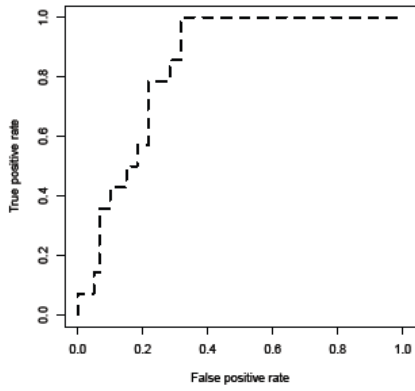
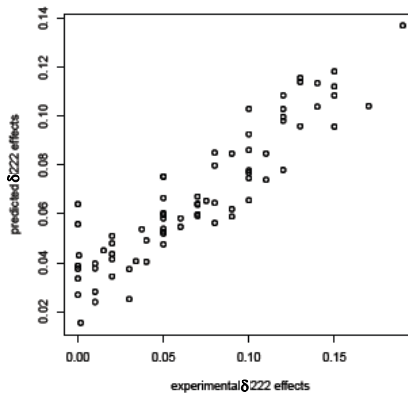
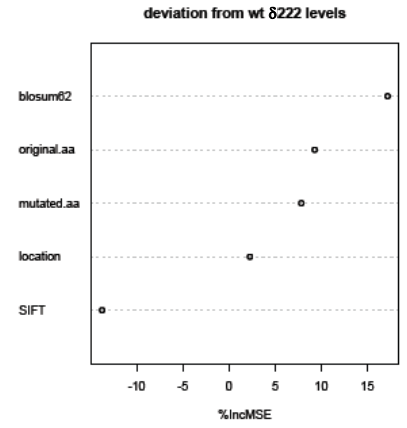
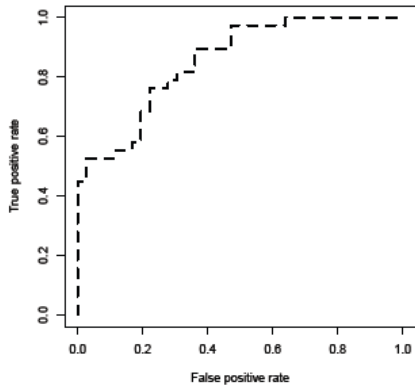
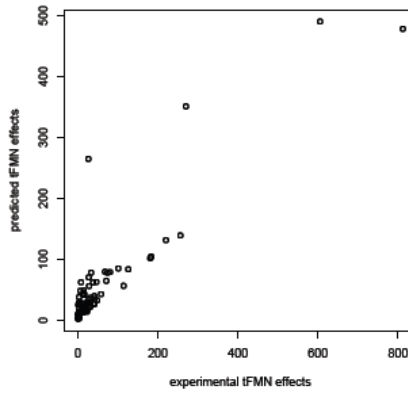
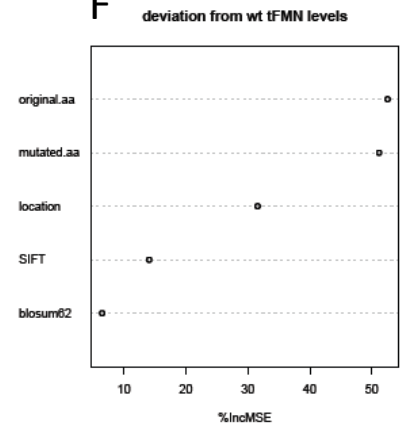


A**B****C****D****E****F**

Variant	$\delta 222$	τ FMN	BLOSUM62	SIFT	NMR
WT	0.3	80			WT Like
$\Delta J\alpha$	0.20	80			$\Delta J\alpha$ Like
$\Delta 408-411$	0.15	71			$\Delta J\alpha$ Like
$\Delta 408-411 \Delta J\alpha$	0.10	83			
$\Delta 410-412$	0.34	72			
T407P	0.27	81	1	0.01	
L408D	0.18	96	-4	0.00	$\Delta J\alpha$ Like
E409P	0.35	98	-1	0.01	$\Delta J\alpha$ Like
R410G	0.35	78	-2	0.15	
R410P	0.20	108	-2	0.06	$\Delta J\alpha$ Like
K413A	0.22	59	-1	0.15	WT Like
N414V	0.25	350	-2	0.11	
N414S	0.40	685	1	1.00	
N414T	0.45	892	0	0.34	WT Like
F415E	0.29	65	-4	0.00	
V416A	0.38	22	0	0.01	
T418V	0.28	56	0	0.00	
D419A	0.40	77	-2	0.00	WT Like
R421G	0.28	82	-2	0.05	
R421D	0.25	58	-2	0.07	
D424A	0.35	194	-2	0.00	
I427A	0.22	6	-1	0.00	
I427G	NA	NA	-4	0.00	
I427V	0.34	9	3	0.04	
I428G	NA	NA	-4	0.00	
I428M	0.35	52	1	0.00	
I428T	0.40	53	-1	0.00	
I428V	0.29	72	3	1.00	
F429Y	0.32	66	3	0.09	
S431A	0.29	65	1	0.00	
D432A	0.37	54	-2	0.03	
S433L	0.37	48	-2	0.02	
S433V	0.37	64	-2	0.01	
F434L	0.35	12	0	0.00	WT Like
L435A	0.44	263	-1	0.00	
T438V	0.23	32	0	0.00	WT Like
E439A	0.26	71	-1	0.05	WT Like
Y440E	NA	NA	-2	0.00	
R442L	0.33	121	-2	0.17	
E443A	0.35	58	-1	0.06	
E444A	0.43	75	-1	0.00	WT Like
I445A	0.42	336	-1	0.00	
L446E	0.45	42	-3	0.00	
N449A	NA	NA	-2	0.00	
C450V	0	0	-1	0.00	WT Like

C450G	0	0	-3	0.01	WT Like
R451A	NA	NA	-1	0.00	
F452L	0.28	300	0	0.04	WT Like
L453V	0.30	160	1	0.00	WT Like
Q454A	NA	NA	-1	0.00	
Q454D	NA	NA	0	0.00	
G455A	NA	NA	0	0.00	
R460A	0.30	78	-1	0.20	
T462V	0.13	57	0	0.08	
I466A	NA	NA	-1	0.00	
R467A	0.36	96	-1	0.00	
A469G	0.39	40	0	0.01	WT Like
D471V	0.37	68	-3	0.26	
E475A	0.20	67	-1	0.11	WT Like
V476F	0.37	63	-1	0.03	
T477V	0.30	71	0	0.09	
Q479L	0.30	49	-2	0.08	
L480A	0.30	34	-1	0.00	
I481A	NA	NA	-1	0.00	
N482A	NA	NA	-2	0.00	
Y483E	NA	NA	-2	0.00	
T484V	0.40	62	0	0.09	
K485A	0.43	93	-1	0.00	
K485L	0.43	62	-2	0.00	
F490L	0.15	47	0	0.00	
W491Y	0.27	85	2	0.00	
W491K	0.29	79	-3	0.00	
N492A	0.18	54	-2	0.00	
N492Q	NA	NA	0	0.00	
L493A	0.11	121	-1	0.49	Neither
F494L	0.16	206	0	0.72	WT Like
F494N	NA	NA	-3	0.00	
F494W	NA	NA	1	0.00	
F494Y	NA	NA	3	0.00	
H495L	0.15	85	-3	0.23	
L496F	0.35	84	0	0.01	
Q497A	0.38	74	-1	1.00	
M499A	0.30	81	-1	0.01	
R500A	0.39	57	-1	0.20	WT Like
D501G	0.32	80	-1	0.14	
Q502A	0.30	78	-1	0.63	
F509L	0.40	181	0	0.00	WT Like
F509Y	0.41	66	3	0.12	
G511V	NA	NA	-3	0.00	
Q513A	0.18	261	-1	0.00	WT Like
L514A	0.42	83	-1	0.07	WT Like
D515L	0.36	56	-4	0.00	

D515V	0.25	54	-3	0.00	
T517V	0.39	76	0	0.05	
H519A	0.30	80	-2	0.19	
G528A	0.32	38	0	0.79	
E541K	0.26	87	1	0.74	
G528V	0.19	103	-3	0.30	
T406A/T407A	0.38	56			WT Like
D432A/Q436A	0.36	73			WT Like
D432A/Q436A/E443A	0.29	76			
D432A/Q436A/T406A/T407A	0.33	62			
S441A/E443A	0.45	85			
S441A/E443A/T406A/T407A	0.45	70			
G ins at 519	0.35	55			
GGG ins at 519		0.31	68		
