGTTGCAGCACG	435	18	0	66.67	62.375	13.30	9.35	44.20	4.375
230	TGTCTCCATACACAGAGTCTGAA	264	23	0	43.48	58.593	26.86	11.56	35.18	4.407
231	TGTTTTCTCTGCGTCGTTGGAGT	467	22	0	50.00	62.417	9.66	0.00	0.00	4.417
232	TGGCCTCTATAGTGCCCAGCTA	409	22	0	54.55	62.440	15.67	1.80	37.93	4.440
233	GCATGCGGTATACTGTCTCTAT	187	22	0	45.45	57.558	3.72	0.00	0.00	4.442
234	AGCTATTTTGTGGAATCGTCGTTT	392	24	0	37.50	59.545	0.00	0.00	0.00	4.455
235	TATAGTGCCCAGCTATTTTGTGG	402	23	0	43.48	58.540	0.00	0.00	0.00	4.460
236	GCGTCGTTGGAGTCTCTC	458	18	0	61.11	57.538	0.00	0.00	0.00	4.462
237	GGTGTCTAAGTTTTTCTGTGCG	360	22	0	45.45	57.510	0.00	0.00	0.00	4.490
238	TTTTCTGCTGGATTCAACGGTTTC	349	24	0	41.67	60.499	0.00	0.00	0.00	4.499
239	AAGTTTTTCTGCTGGATTCAACGG	353	24	0	41.67	60.500	0.00	0.00	0.00	4.500
240	GCCTCTATAGTGCCCAGCTATTTT	407	24	0	45.83	60.506	5.93	0.00	0.00	4.506
241	CTATAGTGCCCAGCTATTTTGTGG	403	24	0	45.83	59.483	0.00	0.00	0.00	4.517
242	ATAGTGCCCAGCTATTTTGTGGAA	401	24	0	41.67	60.570	0.00	0.00	0.00	4.570
243	TAGTGCCCAGCTATTTTGTGGAAT	400	24	0	41.67	60.570	0.00	0.00	0.00	4.570
244	AAGGTGTCTAAGTTTTTCTGTGCG	362	24	0	41.67	59.419	0.00	0.00	0.00	4.581
245	GCTGGATTCAACGGTTTCTGGC	343	22	0	54.55	62.585	0.00	0.00	0.00	4.585
246	TCGTGCTCGGTTGCAGCA	437	18	0	61.11	62.601	8.49	0.00	44.20	4.601
247	TGCTCGGTTGCAGCACGA	434	18	0	61.11	62.601	12.06	12.06	38.12	4.601
248	AAGTTTTTCTGCTGGATTCAACG	353	23	0	39.13	58.389	0.00	0.00	0.00	4.611
249	TTTGTGGAATCGTCGTTTTTCA	386	22	0	36.36	57.382	7.33	0.88	0.00	4.618
250	TTATACTTGTGTTTCTCTGCGTCG	476	24	0	41.67	59.380	0.00	0.00	0.00	4.620
251	CTCTGCGTCGTTGGAGTCTCTC	462	22	0	59.09	62.624	4.08	0.00	0.00	4.624
252	GGCCTCTATAGTGCCCAGCTATT	408	23	0	52.17	61.644	19.28	0.00	34.65	4.644
253	TGTGTTTCTCTGCGTCGTTGGA	469	22	0	50.00	62.667	0.00	0.00	0.00	4.667
254	GCTATTTTGTGGAATCGTCGTTT	391	23	0	39.13	58.281	0.00	0.00	0.00	4.719
255	GTTTTTCTGCTGGATTCAACGGTT	351	24	0	41.67	60.736	0.00	0.00	0.00	4.736
256	TGCCCAGCTATTTTGTGGAATCG	397	23	0	47.83	61.737	0.00	0.00	0.00	4.737
257	GCCCAGCTATTTTGTGGAATCGT	396	23	0	47.83	61.738	0.00	0.00	0.00	4.738
258	GGTGTCTAAGTTTTTCTGTGCGAT	360	24	0	41.67	59.238	0.00	0.00	0.00	4.762
259	TTGTGGAATCGTCGTTTTTCAT	385	22	0	36.36	57.178	1.86	0.00	0.00	4.822
260	TGTGGAATCGTCGTTTTTCATT	384	22	0	36.36	57.178	1.86	0.00	0.00	4.822
261	AGTCTCTCCTGTGCTGCT	448	18	0	55.56	57.167	0.00	0.00	0.00	4.833
262	CCTCTATAGTGCCCAGCTATTT	406	22	0	45.45	57.101	0.00	0.00	0.00	4.899
263	TTCTCTGCGTCGTTGGAG	464	18	0	55.56	57.034	5.37	5.37	0.00	4.966
264	TTTTGTGGAATCGTCGTTTTTCA	387	23	0	34.78	58.017	7.33	0.88	0.00	4.983
265	CCTCTATAGTGCCCAGCTATTTTG	406	24	0	45.83	59.000	0.00	0.00	0.00	5.000
266	TGTCTCCATACACAGAGTCTGAAT	264	24	0	41.67	58.981	13.25	4.49	35.18	5.019
267	ATACTTGTGTTTCTCTGCGTCGTT	474	24	0	41.67	61.032	0.00	0.00	0.00	5.032
268	AGCTATTTTGTGGAATCGTCGTTTT	392	25	0	36.00	60.049	0.00	0.00	0.00	5.049
269	TCGTCGTTTTTTCATTAAGGTGTCT	377	24	0	37.50	58.948	0.00	0.00	0.00	5.052
270	ACTTGTGTTTCTCTGCGTCGTTG	472	23	0	47.83	62.062	0.00	0.00	0.00	5.062
271	GCATGCGGTATACTGTCTCTATACA	187	25	0	44.00	60.106	3.72	0.00	31.23	5.106
272	CAGCATGCGGTATACTGTCTCTATA	189	25	0	44.00	59.876	6.85	0.00	0.00	5.124
273	AGCATGCGGTATACTGTCTCTATAC	188	25	0	44.00	59.876	13.01	0.00	0.00	5.124
274	GCTATTTTGTGGAATCGTCGTTTT	391	24	0	37.50	58.849	0.00	0.00	0.00	5.151

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275	ACTGTCTTGCAATATACACAGGT	112	23	0	39.13	57.834	18.84	9.32	0.00	5.166
276	TTTGTGGAATCGTCGTTTTTCAT	386	23	0	34.78	57.824	1.86	0.00	0.00	5.176
277	TTGTGGAATCGTCGTTTTTCATT	385	23	0	34.78	57.824	1.86	0.00	0.00	5.176
278	CTGCTGGATTCAACGGTTTCTGG	345	23	0	52.17	62.211	0.00	0.00	0.00	5.211
279	TTTCTGCTGGATTCAACGGTTTCT	348	24	0	41.67	61.227	0.00	0.00	0.00	5.227
280	CCTCTATAGTGCCAGCTATTTTT	406	23	0	43.48	57.766	0.00	0.00	0.00	5.234
281	GGTGTCTAAGTTTTTCTGCTGGATT	360	25	0	40.00	59.758	0.00	0.00	0.00	5.242
282	AGCATGCGGTATACTGTCTCTATA	188	24	0	41.67	58.746	13.01	0.00	0.00	5.254
283	TAAGTTTTTCTGCTGGATTCAACGG	354	25	0	40.00	60.278	0.00	0.00	0.00	5.278
284	TCGTCGTTTTTTCATTAAGGTGTC	377	23	0	39.13	57.667	0.00	0.00	0.00	5.333
285	GCATGCGGTATACTGTCTCTATAC	187	24	0	45.83	58.666	3.72	0.00	0.00	5.334
286	CGTCGTTTTTTCATTAAGGTGTCT	376	23	0	39.13	57.661	0.00	0.00	0.00	5.339
287	TATAGTGCCAGCTATTTTTGTGGAA	402	25	0	40.00	60.340	0.00	0.00	0.00	5.340
288	TCTATAGTGCCAGCTATTTTTGTG	404	24	0	41.67	58.632	0.00	0.00	0.00	5.368
289	CTGGATTCAACGGTTTCTGGCAC	342	23	0	52.17	62.451	0.00	0.00	0.00	5.451
290	CCTCTATAGTGCCAGCTATTTTTGT	406	25	0	44.00	60.455	0.00	0.00	0.00	5.455
291	AGGTGTCTAAGTTTTTCTGCTGGAT	361	25	0	40.00	60.457	0.00	0.00	0.00	5.457
292	AGTTTTTCTGCTGGATTCAACGGT	352	24	0	41.67	61.468	0.00	0.00	0.00	5.468
293	CTCTATAGTGCCAGCTATTTTTGTG	405	25	0	44.00	59.532	0.00	0.00	0.00	5.468
294	TGGAATCGTCGTTTTTTCATTAAGGT	382	25	0	36.00	59.529	7.33	0.00	0.00	5.471
295	ACTGTCTTGCAATATACACAGGTT	112	24	0	37.50	58.439	18.84	4.80	0.00	5.561
296	GCATGCGGTATACTGTCTCTATA	187	23	0	43.48	57.437	3.72	0.00	0.00	5.563
297	ATTTTGTGGAATCGTCGTTTTTCA	388	24	0	33.33	58.417	7.33	0.88	0.00	5.583
298	TTTTGTGGAATCGTCGTTTTTCAT	387	24	0	33.33	58.417	1.86	0.00	0.00	5.583
299	TTTGTGGAATCGTCGTTTTTCATT	386	24	0	33.33	58.417	1.86	0.00	0.00	5.583
300	GTCTCCATACACAGAGTCTGAAT	263	23	0	43.48	57.409	13.25	4.49	35.18	5.591
301	CTCTATAGTGCCAGCTATTTTTGT	405	24	0	41.67	58.385	0.00	0.00	0.00	5.615
302	TGTAAGTTCCAATACTGTCTTGCA	125	24	0	37.50	58.384	0.00	0.00	0.00	5.616
303	CAGCTATTTTGTGGAATCGTCGTTT	393	25	0	40.00	60.617	0.00	0.00	0.00	5.617
304	TGCGGTATACTGTCTCTATACACT	184	24	0	41.67	58.382	9.90	0.00	31.23	5.618
305	GCTATTTTGTGGAATCGTCGTTTTT	391	25	0	36.00	59.372	0.00	0.00	0.00	5.628
306	TCTATAGTGCCAGCTATTTTTGT	404	23	0	39.13	57.370	0.00	0.00	0.00	5.630
307	AAGGTGTCTAAGTTTTTCTGCTGGA	362	25	0	40.00	60.631	0.00	0.00	0.00	5.631
308	CTTGTGTTTCTCTGCGTCGTTGG	471	23	0	52.17	62.649	0.00	0.00	0.00	5.649
309	AGTGCCAGCTATTTTGTGGAATC	399	24	0	45.83	61.650	0.00	0.00	0.00	5.650
310	GCAGCATGCGGTATACTGTCTCT	190	23	0	52.17	62.652	14.57	0.00	37.60	5.652
311	CTATAGTGCCAGCTATTTTGTG	403	23	0	43.48	57.320	0.00	0.00	0.00	5.680
312	CCAGCTATTTTGTGGAATCGTCGT	394	24	0	45.83	61.681	0.00	0.00	0.00	5.681
313	TCTATAGTGCCAGCTATTTTGTGG	404	25	0	44.00	60.687	0.00	0.00	0.00	5.687
314	CTATAGTGCCAGCTATTTTGTGGA	403	25	0	44.00	60.687	0.00	0.00	0.00	5.687
315	TTTCTCTGCGTCGTTGGAGTCTC	465	23	0	52.17	62.691	9.66	0.00	0.00	5.691
316	TGGCCTCTATAGTGCCAGCTAT	409	23	0	52.17	62.692	15.67	0.00	37.93	5.692
317	ATCGTCGTTTTTTCATTAAGGTGTCT	378	25	0	36.00	59.301	0.00	0.00	0.00	5.699
318	CTGTAAGTTCCAATACTGTCTTGCA	126	25	0	40.00	59.299	0.00	0.00	0.00	5.701
319	CCGCAGGCACCTTATTAATAAAT	320	23	0	39.13	57.294	9.15	0.00	46.14	5.706
320	AAGGTGTCTAAGTTTTTCTGCTG	362	23	0	39.13	57.242	0.00	0.00	0.00	5.758
321	TAAGTTTTTCTGCTGGATTCAACG	354	24	0	37.50	58.242	0.00	0.00	0.00	5.758

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322	TAAGGTGTCTAAGTTTTTCTGCTGG	363	25	0	40.00	59.237	0.00	0.00	0.00	5.763
323	TACTTGTGTTTCTCTGCGTCGTTG	473	24	0	45.83	61.777	0.00	0.00	0.00	5.777
324	ACCTCTGTAAGTTCCAATACTGTCT	130	25	0	40.00	59.219	0.00	0.00	0.00	5.781
325	TTATACTTGTGTTTCTCTGCGTCGT	476	25	0	40.00	60.791	0.00	0.00	0.00	5.791
326	TATACTTGTGTTTCTCTGCGTCGTT	475	25	0	40.00	60.791	0.00	0.00	0.00	5.791
327	GTGGAATCGTCGTTTTTCATTAAGG	383	25	0	40.00	59.207	1.86	0.00	0.00	5.793
328	GGAATCGTCGTTTTTCATTAAGGTG	381	25	0	40.00	59.207	7.33	0.00	0.00	5.793
329	TTCTGCTGGATTCAACGGTTTTCTG	347	24	0	45.83	61.808	0.00	0.00	0.00	5.808
330	CTAAGTTTTTCTGCTGGATTCAACG	355	25	0	40.00	59.147	0.00	0.00	0.00	5.853
331	ATAGTGCCCGAGCTATTTTGTGGAAT	401	25	0	40.00	60.870	0.00	0.00	0.00	5.870
332	TCTATACATTTATGGCATGCAGC	208	23	0	39.13	57.115	7.99	0.11	44.65	5.885
333	CCGCAGGCACCTTATTAATAAAATTG	320	25	0	40.00	59.080	9.79	9.79	46.14	5.920
334	ATCGTCGTTTTTCATTAAGGTGTC	378	24	0	37.50	58.076	0.00	0.00	0.00	5.924
335	TGTGGAATCGTCGTTTTTCATTA	384	23	0	34.78	57.074	1.86	0.00	0.00	5.926
336	TCTGTAAGTTCCAATACTGTCTTGC	127	25	0	40.00	59.068	0.75	0.00	0.00	5.932
337	TGGAATCGTCGTTTTTCATTAAGG	382	24	0	37.50	58.066	7.33	0.00	0.00	5.934
338	GTTTCTCTGCGTCGTTGGAGTCT	466	23	0	52.17	62.935	4.98	0.00	0.00	5.935
339	GGAATCGTCGTTTTTCATTAAGGT	381	24	0	37.50	58.065	7.33	0.00	0.00	5.935
340	ATCGTCGTTTTTCATTAAGGTGT	378	23	0	34.78	57.065	0.00	0.00	0.00	5.935
341	TGCGGTATACTGTCTCTATACAC	184	23	0	43.48	57.063	9.90	0.00	31.23	5.937
342	GTGTCTAAGTTTTTCTGCTGGAT	359	23	0	39.13	57.051	0.00	0.00	0.00	5.949
343	TTTTTCTGCTGGATTCAACGGTTTC	350	25	0	40.00	60.963	0.00	0.00	0.00	5.963
344	GTGTCTAAGTTTTTCTGCTGGATTCA	359	26	0	38.46	60.017	0.00	0.00	0.00	6.017
345	TTTTGTGGAATCGTCGTTTTTCATT	387	25	0	32.00	58.963	1.86	0.00	0.00	6.037
346	ACCTCTGTAAGTTCCAATACTGTCT	130	24	0	41.67	57.961	0.00	0.00	0.00	6.039
347	TGTAAGTTCCAATACTGTCTTGCAA	125	25	0	36.00	58.941	0.00	0.00	0.00	6.059
348	TGTCTAAGTTTTTCTGCTGGATTCA	358	25	0	36.00	58.939	0.00	0.00	0.00	6.061
349	CCGCAGGCACCTTATTAATAAAATT	320	24	0	37.50	57.916	9.15	0.00	46.14	6.084
350	GGCCTCTATAGTGCCCGAGCTATTT	408	24	0	50.00	62.091	19.28	0.00	34.65	6.091
351	CTCTGTAAGTTCCAATACTGTCTTGC	128	26	0	42.31	59.909	0.75	0.00	0.00	6.091
352	CATGCGGTATACTGTCTCTATACACT	186	26	0	42.31	59.850	9.90	0.00	31.23	6.150
353	CTGTAAGTTCCAATACTGTCTTGC	126	24	0	41.67	57.829	0.75	0.00	0.00	6.171
354	GCTATTTTGTGGAATCGTCGTTTTTC	391	26	0	38.46	60.183	0.00	0.00	0.00	6.183
355	TGTCTCCATACACAGAGTCTGAATA	264	25	0	40.00	58.812	16.96	9.54	35.18	6.188
356	GTTTTTCTGCTGGATTCAACGGTTT	351	25	0	40.00	61.191	0.00	0.00	0.00	6.191
357	AATCGTCGTTTTTCATTAAGGTGTCT	379	26	0	34.62	59.796	0.00	0.00	0.00	6.204
358	CTGTAAGTTCCAATACTGTCTTGCAA	126	26	0	38.46	59.795	0.00	0.00	0.00	6.205
359	ATTTTGTGGAATCGTCGTTTTTCAT	388	25	0	32.00	58.787	1.86	0.00	0.00	6.213
360	TCGTCGTTTTTCATTAAGGTGTCTA	377	25	0	36.00	58.785	0.00	0.00	0.00	6.215
361	ATGCGGTATACTGTCTCTATACACT	185	25	0	40.00	58.761	9.90	0.00	31.23	6.239
362	CCCAGCTATTTTGTGGAATCGTCG	395	24	0	50.00	62.256	0.00	0.00	0.00	6.256
363	TTAAGGTGTCTAAGTTTTTCTGCTGG	364	26	0	38.46	59.738	0.00	0.00	0.00	6.262
364	ACCTCTGTAAGTTCCAATACTGTCTT	130	26	0	38.46	59.730	0.00	0.00	0.00	6.270
365	CCTCTGTAAGTTCCAATACTGTCT	129	24	0	41.67	57.712	0.00	0.00	0.00	6.288
366	TCTAAGTTTTTCTGCTGGATTCAACG	356	26	0	38.46	60.293	0.00	0.00	0.00	6.293
367	TACTGTCTTGCAATATACACAGGT	113	24	0	37.50	57.706	11.41	5.21	0.00	6.294
368	TTGTGGAATCGTCGTTTTTCATTA	385	24	0	33.33	57.698	1.86	0.00	0.00	6.302



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369	TGTGGAATCGTCGTTTTTCATTAA	384	24	0	33.33	57.698	1.86	0.00	0.00	6.302
370	AATCGTCGTTTTTCATTAAGGTGT	379	24	0	33.33	57.692	0.00	0.00	0.00	6.308
371	CATGCGGTATACTGTCTCTATACAC	186	25	0	44.00	58.684	9.90	0.00	31.23	6.316
372	GTGTCTAAGTTTTTCTGCTGGATT	359	24	0	37.50	57.681	0.00	0.00	0.00	6.319
373	GCAGCATGCGGTATACTGTCTCTA	190	24	0	50.00	62.339	14.57	0.00	37.60	6.339
374	TGTGGAATCGTCGTTTTTCATTAAG	384	25	0	36.00	58.633	0.15	0.00	0.00	6.367
375	GAATCGTCGTTTTTCATTAAGGTGT	380	25	0	36.00	58.632	2.12	0.00	0.00	6.368
376	AATCGTCGTTTTTCATTAAGGTGTC	379	25	0	36.00	58.632	0.00	0.00	0.00	6.368
377	GTGTCTAAGTTTTTCTGCTGGATTC	359	25	0	40.00	58.625	0.00	0.00	0.00	6.375
378	TAGTGCCAGCTATTTTGTGGAATC	400	25	0	44.00	61.382	0.00	0.00	0.00	6.382
379	TAAGGTGTCTAAGTTTTTCTGCTGGA	363	26	0	38.46	60.409	0.00	0.00	0.00	6.409
380	ATCTATACATTTATGGCATGCAGC	209	24	0	37.50	57.553	7.99	0.11	44.65	6.447
381	CGTCGTTTTTCATTAAGGTGTCTA	376	24	0	37.50	57.544	0.00	0.00	0.00	6.456
382	CCGAGGCACCTTATTAATAAATTGT	320	26	0	38.46	60.461	13.46	7.70	46.14	6.461
383	TCTGTAAGTTCCAATACTGTCTTGCA	127	26	0	38.46	60.464	0.00	0.00	0.00	6.464
384	CATGCGGTATACTGTCTCTATACA	186	24	0	41.67	57.504	9.90	0.00	31.23	6.496
385	ATGCGGTATACTGTCTCTATACAC	185	24	0	41.67	57.502	9.90	0.00	31.23	6.498
386	GCCCAGCTATTTTGTGGAATCGTC	396	24	0	50.00	62.502	0.00	0.00	0.00	6.502
387	CGCAGGCACCTTATTAATAAATTGT	319	25	0	36.00	58.496	13.46	7.70	0.00	6.504
388	AGCTATTTTGTGGAATCGTCGTTTTT	392	26	0	34.62	60.514	0.00	0.00	0.00	6.514
389	GAATCGTCGTTTTTCATTAAGGTGTC	380	26	0	38.46	59.481	2.12	0.00	0.00	6.519
390	GCCTCTATAGTGCCCAGCTATTTTG	407	25	0	48.00	61.544	5.93	0.00	0.00	6.544
391	TGTCTAAGTTTTTCTGCTGGATTCAA	358	26	0	34.62	59.454	0.00	0.00	0.00	6.546
392	GTAAGTTCCAATACTGTCTTGCAA	124	24	0	37.50	57.446	0.00	0.00	0.00	6.554
393	TGTCTAAGTTTTTCTGCTGGATTC	358	24	0	37.50	57.440	0.00	0.00	0.00	6.560
394	GTCTAAGTTTTTCTGCTGGATTCA	357	24	0	37.50	57.440	0.00	0.00	0.00	6.560
395	TGTGGAATCGTCGTTTTTCATTAAGG	384	26	0	38.46	60.567	0.15	0.00	0.00	6.567
396	TGGAATCGTCGTTTTTCATTAAGGTG	382	26	0	38.46	60.567	7.33	0.00	0.00	6.567
397	GTGGAATCGTCGTTTTTCATTAAGGT	383	26	0	38.46	60.567	1.86	0.00	0.00	6.567
398	GGAATCGTCGTTTTTCATTAAGGTGT	381	26	0	38.46	60.567	7.33	0.00	0.00	6.567
399	GGTGTCTAAGTTTTTCTGCTGGATTC	360	26	0	42.31	60.569	0.00	0.00	0.00	6.569
400	CCTCTGTAAGTTCCAATACTGTCTTG	129	26	0	42.31	59.408	0.00	0.00	0.00	6.592
401	TATAGTGCCAGCTATTTTGTGGAAT	402	26	0	38.46	60.637	0.00	0.00	0.00	6.637
402	TGCGGTATACTGTCTCTATACACTAC	184	26	0	42.31	59.352	9.90	0.00	31.23	6.648
403	GCGGTATACTGTCTCTATACACTACA	183	26	0	42.31	59.352	6.27	0.00	31.23	6.648
404	TGTCTCCATACACAGAGTCTGAATAA	264	26	0	38.46	59.336	7.70	0.00	35.18	6.664
405	TTTTCTGCTGGATTCAACGGTTTCT	349	25	0	40.00	61.669	0.00	0.00	0.00	6.669
406	ATTTTGTGGAATCGTCGTTTTTCATT	388	26	0	30.77	59.300	1.86	0.00	0.00	6.700
407	TCGTCGTTTTTCATTAAGGTGTCTAA	377	26	0	34.62	59.299	0.00	0.00	0.00	6.701
408	GTCTCCATACACAGAGTCTGAATA	263	24	0	41.67	57.299	16.96	9.54	35.18	6.701
409	CCTCTGTAAGTTCCAATACTGTCTT	129	25	0	40.00	58.298	0.00	0.00	0.00	6.702
410	TACTGTCTTGCAATATACACAGGTT	113	25	0	36.00	58.293	18.84	8.21	0.00	6.707
411	ACTGTCTTGCAATATACACAGGTTA	112	25	0	36.00	58.293	18.84	0.00	0.00	6.707
412	TGTAAGTTCCAATACTGTCTTGCAAT	125	26	0	34.62	59.285	0.00	0.00	0.00	6.715
413	TATTTTGTGGAATCGTCGTTTTTCA	389	25	0	32.00	58.274	7.33	0.88	0.00	6.726
414	TTTGTGGAATCGTCGTTTTTCATTA	386	25	0	32.00	58.274	1.86	0.00	0.00	6.726
415	TTGTGGAATCGTCGTTTTTCATTAA	385	25	0	32.00	58.274	1.45	0.00	0.00	6.726

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416	GTGCCCAGCTATTTTGTGGAATCG	398	24	0	50.00	62.736	0.00	0.00	0.00	6.736
417	TGCGGTATACTGTCTCTATACACTA	184	25	0	40.00	58.238	9.90	0.00	31.23	6.762
418	GTGGAATCGTCGTTTTTCATTAAG	383	24	0	37.50	57.167	1.86	0.00	0.00	6.833
419	GAATCGTCGTTTTTCATTAAGGTG	380	24	0	37.50	57.167	2.12	0.00	0.00	6.833
420	CTATTTTGTGGAATCGTCGTTTTTCA	390	26	0	34.62	59.146	7.33	0.88	0.00	6.854
421	TTGTGGAATCGTCGTTTTTCATTAAG	385	26	0	34.62	59.146	2.73	0.00	0.00	6.854
422	GTCTAAGTTTTTCTGCTGGATTCAAC	357	26	0	38.46	59.142	0.00	0.00	0.00	6.858
423	AATCTATACATTTATGGCATGCAGC	210	25	0	36.00	58.140	7.99	0.11	44.65	6.860
424	TAAGGTGTCTAAGTTTTTCTGCTG	363	24	0	37.50	57.139	0.00	0.00	0.00	6.861
425	ATCGTCGTTTTTCATTAAGGTGTCTA	378	26	0	34.62	59.130	0.00	0.00	0.00	6.870
426	CGTCGTTTTTCATTAAGGTGTCTAA	376	25	0	36.00	58.120	0.00	0.00	0.00	6.880
427	ATACTGTCTTGCAATATACACAGGT	114	25	0	36.00	58.111	11.41	5.21	0.00	6.889
428	CAGCATGCGGTATACTGTCTCTATAC	189	26	0	46.15	60.894	6.85	0.00	0.00	6.894
429	AAGTTTTTCTGCTGGATTCAACGGT	353	25	0	40.00	61.899	0.00	0.00	0.00	6.899
430	AGTTTTTCTGCTGGATTCAACGGTT	352	25	0	40.00	61.899	0.00	0.00	0.00	6.899
431	AAGGTGTCTAAGTTTTTCTGCTGGAT	362	26	0	38.46	60.917	0.00	0.00	0.00	6.917
432	AGGTGTCTAAGTTTTTCTGCTGGATT	361	26	0	38.46	60.917	0.00	0.00	0.00	6.917
433	TACCTCTGTAAGTTCCAATACTGTCT	131	26	0	38.46	59.048	0.00	0.00	0.00	6.952
434	GTCTAAGTTTTTCTGCTGGATTCAA	357	25	0	36.00	58.030	0.00	0.00	0.00	6.970
435	TCTAAGTTTTTCTGCTGGATTCAAC	356	25	0	36.00	58.030	0.00	0.00	0.00	6.970
436	CGCAGGCACCTTATTAATAAATTG	319	24	0	37.50	57.009	9.79	9.79	0.00	6.991
437	CGTCGTTTTTCATTAAGGTGTCTAAG	376	26	0	38.46	58.992	0.00	0.00	0.00	7.008
438	ATACTTGTGTTTCTCTGCGTCGTTG	474	25	0	44.00	62.020	0.00	0.00	0.00	7.020
439	ATTAAGGTGTCTAAGTTTTTCTGCTGG	365	27	0	37.04	60.040	0.00	0.00	0.00	7.040
440	CAGCTATTTTGTGGAATCGTCGTTTT	393	26	0	38.46	61.055	0.00	0.00	0.00	7.055
441	CTAAGTTTTTCTGCTGGATTCAACGG	355	26	0	42.31	61.057	0.00	0.00	0.00	7.057
442	GCGGTATACTGTCTCTATACACTAC	183	25	0	44.00	57.941	6.27	0.00	31.23	7.059
443	CTGTAAGTTCCAATACTGTCTTGCAAT	126	27	0	37.04	60.095	0.00	0.00	0.00	7.095
444	TCGTCGTTTTTCATTAAGGTGTCTAAG	377	27	0	37.04	60.096	0.00	0.00	0.00	7.096
445	CCAGCTATTTTGTGGAATCGTCGTT	394	25	0	44.00	62.096	0.00	0.00	0.00	7.096
446	GTCTCCATACACAGAGTCTGAATAA	263	25	0	40.00	57.898	7.70	0.00	35.18	7.102
447	GCATGCGGTATACTGTCTCTATACAC	187	26	0	46.15	61.111	3.72	0.00	31.23	7.111
448	CTATAGTGCCCAGCTATTTTGTGGAA	403	26	0	42.31	61.135	0.00	0.00	0.00	7.135
449	GTAAGTTCCAATACTGTCTTGCAAT	124	25	0	36.00	57.854	0.24	0.00	0.00	7.146
450	TACCTCTGTAAGTTCCAATACTGTC	131	25	0	40.00	57.833	0.00	0.00	0.00	7.167
451	GCGGTATACTGTCTCTATACACTACAA	183	27	0	40.74	59.828	6.27	0.00	31.23	7.172
452	TTTTGTGGAATCGTCGTTTTTCATTA	387	26	0	30.77	58.806	1.86	0.00	0.00	7.194
453	TTTGTGGAATCGTCGTTTTTCATTAA	386	26	0	30.77	58.806	1.62	0.00	0.00	7.194
454	TTTCTGCTGGATTCAACGGTTTCTG	348	25	0	44.00	62.221	0.00	0.00	0.00	7.221
455	TTATACTTGTGTTTCTCTGCGTCGTT	476	26	0	38.46	61.227	0.00	0.00	0.00	7.227
456	TGAATGCAAATTCAAATACCTCTGT	147	25	0	32.00	57.769	2.83	0.00	37.59	7.231
457	AGCATGCGGTATACTGTCTCTATACA	188	26	0	42.31	61.247	13.01	0.00	31.23	7.247
458	CTATTTTGTGGAATCGTCGTTTTTC	390	25	0	36.00	57.752	0.00	0.00	0.00	7.248
459	CCAATACTGTCTTGCAATATACACAGG	117	27	0	40.74	60.255	18.84	8.97	0.00	7.255
460	CCGCAGGCACCTTATTAATAAATTGTA	320	27	0	37.04	60.255	13.46	0.00	46.14	7.255
461	TTAAGGTGTCTAAGTTTTTCTGCTG	364	25	0	36.00	57.741	0.00	0.00	0.00	7.259
462	CAATACTGTCTTGCAATATACACAGGT	116	27	0	37.04	59.719	11.41	5.21	0.00	7.281

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463	CGTCGTTTTTCATTAAGGTGTCTAAGT	376	27	0	37.04	60.307	0.00	0.00	0.00	7.307
464	AAATCTATACATTTATGGCATGCAGC	211	26	0	34.62	58.682	7.99	0.11	44.65	7.318
465	CATGCGGTATACTGTCTCTATACACTA	186	27	0	40.74	59.666	9.90	0.00	31.23	7.334
466	ATGCGGTATACTGTCTCTATACACTAC	185	27	0	40.74	59.666	9.90	0.00	31.23	7.334
467	TCCAATACTGTCTTGCAATATACACA	118	26	0	34.62	58.665	9.08	3.86	0.00	7.335
468	AATACTGTCTTGCAATATACACAGGT	115	26	0	34.62	58.661	11.41	5.21	0.00	7.339
469	ATACTGTCTTGCAATATACACAGGTT	114	26	0	34.62	58.661	18.84	9.01	0.00	7.339
470	ACTGTCTTGCAATATACACAGGTTAT	112	26	0	34.62	58.661	18.84	4.09	0.00	7.339
471	TGTCTCCATACACAGAGTCTGAATAAT	264	27	0	37.04	59.657	8.51	0.00	35.18	7.343
472	TCTCCATACACAGAGTCTGAATAATGT	262	27	0	37.04	59.657	16.73	13.16	35.18	7.343
473	TCCATACACAGAGTCTGAATAATGTCT	260	27	0	37.04	59.657	16.73	5.64	35.18	7.343
474	TATTTTGTGGAATCGTCGTTTTTCAT	389	26	0	30.77	58.636	1.86	0.00	0.00	7.364
475	TTTGTGGAATCGTCGTTTTTCATTAAG	386	27	0	33.33	59.623	2.89	0.00	0.00	7.377
476	AATCGTCGTTTTTCATTAAGGTGTCTA	379	27	0	33.33	59.614	0.00	0.00	0.00	7.386
477	ATCGTCGTTTTTCATTAAGGTGTCTAA	378	27	0	33.33	59.614	0.00	0.00	0.00	7.386
478	ATGCGGTATACTGTCTCTATACACTA	185	26	0	38.46	58.608	9.90	0.00	31.23	7.392
479	TCCATACACAGAGTCTGAATAATGT	260	25	0	36.00	57.576	16.73	13.16	35.18	7.424
480	TACCTCTGTAAGTTCCAATACTGTCTT	131	27	0	37.04	59.546	0.00	0.00	0.00	7.454
481	CCTCTATAGTGCCCAGCTATTTTGTG	406	26	0	46.15	61.459	0.00	0.00	0.00	7.459
482	CTCTATAGTGCCCAGCTATTTTGTGG	405	26	0	46.15	61.459	0.00	0.00	0.00	7.459
483	GTGTCTAAGTTTTTCTGCTGGATTCAA	359	27	0	37.04	60.469	0.00	0.00	0.00	7.469
484	TGTCTAAGTTTTTCTGCTGGATTCAAC	358	27	0	37.04	60.469	0.00	0.00	0.00	7.469
485	TCCATACACAGAGTCTGAATAATGTC	260	26	0	38.46	58.507	16.73	0.00	35.18	7.493
486	TCCAATACTGTCTTGCAATATACACAG	118	27	0	37.04	59.504	15.54	15.54	0.00	7.496
487	CTCCATACACAGAGTCTGAATAATGT	261	26	0	38.46	58.504	16.73	13.16	35.18	7.496
488	CCATACACAGAGTCTGAATAATGTCT	259	26	0	38.46	58.504	16.73	5.64	35.18	7.496
489	GGCCTCTATAGTGCCCAGCTATTTT	408	25	0	48.00	62.503	19.28	0.00	34.65	7.503
490	CTATTTTGTGGAATCGTCGTTTTTCAT	390	27	0	33.33	59.463	1.86	0.00	0.00	7.537
491	CCAATACTGTCTTGCAATATACACA	117	25	0	36.00	57.448	9.08	3.86	0.00	7.552
492	GCAGCATGCGGTATACTGTCTCTAT	190	25	0	48.00	62.567	14.57	0.00	37.60	7.567
493	GAATCGTCGTTTTTCATTAAGGTGTCT	380	27	0	37.04	60.571	2.12	0.00	0.00	7.571
494	CTCTGTAAGTTCCAATACTGTCTTG	128	25	0	40.00	57.412	0.00	0.00	0.00	7.588
495	ATACCTCTGTAAGTTCCAATACTGTCT	132	27	0	37.04	59.380	0.00	0.00	0.00	7.620
496	TAAGTTTTTCTGCTGGATTCAACGGT	354	26	0	38.46	61.633	0.00	0.00	0.00	7.633
497	CCAATACTGTCTTGCAATATACACAG	117	26	0	38.46	58.366	15.54	15.54	0.00	7.634
498	CAATACTGTCTTGCAATATACACAGG	116	26	0	38.46	58.366	18.84	8.89	0.00	7.634
499	ATAGTGCCCAGCTATTTTGTGGAATC	401	26	0	42.31	61.638	0.00	0.00	0.00	7.638
500	CGCAGGCACCTTATTAATAAATTGTA	319	26	0	34.62	58.356	13.46	0.00	0.00	7.644
501	GTCTCCATACACAGAGTCTGAATAATG	263	27	0	40.74	59.349	15.00	12.15	35.18	7.651
502	CTCCATACACAGAGTCTGAATAATGTC	261	27	0	40.74	59.349	16.73	0.00	35.18	7.651
503	TTGAATGCAAATTCAAATACCTCTGT	148	26	0	30.77	58.331	0.00	0.00	44.64	7.669
504	TGCGGTATACTGTCTCTATACACTACA	184	27	0	40.74	60.688	9.90	0.00	31.23	7.688
505	TAAGGTGTCTAAGTTTTTCTGCTGGAT	363	27	0	37.04	60.692	0.00	0.00	0.00	7.692
506	TTTTGTGGAATCGTCGTTTTTCATTAA	387	27	0	29.63	59.299	1.62	0.00	0.00	7.701
507	CCATACACAGAGTCTGAATAATGTC	259	25	0	40.00	57.294	16.73	0.00	35.18	7.706
508	TCATTAAGGTGTCTAAGTTTTTCTGCT	367	27	0	33.33	59.280	0.00	0.00	0.00	7.720
509	TCTCCATACACAGAGTCTGAATAATG	262	26	0	38.46	58.280	15.00	12.15	35.18	7.720

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510	GTCTCCATACACAGAGTCTGAATAAT	263	26	0	38.46	58.279	8.51	0.00	35.18	7.721
511	ATACCTCTGTAAGTTCCAATACTGT	132	25	0	36.00	57.265	0.00	0.00	0.00	7.735
512	ACCTCTGTAAGTTCCAATACTGTCTTG	130	27	0	40.74	60.741	0.00	0.00	0.00	7.741
513	GCAAATTCAAATACCTCTGTAAGTTCC	142	27	0	37.04	59.245	0.00	0.00	0.00	7.755
514	TATACTTGTGTTTCTCTGCGTCGTTG	475	26	0	42.31	61.756	0.00	0.00	0.00	7.756
515	TGCAAATTCAAATACCTCTGTAAGT	143	25	0	32.00	57.241	0.00	0.00	0.00	7.759
516	ATACCTCTGTAAGTTCCAATACTGTC	132	26	0	38.46	58.217	0.00	0.00	0.00	7.783
517	TCCAATACTGTCTTGCAATATACAC	118	25	0	36.00	57.214	9.08	0.02	0.00	7.786
518	AATACTGTCTTGCAATATACACAGG	115	25	0	36.00	57.208	18.84	8.89	0.00	7.792
519	CTGTCTTGCAATATACACAGGTTAT	111	25	0	36.00	57.208	11.78	0.00	0.00	7.792
520	CATTAAGGTGTCTAAGTTTTTCTGCTG	366	27	0	37.04	59.195	0.00	0.00	0.00	7.805
521	AAAATCTATACATTTATGGCATGCAGC	212	27	0	33.33	59.184	7.99	0.11	44.65	7.816
522	TCTATAGTGCCAGCTATTTTGTGGA	404	26	0	42.31	61.826	0.00	0.00	0.00	7.826
523	TTCCAATACTGTCTTGCAATATACACA	119	27	0	33.33	59.173	9.08	3.86	0.00	7.827
524	AATACTGTCTTGCAATATACACAGGTT	115	27	0	33.33	59.171	13.29	8.25	0.00	7.829
525	ACTGTCTTGCAATATACACAGGTTATT	112	27	0	33.33	59.171	18.84	3.84	0.00	7.829
526	TACTGTCTTGCAATATACACAGGTTA	113	26	0	34.62	58.157	18.84	7.57	0.00	7.843
527	TTAAGGTGTCTAAGTTTTTCTGCTGGA	364	27	0	37.04	60.853	0.00	0.00	0.00	7.853
528	GTCGTTTTTTCATTAAGGTGTCTAAGT	375	26	0	34.62	58.141	0.00	0.00	0.00	7.859
529	TATTTTGTGGAATCGTCGTTTTTCATT	389	27	0	29.63	59.137	0.00	0.00	0.00	7.863
530	ATTTTGTGGAATCGTCGTTTTTCATTA	388	27	0	29.63	59.137	0.00	0.00	0.00	7.863
531	TCATTAAGGTGTCTAAGTTTTTCTGC	367	26	0	34.62	58.128	0.00	0.00	0.00	7.872
532	CATTAAGGTGTCTAAGTTTTTCTGCT	366	26	0	34.62	58.124	0.00	0.00	0.00	7.876
533	ATTAAGGTGTCTAAGTTTTTCTGCTG	365	26	0	34.62	58.124	0.00	0.00	0.00	7.876
534	TGTAAGTTCCAATACTGTCTTGCAATA	125	27	0	33.33	59.119	0.00	0.00	0.00	7.881
535	TCTGTAAGTTCCAATACTGTCTTGCAA	127	27	0	37.04	60.904	0.00	0.00	0.00	7.904
536	TCTCCATACACAGAGTCTGAATAAT	262	25	0	36.00	57.095	8.51	0.00	35.18	7.905
537	GTTTTTCTGCTGGATTCAACGGTTTC	351	26	0	42.31	61.921	0.00	0.00	0.00	7.921
538	CTCCATACACAGAGTCTGAATAATG	261	25	0	40.00	57.057	15.00	12.15	35.18	7.943
539	AAGTTCCAATACTGTCTTGCAATAT	122	25	0	32.00	57.055	0.00	0.00	0.00	7.945
540	CCATACACAGAGTCTGAATAATGTCTT	259	27	0	37.04	59.016	16.73	4.96	35.18	7.984
541	TTGTGGAATCGTCGTTTTTCATTAAGG	385	27	0	37.04	60.994	2.73	0.00	0.00	7.994
542	AGTTCCAATACTGTCTTGCAATATACA	121	27	0	33.33	58.953	9.08	9.08	0.00	8.047
543	ATACACAGGTTATTTCTATGTCTTGCA	99	27	0	33.33	58.953	0.00	0.00	0.00	8.047
544	TTTTTCTGCTGGATTCAACGGTTTCT	350	26	0	38.46	62.076	0.00	0.00	0.00	8.076
545	GTTCCAATACTGTCTTGCAATATACAC	120	27	0	37.04	58.877	9.08	0.02	0.00	8.123
546	AATACCTCTGTAAGTTCCAATACTGT	133	26	0	34.62	57.853	0.00	0.00	0.00	8.147
547	TGCAAATTCAAATACCTCTGTAAGTT	143	26	0	30.77	57.823	0.00	0.00	0.00	8.177
548	GTTCCAATACTGTCTTGCAATATACA	120	26	0	34.62	57.791	9.08	9.08	0.00	8.209
549	TTCCAATACTGTCTTGCAATATACAC	119	26	0	34.62	57.791	9.08	0.02	0.00	8.209
550	CTGTCTTGCAATATACACAGGTTATT	111	26	0	34.62	57.786	11.78	0.00	0.00	8.214
551	CTCTGTAAGTTCCAATACTGTCTTGCA	128	27	0	40.74	61.218	0.00	0.00	0.00	8.218
552	GTCTAAGTTTTTCTGCTGGATTCAACG	357	27	0	40.74	61.250	0.00	0.00	0.00	8.250
553	AGCTATTTTGTGGAATCGTCGTTTTTC	392	27	0	37.04	61.253	0.00	0.00	0.00	8.253
554	AATACCTCTGTAAGTTCCAATACTGTC	133	27	0	37.04	58.741	0.00	0.00	0.00	8.259
555	GTAAGTTCCAATACTGTCTTGCAATA	124	26	0	34.62	57.736	0.00	0.00	0.00	8.264
556	GCAGCATGCGGTATACTGTCTCTATA	190	26	0	46.15	62.278	14.57	0.00	37.60	8.278

# Primers data

557	CGCAGGCACCTTATTAATAAATTGTAT	319	27	0	33.33	58.703	13.46	4.54	0.00	8.297
558	TGCAAATTCAAATACCTCTGTAAGTTC	143	27	0	33.33	58.703	0.00	0.00	0.00	8.297
559	AAGTTTTTCTGCTGGATTCAACGGTT	353	26	0	38.46	62.298	0.00	0.00	0.00	8.298
560	AGTTTTTCTGCTGGATTCAACGGTTT	352	26	0	38.46	62.298	0.00	0.00	0.00	8.298
561	GGAATCGTCGTTTTTTCATTAAGGTGTC	381	27	0	40.74	61.299	7.33	0.00	0.00	8.299
562	GTCGTTTTTTCATTAAGGTGTCTAAGTT	375	27	0	33.33	58.660	0.00	0.00	0.00	8.340
563	AAGGTGTCTAAGTTTTTCTGCTGGATT	362	27	0	37.04	61.343	0.00	0.00	0.00	8.343
564	TGAATGCAAATTCAAATACCTCTGTA	147	26	0	30.77	57.653	2.83	0.00	37.59	8.347
565	TTCATTAAGGTGTCTAAGTTTTTCTGTC	368	27	0	33.33	58.650	0.00	0.00	0.00	8.350
566	ATGCAAATTCAAATACCTCTGTAAGT	144	26	0	30.77	57.647	0.00	0.00	0.00	8.353
567	TATAGTGCCCAGCTATTTTGTGGAATC	402	27	0	40.74	61.389	0.00	0.00	0.00	8.389
568	CTATAGTGCCCAGCTATTTTGTGGAAT	403	27	0	40.74	61.392	0.00	0.00	0.00	8.392
569	AGTTCCAATACTGTCTTGCAATATAC	121	26	0	34.62	57.561	0.98	0.98	0.00	8.439
570	ATACACAGGTTATTTCTATGTCTTGC	99	26	0	34.62	57.561	0.00	0.00	0.00	8.439
571	TCGTTTTTTCATTAAGGTGTCTAAGTT	374	26	0	30.77	57.559	0.00	0.00	0.00	8.441
572	GCTATTTTGTGGAATCGTCGTTTTTCA	391	27	0	37.04	61.460	7.33	0.88	0.00	8.460
573	CAGCTATTTTGTGGAATCGTCGTTTTT	393	27	0	37.04	61.462	0.00	0.00	0.00	8.462
574	CCAGCTATTTTGTGGAATCGTCGTTT	394	26	0	42.31	62.481	0.00	0.00	0.00	8.481
575	ATACTGTCTTGCAATATACACAGGTTA	114	27	0	33.33	58.517	4.29	0.00	0.00	8.483
576	TACTGTCTTGCAATATACACAGGTTAT	113	27	0	33.33	58.517	3.21	0.00	0.00	8.483
577	GTGGAATCGTCGTTTTTTCATTAAGGTG	383	27	0	40.74	61.507	1.86	0.00	0.00	8.507
578	TGTCTTGCAATATACACAGGTTATTT	110	26	0	30.77	57.426	9.60	0.00	0.00	8.574
579	CGGTATACTGTCTCTATACACTACAA	182	26	0	38.46	57.401	3.31	0.00	31.23	8.599
580	TTTTCTGCTGGATTCAACGGTTTCTG	349	26	0	42.31	62.603	0.00	0.00	0.00	8.603
581	AAATACCTCTGTAAGTTCCAATACTGT	134	27	0	33.33	58.397	0.00	0.00	0.00	8.603
582	AGGTGTCTAAGTTTTTCTGCTGGATTC	361	27	0	40.74	61.653	0.00	0.00	0.00	8.653
583	TGTCTTGCAATATACACAGGTTATTTT	110	27	0	33.33	58.326	9.60	0.00	0.00	8.674
584	GCAAATTCAAATACCTCTGTAAGTTC	142	26	0	34.62	57.325	0.00	0.00	0.00	8.675
585	CTGTCTTGCAATATACACAGGTTATTT	111	27	0	33.33	58.323	11.78	0.00	0.00	8.677
586	CCTCTGTAAGTTCCAATACTGTCTTGC	129	27	0	44.44	61.743	0.75	0.00	0.00	8.743
587	CAAATTCAAATACCTCTGTAAGTTCCA	141	27	0	33.33	58.207	0.00	0.00	0.00	8.793
588	TTGAATGCAAATTCAAATACCTCTGTA	148	27	0	29.63	58.199	0.00	0.00	44.64	8.801
589	TGAATGCAAATTCAAATACCTCTGTAA	147	27	0	29.63	58.199	2.83	0.00	37.59	8.801
590	AATGCAAATTCAAATACCTCTGTAAGT	145	27	0	29.63	58.194	0.00	0.00	0.00	8.806
591	ATGCAAATTCAAATACCTCTGTAAGTT	144	27	0	29.63	58.194	0.00	0.00	0.00	8.806
592	TCAAATACCTCTGTAAGTTCCAATACT	136	27	0	33.33	58.177	0.00	0.00	0.00	8.823
593	TGTGGAATCGTCGTTTTTTCATTAAGGT	384	27	0	37.04	61.856	0.15	0.00	0.00	8.856
594	TGGAATCGTCGTTTTTTCATTAAGGTGT	382	27	0	37.04	61.856	7.33	0.00	0.00	8.856
595	GGTGTCTAAGTTTTTCTGCTGGATTCA	360	27	0	40.74	61.863	0.00	0.00	0.00	8.863
596	GCCTCTATAGTGCCCAGCTATTTTGT	407	26	0	46.15	62.869	5.93	0.00	0.00	8.869
597	CAAATACCTCTGTAAGTTCCAATACTG	135	27	0	37.04	58.116	0.00	0.00	0.00	8.884
598	GTAAGTTCCAATACTGTCTTGCAATAT	124	27	0	33.33	58.106	0.00	0.00	0.00	8.894
599	AAGTTCCAATACTGTCTTGCAATATAC	122	27	0	33.33	58.106	0.98	0.98	0.00	8.894
600	GTCTTGCAATATACACAGGTTATTTCT	109	27	0	33.33	58.106	2.76	0.00	0.00	8.894
601	TCGTTTTTTCATTAAGGTGTCTAAGTTT	374	27	0	29.63	58.104	0.00	0.00	0.00	8.896
602	AAATTCAAATACCTCTGTAAGTTCCA	140	26	0	30.77	57.066	0.00	0.00	0.00	8.934
603	AATTCAAATACCTCTGTAAGTTCCAA	139	26	0	30.77	57.066	0.00	0.00	0.00	8.934

Primers data

604	CATACACAGAGTCTGAATAATGTCTT	258	26	0	34.62	57.061	14.59	2.70	35.18	8.939
605	TAAGTTTTTCTGCTGGATTCAACGGTT	354	27	0	37.04	62.027	0.00	0.00	0.00	9.027
606	CGGTATACTGTCTCTATACACTACAAA	182	27	0	37.04	57.950	3.31	0.00	31.23	9.050
607	ACCCAGTGTTAGTTAGTTTTTCTAATG	291	27	0	33.33	57.936	0.00	0.00	40.23	9.064
608	CCCAGTGTTAGTTAGTTTTTCTAATGT	290	27	0	33.33	57.936	0.00	0.00	40.23	9.064
609	TCTAAGTTTTTCTGCTGGATTCAACGG	356	27	0	40.74	62.117	0.00	0.00	0.00	9.117
610	TTATACTTGTGTTTCTCTGCGTCGTTG	476	27	0	40.74	62.136	0.00	0.00	0.00	9.136
611	CAGCATGCGGTATACTGTCTCTATACA	189	27	0	44.44	62.172	6.85	0.00	31.23	9.172
612	AGCATGCGGTATACTGTCTCTATACAC	188	27	0	44.44	62.173	13.01	0.00	31.23	9.173
613	GCATGCGGTATACTGTCTCTATACACT	187	27	0	44.44	62.173	3.72	0.00	31.23	9.173
614	TCTATAGTGCCCAGCTATTTTGTGGAA	404	27	0	40.74	62.220	0.00	0.00	0.00	9.220
615	GAATGCAAATTCAAATACCTCTGTAAG	146	27	0	33.33	57.706	0.00	0.00	0.00	9.294
616	CTAAGTTTTTCTGCTGGATTCAACGGT	355	27	0	40.74	62.330	0.00	0.00	0.00	9.330
617	AAATTCAAATACCTCTGTAAGTTCCAA	140	27	0	29.63	57.638	0.00	0.00	0.00	9.362
618	TTCAAATACCTCTGTAAGTTCCAATAC	137	27	0	33.33	57.555	0.00	0.00	0.00	9.445
619	CGTTTTTTCATTAAGGTGTCTAAGTTTT	373	27	0	29.63	57.489	0.00	0.00	0.00	9.511
620	CTCTATAGTGCCCAGCTATTTTGTGGA	405	27	0	44.44	62.525	0.00	0.00	0.00	9.525
621	AATTCAAATACCTCTGTAAGTTCCAAT	139	27	0	29.63	57.466	0.00	0.00	0.00	9.534
622	TATACACAGGTTATTTCTATGTCTTGC	100	27	0	33.33	57.458	0.00	0.00	0.00	9.542
623	AACCCAGTGTTAGTTAGTTTTTCTAAT	292	27	0	29.63	57.363	0.00	0.00	36.90	9.637
624	AAGTTTTTCTGCTGGATTCAACGGTTT	353	27	0	37.04	62.668	0.00	0.00	0.00	9.668
625	AAAAATCTATACATTTATGGCATGCAG	213	27	0	29.63	57.299	7.99	0.00	0.00	9.701
626	CCAGCTATTTTGTGGAATCGTCGTTTT	394	27	0	40.74	62.838	0.00	0.00	0.00	9.838
627	TGCAATATACACAGGTTATTTCTATGT	105	27	0	29.63	57.154	0.00	0.00	0.00	9.846
628	TTGTATAACCCAGTGTTAGTTAGTTTT	298	27	0	29.63	57.150	0.00	0.00	42.50	9.850
629	TGTATAACCCAGTGTTAGTTAGTTTT	297	27	0	29.63	57.150	0.00	0.00	42.50	9.850
630	CCAGTGTTAGTTAGTTTTTCTAATGTG	289	27	0	33.33	57.121	0.00	0.00	40.23	9.879
631	ACACAGAGTCTGAATAATGTCTTAATT	255	27	0	29.63	57.050	17.85	0.00	35.18	9.950
632	TTTTTCTGCTGGATTCAACGGTTTCTG	350	27	0	40.74	62.957	0.00	0.00	0.00	9.957
633	AGTTTTTCTGCTGGATTCAACGGTTTC	352	27	0	40.74	62.959	0.00	0.00	0.00	9.959
634	GTTTTTCTGCTGGATTCAACGGTTTCT	351	27	0	40.74	62.959	0.00	0.00	0.00	9.959
635	ACACTACAAATAAATCTTTGAATGCAA	165	27	0	25.93	57.020	2.43	0.00	38.17	9.980

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## BLAST INFORMATION

BLASTN 2.6.1+

Reference: Stephen F. Altschul, Thomas L. Madden, Alejandro A. Schaffer, Jinghui Zhang, Zheng Zhang, Webb Miller, and David J. Lipman (1997), "Gapped BLAST and PSI-BLAST: a new generation of protein database search programs", Nucleic Acids Res. 25:3389-3402.

RID: PD1J2WKF014

Database: Nucleotide collection (nt)

43,336,626 sequences; 150,108,365,041 total letters

Query=

Length=20

Score E

Sequences producing significant alignments:

(Bits) Value

KY457840.1	Human papillomavirus type 18 strain 18CNTZ36 E6 (E...	37.4	2.6
KY457839.1	Human papillomavirus type 18 strain 18CNTZ35 E6 (E...	37.4	2.6
KY457838.1	Human papillomavirus type 18 strain 18CNTZ34 E6 (E...	37.4	2.6
KY457837.1	Human papillomavirus type 18 strain 18CNTZ33 E6 (E...	37.4	2.6
KY457836.1	Human papillomavirus type 18 strain 18CNTZ32 E6 (E...	37.4	2.6
KY457835.1	Human papillomavirus type 18 strain 18CNTZ31 E6 (E...	37.4	2.6
KY457834.1	Human papillomavirus type 18 strain 18CNTZ30 E6 (E...	37.4	2.6
KY457833.1	Human papillomavirus type 18 strain 18CNTZ29 E6 (E...	37.4	2.6
KY457832.1	Human papillomavirus type 18 strain 18CNTZ28 E6 (E...	37.4	2.6
KY457831.1	Human papillomavirus type 18 strain 18CNTZ27 E6 (E...	37.4	2.6
KY457830.1	Human papillomavirus type 18 strain 18CNTZ26 E6 (E...	37.4	2.6
KY457829.1	Human papillomavirus type 18 strain 18CNTZ25 E6 (E...	37.4	2.6
KY457828.1	Human papillomavirus type 18 strain 18CNTZ24 E6 (E...	37.4	2.6
KY457827.1	Human papillomavirus type 18 strain 18CNTZ23 E6 (E...	37.4	2.6
KY457826.1	Human papillomavirus type 18 strain 18CNTZ22 E6 (E...	37.4	2.6
KY457825.1	Human papillomavirus type 18 strain 18CNTZ21 E6 (E...	37.4	2.6
KY457824.1	Human papillomavirus type 18 strain 18CNTZ20 E6 (E...	37.4	2.6
KY457823.1	Human papillomavirus type 18 strain 18CNTZ19 E6 (E...	37.4	2.6
KY457822.1	Human papillomavirus type 18 strain 18CNTZ18 E6 (E...	37.4	2.6
KY457821.1	Human papillomavirus type 18 strain 18CNTZ17 E6 (E...	37.4	2.6
KY457820.1	Human papillomavirus type 18 strain 18CNTZ16 E6 (E...	37.4	2.6
KY457819.1	Human papillomavirus type 18 strain 18CNTZ15 E6 (E...	37.4	2.6
KY457818.1	Human papillomavirus type 18 strain 18CNTZ14 E6 (E...	37.4	2.6
KY457817.1	Human papillomavirus type 18 strain 18CNTZ13 E6 (E...	37.4	2.6
KY457816.1	Human papillomavirus type 18 strain 18CNTZ12 E6 (E...	37.4	2.6
KY457815.1	Human papillomavirus type 18 strain 18CNTZ11 E6 (E...	37.4	2.6
KY457814.1	Human papillomavirus type 18 strain 18CNTZ10 E6 (E...	37.4	2.6

## BLAST INFORMATION

KY457813.1	Human papillomavirus type 18 strain 18CNTZ09 E6 (E...	37.4	2.6
KY457812.1	Human papillomavirus type 18 strain 18CNTZ08 E6 (E...	37.4	2.6
KY457811.1	Human papillomavirus type 18 strain 18CNTZ07 E6 (E...	37.4	2.6
KY457810.1	Human papillomavirus type 18 strain 18CNTZ06 E6 (E...	37.4	2.6
KY457809.1	Human papillomavirus type 18 strain 18CNTZ05 E6 (E...	37.4	2.6
KY457808.1	Human papillomavirus type 18 strain 18CNTZ04 E6 (E...	37.4	2.6
KY457807.1	Human papillomavirus type 18 strain 18CNTZ03 E6 (E...	37.4	2.6
KY457806.1	Human papillomavirus type 18 strain 18CNTZ02 E6 (E...	37.4	2.6
KY457805.1	Human papillomavirus type 18 strain 18CNTZ01 E6 (E...	37.4	2.6
KX514433.1	Human papillomavirus type 18 isolate pam9, complet...	37.4	2.6
KY502096.1	Human papillomavirus isolate HPV18 P2-50 transform...	37.4	2.6
KY502095.1	Human papillomavirus isolate HPV18 P2-40 transform...	37.4	2.6
KY502094.1	Human papillomavirus isolate HPV18 P2-30 transform...	37.4	2.6
KY502093.1	Human papillomavirus isolate HPV18 P2-20 transform...	37.4	2.6
KY502092.1	Human papillomavirus isolate HPV18 P2-10 transform...	37.4	2.6
KY502091.1	Human papillomavirus isolate HPV18 P2 transforming...	37.4	2.6
KY502090.1	Human papillomavirus isolate HPV18 P1-50 transform...	37.4	2.6
KY502089.1	Human papillomavirus isolate HPV18 P1-40 transform...	37.4	2.6
KY502088.1	Human papillomavirus isolate HPV18 P1-30 transform...	37.4	2.6
KY502086.1	Human papillomavirus isolate HPV18 P1-10 transform...	37.4	2.6
KY502085.1	Human papillomavirus isolate HPV18 P1 transforming...	37.4	2.6
KX545359.1	Human papillomavirus type 18 isolate NGSk274-18 E6...	37.4	2.6
KX545354.1	Human papillomavirus type 18 isolate NGSk256-18 E6...	37.4	2.6

## ALIGNMENTS

>KY457840.1 Human papillomavirus type 18 strain 18CNTZ36 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

Query	1	GCGCTTTGAGGATCCAACAC	20
Sbjct	6	GCGCTTTGAGGATCCAACAC	25

>KY457839.1 Human papillomavirus type 18 strain 18CNTZ35 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

Query	1	GCGCTTTGAGGATCCAACAC	20
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# BLAST INFORMATION

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|||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
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>KY457838.1 Human papillomavirus type 18 strain 18CNTZ34 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
|||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457837.1 Human papillomavirus type 18 strain 18CNTZ33 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
|||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457836.1 Human papillomavirus type 18 strain 18CNTZ32 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
|||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457835.1 Human papillomavirus type 18 strain 18CNTZ31 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

# BLAST INFORMATION

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457834.1 Human papillomavirus type 18 strain 18CNTZ30 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457833.1 Human papillomavirus type 18 strain 18CNTZ29 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457832.1 Human papillomavirus type 18 strain 18CNTZ28 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

## BLAST INFORMATION

>KY457831.1 Human papillomavirus type 18 strain 18CNTZ27 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457830.1 Human papillomavirus type 18 strain 18CNTZ26 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457829.1 Human papillomavirus type 18 strain 18CNTZ25 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457828.1 Human papillomavirus type 18 strain 18CNTZ24 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

## BLAST INFORMATION

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457827.1 Human papillomavirus type 18 strain 18CNTZ23 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457826.1 Human papillomavirus type 18 strain 18CNTZ22 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457825.1 Human papillomavirus type 18 strain 18CNTZ21 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457824.1 Human papillomavirus type 18 strain 18CNTZ20 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds

# BLAST INFORMATION

Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457823.1 Human papillomavirus type 18 strain 18CNTZ19 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457822.1 Human papillomavirus type 18 strain 18CNTZ18 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457821.1 Human papillomavirus type 18 strain 18CNTZ17 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
```

# BLAST INFORMATION

Sbjct 6 GCGCTTTGAGGATCCAACAC 25

>KY457820.1 Human papillomavirus type 18 strain 18CNTZ16 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

Query 1 GCGCTTTGAGGATCCAACAC 20  
||||||||||||||||||  
Sbjct 6 GCGCTTTGAGGATCCAACAC 25

>KY457819.1 Human papillomavirus type 18 strain 18CNTZ15 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

Query 1 GCGCTTTGAGGATCCAACAC 20  
||||||||||||||||||  
Sbjct 6 GCGCTTTGAGGATCCAACAC 25

>KY457818.1 Human papillomavirus type 18 strain 18CNTZ14 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

Query 1 GCGCTTTGAGGATCCAACAC 20  
||||||||||||||||||  
Sbjct 6 GCGCTTTGAGGATCCAACAC 25

>KY457817.1 Human papillomavirus type 18 strain 18CNTZ13 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6

# BLAST INFORMATION

Identities = 20/20 (100%), Gaps = 0/20 (0%)

Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457816.1 Human papillomavirus type 18 strain 18CNTZ12 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457815.1 Human papillomavirus type 18 strain 18CNTZ11 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457814.1 Human papillomavirus type 18 strain 18CNTZ10 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

# BLAST INFORMATION

>KY457813.1 Human papillomavirus type 18 strain 18CNTZ09 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457812.1 Human papillomavirus type 18 strain 18CNTZ08 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457811.1 Human papillomavirus type 18 strain 18CNTZ07 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY457810.1 Human papillomavirus type 18 strain 18CNTZ06 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus



# BLAST INFORMATION

Query 1 GCGCTTTGAGGATCCAACAC 20  
|||||  
Sbjct 6 GCGCTTTGAGGATCCAACAC 25

>KY457809.1 Human papillomavirus type 18 strain 18CNTZ05 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

Query 1 GCGCTTTGAGGATCCAACAC 20  
|||||  
Sbjct 6 GCGCTTTGAGGATCCAACAC 25

>KY457808.1 Human papillomavirus type 18 strain 18CNTZ04 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

Query 1 GCGCTTTGAGGATCCAACAC 20  
|||||  
Sbjct 6 GCGCTTTGAGGATCCAACAC 25

>KY457807.1 Human papillomavirus type 18 strain 18CNTZ03 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

Query 1 GCGCTTTGAGGATCCAACAC 20  
|||||  
Sbjct 6 GCGCTTTGAGGATCCAACAC 25

>KY457806.1 Human papillomavirus type 18 strain 18CNTZ02 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

## BLAST INFORMATION

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1  GCGCTTTGAGGATCCAACAC  20
          ||||||||||||||||
Sbjct 6  GCGCTTTGAGGATCCAACAC  25
```

>KY457805.1 Human papillomavirus type 18 strain 18CNTZ01 E6 (E6), E7 (E7),  
and L1 (L1) genes, complete cds  
Length=2502

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1  GCGCTTTGAGGATCCAACAC  20
          ||||||||||||||||
Sbjct 6  GCGCTTTGAGGATCCAACAC  25
```

>KX514433.1 Human papillomavirus type 18 isolate pam9, complete genome  
Length=7857

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1  GCGCTTTGAGGATCCAACAC  20
          ||||||||||||||||
Sbjct 110 GCGCTTTGAGGATCCAACAC  129
```

>KY502096.1 Human papillomavirus isolate HPV18 P2-50 transforming protein  
E6 (E6) gene, partial cds  
Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1  GCGCTTTGAGGATCCAACAC  20
          ||||||||||||||||
Sbjct 6  GCGCTTTGAGGATCCAACAC  25
```

## BLAST INFORMATION

>KY502095.1 Human papillomavirus isolate HPV18 P2-40 transforming protein  
E6 (E6) gene, partial cds  
Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1  GCGCTTTGAGGATCCAACAC  20
          ||||||||||||||||
Sbjct 6  GCGCTTTGAGGATCCAACAC  25
```

>KY502094.1 Human papillomavirus isolate HPV18 P2-30 transforming protein  
E6 (E6) gene, partial cds  
Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1  GCGCTTTGAGGATCCAACAC  20
          ||||||||||||||||
Sbjct 6  GCGCTTTGAGGATCCAACAC  25
```

>KY502093.1 Human papillomavirus isolate HPV18 P2-20 transforming protein  
E6 (E6) gene, partial cds  
Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1  GCGCTTTGAGGATCCAACAC  20
          ||||||||||||||||
Sbjct 6  GCGCTTTGAGGATCCAACAC  25
```

>KY502092.1 Human papillomavirus isolate HPV18 P2-10 transforming protein  
E6 (E6) gene, partial cds  
Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

## BLAST INFORMATION

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY502091.1 Human papillomavirus isolate HPV18 P2 transforming protein E6 (E6) gene, partial cds  
Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY502090.1 Human papillomavirus isolate HPV18 P1-50 transforming protein E6 (E6) gene, partial cds  
Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY502089.1 Human papillomavirus isolate HPV18 P1-40 transforming protein E6 (E6) gene, partial cds  
Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY502088.1 Human papillomavirus isolate HPV18 P1-30 transforming protein E6 (E6) gene, partial cds

## BLAST INFORMATION

Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY502086.1 Human papillomavirus isolate HPV18 P1-10 transforming protein  
E6 (E6) gene, partial cds  
Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KY502085.1 Human papillomavirus isolate HPV18 P1 transforming protein E6  
(E6) gene, partial cds  
Length=474

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
Sbjct 6 GCGCTTTGAGGATCCAACAC 25
```

>KX545359.1 Human papillomavirus type 18 isolate NGSk274-18 E6 protein (E6)  
gene, complete cds; and E7 protein (E7) gene, partial cds  
Length=516

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

```
Query 1 GCGCTTTGAGGATCCAACAC 20
        ||||||||||||||||
```

# BLAST INFORMATION

Sbjct 6 GCGCTTTGAGGATCCAACAC 25

>KX545354.1 Human papillomavirus type 18 isolate NGSk256-18 E6 protein (E6) gene, complete cds; and E7 protein (E7) gene, partial cds  
Length=579

Score = 37.4 bits (40), Expect = 2.6  
Identities = 20/20 (100%), Gaps = 0/20 (0%)  
Strand=Plus/Plus

Query 1 GCGCTTTGAGGATCCAACAC 20  
|||||||  
Sbjct 6 GCGCTTTGAGGATCCAACAC 25

Database: Nucleotide collection (nt)  
Posted date: Jul 10, 2017 6:27 PM  
Number of letters in database: 150,108,365,041  
Number of sequences in database: 43,336,626

Lambda	K	H
0.634	0.408	0.912

Gapped

Lambda	K	H
0.625	0.410	0.780

Matrix: blastn matrix:2 -3  
Gap Penalties: Existence: 5, Extension: 2  
Number of Sequences: 43336626  
Number of Hits to DB: 817954  
Number of extensions: 327  
Number of successful extensions: 327  
Number of sequences better than 10: 28  
Number of HSP's better than 10 without gapping: 0  
Number of HSP's gapped: 327  
Number of HSP's successfully gapped: 28  
Length of query: 20  
Length of database: 150108365041  
Length adjustment: 17  
Effective length of query: 3  
Effective length of database: 149371642399  
Effective search space: 448114927197  
Effective search space used: 448114927197  
A: 0  
X1: 22 (20.1 bits)  
X2: 33 (29.8 bits)  
X3: 110 (99.2 bits)

**BLAST INFORMATION**

S1: 28 (26.5 bits)

S2: 38 (35.6 bits)