

Table S4: DNA oligonucleotides for site directed mutagenesis of codons encoding active site residues of β -galactosidase

Primers for Glutamic Acid 537			
Number	Mutation		Primer sequences
4546 4547	<u>G</u> CU	Ala	ccgctgatacctttgcGCTtacgcccacgcgatg catcgcgtgggcgtaAGCgcaaaggatcagcgg
4544 4545	<u>G</u> CC		ccgctgatacctttgcGCCtacgcccacgcgatg catcgcgtgggcgtaGGCgcaaaggatcagcgg
4526 4527	<u>G</u> CA		ccgctgatacctttgcGCAtacgcccacgcgatg catcgcgtgggcgtaTGCgcaaaggatcagcgg
4532 4533	<u>G</u> CG		ccgctgatacctttgcGCGtacgcccacgcgatg catcgcgtgggcgtaCGCgcaaaggatcagcgg
4489 4490	<u>G</u> AU	Asp	ccgctgatacctttgcGATtacgcccacgcgatg catcgcgtgggcgtaATCgcaaaggatcagcgg
4491 4492	<u>G</u> AC		ccgctgatacctttgcGACTacgcccacgcgatg catcgcgtgggcgtaGTCgcaaaggatcagcgg
4517 4516	<u>C</u> AA	Gln	catcgcgtgggcgtaTTGgcaaaggatcagcgg ccgctgatacctttgcCAAtacgcccacgcgatg
4523 4522	<u>C</u> AG		catcgcgtgggcgtaCTGgcaaaggatcagcgg ccgctgatacctttgcCAGtacgcccacgcgatg
4548 4549	<u>G</u> GU	Gly	ccgctgatacctttgcGGTtacgcccacgcgatg catcgcgtgggcgtaACCgcaaaggatcagcgg
4550 4551	<u>G</u> GC		ccgctgatacctttgcGGCtacgcccacgcgatg catcgcgtgggcgtaGCCgcaaaggatcagcgg
4528 4529	<u>G</u> GA		ccgctgatacctttgcGGAtacgcccacgcgatg catcgcgtgggcgtaTCCgcaaaggatcagcgg
4534 4535	<u>G</u> GG		ccgctgatacctttgcGGGtacgcccacgcgatg catcgcgtgggcgtaCCCGcaaaggatcagcgg

4513 4512	<u>AAA</u>	Lys	catcgcgtgggcgtaTTTgcaaaggatcagcgg ccgctgatacctttgcAAAtacgcccacgcgatg
4519 4518	<u>AAG</u>		catcgcgtgggcgtaCTTgcaaaggatcagcgg ccgctgatacctttgcAAGtacgcccacgcgatg
4515 4514	<u>UAA</u>	Stop	catcgcgtgggcgtaTTAgcaaaggatcagcgg ccgctgatacctttgcTAAtacgcccacgcgatg
4521 4520	<u>UAG</u>		catcgcgtgggcgtaCTAgcaaaggatcagcgg ccgctgatacctttgcTAGtacgcccacgcgatg
4538 4539	<u>UGA</u>		ccgctgatacctttgcTGAtacgcccacgcgatg catcgcgtgggcgtaTCAgcaaaggatcagcgg
4541 4540	<u>GUU</u>	Val	catcgcgtgggcgtaAACgcaaaggatcagcgg ccgctgatacctttgcGTTtacgcccacgcgatg
4542 4543	<u>GUC</u>		ccgctgatacctttgcGTCtacgcccacgcgatg catcgcgtgggcgtaGACgcaaaggatcagcgg
4524 4525	<u>GUA</u>		ccgctgatacctttgcGTAtacgcccacgcgatg catcgcgtgggcgtaTACgcaaaggatcagcgg
4530 4531	<u>GUG</u>		ccgctgatacctttgcGTGtacgcccacgcgatg catcgcgtgggcgtaCACgcaaaggatcagcgg
Primers for Aspartic Acid 201			
Number	Mutation		Primer sequences
4895 4896	<u>UAU</u>	Tyr	gttatctggaagatcagTATatgtggcggatgagcgg ccgctcatccgccacatATActgatcttccagataac
4897 4898	<u>UAC</u>		gttatctggaagatcagTACatgtggcggatgagcgg ccgctcatccgccacatGTActgatcttccagataac
4899 4900	<u>CAU</u>	His	gttatctggaagatcagCATatgtggcggatgagcgg ccgctcatccgccacatATGctgatcttccagataac
4901 4902	<u>CAC</u>		gttatctggaagatcagCACatgtggcggatgagcgg ccgctcatccgccacatGTGctgatcttccagataac

5156 5157	<u>AAU</u>	Asn	ggaagatcagAATatgtggcggatgagcggcattttc tccgccacatATTctgatcttccagataactgccgtc
4905 4907	<u>AAC</u>		gttatctggaagatcagAACatgtggcggatgagcgg ccgctcatccgccacatGTTctgatcttccagataac
4912 4913	<u>GUU</u>	Val	gttatctggaagatcagGTTatgtggcggatgagcgg ccgctcatccgccacatAACctgatcttccagataac
4914 4915	<u>GUC</u>		gttatctggaagatcagGTCatgtggcggatgagcgg ccgctcatccgccacatGACctgatcttccagataac
4933 4934	<u>GUA</u>		gttatctggaagatcagGTAatgtggcggatgagcgg ccgctcatccgccacatTACctgatcttccagataac
4935 4936	<u>GUG</u>		gttatctggaagatcagGTGatgtggcggatgagcgg ccgctcatccgccacatCACctgatcttccagataac
4916 4917	<u>GCU</u>	Ala	gttatctggaagatcagGCTatgtggcggatgagcgg ccgctcatccgccacatAGCctgatcttccagataac
4918 4919	<u>GCC</u>		gttatctggaagatcagGCCatgtggcggatgagcgg ccgctcatccgccacatGGCctgatcttccagataac
4937 4938	<u>GCA</u>		gttatctggaagatcagGCAatgtggcggatgagcgg ccgctcatccgccacatTGCctgatcttccagataac
5364 5365	<u>GCG</u>		ggaagatcagGCGatgtggcggatgagcggcattttc tccgccacatCGCctgatcttccagataactgccgtc
4908 4909	<u>GAA</u>	Glu	gttatctggaagatcagGAAatgtggcggatgagcgg ccgctcatccgccacatTTCctgatcttccagataac
5158 5159	<u>GAG</u>		ggaagatcagGAGatgtggcggatgagcggcattttc tccgccacatCTCctgatcttccagataactgccgtc
4920 4921	<u>GGU</u>	Gly	gttatctggaagatcagGGTatgtggcggatgagcgg ccgctcatccgccacatACCctgatcttccagataac
4922 4923	<u>GGC</u>		gttatctggaagatcagGGCatgtggcggatgagcgg ccgctcatccgccacatGCCctgatcttccagataac
4941 4942	<u>GGA</u>		gttatctggaagatcagGGAatgtggcggatgagcgg ccgctcatccgccacatTCCctgatcttccagataac

5372 5373	<u>GGG</u>		gttatctggaagatcagGGGatgtggcggatgagcgg ccgctcatccgccacatCCCctgatcttccagataac
Primers for Tyrosine 503			
Number	Mutation		Primer sequences
5009 5010	<u>CAU</u>	His	atattatcttgcccgatgCATgcgcgcggtggatgaaga tcttcatccacgcgcgcATGcatcgggcaaataatat
5011 5012	<u>CAC</u>		atattatcttgcccgatgCACgcgcgcggtggatgaaga tcttcatccacgcgcgcGTGcatcgggcaaataatat
5013 5014	<u>AAU</u>	Asn	atattatcttgcccgatgAATgcgcgcggtggatgaaga tcttcatccacgcgcgcATTcatcgggcaaataatat
5015 5016	<u>AAC</u>		atattatcttgcccgatgAACgcgcgcggtggatgaaga tcttcatccacgcgcgcGTTcatcgggcaaataatat
5017 5018	<u>GAU</u>	Asp	atattatcttgcccgatgGATgcgcgcggtggatgaaga tcttcatccacgcgcgcATCcatcgggcaaataatat
5019 5020	<u>GAC</u>		atattatcttgcccgatgGACgcgcgcggtggatgaaga tcttcatccacgcgcgcGTCcatcgggcaaataatat
4987 4988	<u>UUU</u>	Phe	atattatcttgcccgatgTTTgcgcgcggtggatgaaga tcttcatccacgcgcgcAAAcatcgggcaaataatat
5287 5288	<u>UUC</u>		ttgcccgatgTTCgcgcgcggtggatgaagaccagccct ccacgcgcgcGAACatcgggcaaataatatcggtggcc
4991 4992	<u>UCU</u>	Ser	atattatcttgcccgatgTCTgcgcgcggtggatgaaga tcttcatccacgcgcgcAGACatcgggcaaataatat
4993 4994	<u>UCC</u>		atattatcttgcccgatgTCCgcgcgcggtggatgaaga tcttcatccacgcgcgcGGAcatcgggcaaataatat
5005 5006	<u>UCA</u>		atattatcttgcccgatgTCAGcgcgcggtggatgaaga tcttcatccacgcgcgcTGACatcgggcaaataatat
5007 5008	<u>UCG</u>		atattatcttgcccgatgTCGgcgcgcggtggatgaaga tcttcatccacgcgcgcCGACatcgggcaaataatat

5021 5022	<u>AGU</u>		atattat t t t g c c c g a t g A G T g c g c g c g t g g a t g a a g a t c t t c a t c c a c g c g c g c A C T c a t c g g g c a a a t a a t a t
5023 5024	<u>AGC</u>		atattat t t t g c c c g a t g A G C g c g c g c g t g g a t g a a g a t c t t c a t c c a c g c g c g c G C T c a t c g g g c a a a t a a t a t
4999 5000	<u>UGU</u>	Cys	atattat t t t g c c c g a t g T G T g c g c g c g t g g a t g a a g a t c t t c a t c c a c g c g c g c A C A c a t c g g g c a a a t a a t a t
5001 5002	<u>UGC</u>		atattat t t t g c c c g a t g T G C g c g c g c g t g g a t g a a g a t c t t c a t c c a c g c g c g c G C A c a t c g g g c a a a t a a t a t
4995 4996	<u>UAA</u>	Stop	atattat t t t g c c c g a t g T A A g c g c g c g t g g a t g a a g a t c t t c a t c c a c g c g c g c T T A c a t c g g g c a a a t a a t a t
4997 4998	<u>UAG</u>		atattat t t t g c c c g a t g T A G g c g c g c g t g g a t g a a g a t c t t c a t c c a c g c g c g c C T A c a t c g g g c a a a t a a t a t
5003 5004	<u>UGA</u>		atattat t t t g c c c g a t g T G A g c g c g c g t g g a t g a a g a t c t t c a t c c a c g c g c g c T C A c a t c g g g c a a a t a a t a t