Supplementary Table 1. Oligonucleotides used for plasmid construction

	PAN Insert	Direction	oligo #	Sequence
β–globin Plasmids	Full length ORE, 1-315	Forward	NC640	tatataGCGGCCGCactgggactgcccagtcacc
		Reverse	NC641	ttttaaCTCGAGaatccaatgcaataacccgcaagg
	1-79	Forward	NC640	tatataGCGGCCGCactgggactgcccagtcacc
		Reverse	NC642	ttttaaCTCGAGccagaagcggcaagaaggcaagca
	79-158	Forward	NC643	tatataGCGGCCGCgttttcattggtgccgccga
		Reverse	NC644	ttttaaCTCGAGgaaaacctagccgaaagccaggat
	158-237	Forward	NC645	tatataGCGGCCGCccgtcctacttttcccacat
		Reverse	NC646	ttttaaCTCGAGtgcgggcttatggagagctccaga
	237-315	Forward	NC647	tatataGCGGCCGCagaacaaaagctgcgatttg
		Reverse	NC641	ttttaaCTCGAGaatccaatgcaataacccgcaagg
	79-315	Forward	NC675	tatataGCGGCCGCgttttcattggtgccgccga
		Reverse	NC641	ttttaaCTCGAGaatccaatgcaataacccgcaagg
	ΔSL2	Forward	NC640	tatataGCGGCCGCactgggactgcccagtcacc
		Reverse	NC676	ttttaaCTCGAGccagaagcggcaagaaaagg
	SL2	Forward	NC678	tatataGCGGCCGCggctgccgcttcacctatgg
		Reverse	NC673	ttttaaCTCGAGggcaagcagcgagcacaaaatcc
	SL2-B	Forward	NC759	GGCCGCggctgccgcttcgctcgctgcttgccC
		Reverse	NC760	TCGAGggcaagcagcgagcgaagcggcagccGC
	SL2-T	Forward	NC761	GGCCGCccgcttcacctatggattttgtgctcgctgC
		Reverse	NC762	TCGAGcagcgagcacaaaatccataggtgaagcggGC

	Clone name	Direction	oligo #	Sequence
PAN Plasmids	PANΔ79-ΔSL2	Forward-1	NC843	ggctaacctgtCCAAAATATGGgaacactggag
		Reverse-1	NC845	gaaaaccagaagcggcaagaaaaggtgactgggcagtccca
		Forward-2	NC844	tgggactgcccagtcacctttcttgccgcttctggttttc
		Reverse-2	NC846	ctgtatagttgCCATGGcaaggtttttg
	PANΔ79-ΔSL2-T	Forward-1	NC843	ggctaacctgtCCAAAATATGGgaacactggag
		Reverse-1	NC847	cagaagcggcaagaaggcaagcagccaaggtgactgggcag
		Forward-2	NC848	ctgcccagtcaccttggctgcttgccttcttgccgcttctg
		Reverse-2	NC846	ctgtatagttgCCATGGcaaggtttttg
	PANΔ79-Δ79-315	Forward-1	NC843	ggctaacctgtCCAAAATATGGgaacactggag
		Reverse-1	NC854	ctacaactggcctggagattgcagaagcggcaagaaggcaag
		Forward-2	NC853	cttgccttcttgccgcttctgcaatctccaggccagttgtag
		Reverse-2	NC855	cattaacattgaaagAGCGCTcccagctgccgc
	PANΔ79-Δ34-50	Forward-1	NC843	ggctaacctgtCCAAAATATGGgaacactggag
		Reverse-1	NC857	gcaagaaggcaagcagcgagaagcggcagccaaggtgactg
		Forward-2	NC856	cagtcaccttggctgccgcttctcgctgcttgccttcttgc
		Reverse-2	NC846	ctgtatagttgCCATGGcaaggtttttg
	CMV UG→AA_{40-41}	Forward-1	NC872	agtcctAAGCTTactgggactgcccagtcacc
		Reverse-1	NC925	ggcaagcagcgagcacaaaatctttaggtgaagcggcagccaagg
		Forward-2	NC924	ccttggctgccgcttcacctaaagattttgtgctcgctgcttgcc
		Reverse-2	NC10	gggggcccgtcacatttagggcaaagtgg
	CMV GAU→AAA_{42-44}	Forward-1	NC872	agtcctAAGCTTactgggactgcccagtcacc
		Reverse-1	NC927	ggcaagcagcgagcacaaatttcataggtgaagcggcagccaagg
		Forward-2	NC926	ccttggctgccgcttcacctatgaaatttgtgctcgctgcttgcc
		Reverse-2	NC10	gggggcccgtcacatttagggcaaagtgg
	CMV UUU→AAA_{45-47}	Forward-1	NC872	agtcctAAGCTTactgggactgcccagtcacc
		Reverse-1	NC929	ggcaagcagcgagcactttatccataggtgaagcggcagccaagg
		Forward-2	NC928	ccttggctgccgcttcacctatggataaagtgctcgctgcttgcc
		Reverse-2	NC10	gggggcccgtcacatttagggcaaagtgg

Underlined sequences show relevant restriction sites used for cloning.

Supplementary Table 2. Oligonucleotides used for T7-DNA templates

PAN fragments	Direction	oligo #	Sequence
Full length ORE	Forward	NC580	**taatacgactcactataggg**actgggactgcccagtcacc
	Reverse	NC581	aatccaatgcaataacccgcaagg
Control	Forward	NC582	**taatacgactcactataggg**ggtggcatttgtcagaagtt
	Reverse	NC583	taggcacgttaaattgtcaaaagt
1-79	Forward	NC580	**taatacgactcactataggg**actgggactgcccagtcacc
	Reverse	NC622	ccagaagcggcaagaaggcaagca
79-158	Forward	NC612	**taatacgactcactataggg**gttttcattggtgccgccga
	Reverse	NC614	gaaaacctagccgaaagccaggat
158-237	Forward	NC613	**taatacgactcactataggg**ccgtcctacttttcccacat
	Reverse	NC615	tgcgggcttatggagagctccaga
237-315	Forward	NC626	**taatacgactcactataggg**agaacaaaagctgcgatttg
	Reverse	NC581	aatccaatgcaataacccgcaagg
79-315	Forward	NC612	**taatacgactcactataggg**gttttcattggtgccgccga
	Reverse	NC581	aatccaatgcaataacccgcaagg
79-237	Forward	NC612	**taatacgactcactataggg**gttttcattggtgccgccga
	Reverse	NC615	tgcgggcttatggagagctccaga
158-315	Forward	NC613	**taatacgactcactataggg**ccgtcctacttttcccacat
	Reverse	NC581	aatccaatgcaataacccgcaagg
ΔSL1	Forward	NC630	**taatacgactcactataggg**caccttggctgccgcttcac
	Reverse	NC622	ccagaagcggcaagaaggcaagca
ΔSL2	Forward	NC580	**taatacgactcactataggg**actgggactgcccagtcacc
	Reverse	NC677	ccagaagcggcaagaaaagg
ΔSL3	Forward	NC580	**taatacgactcactataggg**actgggactgcccagtcacc
	Reverse	NC632	ggcaagcagcgagcacaaaatcca
SL2	Forward	NC633	**taatacgactcactataggg**ggctgccgcttcacctatgg
	Reverse	NC632	ggcaagcagcgagcacaaaatcca
SL2-T	Forward	NC745	**taatacgactcactataggg**ccgcttcacctatggattttgtgctcgctg
	Reverse	NC746	cagcgagcacaaaatccataggtgaagcggccctatagtgagtcgtatta
SL2-B	Forward	NC741	**taatacgactcactataggg**ggctgccgcttcgctcgctgcttgcc
	Reverse	NC742	ggcaagcagcgagcgaagcggcagccccctatagtgagtcgtatta
CU→AA_{37-38}	Forward	NC802	**taatacgactcactataggg**ccgcttcacaaatggattttgtgctcgctg
	Reverse	NC803	cagcgagcacaaaatccatttgtgaagcggccctatagtgagtcgtatta
UG→AA_{40-41}	Forward	NC804	**taatacgactcactataggg**ccgcttcacctaaagattttgtgctcgctg
	Reverse	NC805	cagcgagcacaaaatctttaggtgaagcggccctatagtgagtcgtatta
GAU→AAA_{42-44}	Forward	NC806	**taatacgactcactataggg**ccgcttcacctatgaaatttgtgctcgctg
	Reverse	NC807	cagcgagcacaaatttcataggtgaagcggccctatagtgagtcgtatta
UUU→AAA_{45-47}	Forward	NC808	**taatacgactcactataggg**ccgcttcacctatggataaagtgctcgctg
	Reverse	NC809	cagcgagcactttatccataggtgaagcggccctatagtgagtcgtatta
CAC→GUG_{34-36}	Forward	NC810	**taatacgactcactataggg**ccgcttgtgctatggattttgtgctcgctg
	Reverse	NC811	cagcgagcacaaaatccatagcacaagcggccctatagtgagtcgtatta
GUG→CAC_{48-50}	Forward	NC812	**taatacgactcactataggg**ccgcttcacctatggattttcacctcgctg
	Reverse	NC813	cagcgaggtgaaaatccataggtgaagcggccctatagtgagtcgtatta

Bold type highlights the T7 promoter sequence.