

10	20	30	40	50	60	70	80	90
gagctcatcg	atcTCGACAT	TGATTATTGA	CTAGTTATTA	ATAGTAATCA	ATTACGGGGT	CATTAGTTC	TAGCCCATAT	ATGGAGTTCC
100	110	120	130	140	150	160	170	180
GCGTTACATA	ACTTACGGTA	AATGGCCCGC	CTGGCTGACC	GCCCAACGAC	CCCCGCCCAT	TGACGTCAAT	AATGACGTAT	GTTCCCATAG
190	200	210	220	230	240	250	260	270
TAACGCCAAT	AGGGACTTTC	CATTGACGTC	AATGGGTGGA	CTATTACGG	TAAACTGCC	ACTTGGCAGT	ACATCAAGTG	TATCATATGC
280	290	300	310	320	330	340	350	360
CAAGTACGCC	CCCTATTGAC	GTCAATGACG	GTAAATGGCC	CGCCTGGCAT	TATGCCAGT	ACATGACCTT	ATGGGACTTT	CCTACTTGGC
370	380	390	400	410	420	430	440	450
AGTACATCTA	CGTATTAGTC	ATCGCTATTA	CCATGGGTCG	AGGTGAGCCC	CACGTTCTGC	TTCACTCTCC	CCATCTCCCC	CCCCTCCCCA
460	470	480	490	500	510	520	530	540
CCCCCAATT	TGTATTTATT	TATTTTTTAA	TTATTTTGTG	CAGCGATGGG	GGCGGGGGGG	GGGGGGGGCG	GCGCCAGGCG	GGGCGGGGCG
550	560	570	580	590	600	610	620	630
GGGCGAGGGG	CGGGCGGGG	CGAGGCGGAG	AGGTGCGGCG	GCAGCCAATC	AGAGCGGGCG	GCTCCGAAAG	TTTCCTTTTA	TGGCGAGGCG
640	650	660	670	680	690	700	710	720
GCGGCGGGCG	CGGCCCTATA	AAAAGCGAAG	CGCGCGGGCG	GCGGGAGTCG	CTGCGTTGCC	TTCGCCCCGT	GCCCCGCTC	GCGCCGCTC
730	740	750	760	770	780	790	800	810
GCGCCGCGCG	CCCCGGCTCT	GACTGACCGT	GTTACTCCA	CAGGTGAGCG	GGCGGGACGG	CCTTTCTCCT	CCGGGTGTA	ATTAGCGCTT
820	830	840	850	860	870	880	890	900
GGTTTAATGA	CGGCTCGTTT	CTTTTCTGTG	GCTGCGTGAA	AGCCTTAAAG	GGCTCCGGGA	GGGCCCTTTC	TGCGGGGGGG	AGCGGCTCGG
910	920	930	940	950	960	970	980	990
GGGGTGCCTG	CGTGTGTGTG	TGCGTGGGGA	GCGCCCGGTG	CGGCCCGGCG	TGCCCGGGCG	CTGTGAGCGC	TGCGGGCGCG	GCGCGGGGCT
1000	1010	1020	1030	1040	1050	1060	1070	1080
TTGTGCGCTC	CGCGTGTGCG	CGAGGGGAGC	GCGGCCGGGG	GCGGTGCCCC	GCGGTGCGGG	GGGGCTGCGA	GGGGAACAAA	GGCTGCGTGC
1090	1100	1110	1120	1130	1140	1150	1160	1170
GGGGTGTGTG	CGTGGGGGGG	TGAGCAGGGG	GTGTGGGCGC	GCGGTGCGGG	CTGTAACCCC	CCCCTGCAC	CCCCTCCCC	AGTTGCTGAG
1180	1190	1200	1210	1220	1230	1240	1250	1260
CACGGCCCGG	CTTCGGGTGC	GGGGCTCCGT	GCGGGGCGTG	GCGCGGGGCT	CGCCGTGCCG	GCGGGGGGGT	GGCGGCAGGT	GGGGGTGCCG
1270	1280	1290	1300	1310	1320	1330	1340	1350
GGCGGGGCGG	GGCCGCCTCG	GGCCGGGGAG	GGCTCGGGGG	AGGGGCGCGG	CGGCCCCGGA	GCGCCGGCGG	CTGTCGAGGC	GCGGCGAGCC
1360	1370	1380	1390	1400	1410	1420	1430	1440
GCAGCCATTG	CCTTTTATGG	TAATCGTGCG	AGAGGGCGCA	GGGACTTCTT	TTGTCCAAA	TCTGGCGGAG	CCGAAATCTG	GGAGGCGCCG
1450	1460	1470	1480	1490	1500	1510	1520	1530
CCGCACCCCC	TCTAGCGGGC	GCGGGCGAAG	CGGTGCGGCG	CCGGCAGGAA	GGAAATGGGC	GGGGAGGGCC	TTCGTGCGTC	GCCGCGCCGC
1540	1550	1560	1570	1580	1590	1600	1610	1620
CGTCCCCTTC	TCCATCTCCA	GCCTCGGGGC	TGCCGCAGGG	GGACGGTGC	CTTCGGGGGG	GACGGGGGCG	GGCGGGGTTT	GGCTTCTGGC
1630	1640	1650	1660	1670	1680	1690	1700	1710
GTGTGACCGG	CGGCTctagC	CTCTGCTAAC	CATGTTTATG	CCTTCTTCTT	TTTCTTACAG	CTCCTGGGCA	ACGTGCTGGT	TGTTGTGCTG
1720	1730	1740	1750	1760	1770	1780	1790	1800
	XbaI		EG_					
TCTCATCATT	TTGGCAAAtc	tagagccgcc	ATGGTGTAGCA	AGGGCGAGGA	GCTGTTTACC	GGGGTGGTGC	CCATCCTGGT	CGAGCTGGAC
1810	1820	1830	1840	1850	1860	1870	1880	1890
EG_								
GGCGACGTAA	ACGGCCACAA	GTTTACGCTG	TCCGGCGAGG	GCGAGGGCGA	TGCCACCTAC	GGCAAGCTGA	CCCTGAAGTT	CATCTGCACC
1900	1910	1920	1930	1940	1950	1960	1970	1980
EG_								
ACCGGCAAGC	TGCCCGTGCC	CTGGCCACC	CTCGTGACCA	CCCTGACCTA	CGGCGTGCAG	TGCTTCAGCC	GCTACCCCGA	CCCATGAAG
1990	2000	2010	2020	2030	2040	2050	2060	2070
EG_								
CAGCACGACT	TCTTCAAGTC	CGCCATGCCC	GAAGGCTACG	TCCAGGAGCG	CACCATCTTC	TTCAAGGACG	ACGGCAACTA	CAAGACCCGC
2080	2090	2100	2110	2120	2130	2140	2150	2160
EG_								
GCCGAGGTGA	AGTTCGAGGG	CGACACCCTG	GTGAACCGCA	TGAGCTGAA	GGGCATCGAC	TTCAAGGAGG	ACGGCAACAT	CCTGGGGCAC
2170	2180	2190	2200	2210	2220	2230	2240	2250
EG_								
AAGCTGGAGT	ACAACTACAA	CAGCCACAAC	GTCTATATCA	TGGCCGACAA	GCAGAAGAAC	GGCATCAAGG	TGAACTTCAA	GATCCGCCAC
2260	2270	2280	2290	2300	2310	2320	2330	2340
EG_								
AACATCGAGG	ACGGCAGCGT	GCAGCTCGCC	GACCACTACC	AGCAGAACAC	CCCCATCGGC	GACGGCCCCG	TGCTGCTGCC	CGACAACCAC
2350	2360	2370	2380	2390	2400	2410	2420	2430
BamHI								
tgaggatcca	gtcacTTAAT	AAAGGTTGGT	CTTTTTCATG	ATCTTAAGAA	ACTCTTCCTC	GTTCACTTCT	CCGTCGCCAT	CACGATCAGC
	Primer R(HI)							
2440	2450	2460	2470	2480	2490	2500	2510	2520
					CRISPR4			
TTCATCAATC	ATTCCTGCA	GCTCCTCGTC	TGTGAGGCTT	TCCCCAGCT	CATFGGCCAC	ACGCTTGAGG	TTTTTGAATG	AAATTTTCCC
2530	2540	2550	2560	2570	2580	2590	2600	2610
							CRISPR3	
AGTTTCGTCG	TCATCAAACA	ACCTGAAAGC	CTTCAGGATT	TCCTCTTTGG	TATCTTTCTC	GGCCATCTTC	TGAGTCATCA	CAGCCAAGAA
2620	2630	2640	2650	2660	2670	2680	2690	2700
	CRISPR3						CRISPR2	
GTCATFGAAG	CTGATCTTTC	CTGTGGCCTC	TTTGTCTACT	TCTGAAATCA	TTTCTTTCAT	CTCTTCCTTC	CTGGTTTCAA	AGCCAAGTGC
2710	2720	2730	2740	2750	2760	2770	2780	2790
CRISPR2								
TCTCATGGCC	ACCTTCAGCT	CCTTCACATC	GATGGTCCCG	CTCCCATCAG	AATCGAAGAG	GTCAAAGGCT	TCCCGAACTT	CTTGCTTTTG

2800	2810	2820	2830	2840	2850	2860	2870	2880	
ATCTTCGGTG	AGTTCAGGCT	TAGGACCCAC	CTTTCTCTTG	TAGCTGGTAG	AGGCAACGTT	TGACTTCCTG	AAGGTGGACG	CCATcctcca	
					CRISPR1				
Primer R1									
2890	2900	2910	2920	2930	2940	2950	2960	2970	
			Primer F1			Primer F(RI)			Eco
caacagttgg	gatcttaacg	gtgccctgac	atcgcacgtg	tgtgaggtgc	cctgctagtg	cgctctgccc	agccccatag	cgctctgaga	
2980	2990	3000	3010	3020	3030	3040	3050	3060	
EcoRV									
_FP									
attcgcatac	GGCAAGCTGA	CCCTGAAGTT	CATCTGCACC	ACCGGCAAGC	TGCCCGTGCC	CTGGCCCACC	CTCGTGACCA	CCCTGACCTA	
3070	3080	3090	3100	3110	3120	3130	3140	3150	
_FP									
CGGCGTGCAG	TGCTTCAGCC	GCTACCCCGA	CCACATGAAG	CAGCACGACT	TCTTCAAGTC	CGCCATGCCC	GAAGGCTACG	TCCAGGAGCG	
3160	3170	3180	3190	3200	3210	3220	3230	3240	
_FP									
CACCATCTTC	TTCAAGGACG	ACGGCAACTA	CAAGACCCGC	GCCGAGGTGA	AGTTCGAGGG	CGACACCCCTG	GTGAACCGCA	TCGAGCTGAA	
3250	3260	3270	3280	3290	3300	3310	3320	3330	
_FP									
GGGCATCGAC	TTCAAGGAGG	ACGGCAACAT	CCTGGGGCAC	AAGCTGGAGT	ACAACCTACAA	CAGCCACAAC	GTCTATATCA	TGGCCGACAA	
3340	3350	3360	3370	3380	3390	3400	3410	3420	
_FP									
GCAGAAGAAC	GGCATCAAGG	TGAACCTCAA	GATCCGCCAC	AACATCGAGG	ACGGCAGCGT	GCAGCTCGCC	GACCACTACC	AGCAGAACAC	
3430	3440	3450	3460	3470	3480	3490	3500	3510	
_FP									
CCCCATCGGC	GACGGCCCCG	TGCTGCTGCC	CGACAACCAC	TACCTGAGCA	CCCAGTCCGC	CCTGAGCAA	GACCCCAACG	AGAAGCGCGA	
3520	3530	3540	3550	3560	3570	3580	3590	3600	
_FP									
TCACATGGTC	CTGCTGGAGT	TCGTGACCGC	CGCCGGGATC	ACTCTCGGCA	TGGACGAGCT	GTACAAGTAA	ctcagagACTC	CTCAGGTGCA	
3610	3620	3630	3640	3650	3660	3670	3680	3690	
GGCTGCCTAT	CAGAAGGTGG	TGGCTGGTGT	GGCCAATGCC	CTGGCTCACA	AATACCACCTG	AGATCTTTTT	CCCTCTGCCA	AAAATTATGG	
3700	3710	3720	3730	3740	3750	3760	3770	3780	
GGACATCATG	AAGCCCCTTG	AGCATCTGAC	TTCTGGCTAA	TAAAGGAAAT	TTATTTTCAT	TGCAATAGTG	TGTTGGAATT	TTTTGTGTCT	
3790	3800	3810	3820	3830	3840	3850	3860	3870	
CTCACTCGGA	AGGACATATG	GGAGGGCAAA	TCATTTAAAA	CATCAGAATG	AGTATTTGGT	TTAGAGTTTG	GCAACATATG	CCCATATGCT	
3880	3890	3900	3910	3920	3930	3940	3950	3960	
GGCTGCCATG	AACAAAGGTT	GGCTATAAAG	AGGTCATCAG	TATATGAAAC	AGCCCCCTGC	TGTCCATTC	TTATCCATA	GAAAAGCCTT	
3970	3980	3990	4000	4010	4020	4030	4040	4050	
GACTTGAGGT	TAGATTTTT	TTATATTTT	TTTTGTGTTA	TTTTTTTCTT	TAACATCCCT	AAAATTTTCC	TTACATGTTT	TACTAGCCAG	
4060	4070	4080	4090	4100	4110	4120	4130	4140	
ATTTTTCTC	CTCTCTGAC	TACTCCCAGT	CATAGCTGTC	CCTCTCTCT	TATGAAGATC	CCTCGACTta	attaaggtac	ccaattcgcc	
4150	4160	4170	4180	4190	4200	4210	4220	4230	
ctatagttag	tcgtattacc	cgcgctcact	ggccgtcggt	ttacaacgct	gtgactggga	aaaccctggc	gttaccacac	ttaatcgctt	
4240	4250	4260	4270	4280	4290	4300	4310	4320	
tgcagacac	ccccctttcg	ccagctggcg	taatagcgaa	gaggcccgca	ccgatcgccc	ttcccaacag	ttgcgcagcc	tgaatggcga	
4330	4340	4350	4360	4370	4380	4390	4400	4410	
atgggacgcy	ccctgtagcg	gcgcattaag	cgcgggcggt	gtgggtggta	cgcgcagcgt	gaccgctaca	cttgccagcg	ccctagcgcc	
4420	4430	4440	4450	4460	4470	4480	4490	4500	
cgctcctttc	gctttcttcc	cttcctttct	cgccacgctc	gcccggcttc	cccgctcaagc	tctaaatcgg	gggctccctt	tagggttccg	
4510	4520	4530	4540	4550	4560	4570	4580	4590	
athtagtct	ttacggcacc	tcgaccccaa	aaaacttgat	tagggtgatg	gttcacgtag	tgggcccacg	ccctgataga	cggtttttcg	
4600	4610	4620	4630	4640	4650	4660	4670	4680	
ccctttgacg	ttggagtcca	cgttctttaa	tagtggactc	ttgttccaaa	ctggaacaac	actcaaccct	atctcggctt	attcctttga	
4690	4700	4710	4720	4730	4740	4750	4760	4770	
tttataaggg	atthtgccga	tttggcccta	ttggttaaaa	aatgagctga	tttaacaaaa	atthaacgcy	aatthtaaca	aatatthaac	
4780	4790	4800	4810	4820	4830	4840	4850	4860	
gcttacaatt	tagtgccac	ttttcgggga	aatgtgcgcy	gaaccctat	ttgtttattt	ttctaaatc	attcaaatc	gtatccgctc	
4870	4880	4890	4900	4910	4920	4930	4940	4950	
atgagacaat	aaccctgata	aatgcttcaa	taatattgaa	aaaggaagag	tatgagtatt	caacatttcc	gtgtcgccct	tattcccttt	
4960	4970	4980	4990	5000	5010	5020	5030	5040	
tttgcgcat	tttgcttcc	tgthtttct	caccagaaa	cgctgggtgaa	agtaaaagat	gctgaagatc	agthgggtgc	acgagthgggt	
5050	5060	5070	5080	5090	5100	5110	5120	5130	
tacatcgaa	tggatctcaa	cagcggtgaa	atccttgaga	gthttcgccc	cgaagaacgt	tttccaatga	tgagcacttt	taaagthctg	
5140	5150	5160	5170	5180	5190	5200	5210	5220	
ctatgtggcg	cggtattatc	ccgtattgac	gccgggcaag	agcaactcgg	tcgcccata	cactattctc	agaatgactt	gthtgagtag	
5230	5240	5250	5260	5270	5280	5290	5300	5310	
tcaccagtc	cagaaaagca	tcttacggat	ggcatgacag	taagagaatt	atgcagtctg	gccataacca	tgagtgataa	cactgcccgc	
5320	5330	5340	5350	5360	5370	5380	5390	5400	
aacttacttc	tgacaacgat	cggaggaccg	aaggagctaa	ccgctttttt	gcacaacatg	ggggatcctg	taactcgcct	tgatcgthgg	
5410	5420	5430	5440	5450	5460	5470	5480	5490	
gaaccggagc	tgaatgaagc	cataccaac	gacgagcgtg	acaccacgat	gcctgtagca	atggcaacaa	cgthgcccga	actatthaac	
5500	5510	5520	5530	5540	5550	5560	5570	5580	
ggcgaactac	ttactctagc	ttcccggcaa	caatthaatg	actggatgga	ggcggataaa	gthgacagac	cacttctcgc	ctcggccctt	
5590	5600	5610	5620	5630	5640	5650	5660	5670	
ccggctggct	gthttattgc	tgataaatct	ggagccggtg	agcgtgggtc	tcgcggtatc	atthgacagc	thggggccga	tgthaaagccc	
5680	5690	5700	5710	5720	5730	5740	5750	5760	
tcccgtatcg	tagthattcta	cacgacgggg	agthcaggcaa	ctatggatga	acgaaataga	cagatcgctg	agataggtgc	ctcactgatt	
5770	5780	5790	5800	5810	5820	5830	5840	5850	
aagcattggg	aactgtcaga	ccaagthttac	tcatatatac	ththagattga	ththaaaactt	cattththaac	ththaaaaggt	ctagthggaag	
5860	5870	5880	5890	5900	5910	5920	5930	5940	
atcctthttg	ataatctcat	gacccaaatc	cctthaacgtg	agththctgtt	ccactgagcgc	tcagaccccgc	thgaaaagat	caaagthgatct	

5950	5960	5970	5980	5990	6000	6010	6020	6030
tcttgagatc	cttttttct	gcgcgtaatc	tgctgcttgc	aaacaaaaaa	accaccgcta	ccagcggtagg	tttgtttgcc	ggatcaagag
6040	6050	6060	6070	6080	6090	6100	6110	6120
ctaccaactc	tttttccgaa	ggtaactggc	ttcagcagag	cgcagatacc	aaatactgtc	cttctagtgt	agccgtagtt	aggccaccac
6130	6140	6150	6160	6170	6180	6190	6200	6210
ttcaagaact	ctgtagcacc	gcctacatac	ctcgctctgc	taatcctggt	accagtggct	gctgccagtg	gcgataagtc	gtgtcttacc
6220	6230	6240	6250	6260	6270	6280	6290	6300
gggttgact	caagacgata	gttaccggat	aaggcgcagc	ggtcgggctg	aacggggggt	tcgtgcacac	agcccagctt	ggagcgaacg
6310	6320	6330	6340	6350	6360	6370	6380	6390
acctacaccg	aactgagata	cctacagcgt	gagctatgag	aaagcggcac	gcttcccga	gggagaaaag	cggacaggta	tccggtaagc
6400	6410	6420	6430	6440	6450	6460	6470	6480
ggcagggtcg	gaacaggaga	gcgcacgagg	gagcttccag	ggggaaacgc	ctggtatctt	tatagtcctg	tcgggtttcg	ccacctctga
6490	6500	6510	6520	6530	6540	6550	6560	6570
cttgagcgtc	gatttttctg	atgctcgtca	ggggggcgga	gcctatggaa	aaacgccagc	aacgcggcct	ttttacgggt	cctggccttt
6580	6590	6600	6610	6620	6630	6640	6650	6660
tgctggcctt	ttgctcacat	gttctttcct	gcgttatccc	ctgattctgt	ggataaccgt	attaccgctt	ttgagtgagc	tgataaccgct
6670	6680	6690	6700	6710	6720	6730	6740	6750
cgccgcagcc	gaacgaccga	gcgcagcgag	tcagtgagcg	aggaagcgga	agagcgccca	atacgcaaac	cgcctctccc	cgcgcggtgg
6760	6770	6780	6790	6800	6810	6820	6830	6840
ccgattcatt	aatgcagctg	gcacgacag	tttcccgact	ggaaagcggg	cagtgagcgc	aacgcaatta	atgtgagtta	gctcactcat
6850	6860	6870	6880	6890	6900	6910	6920	6930
taggcacccc	aggctttaca	ctttatgctt	ccggctcgta	tgttgtgtgg	aattgtgagc	ggataacaat	ttcacacagg	aaacagctat
6940	6950	6960	6970	6980	6990	7000	7010	7020
gaccatgatt	acgccaagcg	cgcaattaac	cctcactaaa	gggaacaaaa	gctg			