

## Tables

**Table. 1.** PCR primer sequences used in site-directed mutagenesis of mutations in the heptad repeat regions

Mutations	Name of primers	of primer sequences (5'-3')*	Name of products	of Product length(bp)
L74A	L74A-P1 up	TTACA TCTGC <u>AGCGG</u> GTTCC AATCA	L74A-P1	3394
	L74A-P1 down	GACTT GGTG AGTACTCACC AGTCA C		
	L74A-P2 up	GTGACT GGTGA GTACT CAACC AAGTC	L74A-P2	1405
	L74A-P2 down	TGATT GGAAC <u>CQCGT</u> GCAGA TGTA		
V81A	V81A-P1 up	TCAGG ATGTA <u>GCGGA</u> TAGGA TATAC	V81A-P1	3372
	V81-P1 down	GACTT GGTG AGTACTCACC AGTCA C		
	V81A-P2 up	GTGACT GGTGA GTACT CAACC AAGTC	V81A-P2	1427
	V81A-P2 down	GTATA TCCTA <u>TCCGC</u> TACAT CCTGA		
V88A	V88A-P1 up	TATAC AAGCA <u>GGCGG</u> CTCTT GAATC	V88A-P1	3352
	V88A-P1 down	GACTT GGTG AGTACTCACC AGTCA C		
	V88A-P2 up	GTGACT GGTGA GTACT CAACC AAGTC	V88A-P2	1447
	V88A-P2 down	GATTC AAGAG <u>CQCGC</u> TGCTT GTATA		
L96A	L96A-P1 up	TCCGT TGGCA <u>GCGCT</u> AAACA CCGAA	L96 A-P1	3327
	L96A-P1 down	GACTT GGTG AGTACTCACC AGTCA C		
	L96A-P2 up	GTGACT GGTGA GTACT CAACC AAGTC	L96 A-P2	1472
	L96A-P2 down	TTCGG TGTTT <u>AGCGC</u> TGCCA ACGGA		
I103A	I103A-P1 up	ACCGA ATCTA <u>TAGCG</u> ATGAA TGCAA	I103A-P1	3308
	I103A-P1 down	GACTT GGTG AGTACTCACC AGTCA C		
	I103A-P2 up	GTGACT GGTGA GTACT CAACC AAGTC	I103A-P2	1491
	I103A-P2 down	TTGCA TTCAT <u>CGCTA</u> TAGAT TCGGT		
L110A	L110A-P1 up	AATAA CATCC <u>GCGTC</u> TTATC AGATC	L110A-P1	3285
	L110A-P1down	GACTT GGTG AGTACTCACC AGTCA C		
	L110A-P2 up	GTGACT GGTGA GTACT CAACC AAGTC	L110A-P2	1514
	L110A-P2down	GATCT GATAA <u>GACGC</u> GGATG TTATT		

<sup>a</sup> Mutated sites are underlined in the primer sequences

**Table. 2.** PCR primer sequences used in site-directed mutagenesis of mutations in the carbohydrate addition sites

Mutations	Name of primers	primer sequences (5'-3')*	Name of products	length(bp)
N119A	N119A-P1 up	TGGAG CTGCA <u>GCGAA</u> CAGCG GGTGT	N119A-P1	3394
	N119A-P1 down	GACTT GGTTG AGTACTCACC AGTCA C		
	N119A-P2 up	GTGACT GGTGA GTACT CAACC AAGTC	N119A-P2	1405
	N119A-P2 down	ACACC CGCTG <u>TCGCG</u> TGCAG CTCCA		
N341A	N341A-P1 up	TAAGC GATAC <u>GCGGA</u> CACAT GCCCA	N341A -P1	2592
	N341A-P1 down	GACTT GGTTG AGTACTCACC AGTCA C		
	N341A-P2 up	GTGACT GGTGA GTACT CAACC AAGTC	N341A -P2	2207
	N341A-P2 down	TGGGC ATGTG <u>TCCGC</u> GTATC GCTTA		
N433A	N433A-P1 up	TGACA GTCAA <u>GCGCA</u> ACACA GCCAC	N433A-P1	2317
	N433A-P1 down	GACTT GGTTG AGTACTCACC AGTCA C		
	N433A-P2 up	GTGACT GGTGA GTACT CAACC AAGTC	N433A-P2	2482
	N433A-P2 down	GTGGC TGTGT <u>TCCGC</u> TTGAC TGTCA		
N481A	N481A-P1 up	CTTCC ATAGG <u>GCGCA</u> CACCT TGCGA	N481A-P1	2172
	N481A-P1 down	GACTT GGTTG AGTACTCACC AGTCA C		
	N481A-P2 up	GTGACT GGTGA GTACT CAACC AAGTC	N481A-P2	2627
	N481A-P2 down	TCGCA AGGTG <u>TCCGC</u> CCTAT GGAAG		

3 <sup>a</sup> Muated sites are underlined in the primer sequences