

S1 Table. Amino acid substitutions in 48 clones, examined for accumulation of soluble HisF protein.

High level of accumulation of soluble protein

Clone	Substitutions	$\Delta 3$	A 8	D 11	L 50	I 52	A 54	S 55	S 101	N 103	T 104	A 105	A 128	D 130	S 144	T 171	I 173	D 176	G 177	K 179	S 201	A 204	L 222	A 223	A 224	S 225	
1	1	1																				$\Delta 3$		K			
2	8	0			G		Y	D					E		Q		Y		S								T
3 ^a	6	2						K						F	$\Delta 3$		E		H		Y				T	$\Delta 3$	
4	8	0	K				L			D	K						F					K	S			K	
5 ^b	8	0			T		E	D								D	G	E				P			K		
6	5	1					H	R										K	D							$\Delta 3$	N
9	4	0	D																			A	H				I
10	4	0					H											A				N			I		
11	4	0						Q						V				G						E			
13	8	0						K		D	K			S	K							Y			T	D	
14	8	0	K	Q			G	N											Q				H	T		M	
15	8	0						Q					K					I	L			Y	H		T		K
16	8	0						T	F				E	K			D		R				T		K		
17 ^c	4	0									W			E				A								K	
18	5	0									W								V	E			K		T		
19	9	0		V		A	G			D	K					E	Y					H				K	
21	5	0	M	H			D										D										D
22	6	0			P						K					T		E	E								T
23	9	0					E	H		D	K								D				M		M	H	K
24	3	0						K						E											K		
26	5	0						Q									Y					T			Q		G
27	10	0	N		M		N	E			K			R		Y						T			D		D
28	7	0											E				N		G		D	Q		N		K	
29 ^d	5	0				D	H											Q							K	M	
30	7	0					K			H	R						E		E	H							I
31	5	0						K			P												V	H		K	
32	2	0					Q	E																			
33	3	1						F		E					$\Delta 3$								Y				
34	10	0		N		A	G			D	K				N	K	A							Q			I
35	6	0					D						E	R					V						Y		K
36	6	1	F	E											$\Delta 3$			Y						E	E		G
37	9	0	Y				Q	E					E	A		S			Q						E	N	
38	7	0					K								R	D	V						H		M	L	
39	5	0	H				L										F						H				I
40	5	0		S			K										L						R				T
41	8	0		R						D	K						E	E				Y			K	H	
42	4	1						$\Delta 3$					D										A			N	N
43 ^e	9	0					Y	G		L	G						Y		E	F					K	K	
44	7	0					V			D	K											N	H	D		N	
45	5	1					L			K					$\Delta 3$							Y	E				T
46	3	1	V	$\Delta 3$			D																				R
47	6	0		Y													E					E		T	T		T
48	9	0		S	Q									A	Q				S	Y		K	H	E			

Low level of accumulation of soluble protein

Clone	Substitutions	$\Delta 3$	A8	D11	L50	I52	A54	S55	S101	N103	T104	A105	A128	D130	S144	T171	I173	D176	G177	K179	S201	A204	L222	A223	A224	S225	
7	7	1	V				D	F		Y		D						E	$\Delta 3$				D				
8	9	1	$\Delta 3$		E	K		E					K		V				K		H				K	M	
12'	7	0			T								E	R					Y		R	H			K		
20	10	1	D	$\Delta 3$	M		N	E			W								Q			Y	D	H	E		
25	9	0			M		Q	E							G		N	I	D		K				K		

a: GTT/ATT (V56I); b: GAG/GTG (E57V); c: AAG/ATG (K13M); d: GAG/AAG (E161K), GGA/AGA (G166R); e: GTT/ATT (V56I), GCT-TCT (A218S); f: GCG/GGG (A221G)