

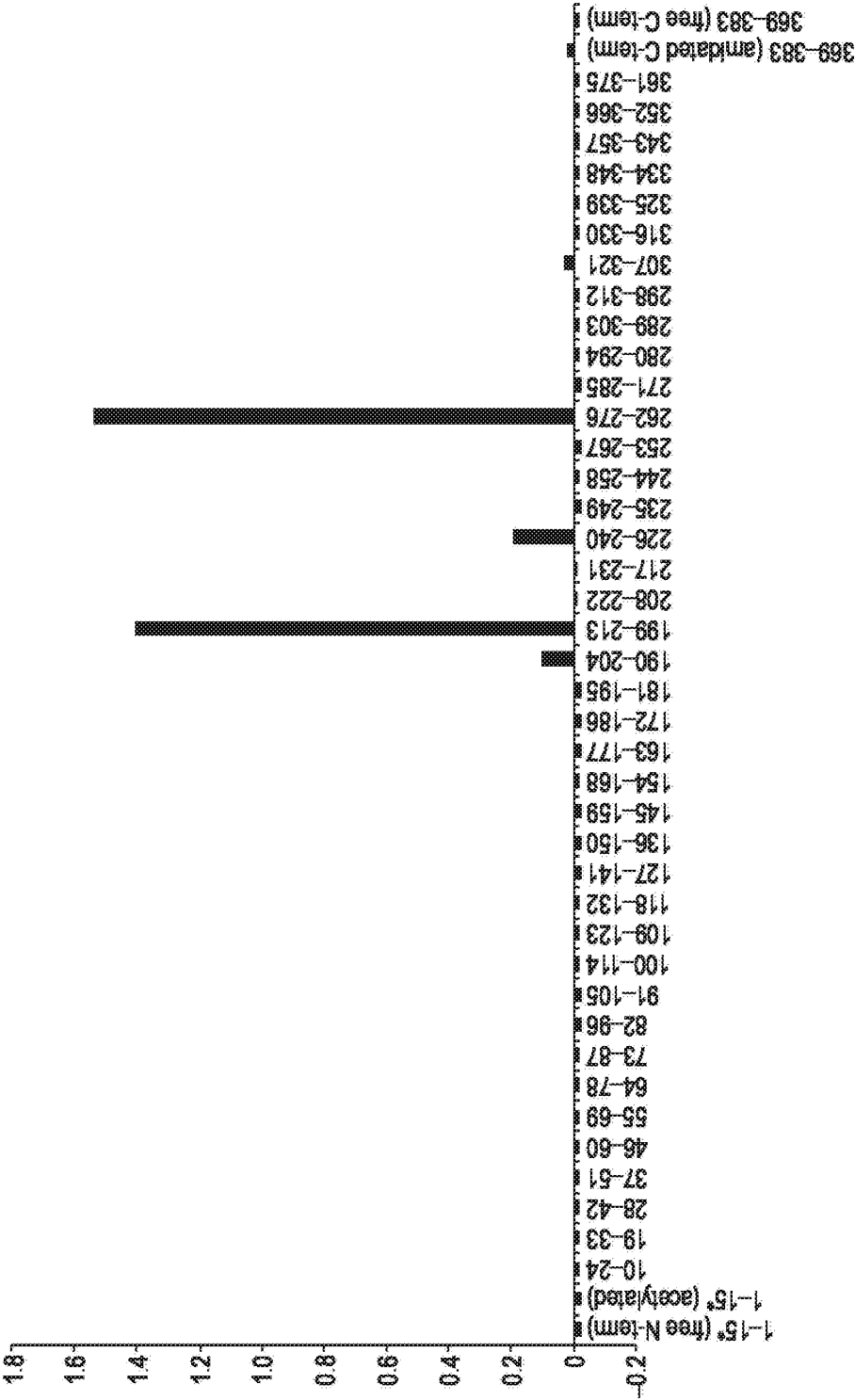
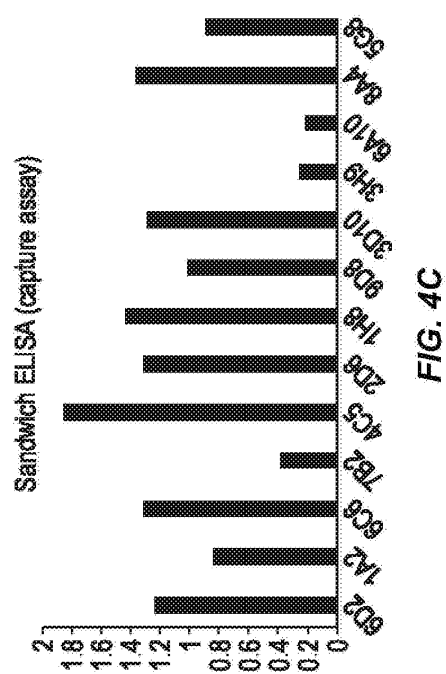
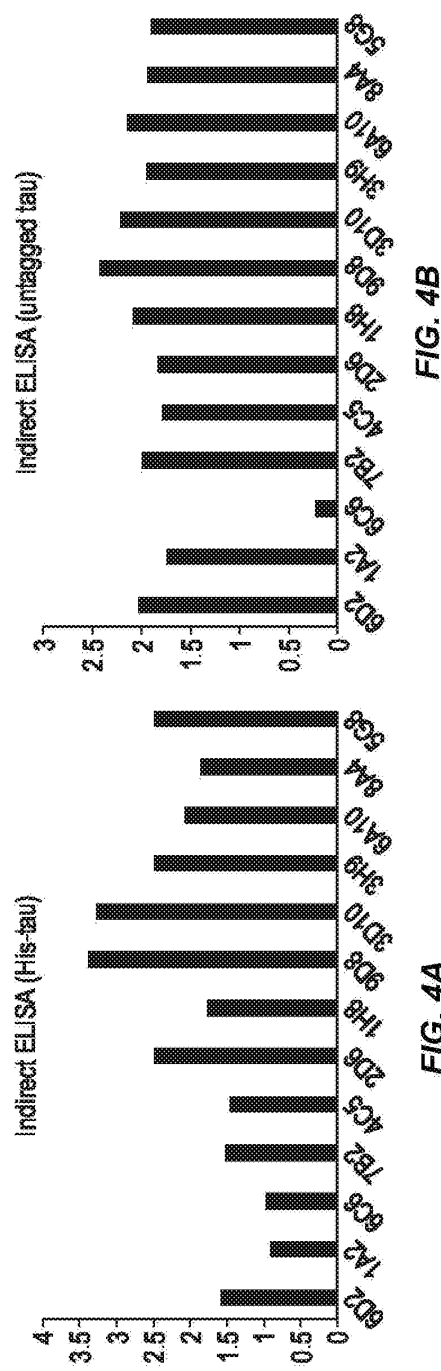


Fig. 2

	10	20	30	40	
mouse3D6VH	E V Q L Q S G A D L V R P G A L V K L S C K A S	G F N I K D Y Y L H W V R Q R			40
IGHV1-69-2*01	E V Q L V Q S G A E V K K P G A T V K I S C K V S	G Y T F D Y Y M H W V Q Q A			40
2RCS VH hFrwk	Q V Q L Q S G A E L V K P G A S V K L S C T A S	G F N I K D T Y M H W V K Q R			40
hu3D6 VHvb1	Q V Q L Q S G A E L V K P G A S V K L S C T A S	G F N I K D Y Y L H W V K Q R			40
hu3D6 VHvb2	E V Q L V Q S G A E V V K P G A S V K I S C K A S	G F N I K D Y Y L H W V R Q R			40
hu3D6 VHvb3	E V Q L V Q S G A E V V K P G A T V K I S C K A S	G F N I K D Y Y L H W V R Q R			40
hu3D6 VHvb4	E V Q L V Q S G A E V V K P G A T V K I S C K A S	G F T I K D Y Y L H W V R Q R			40
hu3D6 VHvb5	E V Q L V Q S G A E V V K P G A T V K I S C K A S	G F T I K D Y Y L H W V R Q R			40
hu3D6 VHvb6	E V Q L V Q S G A E V V K P G A T V K I S C K A S	G F T I K D Y Y L H W V R Q R			40
hu3D6 VHvb7	E V Q L V Q S G A E V V K P G A T V K I S C K A S	G F T I K D Y Y L H W V R Q R			40
mouse3D6VH	P E Q G L E W I G W I D P E N G D T V Y D P K F Q	G K A T I T A D T S S N T A Y			80
IGHV1-69-2*01	P G K G L E W M G L V D P E D G E T I Y A E K F Q	G R V T I T A D T S T D T A Y			80
2RCS VH hFrwk	P E Q G L E W I G R I D P A N G N T K Y D D P K F Q	G K A T I T A D T S S N T A Y			80
hu3D6 VHvb1	P E Q G L E W I G R I D P A N G D T V Y D D P K F Q	G K A T I T A D T S S N T A Y			80
hu3D6 VHvb2	P G K G L E W I G W I D P E N G D T V Y D P K F Q	G R A T I T A D T S T D T A Y			80
hu3D6 VHvb3	P G K G L E W I G W I D P E N G D T I Y D P K F Q	G R A T I T A D T S T D T A Y			80
hu3D6 VHvb4	P G K G L E W I G W I D P E N G D T I Y D P K F Q	G R V T I T A D T S T D T A Y			80
hu3D6 VHvb5	P G K G L E W I G W I D P E D G E T I Y D P K F Q	G R V T I T A D T S T D T A Y			80
hu3D6 VHvb6	P G K G L E W I G W I D P E D G E T V Y D P K F Q	G R V T I T A D T S T D T A Y			80
hu3D6 VHvb7	P G K G L E W I G W I D P E D G E T V Y D P K F Q	G R V T I T A D T S T D T A Y			80
mouse3D6VH	L Q L G S L T S E D T A V Y F C S T L D - - F W G Q	G T T L T V S S			112
IGHV1-69-2*01	M E L S S L R S E D T A V Y C A T - Q - - H W G Q	G T T L T V S S			111
2RCS VH hFrwk	L Q L S S L T S E D T A V Y C A S Y Y G I Y W G Q	G T T L T V S S			114
hu3D6 VHvb1	L Q L S S L T S E D T A V Y F C S T L D - - F W G Q	G T T L T V S S			112
hu3D6 VHvb2	L E L S S L T S E D T A V Y F C S T L D - - F W G Q	G T T L T V S S			112
hu3D6 VHvb3	M E L S S L R S E D T A V Y C S T L D - - F W G Q	G T T L T V S S			112
hu3D6 VHvb4	M E L S S L R S E D T A V Y C S T L D - - F W G Q	G T T L T V S S			112
hu3D6 VHvb5	M E L S S L R S E D T A V Y C S T L D - - F W G Q	G T T L T V S S			112
hu3D6 VHvb6	M E L S S L R S E D T A V Y F C S T L D - - F W G Q	G T T L T V S S			112
hu3D6 VHvb7	M E L S S L R S E D T A V Y C S T L D - - F W G Q	G T T L T V S S			112



Name	k_a ($M^{-1}s^{-1}$)	k_d (s^{-1})	K_D (nM)
3D6	2.58×10^6	1.19×10^{-3}	0.46
1H8	5.07×10^5	5.61×10^{-3}	11.1
3H9	4.71×10^5	1.41×10^{-3}	3.0
5G8	3.75×10^5	2.54×10^{-3}	6.78
6D2	3.83×10^5	3.18×10^{-3}	8.29
7G6	5.76×10^5	3.32×10^{-3}	5.77
8A4	5.99×10^5	2.27×10^{-3}	3.8

FIG. 5

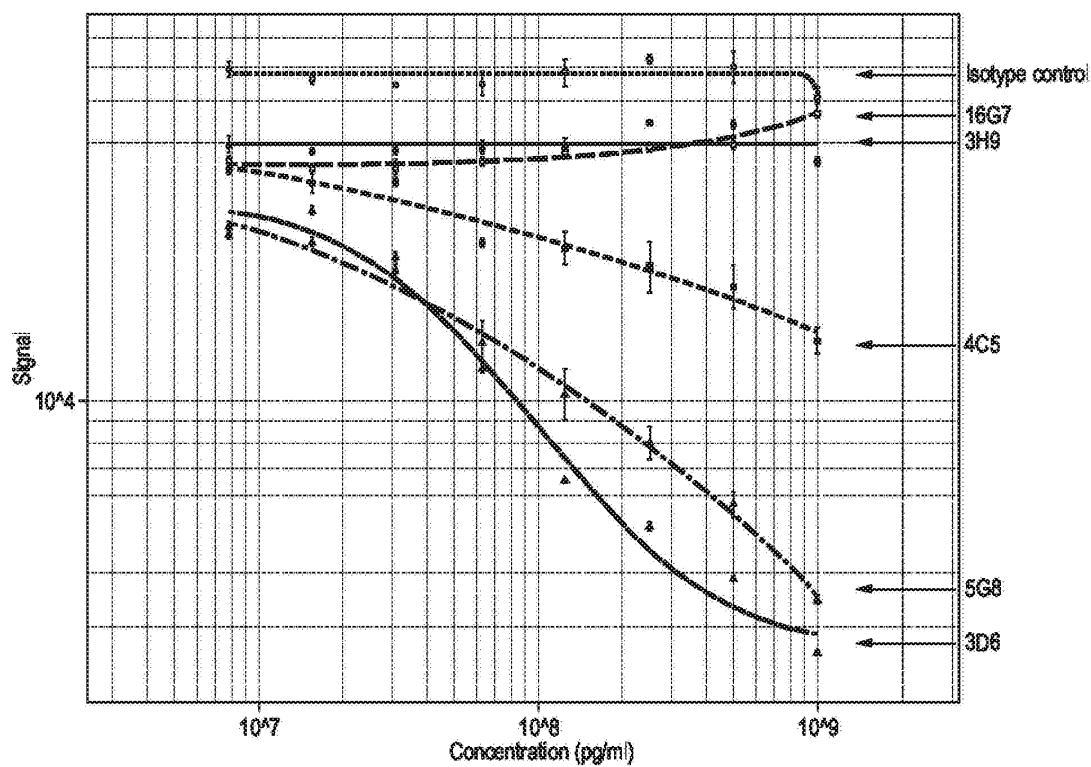


FIG. 6

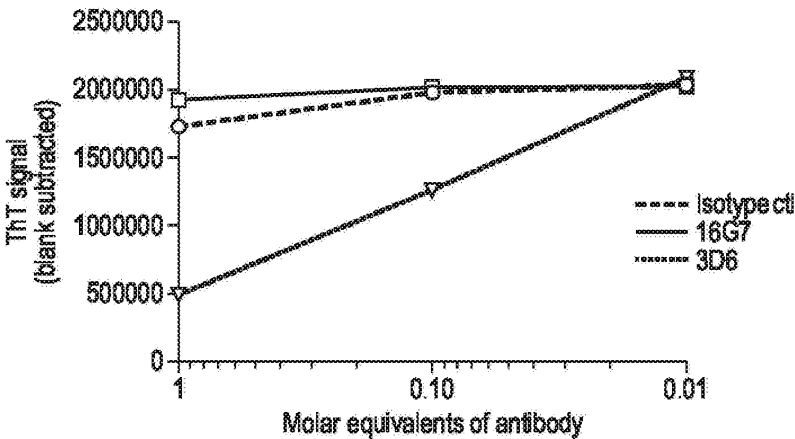


FIG. 7

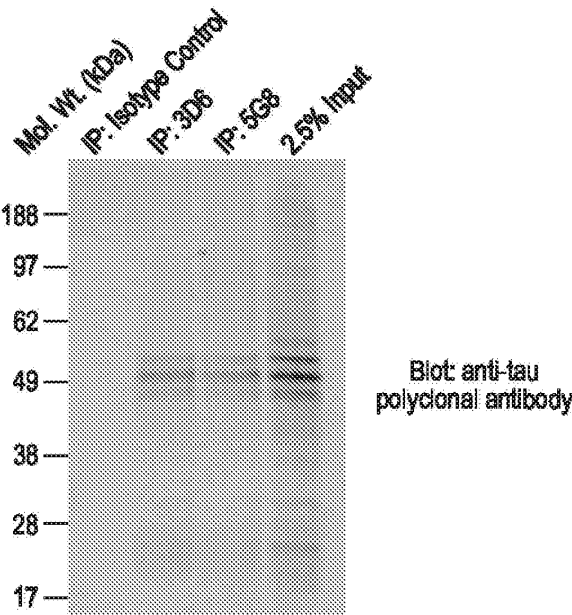


FIG. 8

Figure 9A

	10	20	30	40	
Murine 3D6VH	E	V	Q	L	Q
IGHV1-69-2*01	Q	S	G	A	D
2RCS VH hFrwk	L	V	R	P	G
hu3D6 VHvb1	A	L	V	K	L
hu3D6 VHvb2	S	G	A	D	L
hu3D6 VHvb3	Q	S	G	A	D
hu3D6 VHvb4	L	V	R	P	G
hu3D6 VHvb5	A	L	V	K	L
hu3D6 VHvb6	S	G	A	D	L
hu3D6 VHvb7	Q	S	G	A	D
hu3D6VHv1bA11	L	V	R	P	G
h3D6 VHvb8	A	L	V	K	L
h3D6 VHvb9	S	G	A	D	L
	40	40	40	40	40

	50	60	70	80	
Murine 3D6VH	P	E	Q	G	L
IGHV1-69-2*01	E	W	I	G	W
2RCS VH hFrwk	I	D	P	E	N
hu3D6 VHvb1	G	D	T	V	Y
hu3D6 VHvb2	N	G	D	T	V
hu3D6 VHvb3	A	P	K	F	Q
hu3D6 VHvb4	E	D	P	K	F
hu3D6 VHvb5	I	Y	D	P	K
hu3D6 VHvb6	E	I	A	E	E
hu3D6 VHvb7	N	K	E	E	E
hu3D6VHv1bA11	D	E	E	E	E
h3D6 VHvb8	E	E	E	E	E
h3D6 VHvb9	E	E	E	E	E
	80	80	80	80	80

Figure 9B

	90										100										110													
	L	Q	L	G	S	L	T	S	E	D	T	A	V	Y	F	C	S	T	L	D	-	F	W	G	Q	G	T	T	L	T	V	S	S	
Murine 3D6VH	M	E	.	S	.	R	.	.	.	.	.	.	.	Y	.	A	.	-	Q	-	-	H	.	.	.	.	L	V	.	.	.	.	.	112
IGHV1-69-2*01	.	.	S	.	.	.	.	.	.	.	.	.	.	Y	.	A	S	Y	G	I	Y	.	.	.	.	.	.	.	.	.	.	.	111	
2RCS VH hFrwk	.	.	S	.	.	.	.	.	.	.	.	.	.	Y	.	A	S	Y	G	I	Y	.	.	.	.	.	.	.	.	.	.	.	114	
hu3D6 VHvb1	.	.	S	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	-	-	.	.	.	.	.	.	.	.	.	.	.	112	
hu3D6 VHvb2	.	E	.	S	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	-	-	.	.	.	.	.	L	V	.	.	.	.	112	
hu3D6 VHvb3	M	E	.	S	.	R	.	.	.	.	.	.	.	Y	.	.	.	.	-	-	-	.	.	.	.	.	L	V	.	.	.	.	112	
hu3D6 VHvb4	M	E	.	S	.	R	.	.	.	.	.	.	.	Y	.	.	.	.	-	-	-	.	.	.	.	.	L	V	.	.	.	.	112	
hu3D6 VHvb5	M	E	.	S	.	R	.	.	.	.	.	.	.	Y	.	.	.	.	-	-	-	.	.	.	.	.	L	V	.	.	.	.	112	
hu3D6 VHvb6	M	E	.	S	.	R	.	.	.	.	.	.	.	.	.	.	.	.	-	-	-	.	.	.	.	.	L	V	.	.	.	.	112	
hu3D6 VHvb7	M	E	.	S	.	R	.	.	.	.	.	.	.	Y	.	.	.	.	-	-	-	.	.	.	.	.	L	V	.	.	.	.	112	
hu3D6VHv1bA11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	-	-	.	.	.	.	.	L	V	.	.	.	.	112	
h3D6 VHvb8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	-	-	.	.	.	.	.	L	V	.	.	.	.	112	
h3D6 VHvb9	M	E	.	.	.	V	R	.	.	.	.	.	.	.	.	.	.	.	-	-	-	.	.	.	.	.	L	V	.	.	.	.	112	

Figure 10A

		10	20	30
hu3D6VLv2	D	V	M	T
hu3D6VLv2 L37Q	Q	S	P	L
hu3D6VLv2 L50G	L	S	L	S
hu3D6VLv2 S52G	L	S	L	S
hu3D6VLv2 L54G	L	S	L	S
hu3D6VLv2 L54D	L	S	L	S
hu3D6VLv2 L54K	L	S	L	S
hu3D6VLv2 L54R	L	S	L	S
hu3D6VLv2 L54T	L	S	L	S
hu3D6VLv2 L37Q_L50G	L	S	L	S
hu3D6VLv2 L37Q_L50D	L	S	L	S
hu3D6VLv2 L37Q_S52G	L	S	L	S
hu3D6VLv2 L37Q_L54G	L	S	L	S
hu3D6VLv2 L37Q_L54R	L	S	L	S
hu3D6VLv2 L37Q_L54T	L	S	L	S
hu3D6VLv2 L37Q_L54D	L	S	L	S
hu3D6VLv2 L37Q_L54E	L	S	L	S
hu3D6VLv2 L37Q_L50G_L54R	L	S	L	S
hu3D6VLv2 L37Q_L50G_L54G	L	S	L	S
hu3D6VLv2 L37Q_L50D_L54R	L	S	L	S
hu3D6VLv2 L37Q_L50E_L54R	L	S	L	S
hu3D6VLv2 L37Q_L50D_L54G	L	S	L	S
hu3D6VLv2 L37Q_S52G_L54D	L	S	L	S
hu3D6VLv2 L37Q_S52G_L54G	L	S	L	S
hu3D6VLv2 L37Q_S52G_L54T	L	S	L	S
hu3D6VLv2 L37Q_S52G_L54R	L	S	L	S
hu3D6VLv2 L37Q_L50D_L54G_G100Q	L	S	L	S
hu3D6VLv2 L37Q_L50D_L54R_G100Q	L	S	L	S
hu3D6VLv2 L37Q_L50G_L54G_G100Q	L	S	L	S
hu3D6VLv2 L37Q_L50G_L54R_G100Q	L	S	L	S
hu3D6VLv2 L37Q_L50V_L54D_G100Q	L	S	L	S
hu3D6VLv2 L37Q_S52G_L54D_G100Q	L	S	L	S
hu3D6VLv2 L37Q_S52G_L54R_G100Q	L	S	L	S

Figure 10B

		40	50	60	
		D S D G K T Y L N W L L Q R P G Q S P R R L I Y L V S K L D			
hu3D6VLv2		.	.	.	60
hu3D6VLv2	L37Q	.	.	.	60
hu3D6VLv2	L50G	.	.	.	60
hu3D6VLv2	S52G	.	.	.	60
hu3D6VLv2	L54G	.	.	.	60
hu3D6VLv2	L54D	.	.	.	60
hu3D6VLv2	L54K	.	.	.	60
hu3D6VLv2	L54R	.	.	.	60
hu3D6VLv2	L54T	.	.	.	60
hu3D6VLv2	L37Q_L50G	.	.	.	60
hu3D6VLv2	L37Q_L50D	.	.	.	60
hu3D6VLv2	L37Q_S52G	.	.	.	60
hu3D6VLv2	L37Q_L54G	.	.	.	60
hu3D6VLv2	L37Q_L54R	.	.	.	60
hu3D6VLv2	L37Q_L54T	.	.	.	60
hu3D6VLv2	L37Q_L54D	.	.	.	60
hu3D6VLv2	L37Q_L54E	.	.	.	60
hu3D6VLv2	L37Q_L50G_L54R	.	.	.	60
hu3D6VLv2	L37Q_L50G_L54G	.	.	.	60
hu3D6VLv2	L37Q_L50D_L54R	.	.	.	60
hu3D6VLv2	L37Q_L50E_L54R	.	.	.	60
hu3D6VLv2	L37Q_L50D_L54G	.	.	.	60
hu3D6VLv2	L37Q_S52G_L54D	.	.	.	60
hu3D6VLv2	L37Q_S52G_L54G	.	.	.	60
hu3D6VLv2	L37Q_S52G_L54T	.	.	.	60
hu3D6VLv2	L37Q_S52G_L54R	.	.	.	60
hu3D6VLv2	L37Q_L50D_L54G_G100Q	.	.	.	60
hu3D6VLv2	L37Q_L50D_L54R_G100Q	.	.	.	60
hu3D6VLv2	L37Q_L50G_L54G_G100Q	.	.	.	60
hu3D6VLv2	L37Q_L50G_L54R_G100Q	.	.	.	60
hu3D6VLv2	L37Q_L50V_L54D_G100Q	.	.	.	60
hu3D6VLv2	L37Q_S52G_L54D_G100Q	.	.	.	60
hu3D6VLv2	L37Q_S52G_L54R_G100Q	.	.	.	60

Figure 10C

	70	80	90
hu3D6VLv2	S	G	V
hu3D6VLv2 L37Q	G	V	P
hu3D6VLv2 L50G	D	R	F
hu3D6VLv2 S52G	F	S	G
hu3D6VLv2 L54G	S	G	S
hu3D6VLv2 L54D	G	S	G
hu3D6VLv2 L54K	T	F	S
hu3D6VLv2 L54R	G	T	D
hu3D6VLv2 L54T	G	T	D
hu3D6VLv2 L37Q_L50G	G	T	D
hu3D6VLv2 L37Q_L50D	F	T	L
hu3D6VLv2 L37Q_S52G	K	I	S
hu3D6VLv2 L37Q_L54G	R	V	E
hu3D6VLv2 L37Q_L54R	A	E	D
hu3D6VLv2 L37Q_L54T	V	G	V
hu3D6VLv2 L37Q_L54D			
hu3D6VLv2 L37Q_L54E			
hu3D6VLv2 L37Q_L50G_L54R			
hu3D6VLv2 L37Q_L50G_L54G			
hu3D6VLv2 L37Q_L50D_L54R			
hu3D6VLv2 L37Q_L50E_L54R			
hu3D6VLv2 L37Q_L50D_L54G			
hu3D6VLv2 L37Q_S52G_L54D			
hu3D6VLv2 L37Q_S52G_L54G			
hu3D6VLv2 L37Q_S52G_L54T			
hu3D6VLv2 L37Q_S52G_L54R			
hu3D6VLv2 L37Q_L50D_L54G_G100Q			
hu3D6VLv2 L37Q_L50D_L54R_G100Q			
hu3D6VLv2 L37Q_L50G_L54G_G100Q			
hu3D6VLv2 L37Q_L50G_L54R_G100Q			
hu3D6VLv2 L37Q_L50V_L54D_G100Q			
hu3D6VLv2 L37Q_S52G_L54D_G100Q			
hu3D6VLv2 L37Q_S52G_L54R_G100Q			

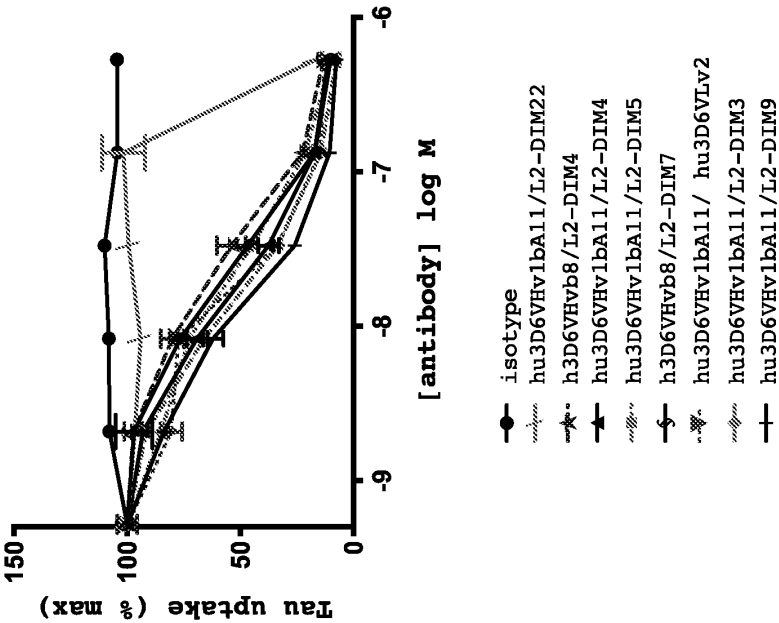


Figure 11

Figure 12A

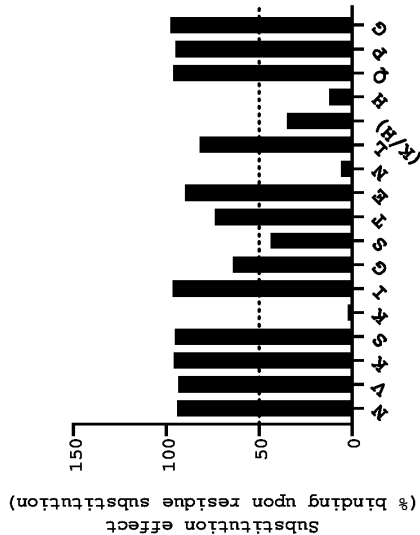


Figure 12B

Microtubule Binding Repeat 1 (aa 255-271)	N	V	K	S	K	I	G	S	T	E	N	L	K	H	Q	P	G
Microtubule Binding Repeat 2 (aa 286-302)	N	V	Q	S	K	C	G	S	K	D	N	I	K	H	V	P	G
Microtubule Binding Repeat 3 (aa 317-333)	K	V	T	S	K	C	G	S	L	G	N	I	H	H	K	P	G
Microtubule Binding Repeat 4 (aa 349-365)	R	V	Q	S	K	I	G	S	L	D	N	I	T	H	V	P	G

Important 326 binding residues

^ Important residue not conserved in repeat 4

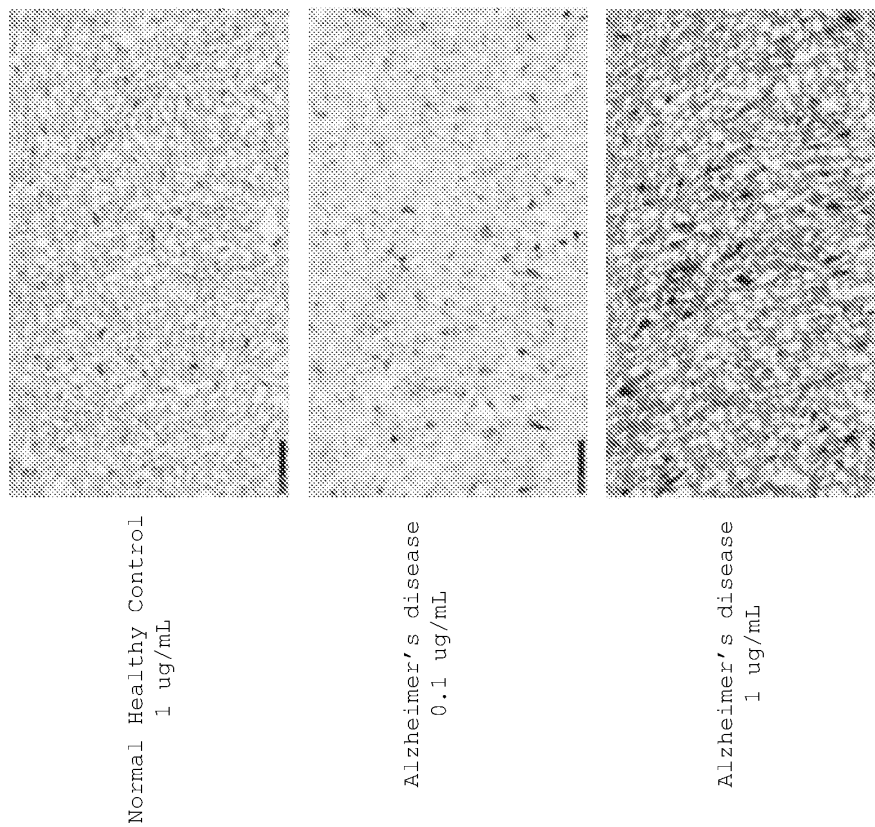


Figure 13

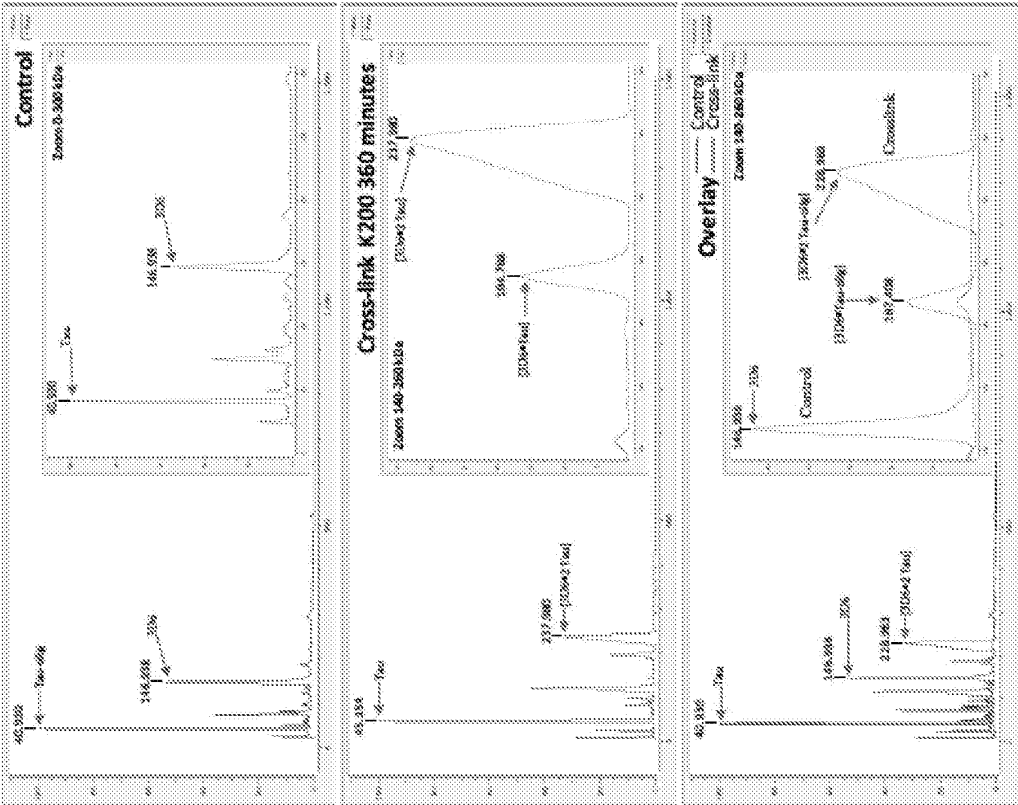


Figure 14

Figure 15

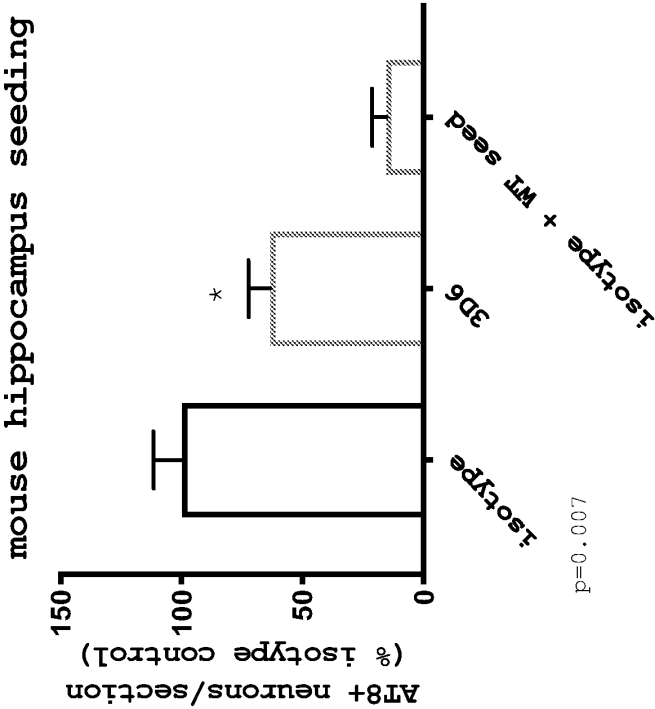
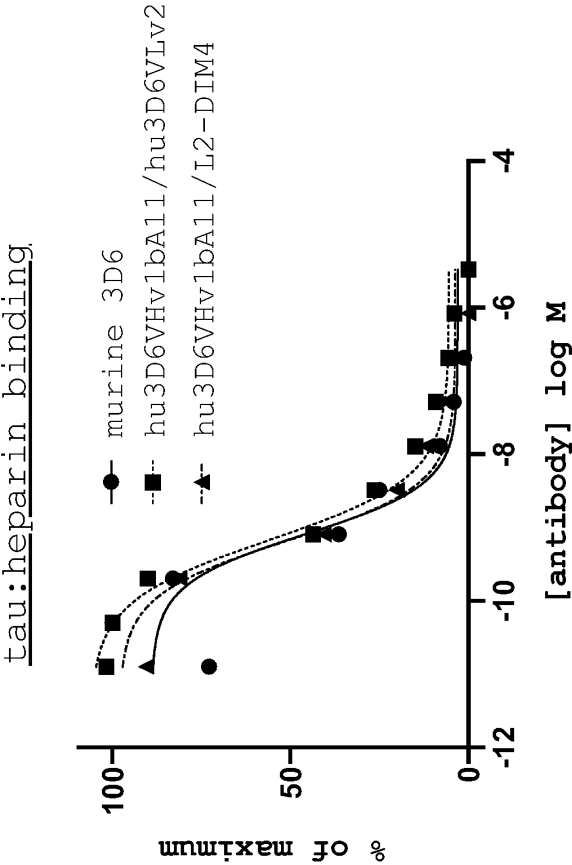


Figure 16



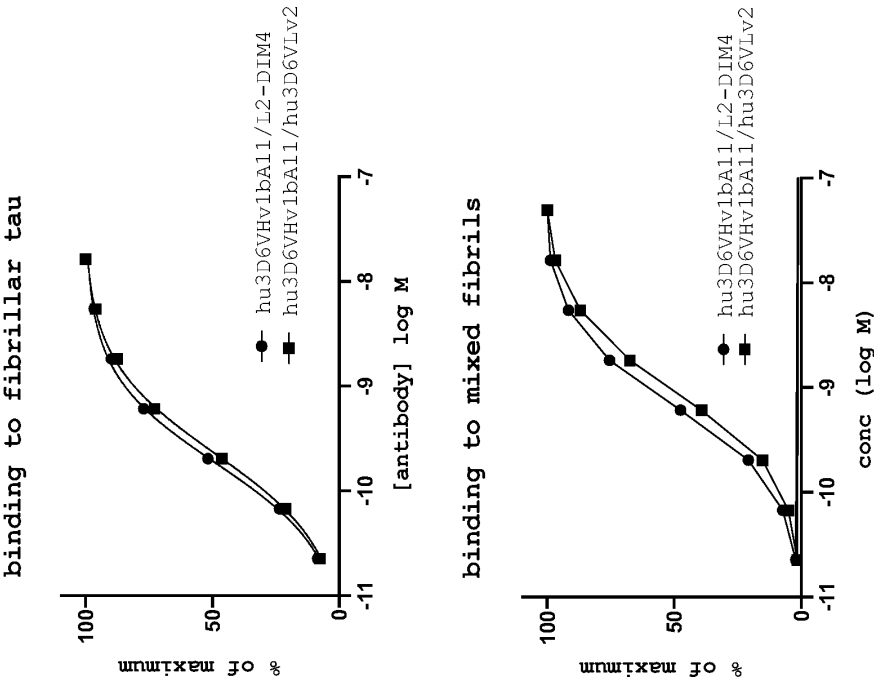


Figure 17