

Anti-OX40 3F4 VH (hIgG1)

V segment: 1-08

D segment: 6-6

J segment: JH5b

1	Q	V	Q	L	V	Q	S	G	A	E	V	K	K	P	G	A	S
	CAG	GTG	CAG	CTG	GTG	CAG	TCT	GGG	GCT	GAG	GTG	AAG	AAG	CCT	GGG	GCC	TCA
	_CDR1_____																
52	V	K	V	S	C	K	A	S	G	N	T	F	T	S	Y	D	V
	GTG	AAG	GTC	TCC	TGC	AAG	GCT	TCT	GGA	AAC	ACC	TTC	ACC	AGT	TAT	GAT	GTC
	_CDR2_____																
103	N	W	V	R	Q	A	T	G	Q	G	L	E	W	M	G	W	M
	AAC	TGG	GTG	CGA	CAG	GCC	ACT	GGA	CAA	GGG	CTT	GAG	TGG	ATG	GGA	TGG	ATG
	_CDR3_____																
154	N	P	N	S	G	N	T	G	Y	A	P	K	F	Q	G	R	V
	AAC	CCT	AAC	AGT	GGT	AAC	ACA	GGC	TAT	GCA	CCG	AAG	TTC	CAG	GGC	AGA	GTC
205	T	M	T	R	N	T	S	I	S	T	A	Y	M	E	L	S	S
	ACC	ATG	ACC	AGG	AAC	ACC	TCC	ATA	AGC	ACA	GCC	TAC	ATG	GAG	CTG	AGC	AGC
	_CDR3_____																
256	L	R	S	E	D	T	A	V	Y	Y	C	A	R	I	Y	S	S
	CTG	AGA	TCT	GAG	GAC	ACG	GCC	GTT	TAT	TAC	TGT	GCG	AGA	ATA	TAT	AGC	AGC
307	S	Y	N	W	F	D	P	W	G	Q	G	T	L	V	T	V	S
	TCG	TAC	AAC	TGG	TTC	GAC	CCC	TGG	GGC	CAG	GGA	ACC	CTG	GTC	ACC	GTC	TCC
358	S																
	TCA																

Figure 1A

Anti-OX40 3F4 VK (hKappa)

V segment: L6

J segment: JK4

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      E   I   V   L   T   Q   S   P   A   T   L   S   L   S   P   G   E
1    GAA ATT GTG TTG ACA CAG TCT CCA GCC ACC CTG TCT TTG TCT CCA GGG GAA

      _CDR1_
      R   A   T   L   S   C   R   A   S   Q   S   V   S   S   Y   L   A
52   AGA GCC ACC CTC TCC TGC AGG GCC AGT CAG AGT GTT AGC AGC TAC TTA GCC

      _CDR2_
      W   Y   Q   Q   K   P   G   Q   A   P   R   L   L   I   Y   D   A
103  TGG TAC CAA CAG AAA CCT GGC CAG GCT CCC AGG CTC CTC ATC TAT GAT GCA

      S   N   R   A   T   G   I   P   A   R   F   S   G   S   G   S   G
154  TCC AAC AGG GCC ACT GGC ATC CCA GCC AGG TTC AGT GGC AGT GGG TCT GGG

      T   D   F   T   L   T   I   S   S   L   E   P   E   D   F   A   V
205  ACA GAC TTC ACT CTC ACC ATC AGC AGC CTA GAG CCT GAA GAT TTT GCA GTT

      _CDR3_
      Y   Y   C   Q   Q   R   S   N   W   P   L   T   F   G   G   G   T
256  TAT TAC TGT CAG CAG CGT AGC AAC TGG CCT CTC ACT TTC GGC GGA GGG ACC

      K   V   E   -   K
307  AAG GTG GAG ATC AAA
```

Figure 1B

J segment: JH2

Figure 2A

Anti-OX40 14B6 VK1 (hKappa)

V segment: L6

J segment: JK5

```
1      E   I   V   L   T   Q   S   P   A   T   L   S   L   S   P   G   E
      GAA ATT GTG TTG ACA CAG TCT CCA GCC ACC CTG TCT TTG TCT CCA GGG GAA

      _CDR1_
52      R   A   T   L   S   C   R   A   S   Q   S   V   S   S   Y   L   A
      AGA GCC ACC CTC TCC TGC AGG GCC AGT CAG AGT GTT AGC AGC TAC TTA GCC

      _CDR2_
103     W   F   Q   Q   R   P   G   Q   A   P   R   L   L   I   Y   D   A
      TGG TTC CAA CAG AGA CCT GGC CAG GCT CCC AGG CTC CTC ATC TAT GAT GCA

154     S   N   R   A   T   G   I   P   A   R   F   S   G   S   G   S   G
      TCC AAC AGG GCC ACT GGC ATC CCA GCC AGG TTC AGT GGC AGT GGG TCT GGG

205     T   D   F   S   L   T   I   S   S   L   E   P   E   D   F   A   V
      ACA GAC TTC TCT CTC ACC ATC AGC AGC CTA GAG CCT GAA GAT TTT GCA GTT

      _CDR3_
256     Y   Y   C   Q   Q   R   G   D   W   P   I   T   F   G   Q   G   T
      TAT TAC TGT CAG CAG CGT GGC GAC TGG CCC ATC ACC TTC GGC CAA GGG ACA

307     R   L   E   -   K
      CGA CTG GAG ATT AAA
```

Figure 2B

Anti-OX40 14B6 VK2 (hKappa)

V segment: L15

J segment: JK5

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      D   I   Q   M   T   Q   S   P   S   S   L   S   A   S   V   G   D
1    GAC ATC CAG ATG ACC CAG TCT CCA TCC TCA CTG TCT GCA TCT GTA GGA GAC

      _CDR1_
      R   V   T   -   T   C   R   A   S   Q   G   I   S   S   W   L   A
52   AGA GTC ACC ATC ACT TGT CGG GCG AGT CAG GGT ATT AGC AGC TGG TTA GCC

      _CDR2_
      W   Y   Q   Q   K   P   E   K   A   P   K   S   L   I   Y   A   A
103  TGG TAT CAG CAG AAA CCA GAG AAA GCC CCT AAG TCC CTG ATC TAT GCT GCA

      S   S   L   Q   S   G   V   P   S   R   F   S   G   S   G   S   G
154  TCC AGT TTG CAA AGT GGG GTC CCA TCA AGG TTC AGC GGC AGT GGA TCT GGG

      T   D   F   -   L   T   I   S   S   L   Q   P   E   D   F   A   T
205  ACA GAT TTC ACT CTC ACC ATC AGC AGC CTG CAG CCT GAA GAT TTT GCA ACT

      _CDR3_
      Y   Y   C   Q   Q   Y   N   S   Y   P   R   I   T   F   G   Q   G
256  TAT TAC TGC CAA CAG TAT AAT AGT TAC CCT CGG ATC ACC TTC GGC CAA GGG

      T   R   L   E   I   K
307  ACA CGA CTG GAG ATT AAA

```

Figure 2C

V segment: DP-44
J segment: JH4b

1	E	V	Q	L	V	Q	S	G	G	G	L	V	H	P	G	G	S
	GAG	GTT	CAG	CTG	GTG	CAG	TCT	GGG	GGA	GGC	TTG	GTA	CAT	CCT	GGG	GGG	TCC
52	L	R	L	S	C	A	G	S	G	F	T	F	S	_CDR1_			
	CTG	AGA	CTC	TCC	TGT	GCA	GGC	TCT	GGA	TTC	ACC	TTC	AGT	AAC	TAT	GCT	ATG
103	Y	W	V	R	Q	A	P	G	K	G	L	E	W	V	S	_CDR2_	
	TAC	TGG	GTT	CGC	CAG	GCT	CCA	GGA	AAA	GGT	CTG	GAG	TGG	GTA	TCA	GCC	ATT
154	G	I	G	G	D	T	F	Y	T	D	S	V	K	G	R	F	T
	GGT	ATT	GGT	GGT	GAC	ACA	TTC	TAT	ACA	GAC	TCC	GTG	AAG	GGC	CGA	TTC	ACC
205	I	S	R	D	N	A	K	N	S	L	S	L	Q	M	N	S	L
	ATC	TCC	AGA	GAC	AAT	GCC	AAG	AAC	TCC	TTG	TCT	CTT	CAA	ATG	AAC	AGC	CTG
256	R	A	E	D	M	A	V	Y	Y	C	A	R	_CDR3_				
	AGA	GCC	GAG	GAC	ATG	GCT	GTG	TAT	TAC	TGT	GCA	AGA	ATG	GGA	ACT	GGG	TAC
307	F	F	D	Y	W	G	Q	G	T	L	V	T	V	S	S		
	TTC	TTT	GAC	TAC	TGG	GGC	CAG	GGA	ACC	CTG	GTC	ACC	GTC	TCC	TCA		

Figure 3A

Anti-OX40 23H3 VK (hKappa)

V segment: L6

J segment: JK3

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      E   I   V   L   T   Q   S   P   A   T   L   S   L   S   P   G   E
1    GAA ATT GTG TTG ACA CAG TCT CCA GCC ACC CTG TCT TTG TCT CCA GGG GAA

      _CDR1_
      R   A   T   L   S   C   R   A   S   Q   S   V   S   S   Y   L   A
52   AGA GCC ACC CTC TCC TGC AGG GCC AGT CAG AGT GTT AGC AGC TAC TTA GCC

      _CDR2_
      W   Y   Q   Q   K   P   G   Q   A   P   R   L   L   I   Y   D   A
103  TGG TAC CAA CAG AAA CCT GGC CAG GCT CCC AGG CTC CTC ATC TAT GAT GCA

      S   N   R   A   T   G   I   P   A   R   F   S   G   S   G   S   G
154  TCC AAC AGG GCC ACT GGC ATC CCA GCC AGG TTC AGT GGC AGT GGG TCT GGG

      T   D   F   T   L   T   I   S   S   L   E   P   E   D   F   A   V
205  ACA GAC TTC ACT CTC ACC ATC AGC AGC CTA GAG CCT GAA GAT TTT GCA GTT

      _CDR3_
      Y   Y   C   Q   Q   R   S   N   W   P   L   T   F   G   P   G   T
256  TAT TAC TGT CAG CAG CGT AGC AAC TGG CCT CTC ACT TTC GGC CCT GGG ACC

      K   V   D   -   K
307  AAA GTG GAT ATC AAA

```

Figure 3B

J segment: JH1

Figure 4A

Anti-OX40 6E1 VK1 (hKappa)

V segment: L15

J segment: JK1

```

      D   I   Q   M   T   Q   S   P   S   S   L   S   A   S   V   G   D
1    GAC ATC CAG ATG ACC CAG TCT CCA TCC TCA CTG TCT GCA TCT GTA GGA GAC

      _CDR1_
      R   V   T   -   T   C   R   A   S   Q   G   I   S   S   W   L   A
52   AGA GTC ACC ATC ACT TGT CGG GCG AGT CAG GGT ATT AGC AGC TGG TTA GCC

      _CDR2_
      W   Y   Q   Q   K   P   E   K   A   P   K   S   L   I   Y   A   A
103  TGG TAT CAG CAG AAA CCA GAG AAA GCC CCT AAG TCC CTG ATC TAT GCT GCA

      S   S   L   Q   S   G   V   P   S   R   F   S   G   S   G   S   G
154  TCC AGT TTG CAA AGT GGG GTC CCA TCA AGG TTC AGC GGC AGT GGA TCT GGG

      T   D   F   -   L   T   I   S   S   L   Q   P   E   D   F   A   T
205  ACA GAT TTC ACT CTC ACC ATC AGC AGC CTG CAG CCT GAA GAT TTT GCA ACT

      _CDR3_
      Y   Y   C   Q   Q   Y   N   S   Y   P   R   T   F   G   Q   G   T
256  TAT TAC TGC CAA CAG TAT AAT AGT TAC CCT CGG ACG TTC GGC CAA GGG ACC

      K   V   E   -   K
307  AAG GTG GAA ATC AAA

```

Figure 4B

Anti-OX40 6E1 VK2 (hKappa)

V segment: L6

J segment: JK2

```

      E   I   V   L   T   Q   S   P   A   T   L   S   L   S   P   G   E
1    GAA ATT GTG TTG ACA CAG TCT CCA GCC ACC CTG TCT TTG TCT CCA GGG GAA

      _CDR1_
      R   A   T   L   S   C   R   A   S   Q   S   V   S   S   Y   L   A
52   AGA GCC ACC CTC TCC TGC AGG GCC AGT CAG AGT GTT AGC AGC TAC TTA GCC

      _CDR2_
      W   Y   Q   Q   K   P   G   Q   A   P   R   L   L   I   Y   D   A
103  TGG TAC CAA CAG AAA CCT GGC CAG GCT CCC AGG CTC CTC ATC TAT GAT GCA

      S   N   R   A   T   G   I   P   A   R   F   S   G   S   G   S   G
154  TCC AAC AGG GCC ACT GGC ATC CCA GCC AGG TTC AGT GGC AGT GGG TCT GGG

      T   D   F   T   L   T   I   S   S   L   E   P   E   D   F   A   V
205  ACA GAC TTC ACT CTC ACC ATC AGC AGC CTA GAG CCT GAA GAT TTT GCA GTT

      _CDR3_
      Y   Y   C   Q   Q   R   S   N   W   P   Y   T   F   G   Q   G   T
256  TAT TAC TGT CAG CAG CGT AGC AAC TGG CCG TAC ACT TTT GGC CAG GGG ACC

      K   L   E   -   K
307  AAG CTG GAG ATC AAA

```

Figure 4C

Anti-OX40 18E9 VH (hIgG1)

V segment: DP-44

D segment: 3-9

J segment: JH4b

1	E	V	Q	L	V	Q	S	G	G	G	L	V	H	P	G	G	S	
	GAG	GTT	CAG	CTG	GTG	CAG	TCT	GGG	GGA	GGC	TTG	GTT	CAT	CCT	GGG	GGG	TCC	
	_____CDR1_____																	
52	L	R	L	S	C	A	H	S	G	F	T	F	T	S	S	A	M	
	CTG	AGA	CTC	TCC	TGT	GCA	CAC	TCT	GGA	TTC	ACC	TTC	ACT	AGC	TCT	GCT	ATG	
	_____CDR2_____																	
103	H	W	V	R	Q	A	P	G	K	G	L	E	W	I	S	A	I	
	CAC	TGG	GTT	CGC	CAG	GCT	CCA	GGA	AAA	GGT	CTG	GAA	TGG	ATA	TCA	GCT	ATT	
	_____CDR3_____																	
154	G	T	G	G	D	T	Y	Y	A	D	S	V	K	G	R	F	T	
	GGT	ACT	GGT	GGT	GAC	ACA	TAC	TAT	GCA	GAC	TCC	GTG	AAG	GGC	CGA	TTC	ACC	
205	I	S	R	D	N	A	K	N	S	L	Y	L	Q	I	N	S	L	
	ATC	TCC	AGA	GAC	AAT	GCC	AAG	AAC	TCC	TTG	TAT	CTT	CAA	ATA	AAC	AGC	CTG	
256	R	A	E	D	M	A	V	Y	Y	C	A	R	D	F	Y	D	I	
	AGA	GCC	GAG	GAC	ATG	GCT	GTA	TAT	TAC	TGT	GCA	AGA	GAC	TTT	TAC	GAT	ATT	
307	L	T	G	I	F	D	Y	W	G	Q	G	T	L	V	T	V	S	
	TTG	ACT	GGT	ATC	TTT	GAC	TAC	TGG	GGC	CAG	GGA	ACC	CTG	GTC	ACC	GTC	TCC	
358	S																	
	TCA																	

Figure 5A

J segment: JK1

Figure 5B

J segment: JH4b

1	E	I	Q	L	V	Q	S	G	G	L	V	H	P	G	G	S
	GAA	ATT	CAG	CTG	GTG	CAG	TCT	GGG	GGA	GGC	TTG	GTA	CAT	CCT	GGG	TCC
52	L	R	L	S	C	A	G	S	G	F	T	F	S	<u>_CDR1_</u>		
	CTG	AGA	CTC	TCC	TGT	GCA	GGC	TCT	GGA	TTC	ACC	TTC	AGT	AGC	GAT	ATG
103	Y	W	V	R	Q	A	P	G	K	G	L	E	W	V	S	I
	TAC	TGG	GTT	CGC	CAG	GCT	CCA	GGA	AAA	GGT	CTG	GAG	TGG	GTA	TCA	ATT
154	G	I	G	G	D	T	Y	Y	T	D	S	V	M	G	R	T
	GGT	ATT	GGT	GGT	GAC	ACA	TAC	TAT	ACA	GAC	TCC	GTG	ATG	GGC	CGA	ACC
205	I	S	R	D	N	A	K	N	S	L	Y	L	Q	M	N	L
	ATC	TCC	AGA	GAC	AAT	GCC	AAG	AAC	TCC	TTG	TAT	CTT	CAA	ATG	AAC	CTG
256	R	A	E	D	M	A	V	Y	Y	C	A	R	<u>_CDR3_</u>			
	AGA	GCC	GAG	GAC	ATG	GCT	GTG	TAT	TAC	TGT	GCA	AGG	CTG	GGG	ATG	TAC
307	Y	F	D	Y	W	G	Q	G	T	L	V	T	V	S	S	
	TAC	TTT	GAC	TAC	TGG	GGC	CAG	GGA	ACC	CTG	GTC	ACC	GTC	TCC	TCA	

Figure 6A

Anti-OX40 8B11 VK (hKappa)

V segment: L6

J segment: JK1

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      E   I   V   L   T   Q   S   P   A   T   L   S   L   S   P   G   E
1    GAA ATT GTG TTG ACA CAG TCT CCA GCC ACC CTG TCT TTG TCT CCA GGG GAA

      _CDR1_
      R   A   T   L   S   C   R   A   S   Q   S   V   S   S   Y   L   A
52   AGA GCC ACC CTC TCC TGC AGG GCC AGT CAG AGT GTT AGC AGC TAC TTA GCC

      _CDR2_
      W   Y   Q   Q   K   P   G   Q   A   P   R   L   L   I   Y   D   A
103  TGG TAC CAA CAG AAA CCT GGC CAG GCT CCC AGG CTC CTC ATC TAT GAT GCA

      S   N   R   A   T   G   I   P   A   R   F   S   G   S   G   S   G
154  TCC AAC AGG GCC ACT GGC ATC CCA GCC AGG TTC AGT GGC AGT GGG TCT GGG

      T   D   F   T   L   T   I   S   S   L   E   P   E   D   F   A   V
205  ACA GAC TTC ACT CTC ACC ATC AGC AGC CTA GAG CCT GAA GAT TTT GCA GTT

      _CDR3_
      Y   Y   C   Q   Q   R   S   N   W   P   P   T   F   G   Q   G   T
256  TAT TAC TGT CAG CAG CGT AGC AAC TGG CCT CCG ACG TTC GGC CAA GGG ACC

      K   V   E   -   K
307  AAG GTG GAA ATC AAA

```

Figure 6B

Anti-OX40 20B3 VH (hIgG2)

V segment: 3-13

J segment: JH4b

1	E	V	Q	L	V	E	S	G	G	G	L	V	Q	P	G	G	S
	GAG	GTG	CAG	CTG	GTG	GAG	TCT	GGG	GGA	GGC	TTG	GTA	CAG	CCT	GGG	GGG	TCC
	<hr/>																
	L	R	L	S	C	A	A	S	G	F	T	F	S	S	Y	D	M
52	CTG	AGA	CTC	TCC	TGT	GCA	GCC	TCT	GGA	TTC	ACC	TTC	AGT	AGC	TAC	GAC	ATG
	<hr/>																
	H	W	V	R	Q	T	T	G	K	G	L	E	W	V	S	V	I
103	CAC	TGG	GTC	CGC	CAA	ACT	ACA	GGA	AAA	GGT	CTG	GAG	TGG	GTC	TCA	GTT	ATT
	<hr/>																
	G	T	A	G	D	T	Y	Y	P	G	S	V	K	G	R	F	T
154	GGT	ACT	GCT	GGT	GAC	ACA	TAC	TAT	CCA	GGC	TCC	GTG	AAG	GGC	CGA	TTC	ACC
	<hr/>																
	I	S	R	E	N	A	K	N	S	L	Y	L	Q	M	N	S	L
205	ATC	TCC	AGA	GAA	AAT	GCC	AAG	AAC	TCC	TTG	TAT	CTT	CAA	ATG	AAC	AGC	CTG
	<hr/>																
	R	A	G	D	T	A	V	Y	Y	C	A	R	G	G	M	G	N
256	AGA	GCC	GGG	GAC	ACG	GCT	GTG	TAT	TAC	TGT	GCA	AGA	GGG	GGG	ATG	GGG	AAC
	<hr/>																
	Y	F	D	Y	W	G	Q	G	T	L	V	T	V	S	S		
307	TAC	TTT	GAC	TAC	TGG	GGC	CAG	GGA	ACC	CTG	GTC	ACC	GTC	TCC	TCA		

Figure 7A

Anti-OX40 20B3 VK (hKappa)

V segment: L6

J segment: JK4

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      E   I   V   L   T   Q   S   P   A   T   L   S   L   S   P   G   E
1    GAA ATT GTG TTG ACA CAG TCT CCA GCC ACC CTG TCT TTG TCT CCA GGG GAA

      _CDR1_
      R   A   T   L   S   C   R   A   S   Q   S   V   S   S   Y   L   A
52   AGA GCC ACC CTC TCC TGC AGG GCC AGT CAG AGT GTT AGC AGC TAC TTA GCC

      _CDR2_
      W   Y   Q   Q   K   P   G   Q   A   P   R   L   L   I   Y   D   A
103  TGG TAC CAA CAG AAA CCT GGC CAG GCT CCC AGG CTC CTC ATC TAT GAT GCA

      S   N   R   A   T   G   I   P   A   R   F   S   G   S   G   S   G
154  TCC AAC AGG GCC ACT GGC ATC CCA GCC AGG TTC AGT GGC AGT GGG TCT GGG

      T   D   F   T   L   T   I   S   S   L   E   P   E   D   F   A   V
205  ACA GAC TTC ACT CTC ACC ATC AGC AGC CTA GAG CCT GAA GAT TTT GCA GTT

      _CDR3_
      Y   Y   C   Q   Q   R   S   N   W   P   L   T   F   G   G   G   T
256  TAT TAC TGT CAG CAG CGT AGC AAC TGG CCG CTC ACT TTC GGC GGA GGG ACC

      K   V   E   -   K
307  AAG GTG GAG ATC AAA

```

Figure 7B

Anti-OX40 14A2 VH (hIgG1)

V segment: 3-30.3

J segment: JH5b

1	Q	V	Q	L	V	E	S	G	G	G	V	V	Q	P	G	R	S
	CAG	GTG	CAG	CTG	GTG	GAG	TCT	GGG	GGA	GGC	GTG	GTC	CAG	CCT	GGG	AGG	TCC
	CDR1																
52	L	R	L	S	C	A	A	S	G	F	T	F	S	N	Y	A	L
	CTG	AGA	CTC	TCC	TGT	GCA	GCC	TCT	GGA	TTC	ACC	TTC	AGT	AAC	TAT	GCT	CTG
	CDR2																
103	H	W	V	R	Q	A	P	G	K	G	L	E	W	V	A	L	I
	CAC	TGG	GTC	CGC	CAG	GCT	CCA	GGC	AAG	GGG	CTG	GAG	TGG	GTG	GCA	CTT	ATA
	CDR3																
154	S	Y	D	G	S	R	K	H	Y	A	D	S	V	K	G	R	F
	TCA	TAT	GAT	GGA	AGC	AGG	AAA	CAC	TAC	GCA	GAC	TCC	GTG	AAG	GGC	CGA	TTC
205	S	I	S	R	D	N	S	K	N	T	L	Y	L	Q	M	N	S
	AGT	ATC	TCC	AGA	GAC	AAT	TCC	AAG	AAC	ACA	CTG	TAT	CTG	CAA	ATG	AAC	AGC
	CDR3																
256	L	R	A	E	D	T	A	V	Y	Y	C	A	S	L	T	M	V
	CTG	AGA	GCT	GAG	GAC	ACG	GCT	GTG	TAT	TAC	TGT	GCG	AGT	CTT	ACT	ATG	GTT
307	R	E	G	G	Q	G	T	L	V	T	V	S	S				
	CGG	GAG	GGG	GGC	CAG	GGA	ACC	CTG	GTC	ACC	GTC	TCC	TCA				

Figure 8A

Anti-OX40 14A2 VK1 (hKappa)

V segment: A27

J segment: JK3

```

      E   I   V   L   T   Q   S   P   G   T   L   S   L   S   P   G   E
1    GAA ATT GTG TTG ACG CAG TCT CCA GGC ACC CTG TCT TTG TCT CCA GGG GAA

      _CDR1_
      R   A   T   L   S   C   R   A   S   Q   S   V   S   S   S   Y   L
52   AGA GCC ACC CTC TCC TGC AGG GCC AGT CAG AGT GTT AGC AGC AGC TAC TTA

      _CDR2_
      A   W   Y   Q   Q   K   P   G   Q   A   P   R   L   L   I   Y   G
103  GCC TGG TAC CAG CAG AAA CCT GGC CAG GCT CCC AGG CTC CTC ATC TAT GGT

      A   S   S   R   A   T   G   I   P   D   R   F   S   G   S   G   S
154  GCA TCC AGC AGG GCC ACT GGC ATC CCA GAC AGG TTC AGT GGC AGT GGG TCT

      G   T   D   F   T   L   T   I   S   R   L   E   P   E   D   F   A
205  GGG ACA GAC TTC ACT CTC ACC ATC AGC AGA CTG GAG CCT GAA GAT TTT GCA

      _CDR3_
      V   Y   Y   C   Q   Q   Y   G   S   S   P   F   T   F   G   P   G
256  GTG TAT TAC TGT CAG CAG TAT GGT AGC TCA CCA TTC ACT TTC GGC CCT GGG

      T   K   V   D   I   K
307  ACC AAA GTG GAT ATC AAA
```

Figure 8B

Anti-OX40 14A2 VK2 (hKappa)

V segment: O14/O4

J segment: JK4

1	D	I	Q	L	T	Q	S	P	S	S	L	S	A	S	V	G	D
	GAC	ATC	CAG	TTG	ACC	CAG	TCT	CCA	TCC	TCC	CTG	TCT	GCA	TCT	GTA	GGA	GAC
	CDR1																
52	R	V	T	I	T	C	R	V	S	Q	G	I	S	S	Y	L	N
	AGA	GTC	ACC	ATC	ACT	TGC	CGG	GTC	AGT	CAG	GGC	ATT	AGC	AGT	TAT	TTA	AAT
	CDR2																
103	W	Y	R	Q	K	P	G	K	V	P	K	L	L	I	Y	S	A
	TGG	TAT	CGG	CAG	AAA	CCA	GGG	AAA	GTT	CCT	AAG	CTC	CTG	ATC	TAT	AGT	GCA
	CDR3																
154	S	N	L	Q	S	G	V	P	S	R	F	S	G	S	G	S	G
	TCC	AAT	TTG	CAA	TCT	GGA	GTC	CCA	TCT	CGG	TTC	AGT	GGC	AGT	GGA	TCT	GGG
205	T	D	F	I	L	T	I	S	S	L	Q	P	E	D	V	A	T
	ACA	GAT	TTC	ACT	CTC	ACT	ATC	AGC	AGC	CTG	CAG	CCT	GAA	GAT	GTT	GCA	ACT
	CDR3																
256	Y	Y	G	Q	R	T	Y	N	A	P	Y	T	F	G	G	G	T
	TAT	TAC	GGT	CAA	CGG	ACT	TAC	AAT	GCC	CCT	TAC	ACT	TTC	GGC	GGA	GGG	ACC
307	K	V	E	I	K												
	AAG	GTG	GAG	ATC	AAA												

Figure 8C

Anti-OX40 20C1 VH (hIgG1)

V segment: DP-44

J segment: JH4b

1	E A Q L V Q S G G G L V H P G G S	
	GAG GCT CAG CTG GTG CAG TCT GGG GGA GGC TTG GTT CAT CCT GGG GGG TCC	
52	L R L S C A D S G F T F S	<u>CDR1</u>
	CTG AGA CTC TCC TGT GCA GAC TCT GGA TTC ACC TTC AGT AGC TAT GCT ATG	
103	Y W V R Q A P G K G L E W V S A I	<u>CDR2</u>
	TAC TGG GTT CGC CAG GCT CCA GGA AAA GGT CTG GAG TGG GTA TCA GCT ATT	
154	D T D G G T F Y A D S V R G R F T	
	GAT ACT GAT GGT GGC ACA TTC TAT GCA GAC TCC GTG CGG GGC CGA TTC ACC	
205	I S R D N A K N S L Y L Q M N G L	
	ATC TCC AGA GAC AAT GCC AAG AAC TCC TTG TAT CTT CAA ATG AAC GGC CTG	
256	R A E D M A V Y F C A R L G E G Y	<u>CDR3</u>
	AGA GCC GAG GAC ATG GCT GTG TAT TTC TGT GCA AGA CTT GGG GAA GGG TAC	
307	F F D Y W G Q G T L V T V S S	
	TTC TTT GAC TAC TGG GGC CAG GGA ACC CTG GTC ACC GTC TCC TCA	

Figure 9A

Anti-OX40 20C1 VK (hKappa)

V segment: L6

J segment: JK4

```
      E   I   V   L   T   Q   S   P   A   T   L   S   L   S   P   G   E
1    GAA ATT GTG TTG ACA CAG TCT CCA GCC ACC CTG TCT TTG TCT CCA GGG GAA

      _CDR1_
      R   A   T   L   S   C   R   A   S   Q   S   V   S   S   Y   L   A
52   AGA GCC ACC CTC TCC TGC AGG GCC AGT CAG AGT GTT AGC AGC TAC TTA GCC

      _CDR2_
      W   Y   Q   Q   K   P   G   Q   A   P   R   L   L   I   Y   D   A
103  TGG TAC CAA CAG AAA CCT GGC CAG GCT CCC AGG CTC CTC ATC TAT GAT GCA

      S   N   R   A   T   G   I   P   A   R   F   S   G   S   G   S   G
154  TCC AAC AGG GCC ACT GGC ATC CCA GCC AGG TTC AGT GGC AGT GGG TCT GGG

      T   D   F   T   L   T   I   S   S   L   E   P   E   D   F   A   V
205  ACA GAC TTC ACT CTC ACC ATC AGC AGC CTA GAG CCT GAA GAT TTT GCA GTT

      _CDR3_
      Y   Y   C   Q   Q   R   S   N   W   P   P   T   F   G   G   G   T
256  TAT TAC TGT CAG CAG CGT AGC AAC TGG CCT CCC ACT TTC GGC GGA GGG ACC

      K   V   E   I   K
307  AAG GTG GAG ATC AAA
```

Figure 9B

Anti-OX-40.21 VH

```

      A2V                      H13Q
      ~~~~                    ~~~~

      20C1 VH
      ~~~~~
      E  V  Q  L  V  Q  S  G  G  G  L  V  Q  P  G
1  GAG GTT CAG CTG GTG CAG TCT GGG GGA GGC TTG GTT CAG CCT GGG
      D24G
      ~~~~

      20C1 VH
      ~~~~~
      G  S  L  R  L  S  C  A  G  S  G  F  T  F  S
46 GGG TCC CTG AGA CTC TCC TGT GCA GGC TCT GGA TTC ACC TTC AGT
      20C1 VH
      ~~~~~
      S  Y  A  M  Y  W  V  R  Q  A  P  G  K  G  L
91 AGC TAT GCT ATG TAC TGG GTT CGC CAG GCT CCA GGA AAA GGT CTG
      G55A
      ~~~~

      20C1 VH
      ~~~~~
      E  W  V  S  A  I  D  T  D  A  G  T  F  Y  A
136 GAG TGG GTA TCA GCT ATT GAT ACT GAT GCT GGC ACA TTC TAT GCA
      20C1 VH
      ~~~~~
      D  S  V  R  G  R  F  T  I  S  R  D  N  A  K
181 GAC TCC GTG CGG GGC CGA TTC ACC ATC TCC AGA GAC AAT GCC AAG
      G82bS                      M87T
      ~~~~

      20C1 VH
      ~~~~~
      N  S  L  Y  L  Q  M  N  S  L  R  A  E  D  T
226 AAC TCC TTG TAT CTT CAA ATG AAC AGC CTG AGA GCC GAG GAC ACG
      20C1 VH
      ~~~~~
      A  V  Y  F  C  A  R  L  G  E  G  Y  F  F  D
271 GCT GTG TAT TTC TGT GCA AGA CTT GGG GAA GGG TAC TTC TTT GAC
      20C1 VH
      ~~~~~

      C gamma1
      ~~~~~
      Y  W  G  Q  G  T  L  V  T  V  S  S  A  S  T
316 TAC TGG GGC CAG GGA ACC CTG GTC ACC GTC TCC TCA GCT AGC ACC
      C gamma1
      ~~~~~
      K  G  P  S  V  F  P  L  A  P  S  S  K  S  T
361 AAG GGC CCA TCG GTC TTC CCC CTG GCA CCC TCC TCC AAG AGC ACC
      C gamma1
      ~~~~~
      S  G  G  T  A  A  L  G  C  L  V  K  D  Y  F
406 TCT GGG GGC ACA GCG GCC CTG GGC TGC CTG GTC AAG GAC TAC TTC
      C gamma1
      ~~~~~
      P  E  P  V  T  V  S  W  N  S  G  A  L  T  S
451 CCC GAA CCG GTG ACG GTG TCG TGG AAC TCA GGC GCC CTG ACC AGC
      C gamma1
      ~~~~~
      G  V  H  T  F  P  A  V  L  Q  S  S  G  L  Y
496 GGC GTG CAC ACC TTC CCG GCT GTC CTA CAG TCC TCA GGA CTC TAC
      C gamma1
      ~~~~~

```

```

      S   L   S   S   V   V   T   V   P   S   S   S   L   G   T
541 TCC CTC AGC AGC GTG GTG ACC GTG CCC TCC AGC AGC TTG GGC ACC
      C gamma1
~~~~~
      Q   T   Y   I   C   N   V   N   H   K   P   S   N   T   K
586 CAG ACC TAC ATC TGC AAC GTG AAT CAC AAG CCC AGC AAC ACC AAG
      C gamma1
~~~~~
      V   D   K   R   V   E   P   K   S   C   D   K   T   H   T
631 GTG GAC AAG AGA GTT GAG CCC AAA TCT TGT GAC AAA ACT CAC ACA
      C gamma1
~~~~~
      C   P   P   C   P   A   P   E   L   L   G   G   P   S   V
676 TGC CCA CCG TGC CCA GCA CCT GAA CTC CTG GGG GGA CCG TCA GTC
      C gamma1
~~~~~
      F   L   F   P   P   K   P   K   D   T   L   M   I   S   R
721 TTC CTC TTC CCC CCA AAA CCC AAG GAC ACC CTC ATG ATC TCC CGG
      C gamma1
~~~~~
      T   P   E   V   T   C   V   V   V   D   V   S   H   E   D
766 ACC CCT GAG GTC ACA TGC GTG GTG GTG GAC GTG AGC CAC GAA GAC
      C gamma1
~~~~~
      P   E   V   K   F   N   W   Y   V   D   G   V   E   V   H
811 CCT GAG GTC AAG TTC AAC TGG TAC GTG GAC GGC GTG GAG GTG CAT
      C gamma1
~~~~~
      N   A   K   T   K   P   R   E   E   Q   Y   N   S   T   Y
856 AAT GCC AAG ACA AAG CCG CGG GAG GAG CAG TAC AAC AGC ACG TAC
      C gamma1
~~~~~
      R   V   V   S   V   L   T   V   L   H   Q   D   W   L   N
901 CGT GTG GTC AGC GTC CTC ACC GTC CTG CAC CAG GAC TGG CTG AAT
      C gamma1
~~~~~
      G   K   E   Y   K   C   K   V   S   N   K   A   L   P   A
946 GGC AAG GAG TAC AAG TGC AAG GTC TCC AAC AAA GCC CTC CCA GCC
      C gamma1
~~~~~
      P   I   E   K   T   I   S   K   A   K   G   Q   P   R   E
991 CCC ATC GAG AAA ACC ATC TCC AAA GCC AAA GGG CAG CCC CGA GAA
      C gamma1
~~~~~
      P   Q   V   Y   T   L   P   P   S   R   E   E   M   T   K
1036 CCA CAG GTG TAC ACC CTG CCC CCA TCC CGG GAG GAG ATG ACC AAG
      C gamma1
~~~~~
      N   Q   V   S   L   T   C   L   V   K   G   F   Y   P   S
1081 AAC CAG GTC AGC CTG ACC TGC CTG GTC AAA GGC TTC TAT CCC AGC
      C gamma1
~~~~~
      D   I   A   V   E   W   E   S   N   G   Q   P   E   N   N
1126 GAC ATC GCC GTG GAG TGG GAG AGC AAT GGG CAG CCG GAG AAC AAC
      C gamma1
~~~~~
      Y   K   T   T   P   P   V   L   D   S   D   G   S   F   F
1171 TAC AAG ACC ACG CCT CCC GTG CTG GAC TCC GAC GGC TCC TTC TTC
      C gamma1
~~~~~
      L   Y   S   K   L   T   V   D   K   S   R   W   Q   Q   G
1216 CTC TAT AGC AAG CTC ACC GTG GAC AAG AGC AGG TGG CAG CAG GGG
      C gamma1

```

```
~~~~~  
      N   V   F   S   C   S   V   M   H   E   A   L   H   N   H  
1261 AAC GTC TTC TCA TGC TCC GTG ATG CAT GAG GCT CTG CAC AAC CAC  
      C gamma1  
~~~~~  
      Y   T   Q   K   S   L   S   L   S   P   G   *  
1306 TAC ACG CAG AAG AGC CTC TCC CTG TCC CCG GGT TGA
```

Figure 10A

Anti-OX-40.21 VK

20C1 VK

~~~~~

E I V L T Q S P A T L S L S P  
1 GAA ATT GTG TTG ACA CAG TCT CCA GCC ACC CTG TCT TTG TCT CCA  
20C1 VK

~~~~~

G E R A T L S C R A S Q S V S
46 GGG GAA AGA GCC ACC CTC TCC TGC AGG GCC AGT CAG AGT GTT AGC
20C1 VK

~~~~~

S Y L A W Y Q Q K P G Q A P R  
91 AGC TAC TTA GCC TGG TAC CAA CAG AAA CCT GGC CAG GCT CCC AGG  
20C1 VK

~~~~~

L L I Y D A S N R A T G I P A
136 CTC CTC ATC TAT GAT GCA TCC AAC AGG GCC ACT GGC ATC CCA GCC
20C1 VK

~~~~~

R F S G S G S G T D F T L T I  
181 AGG TTC AGT GGC AGT GGG TCT GGG ACA GAC TTC ACT CTC ACC ATC  
20C1 VK

~~~~~

S S L E P E D F A V Y Y C Q Q
226 AGC AGC CTA GAG CCT GAA GAT TTT GCA GTT TAT TAC TGT CAG CAG
20C1 VK

~~~~~

R S N W P P T F G G G T K V E  
271 CGT AGC AAC TGG CCT CCC ACT TTC GGC GGA GGG ACC AAG GTG GAG  
20C1 VK

~~~~~

C kappa

~~~~~

I K R T V A A P S V F I F P P  
316 ATC AAA CGT ACG GTG GCT GCA CCA TCT GTC TTC ATC TTC CCG CCA  
C kappa

~~~~~

S D E Q L K S G T A S V V C L
361 TCT GAT GAG CAG TTG AAA TCT GGA ACT GCC TCT GTT GTG TGC CTG
C kappa

~~~~~

L N N F Y P R E A K V Q W K V  
406 CTG AAT AAC TTC TAT CCC AGA GAG GCC AAA GTA CAG TGG AAG GTG  
C kappa

~~~~~

D N A L Q S G N S Q E S V T E
451 GAT AAC GCC CTC CAA TCG GGT AAC TCC CAG GAG AGT GTC ACA GAG
C kappa

~~~~~

Q D S K D S T Y S L S S T L T  
496 CAG GAC AGC AAG GAC AGC ACC TAC AGC CTC AGC AGC ACC CTG ACG  
C kappa

~~~~~

L S K A D Y E K H K V Y A C E
541 CTG AGC AAA GCA GAC TAC GAG AAA CAC AAA GTC TAC GCC TGC GAA
C kappa

~~~~~

V T H Q G L S S P V T K S F N  
586 GTC ACC CAT CAG GGC CTG AGC TCG CCC GTC ACA AAG AGC TTC AAC  
C kappa

~~~~~  
R G E C *
631 AGG GGA GAG TGT TAG

Figure 10B

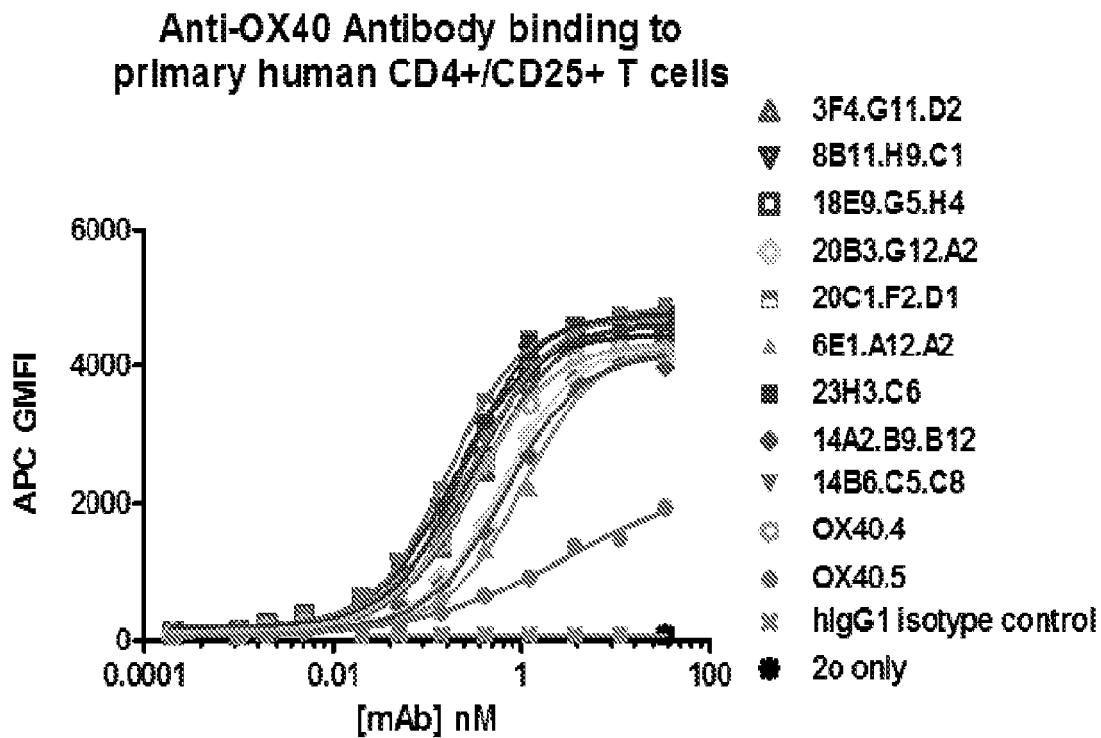


Figure 11A

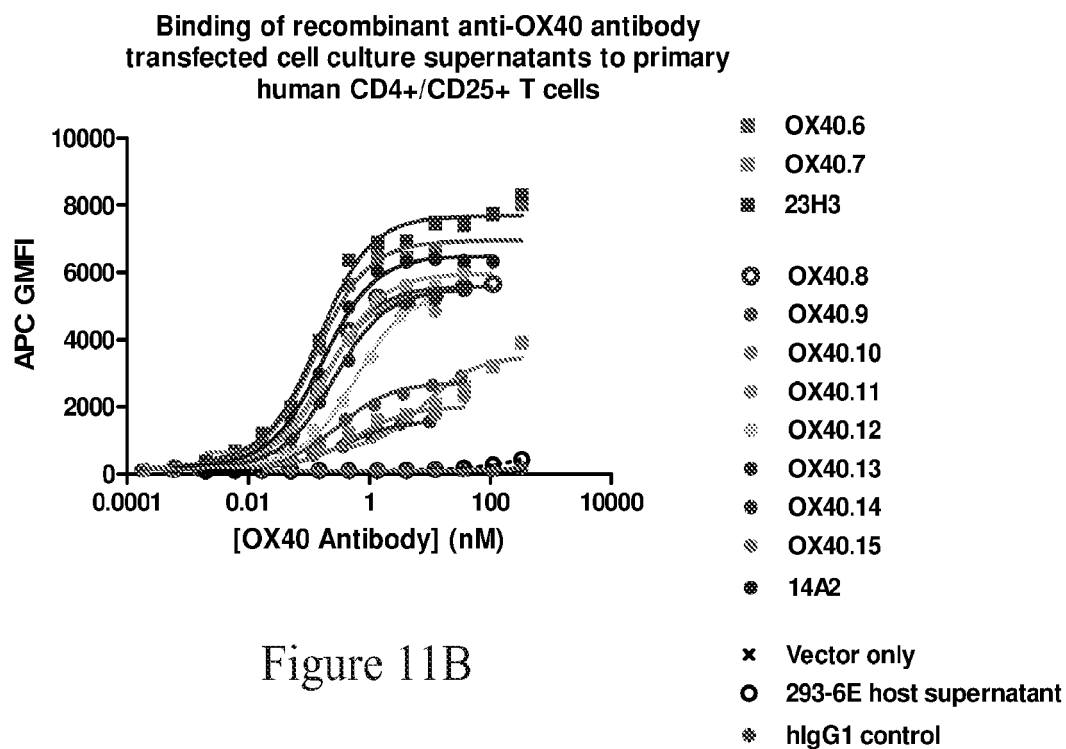


Figure 11B

**Recombinant anti-OX40 antibody binding to
primary human CD4+/CD25+ T cells**

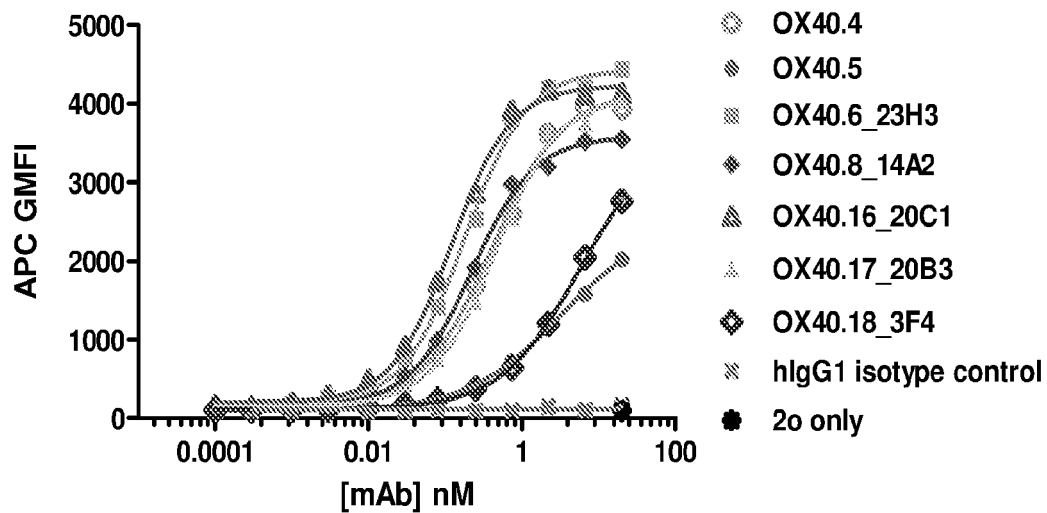


Figure 11C

**Recombinant anti-OX40 antibody binding to
primary human CD4+/CD25+ T cells**

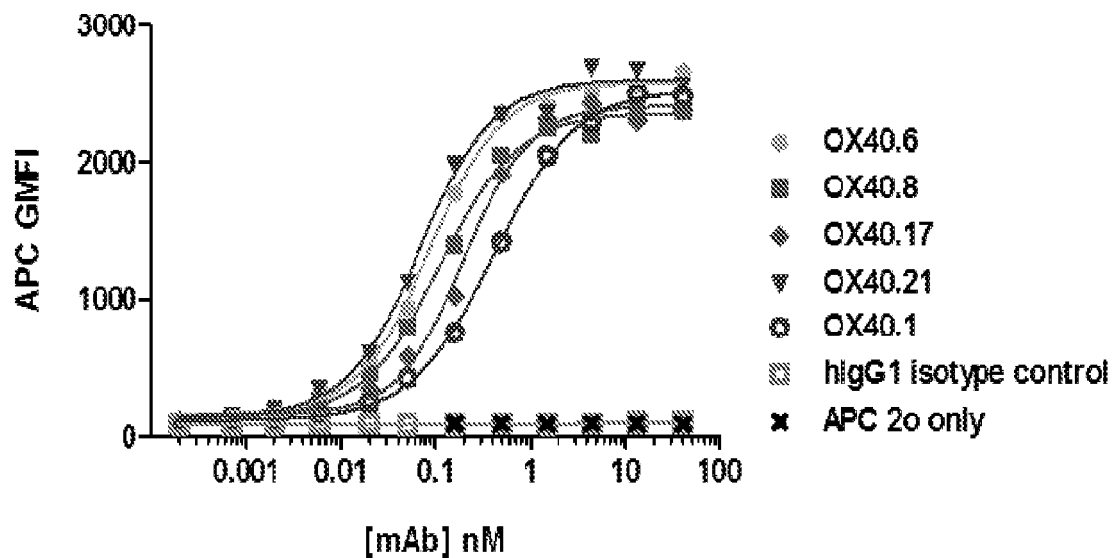


Figure 11D

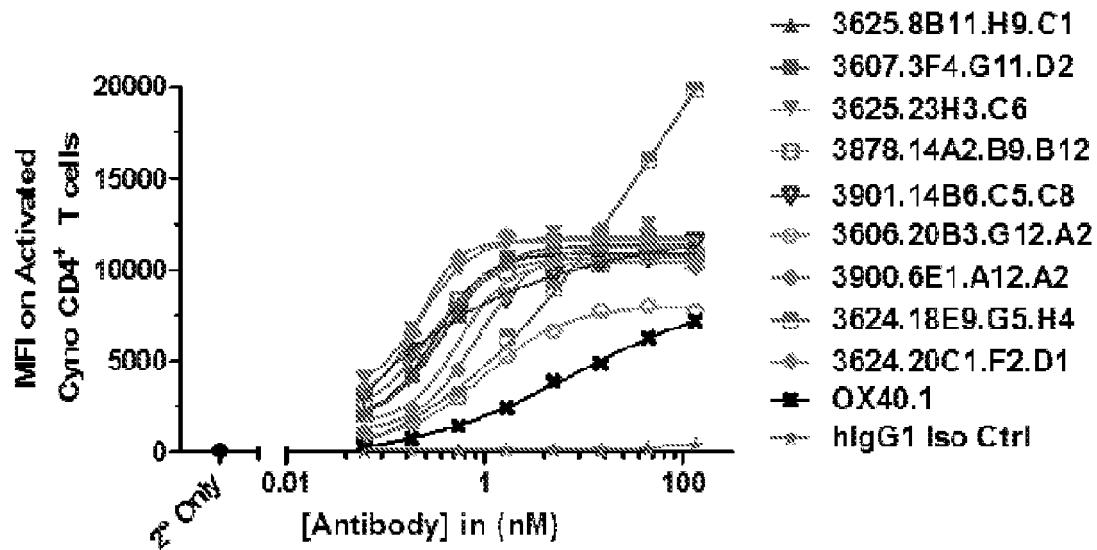


Figure 12A

Anti-OX40 Antibody binding to primary cynomolgous
macaque CD4⁺/CD25⁺ T cells

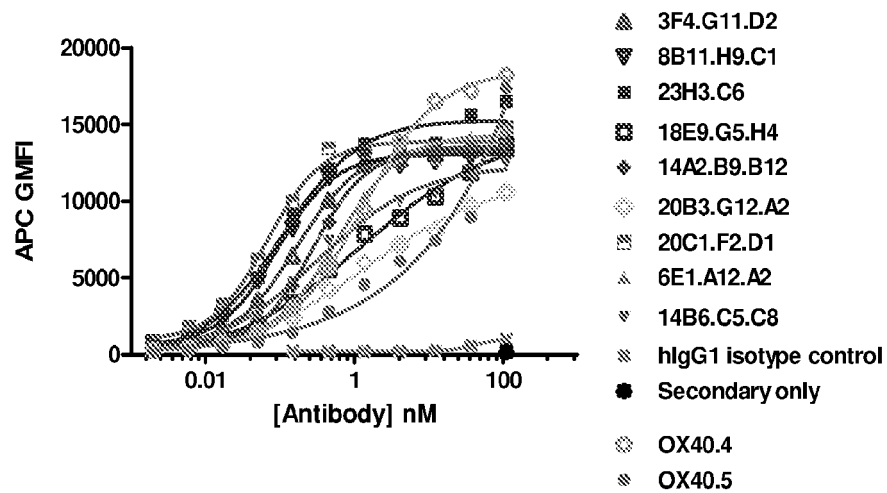


Figure 12B

**Recombinant anti-OX40 antibody binding to
primary cynomolgous macaque CD4⁺/CD25⁺ T cells**

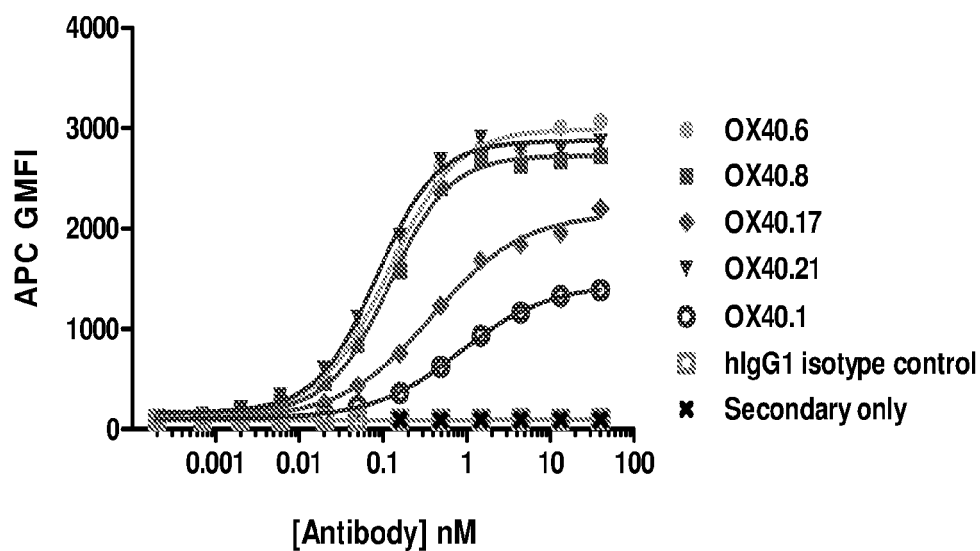
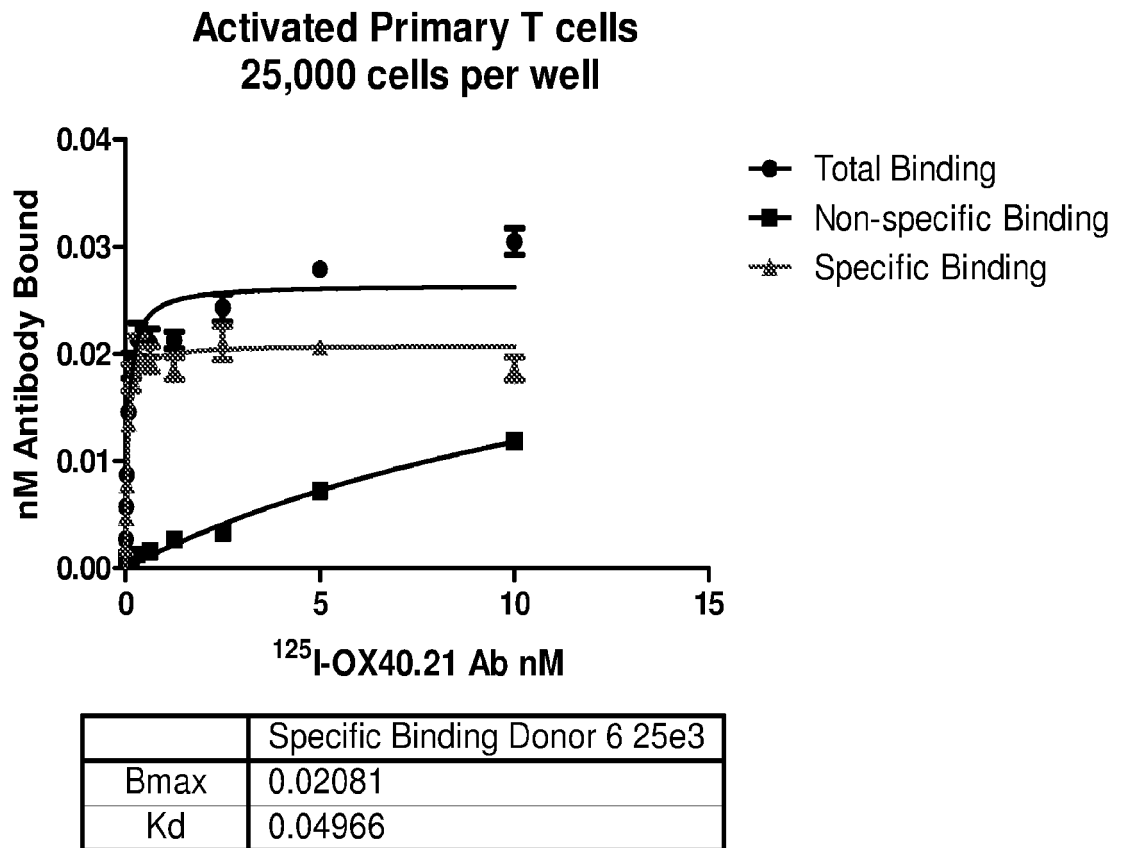
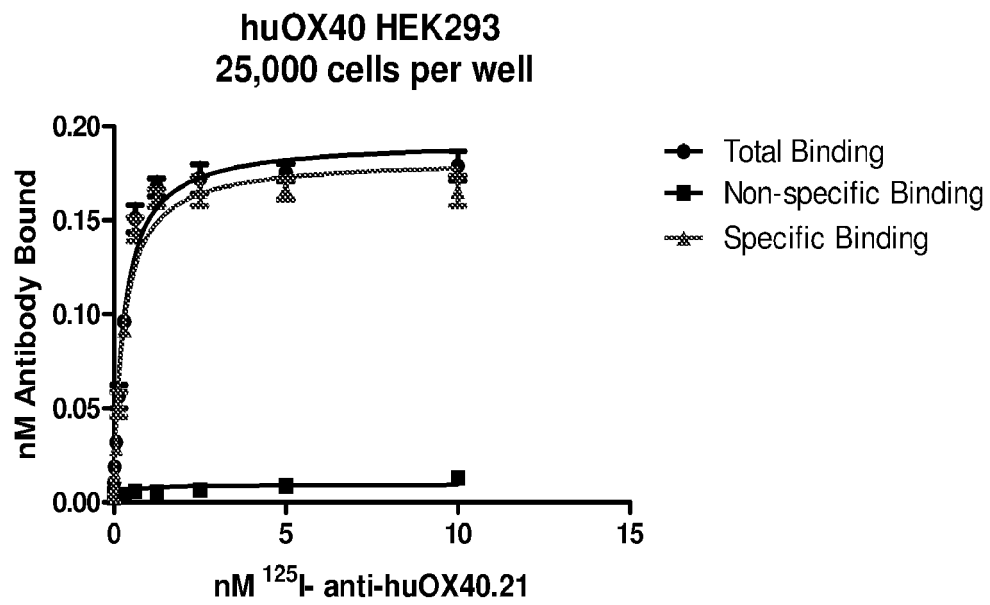


Figure 12C



Receptors per cell = Bmax (6e10)/# cells per well
 = 0.021*6e10/25,000
 = 50,400 OX-40 receptors per cell

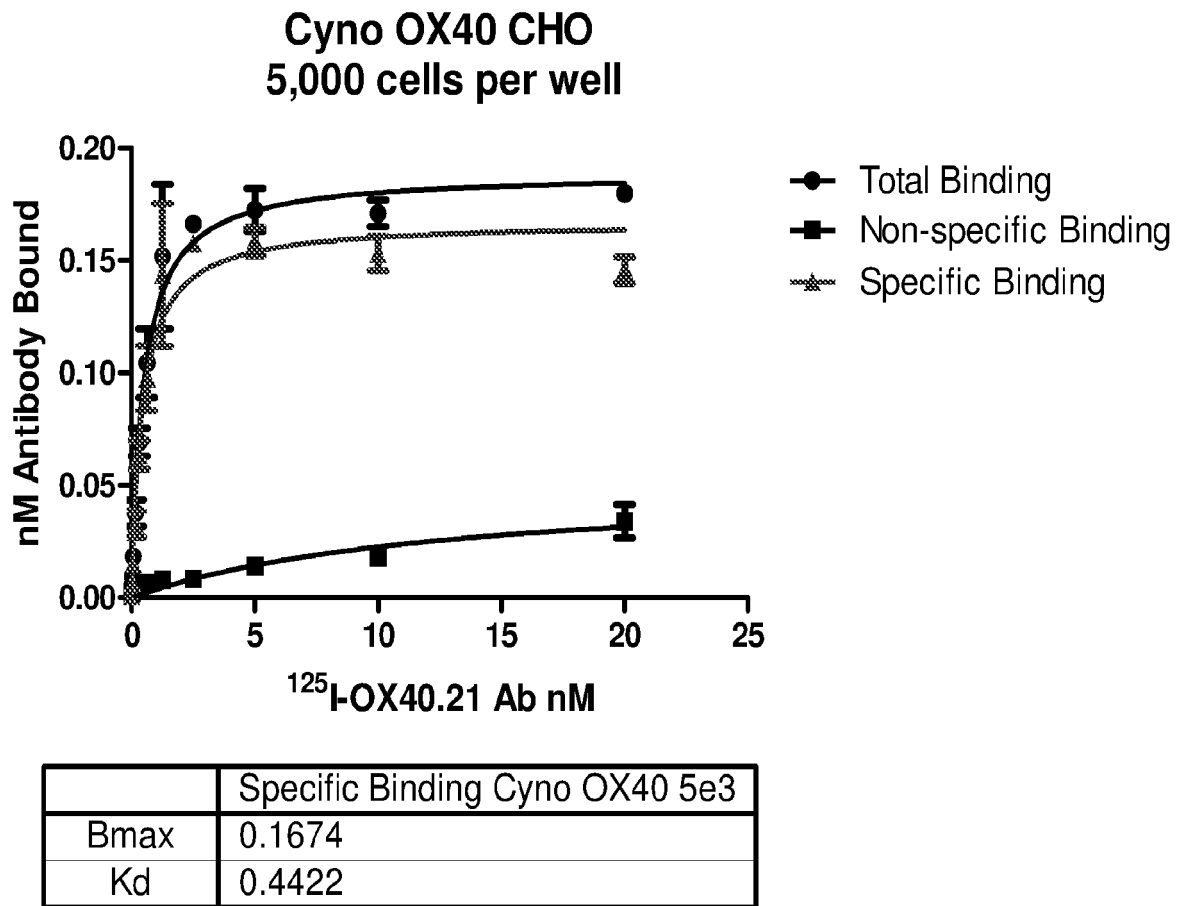
Figure 13A



	Specific Binding huOX 25e3
Bmax	0.1829
Kd	0.2911

$$\begin{aligned}
 \text{Receptors per cell} &= \text{Bmax (6e10)/\# cells per well} \\
 &= 0.183 \cdot 6\text{e}10 / 25,000 \\
 &= 439,200 \text{ OX40 receptors per cell}
 \end{aligned}$$

Figure 13B



$$\begin{aligned}
 \text{Receptors per cell} &= \text{Bmax (6e10)/\# cells per well} \\
 &= 0.167 \cdot 6\text{e}10 / 5,000 \\
 &= 2,004,000 \text{ OX-40 receptors per cell}
 \end{aligned}$$

Figure 13C

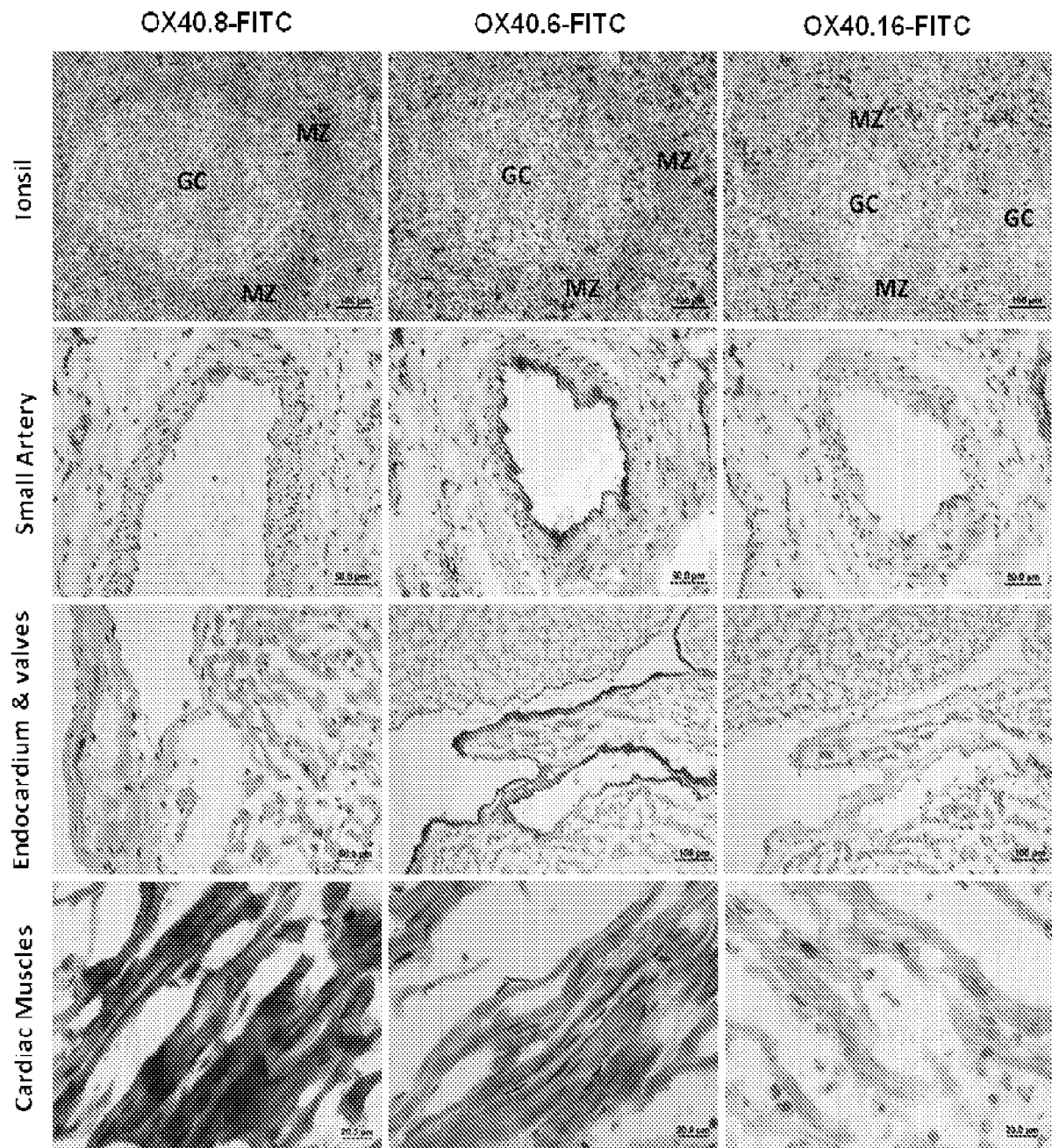


Figure 14A

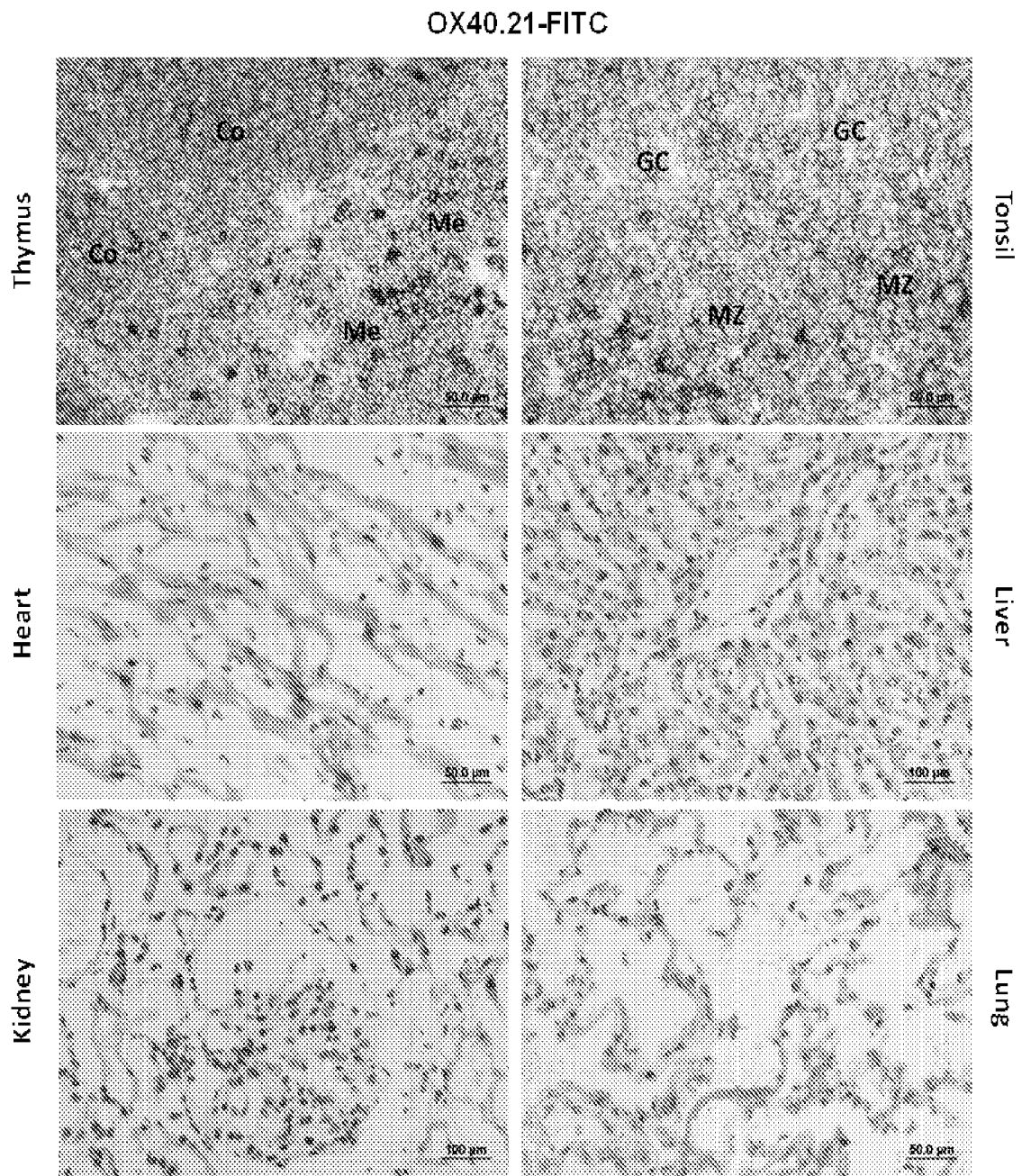


Figure 14B

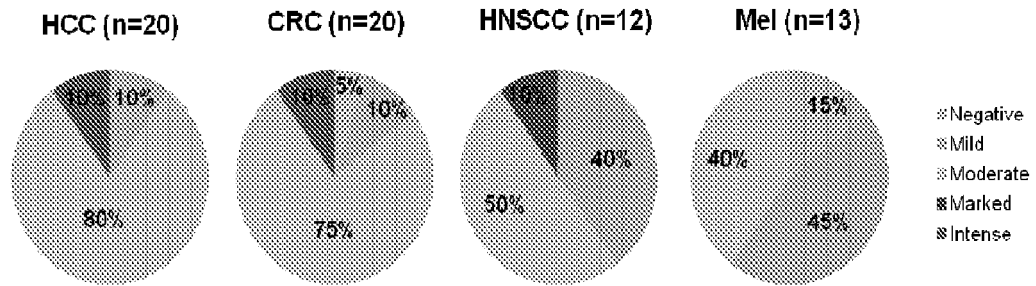


Figure 15A

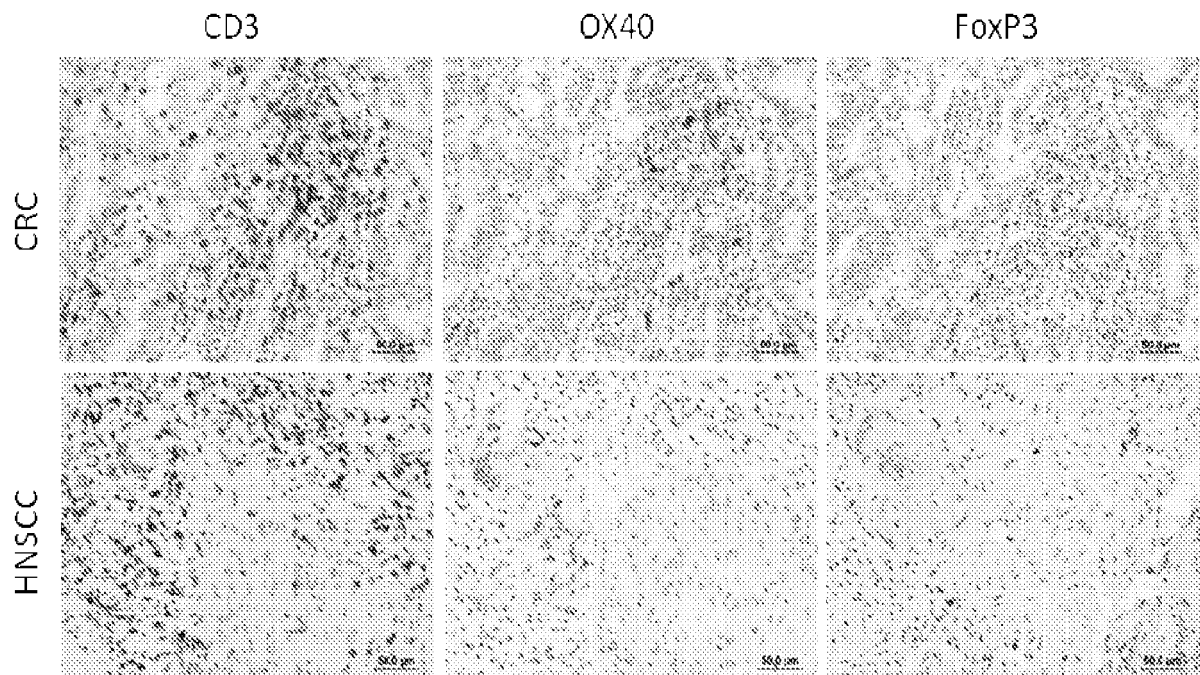


Figure 15B

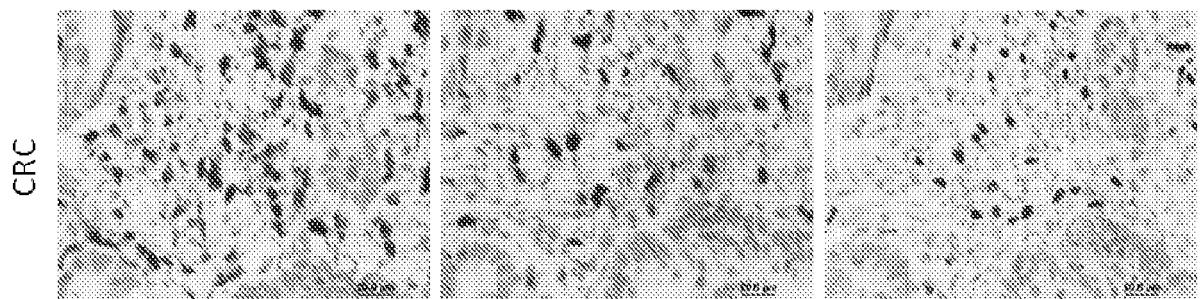


Figure 15C

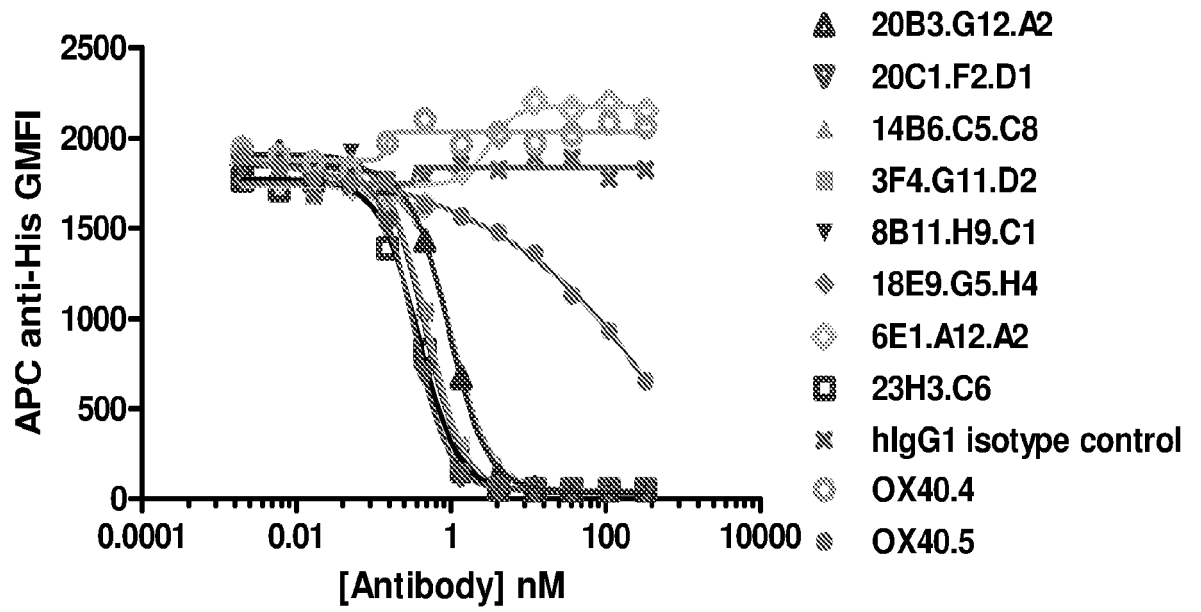


Figure 16

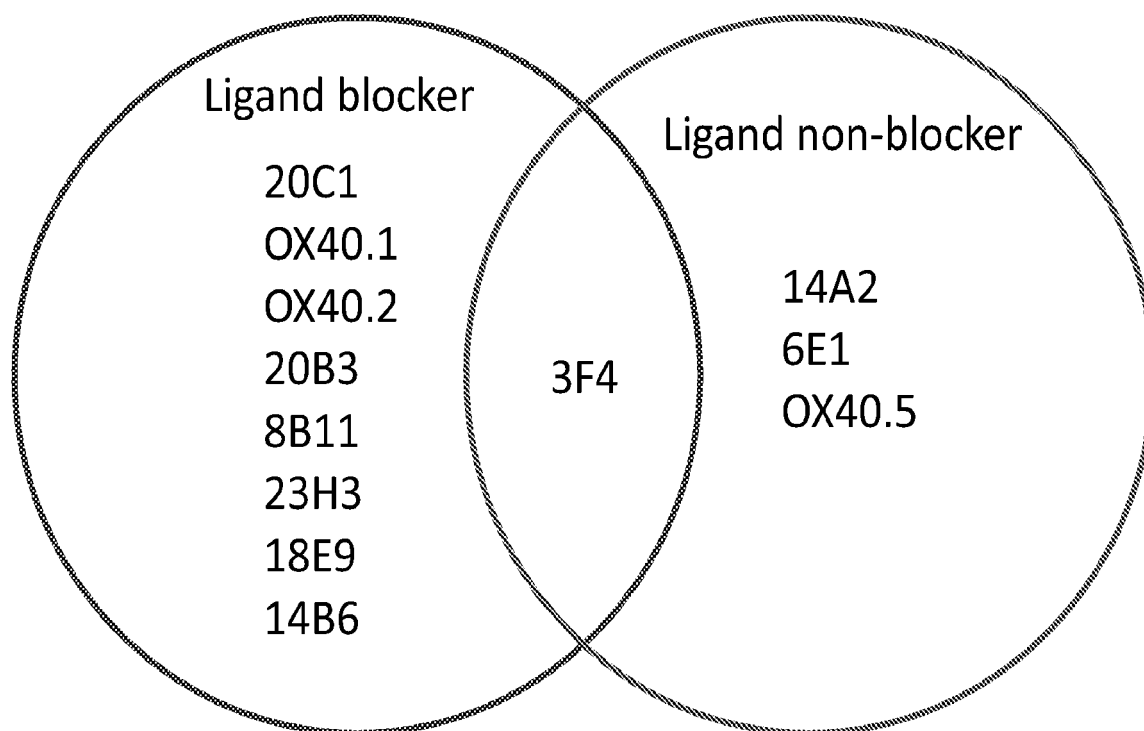


Figure 17

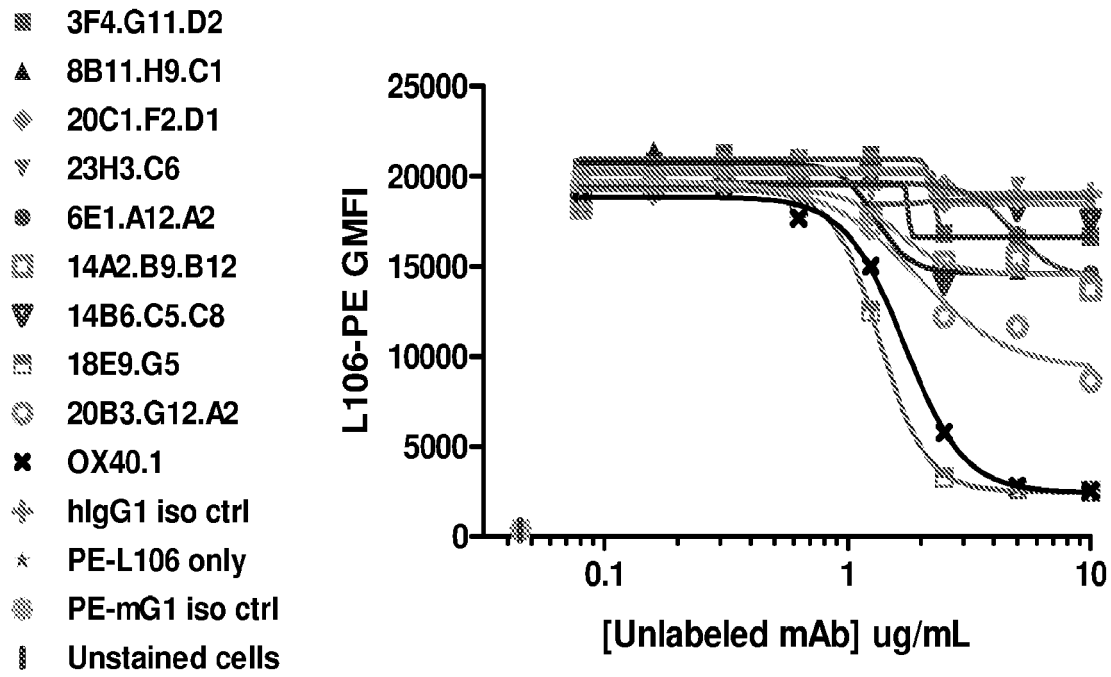


Figure 18

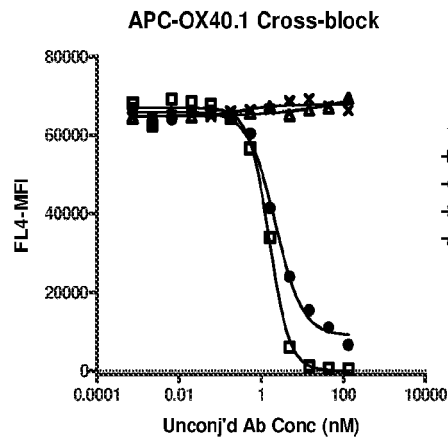


Figure 19A

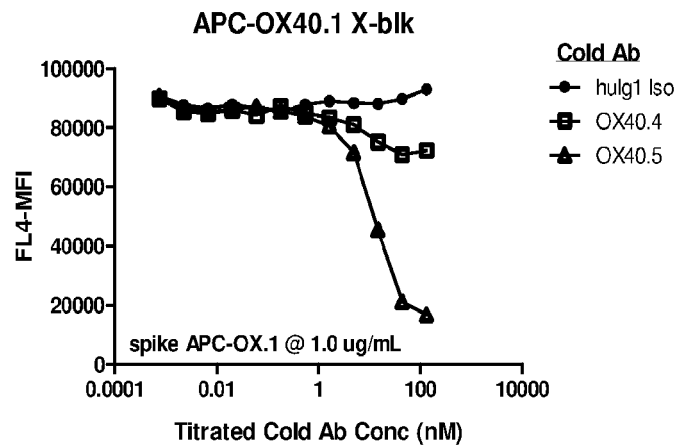
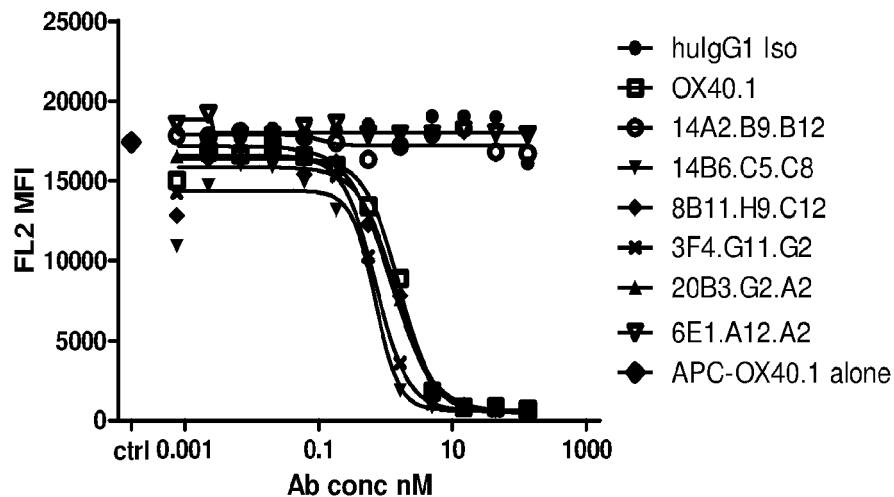


Figure 19B

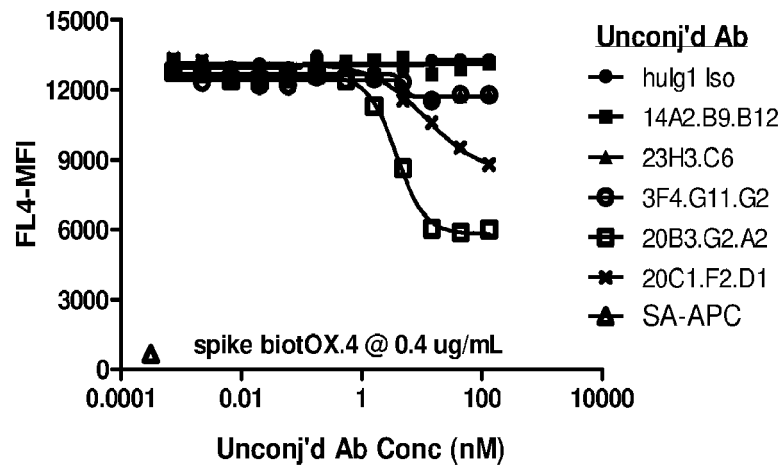
OX40 HuMab cross-block of OX40.1 binding to HT1080-hOX40 cells



	IC50
OX40.1	1.589
14A2.B9.B12	0.1037
14B6.C5.C8	0.6997
8B11.H9.C12	1.410
3F4.G11.G2	0.7062
20B3.G2.A2	1.165
6E1.A12.A2	~ 0.002489

Figure 19C

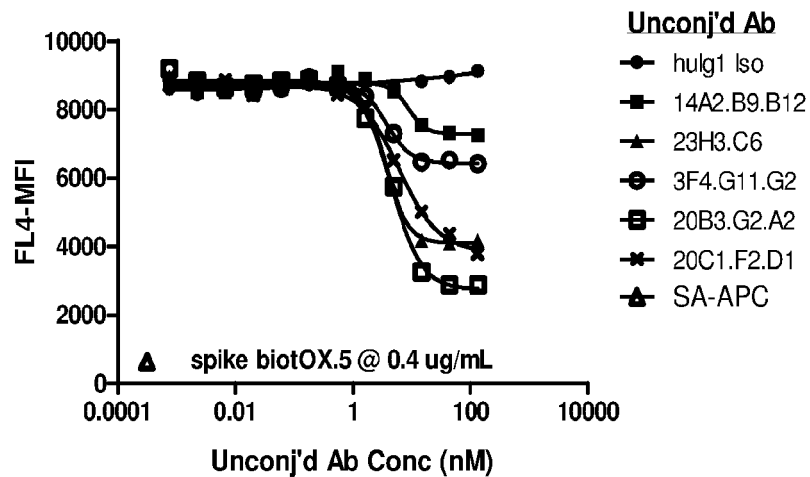
Cross-block of the Binding of biotOX40.4



	14A2.B9.B12	23H3.C6	3F4.G11.G2	20B3.G2.A2	20C1.F2.D1
EC50				3.862	12.06

Figure 19D

Cross-block of the Binding of biotOX40.5



	14A2.B9.B12	23H3.C6	3F4.G11.G2	20B3.G2.A2	20C1.F2.D1
EC50	8.888	3.684	3.714	4.539	6.134

Figure 19E

Cross-block of the Binding of biotOX40.4

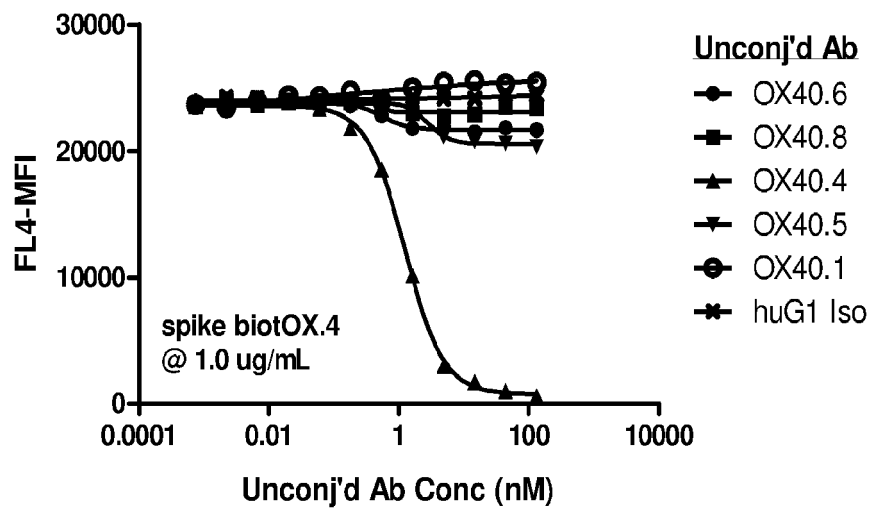
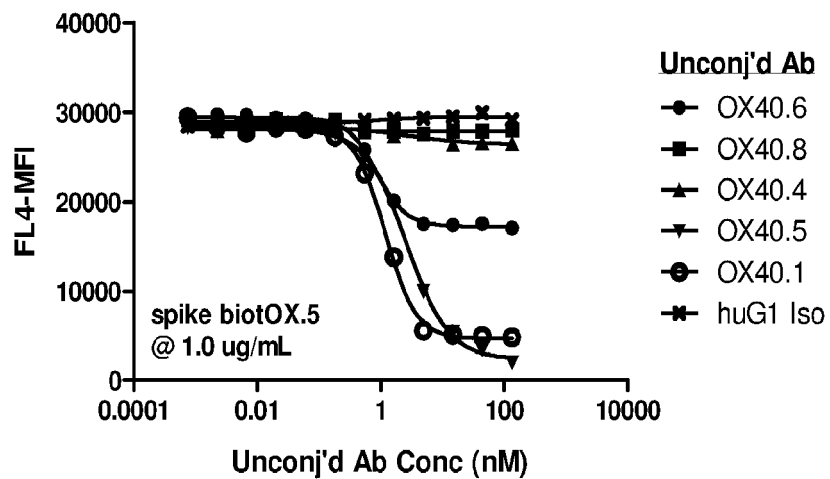


Figure 19F

Cross-block of the Binding of biotOX40.5



	OX40.6	OX40.8	OX40.4	OX40.5	OX40.1
EC50	0.857			2.669	1.190

Figure 19G

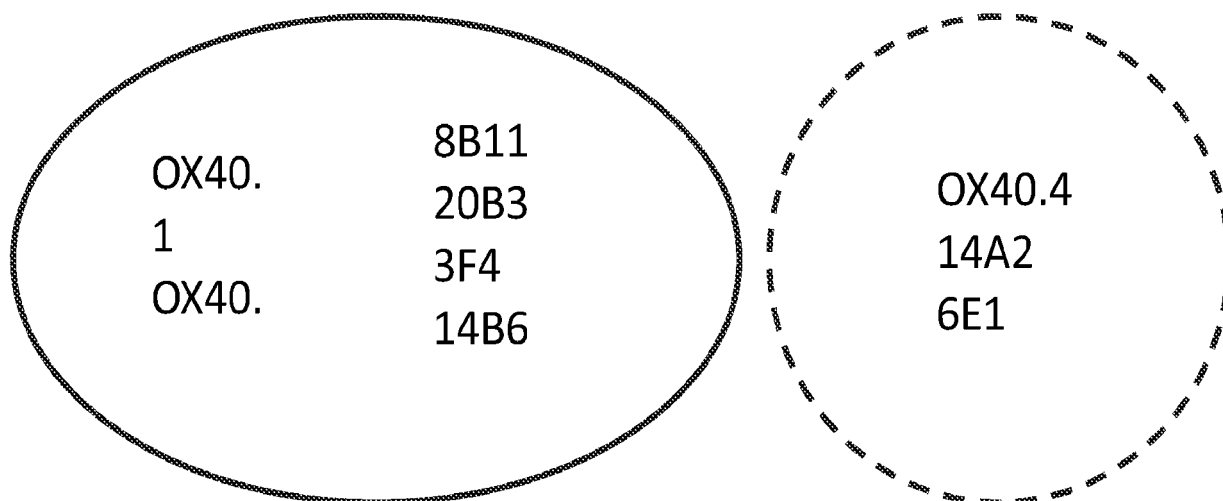


Figure 19H

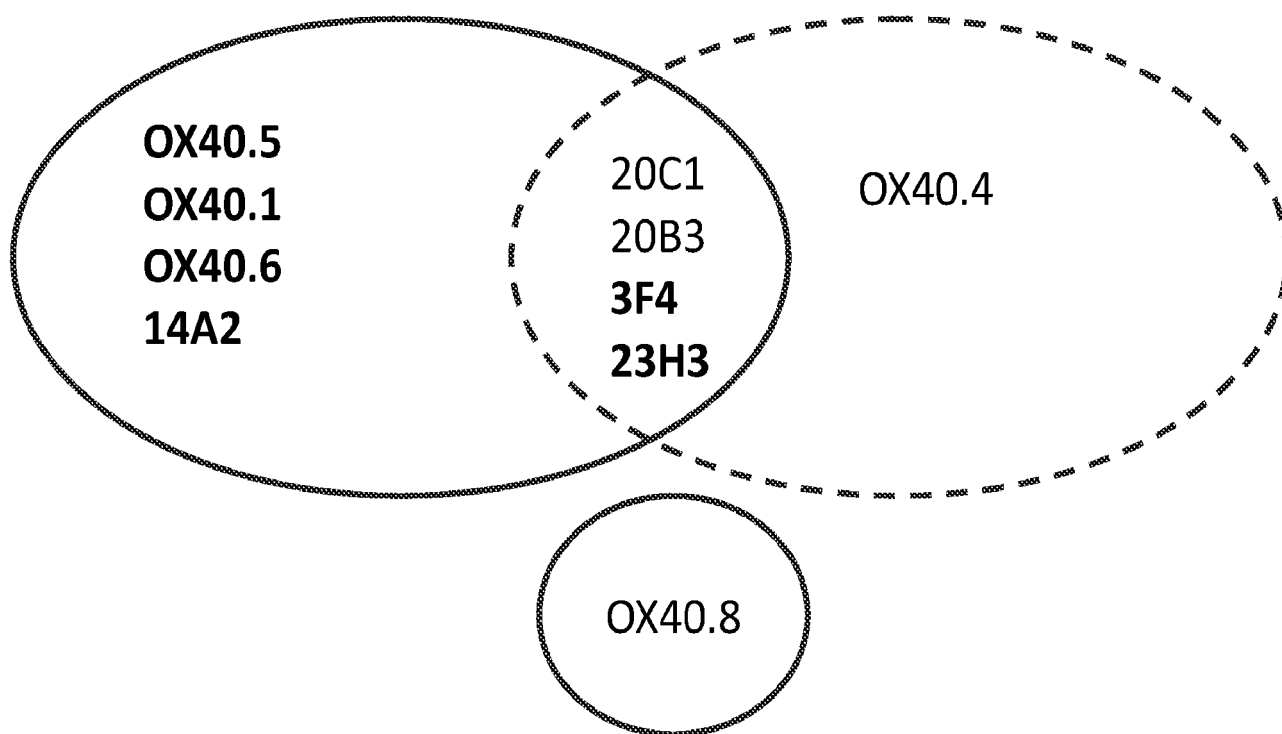


Figure 19I

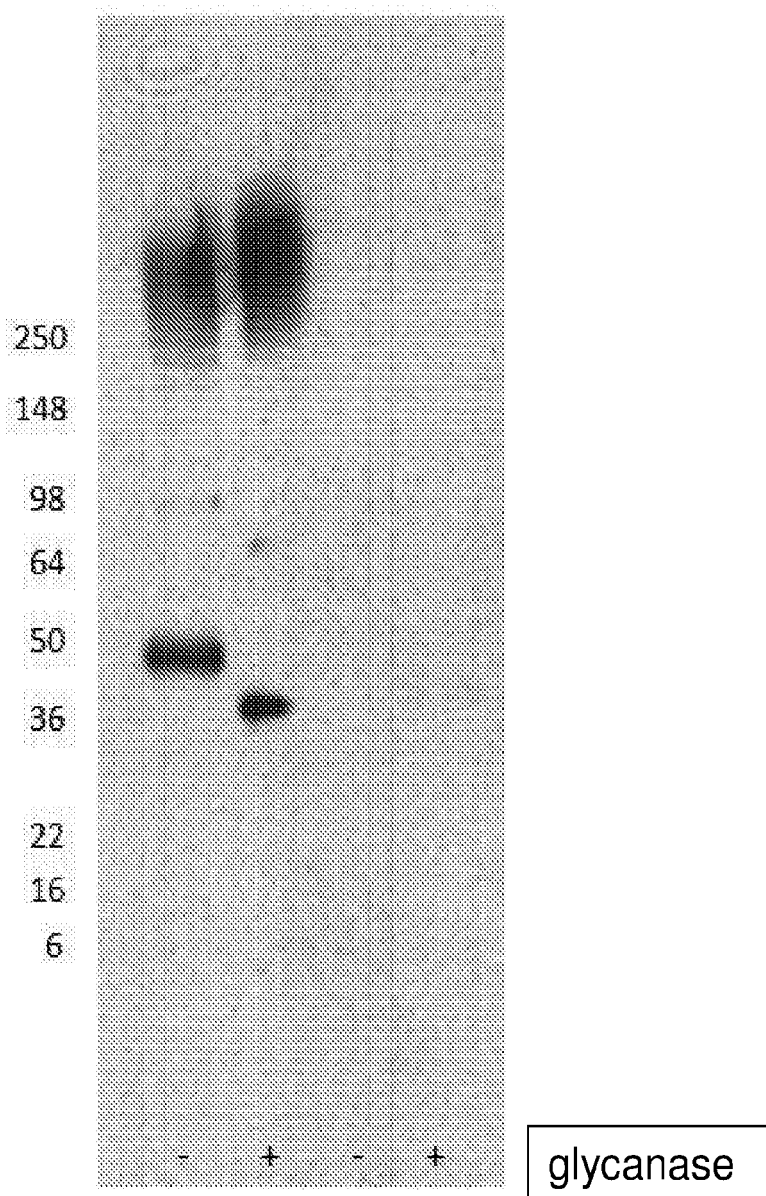


Figure 20A

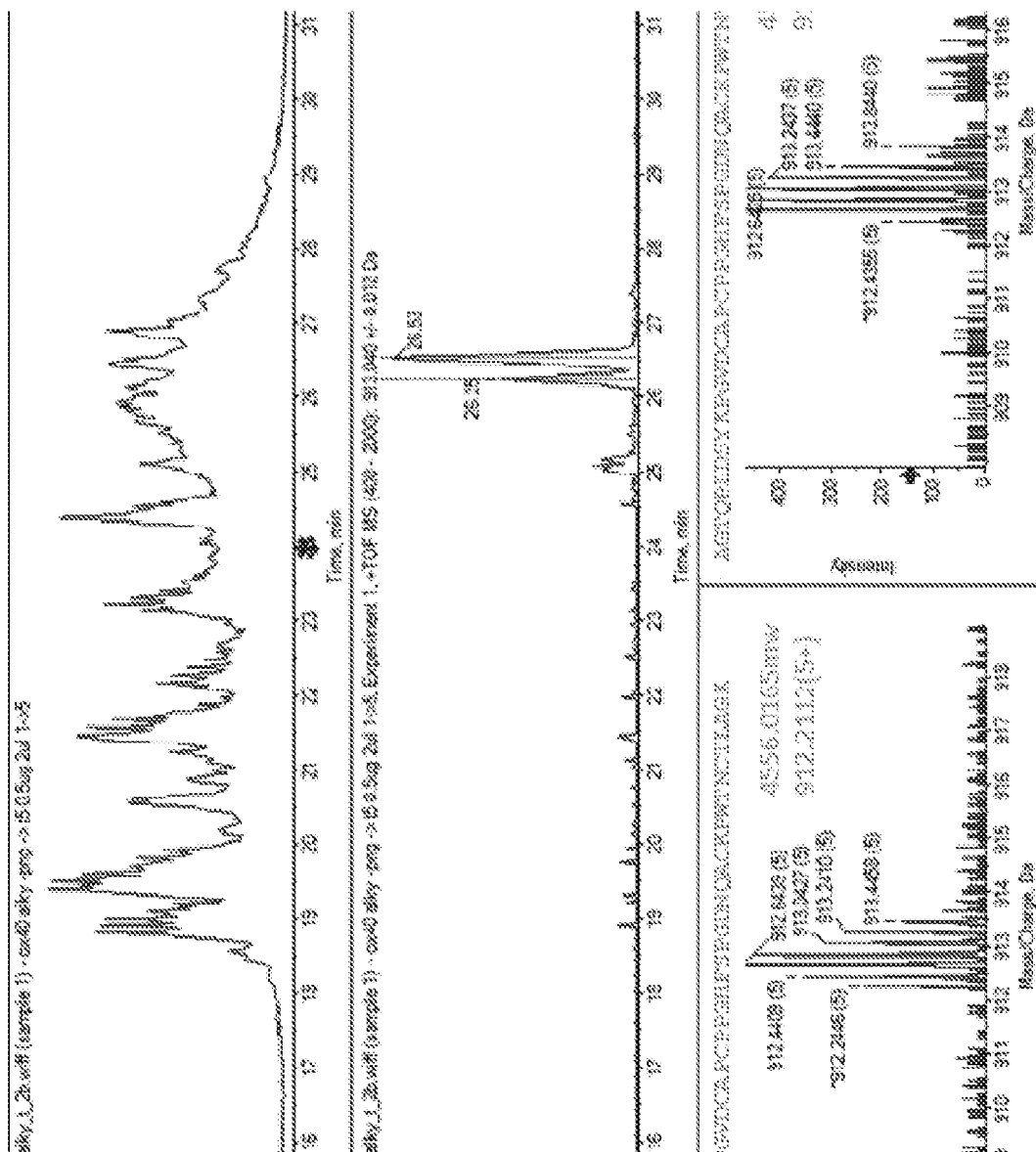


Figure 20B

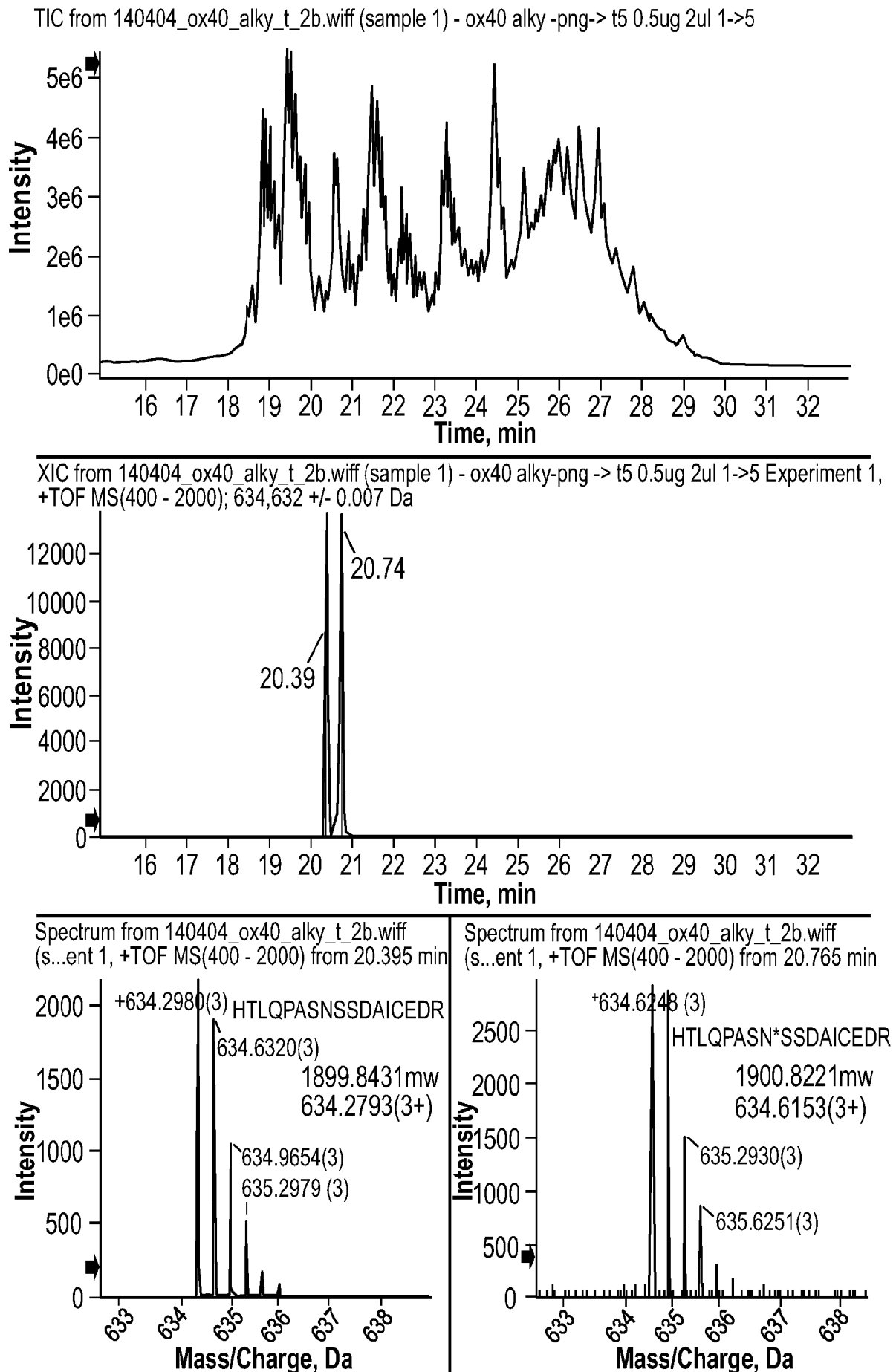


Figure 20C

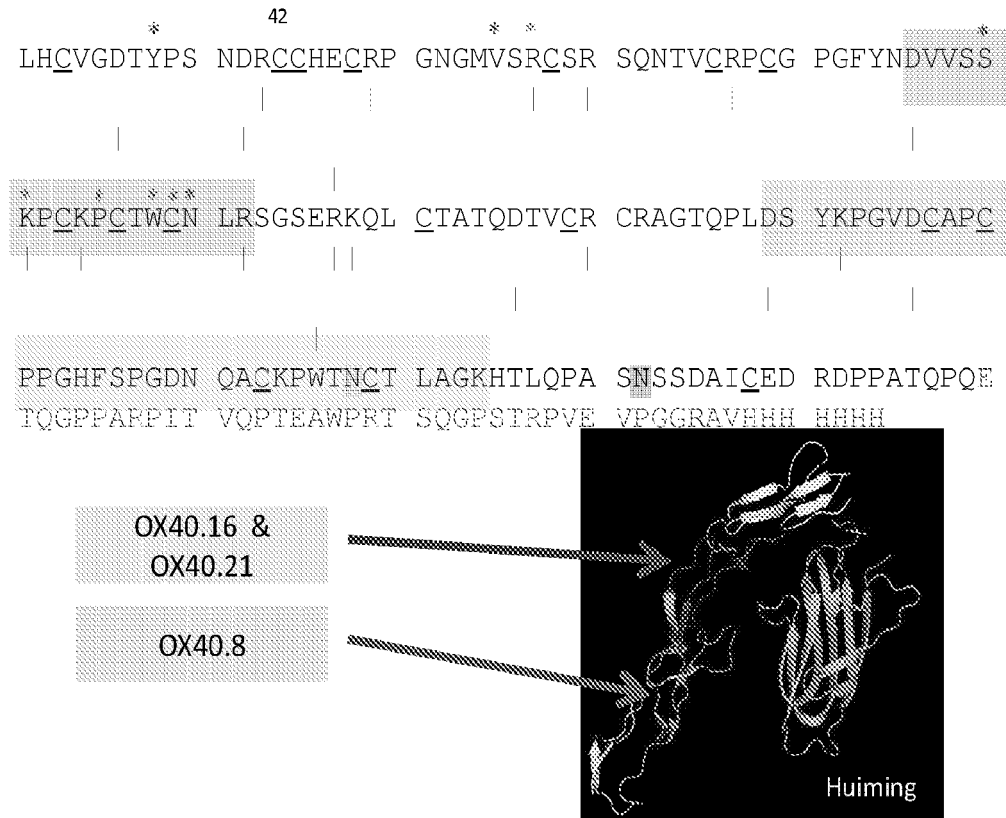
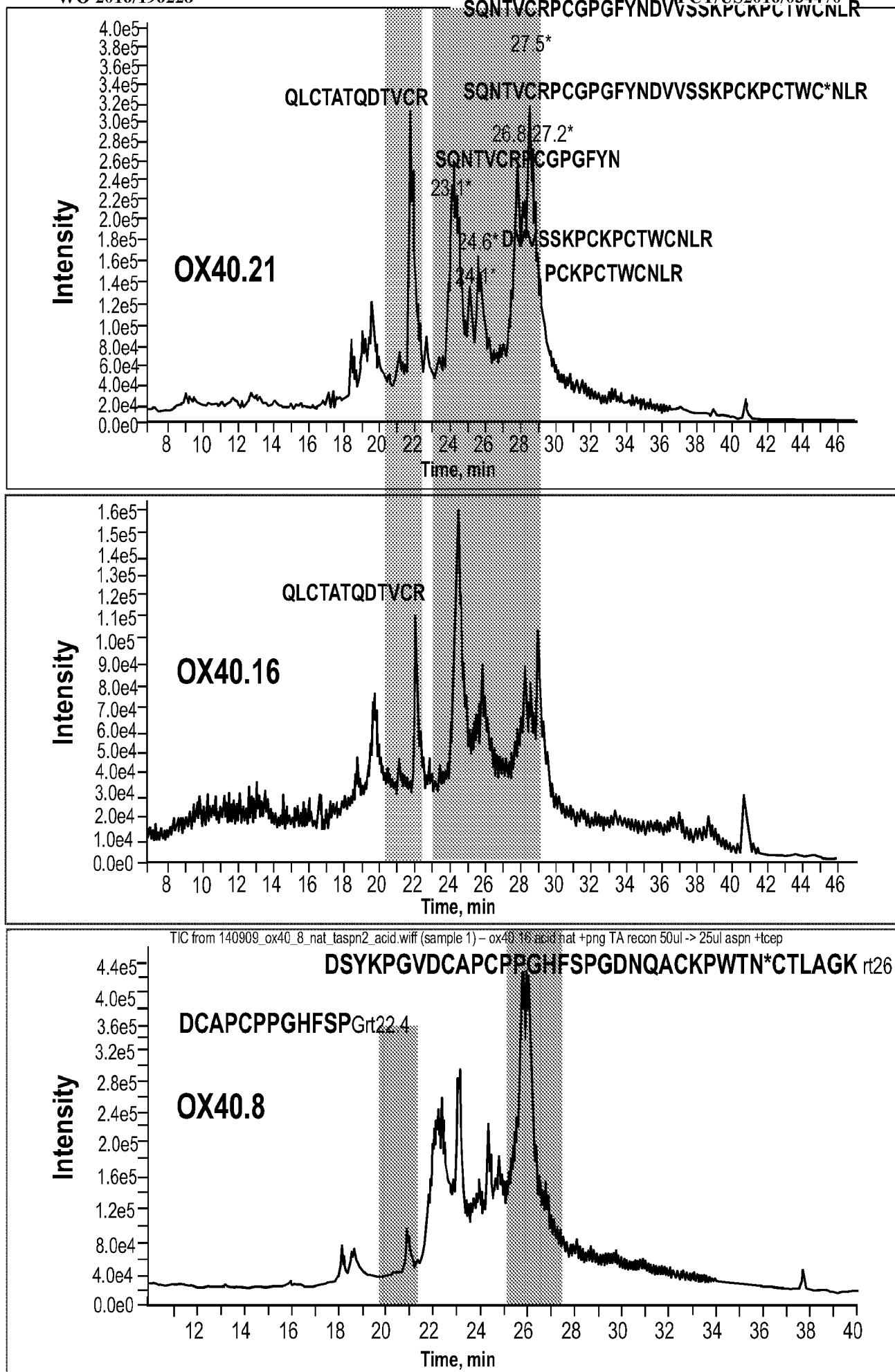


Figure 20D



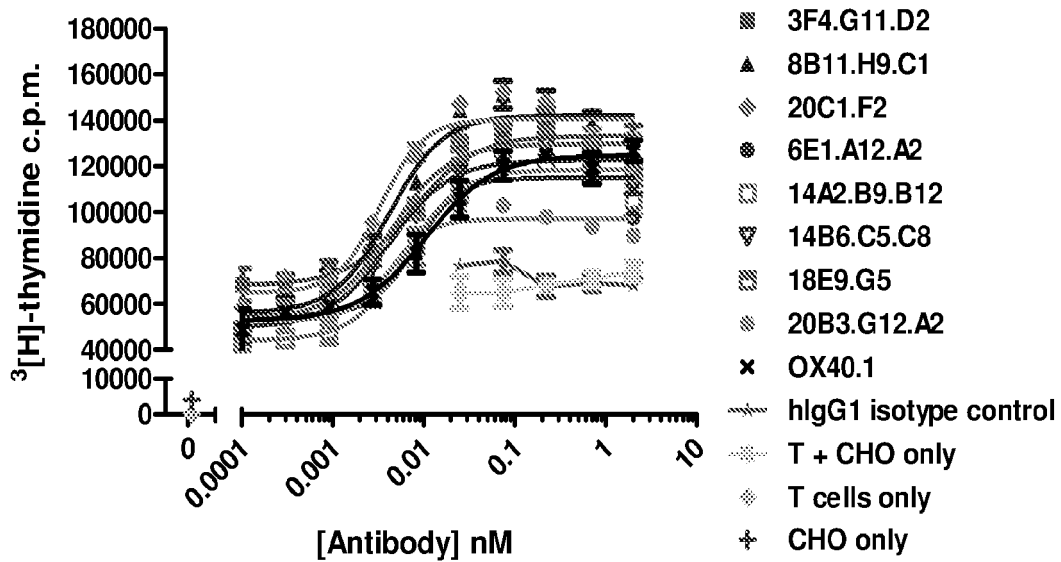


Figure 21A

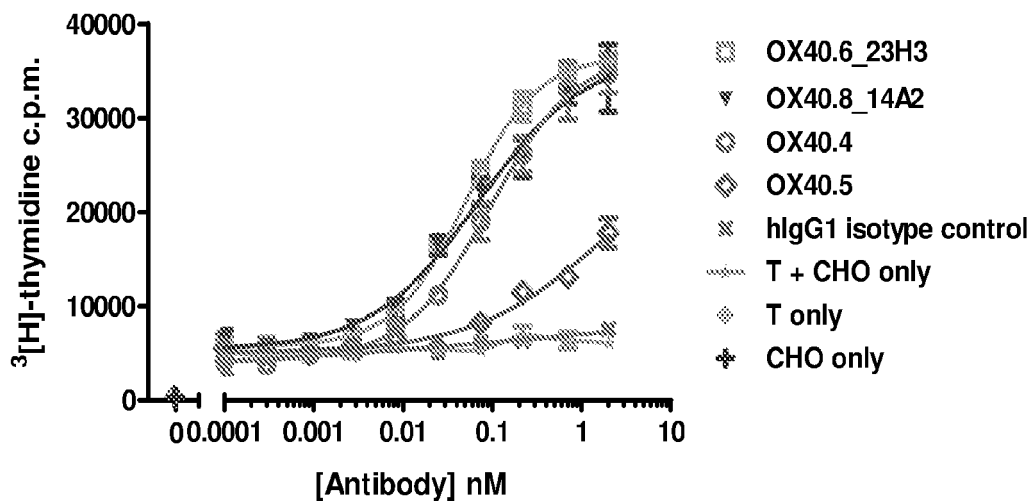


Figure 21B

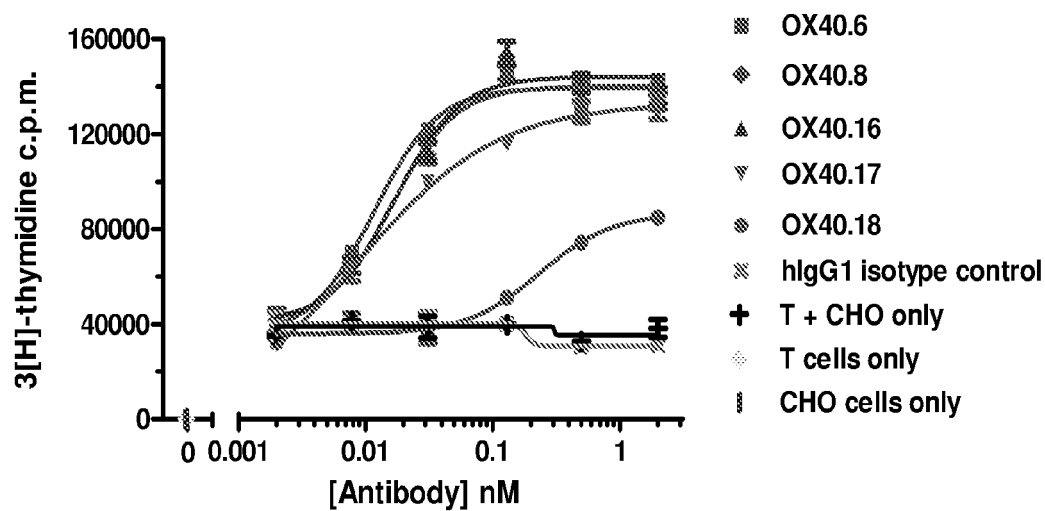


Figure 21C

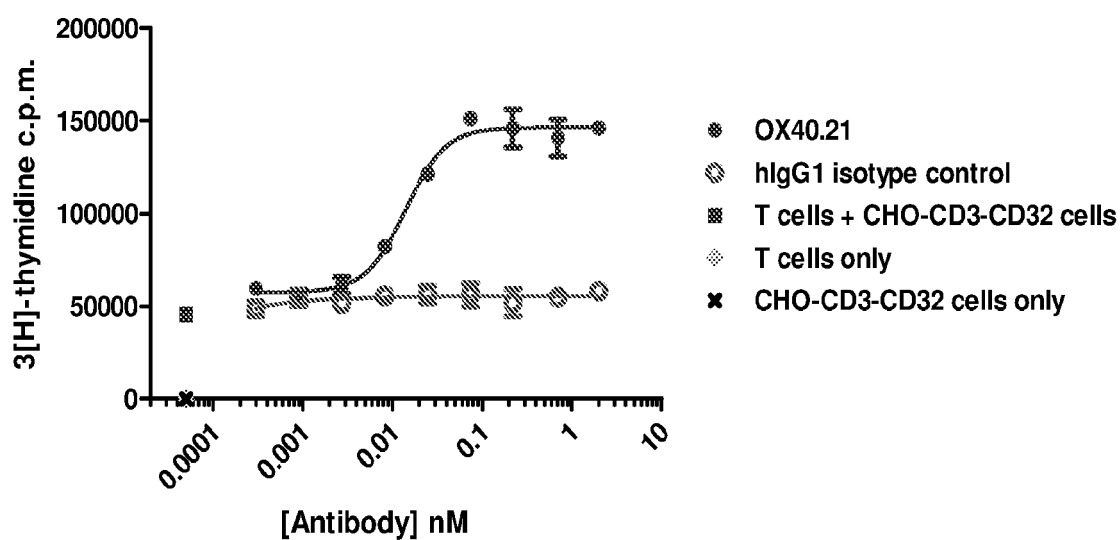


Figure 21D

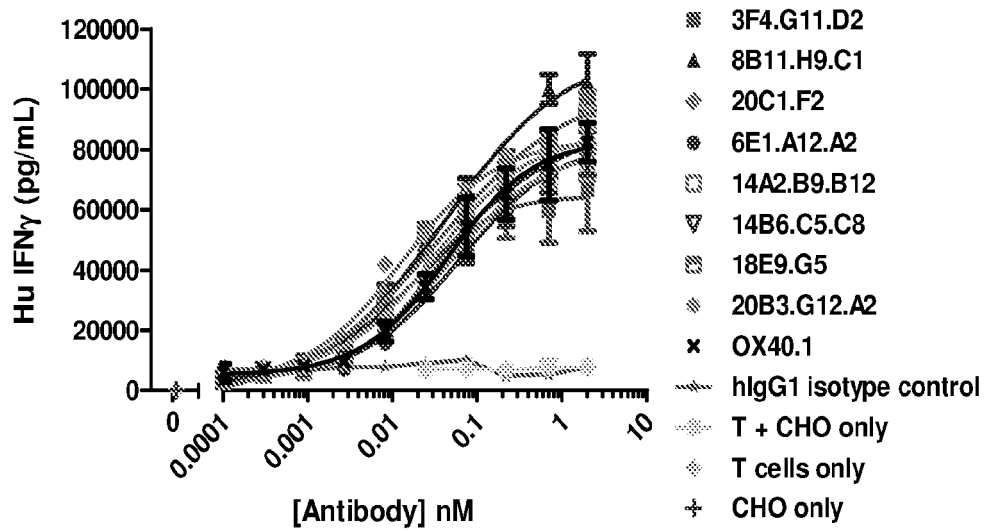


Figure 22A

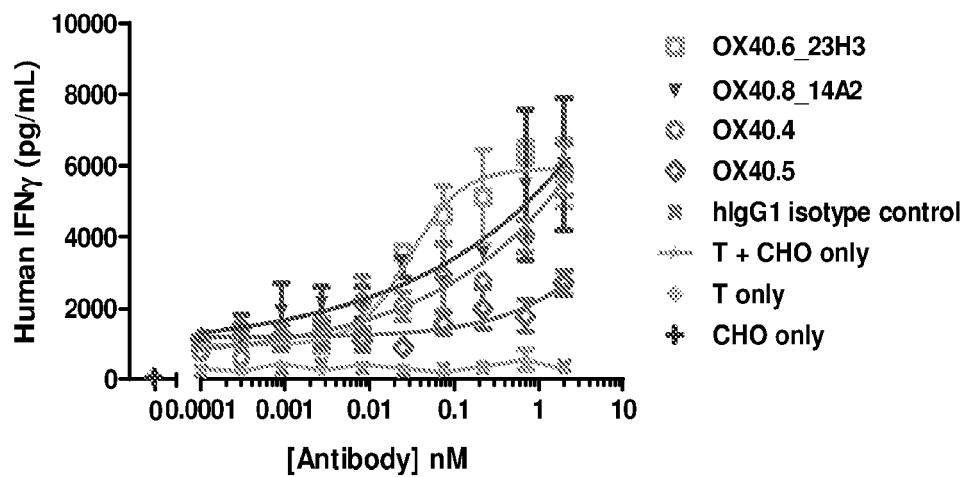


Figure 22B

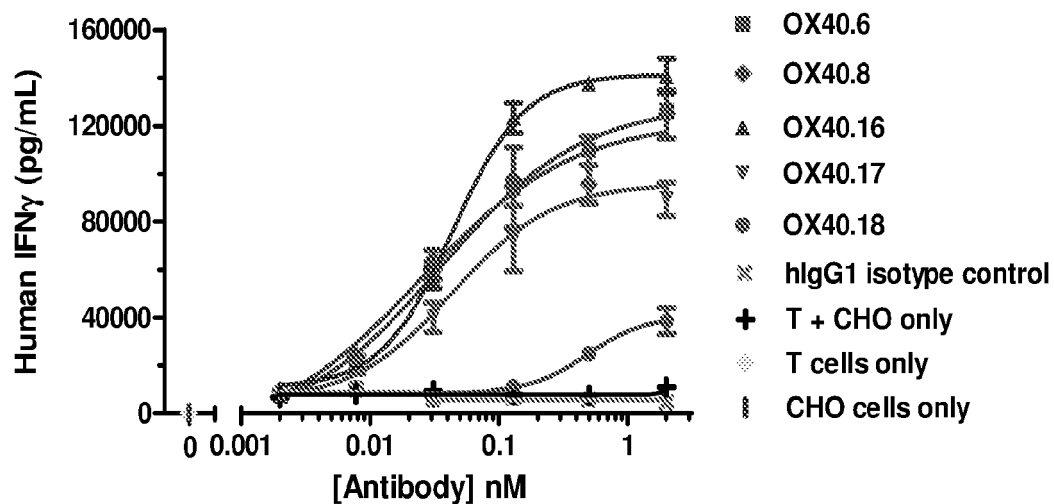


Figure 22C

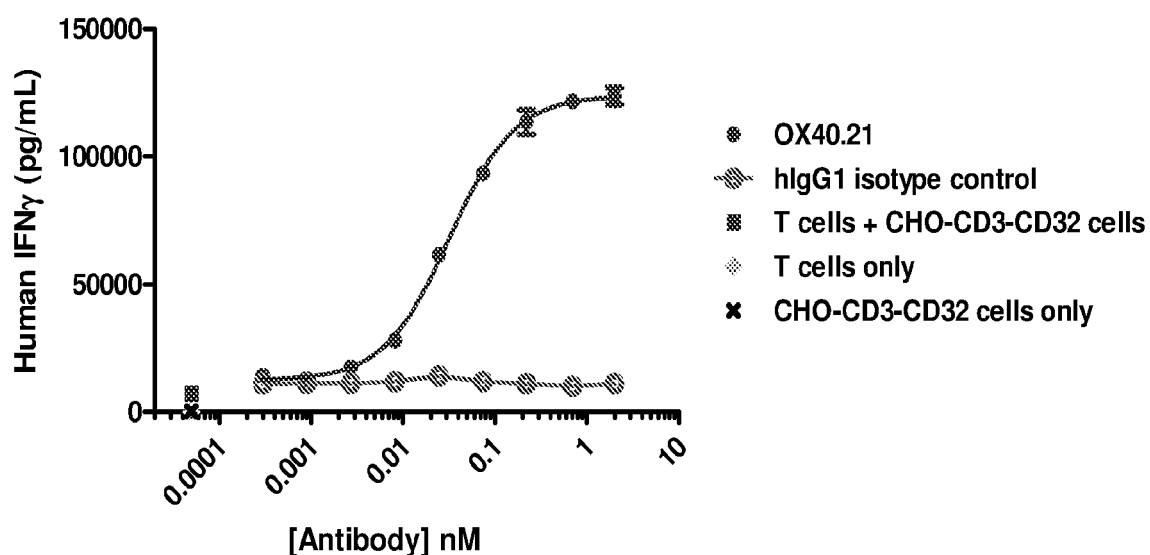
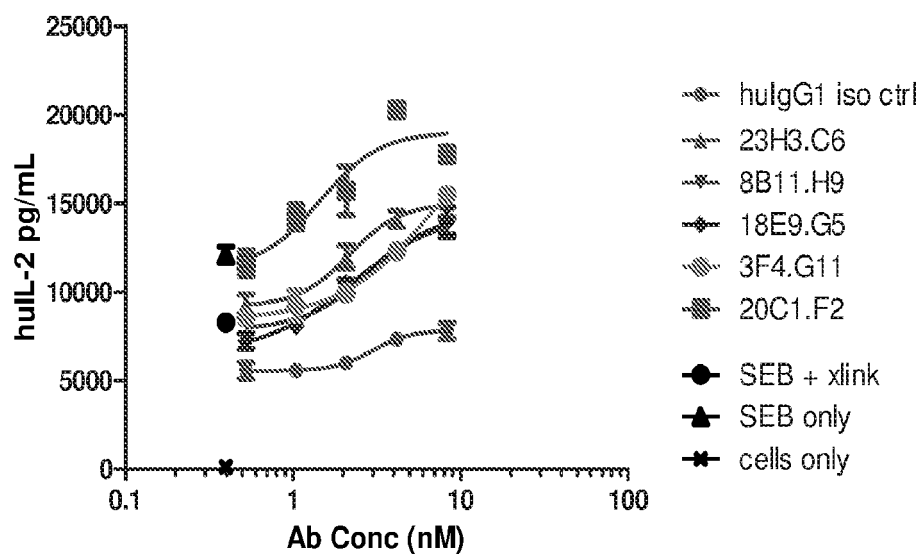


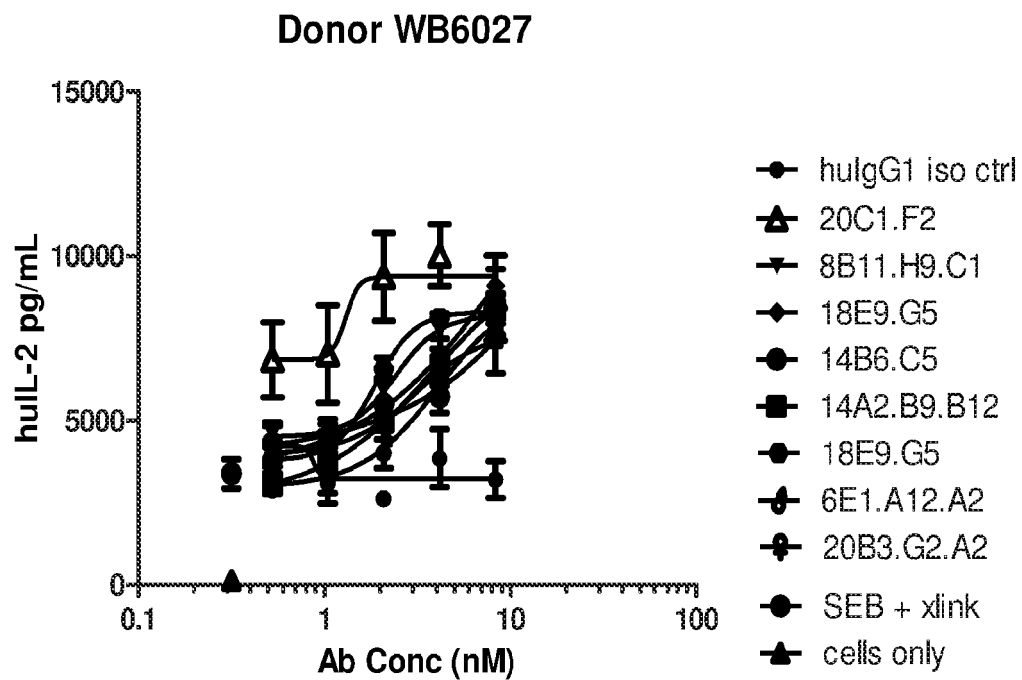
Figure 22D

Donor WB5522



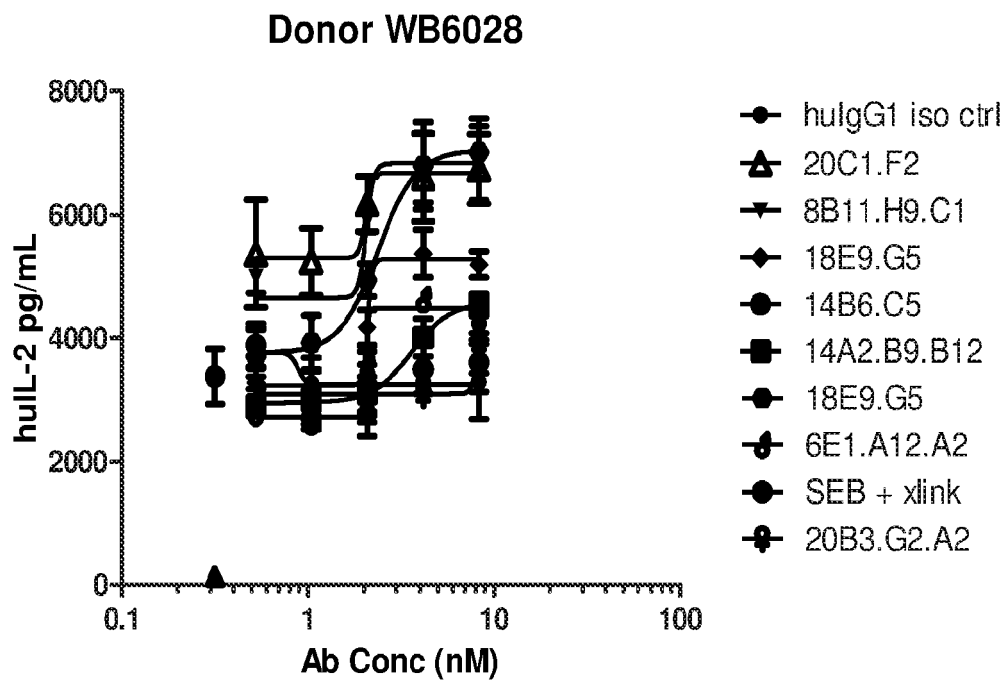
	EC50 (nM)
23H3.C6	2.177
8B11.H9	2.801
18E9.G5	2.395
3F4.G11	6.916
20C1.F2	1.459

Figure 23A



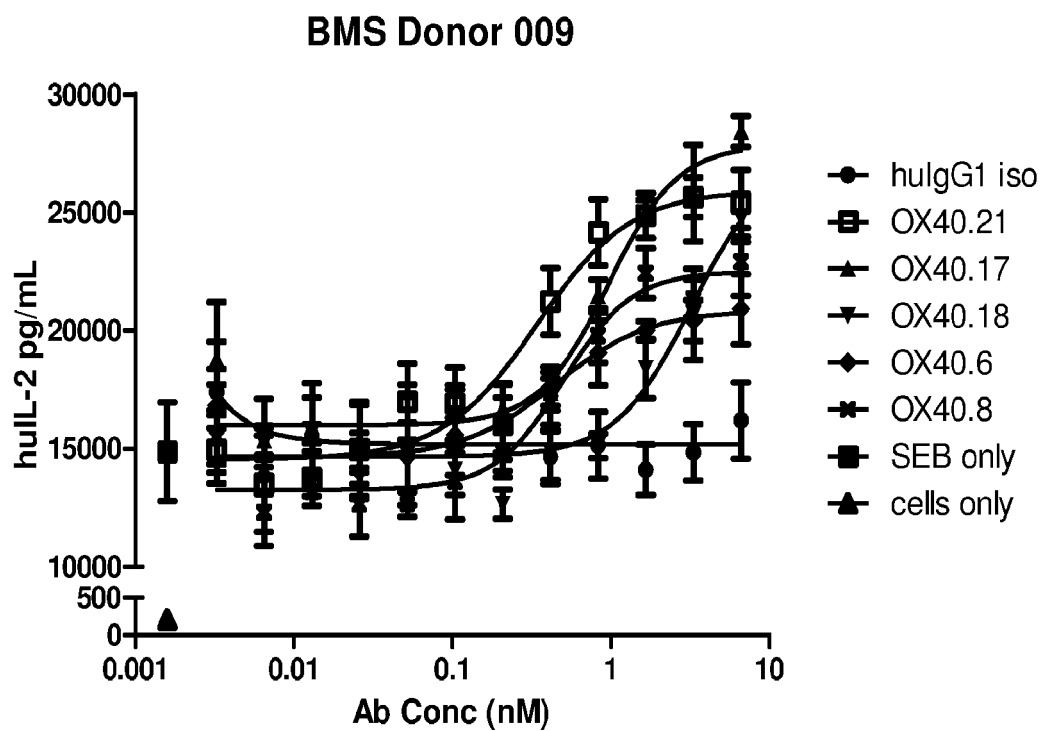
	EC50 (nM)
20C1.F2	1.30
8B11.H9.C1	2.409
3F4.G11.D2	11.94
14B6.C5	~ 1274
14A2.B9.B12	3.816
18E9.G5	1.865
6E1.A12.A2	4.113
20B3.G2.A2	3.112

Figure 23B



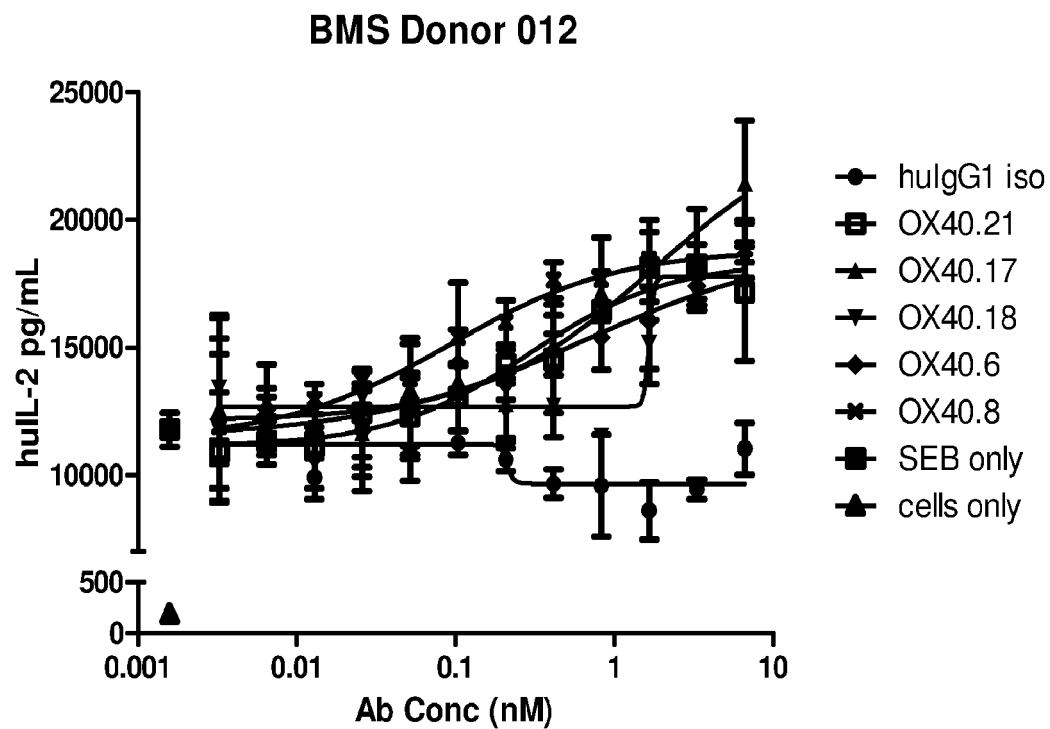
	EC50
20C1.F2	~ 2.045
8B11.H9.C1	~ 2.061
3F4.G11.D2	~ 2.099
14B6.C5	
14A2.B9.B12	3.608
18E9.G5	2.379
6E1.A12.A2	~ 2.092
20B3.G2.A2	~ 8.295

Figure 23C



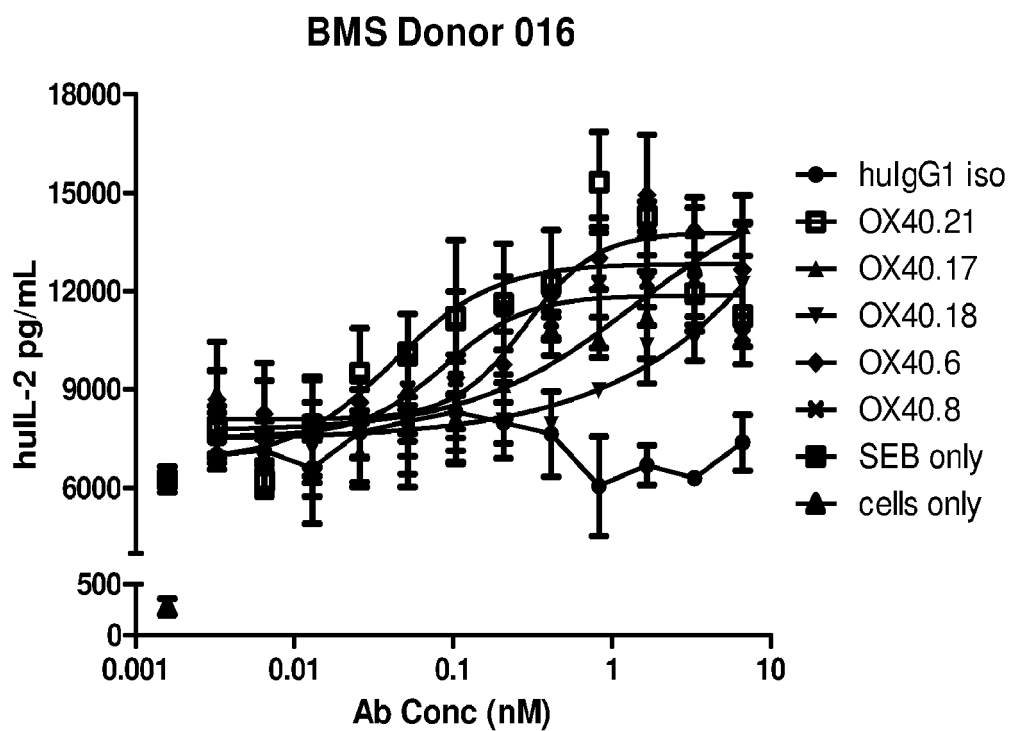
	EC50
OX40.21	0.343
OX40.17	0.965
OX40.18	3.210
OX40.6	0.451
OX40.8	0.503

Figure 23D



	EC50
OX40.21	0.288
OX40.17	1.741
OX40.18	~ 1.669
OX40.6	0.656
OX40.8	0.093

Figure 23E



	EC50
OX40.21	0.042
OX40.17	1.396
OX40.18	~ 100.8
OX40.6	0.287
OX40.8	0.089

Figure 23F

NK92 Lysis of activated CD4+ T cells OX40 mAbs

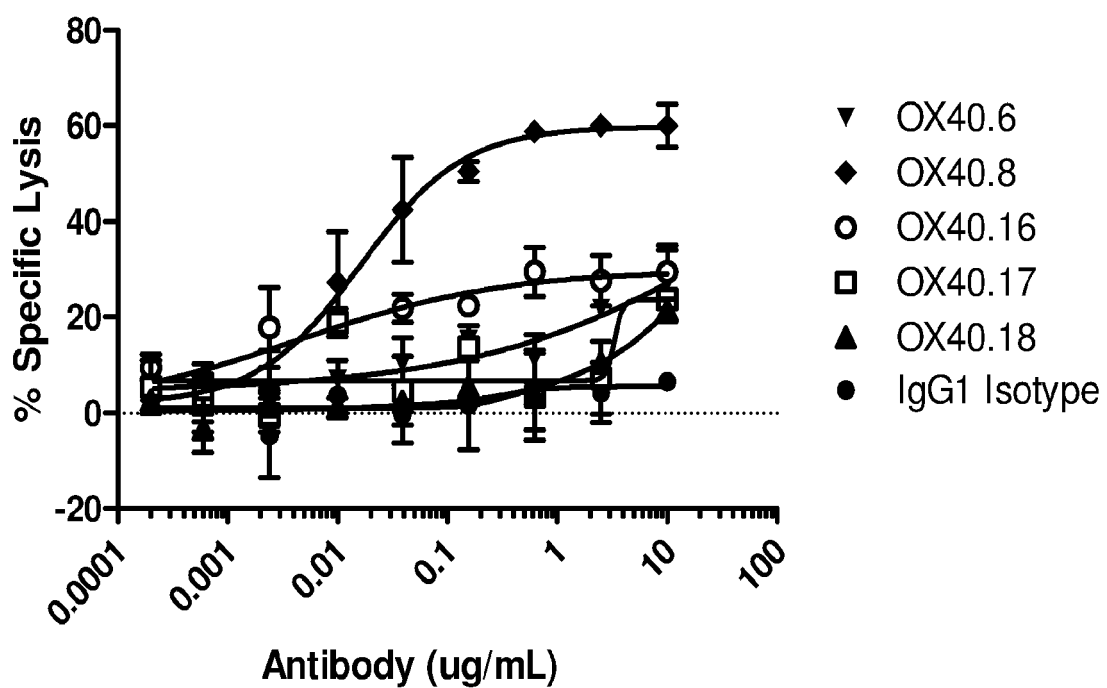


Figure 24

Target cell donor 1

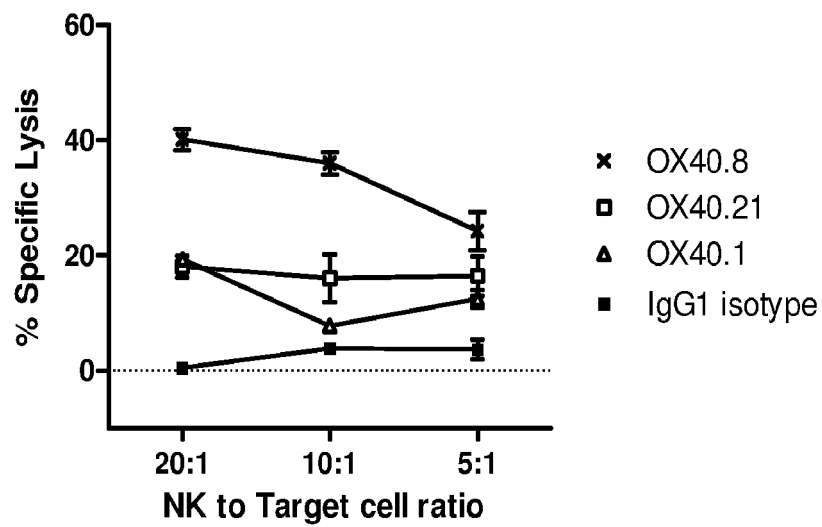


Figure 25A

Target cell donor 2

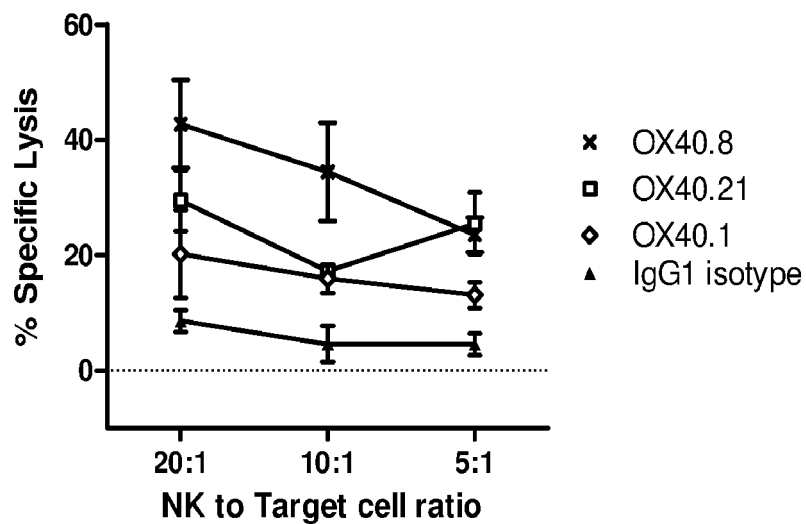


Figure 25B

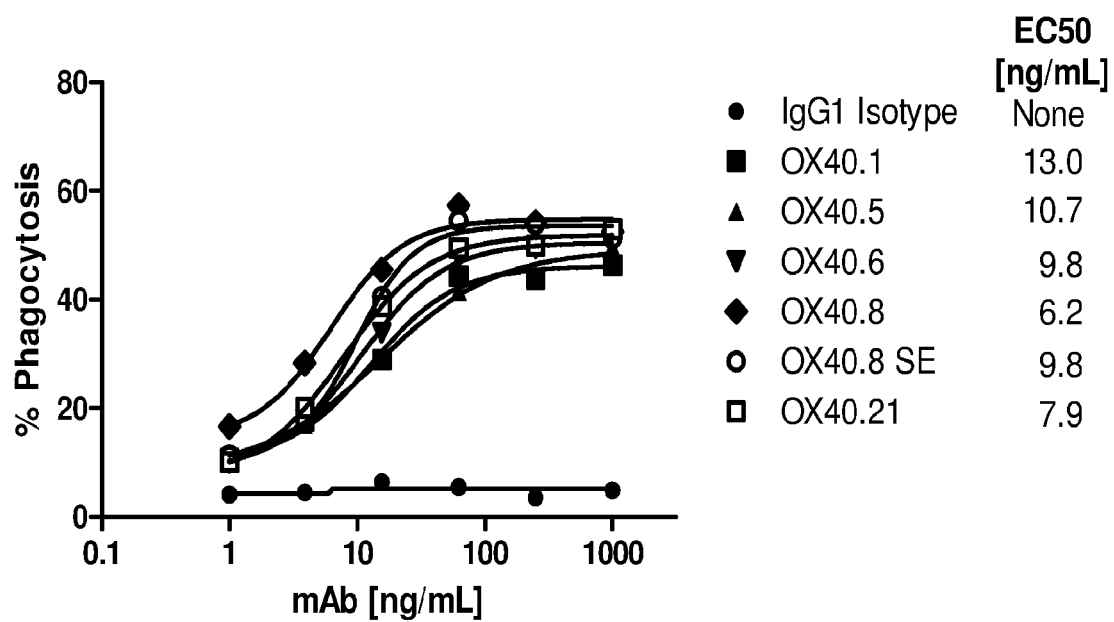


Figure 26

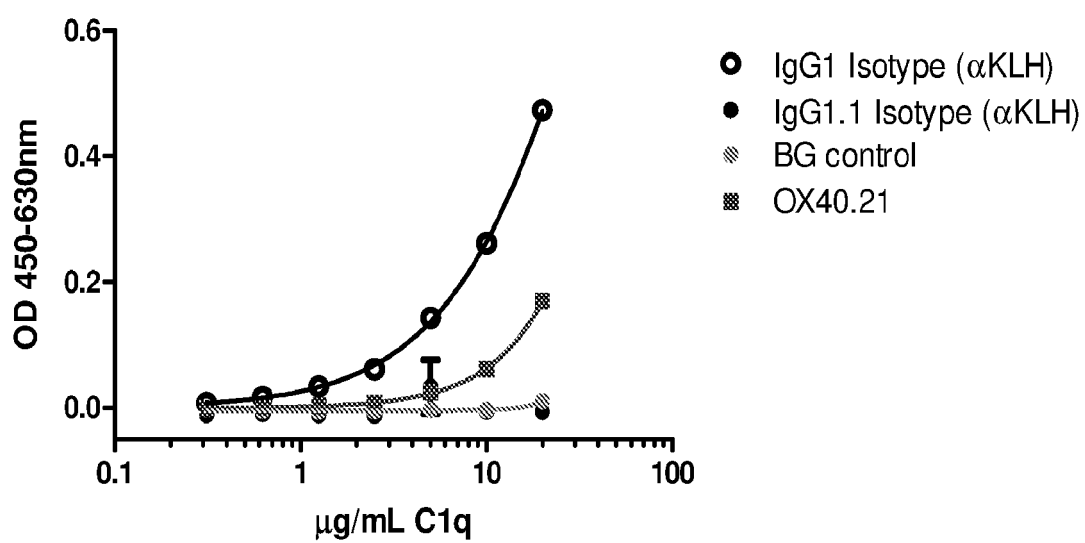


Figure 27

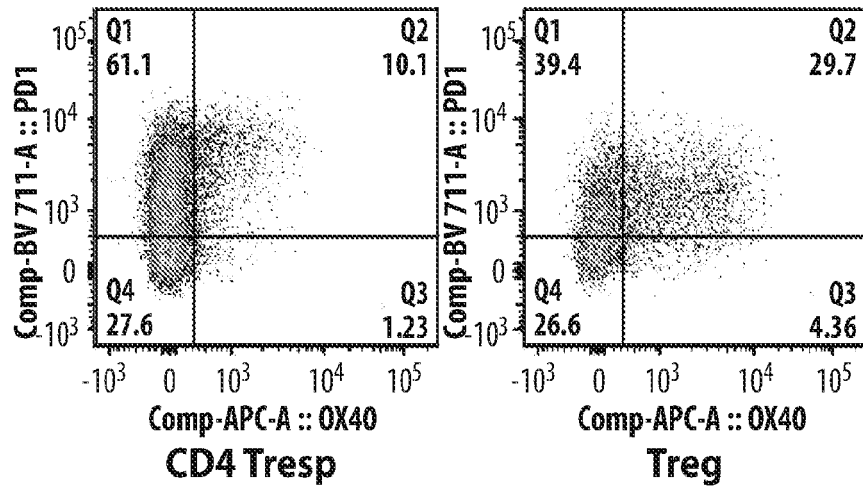


Figure 28A

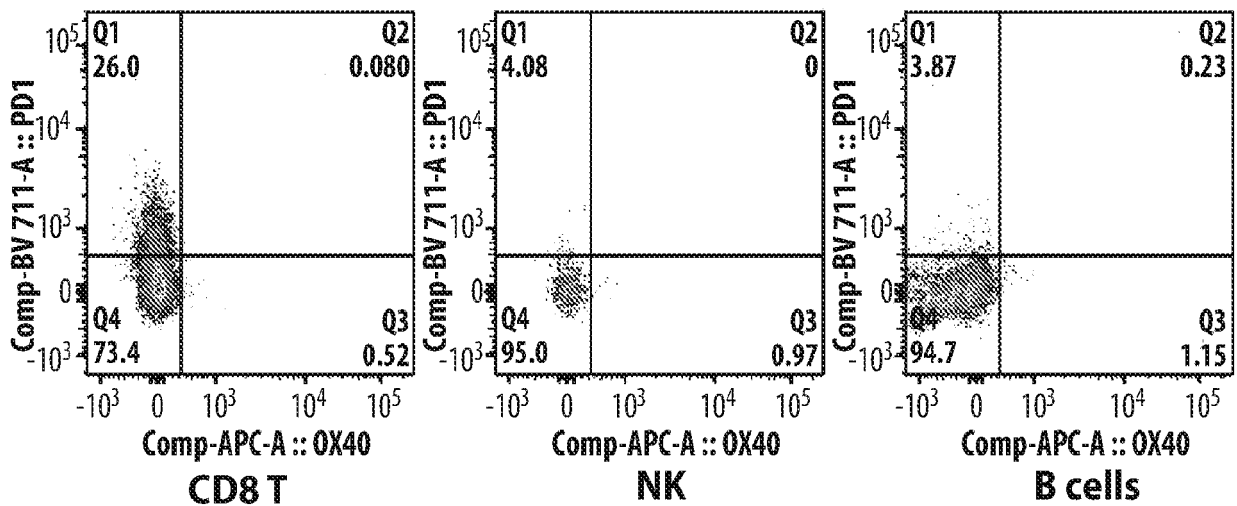


Figure 28B

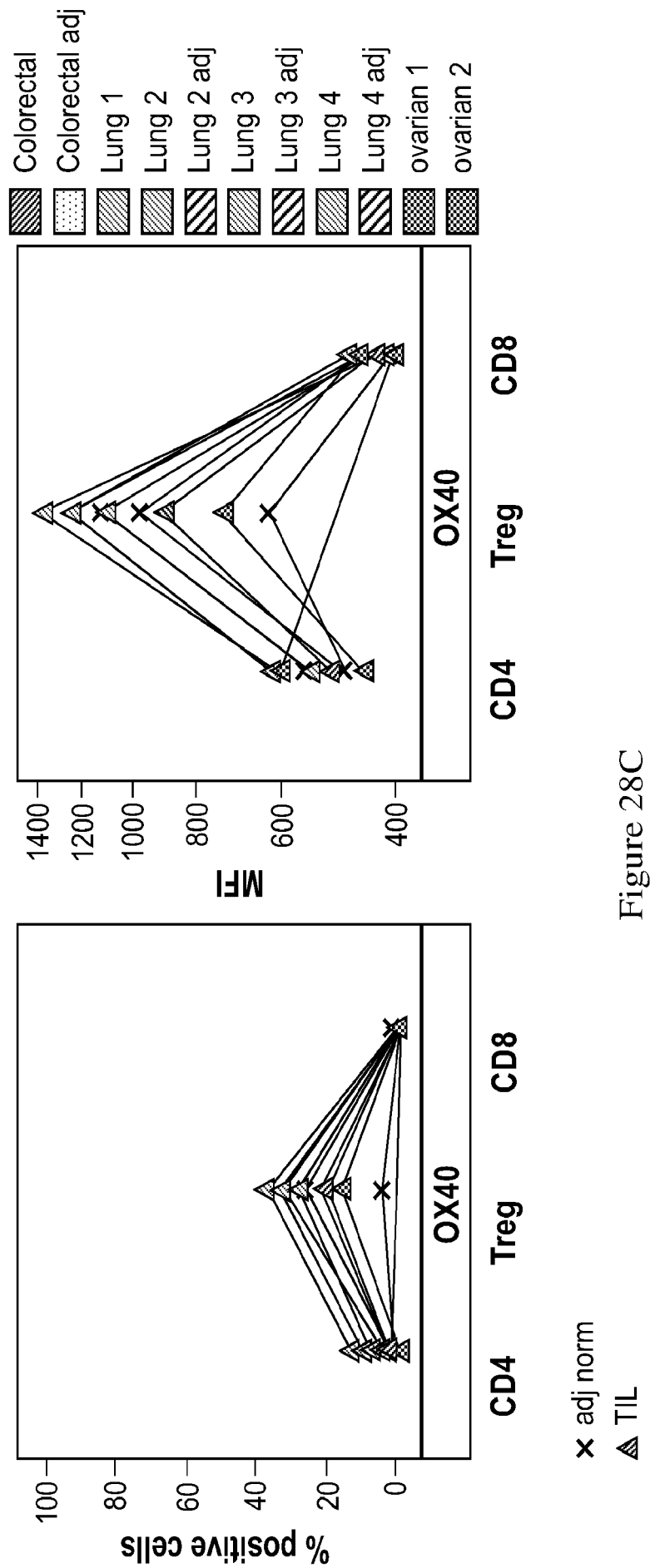


Figure 28C

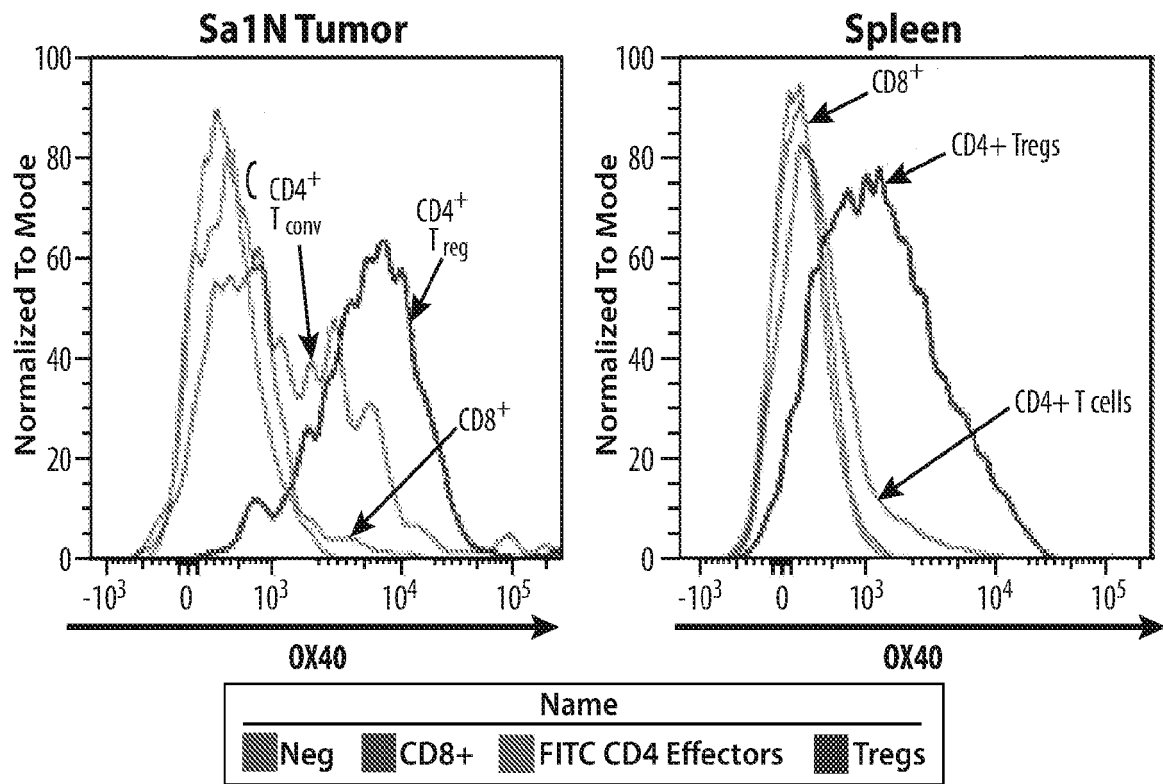


Figure 28D

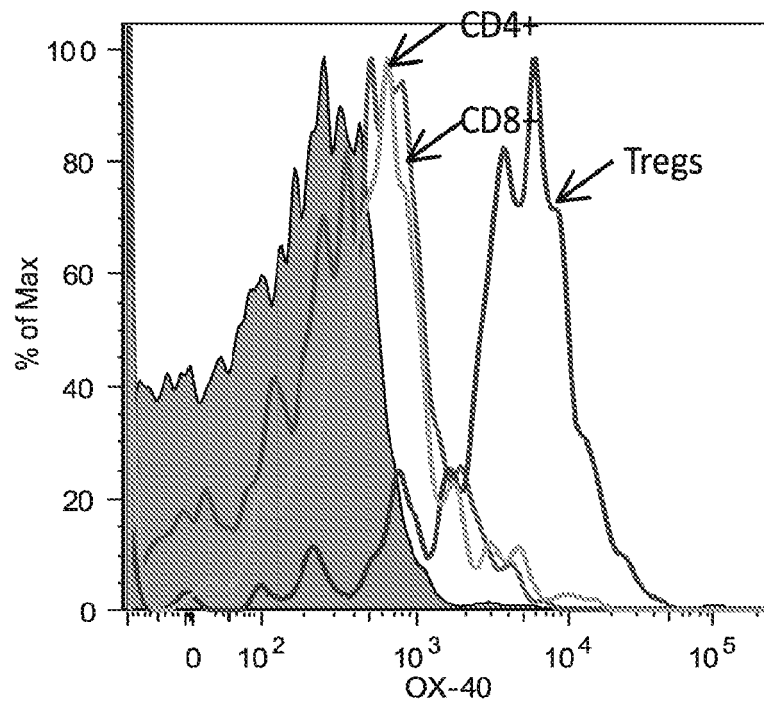


Figure 28E

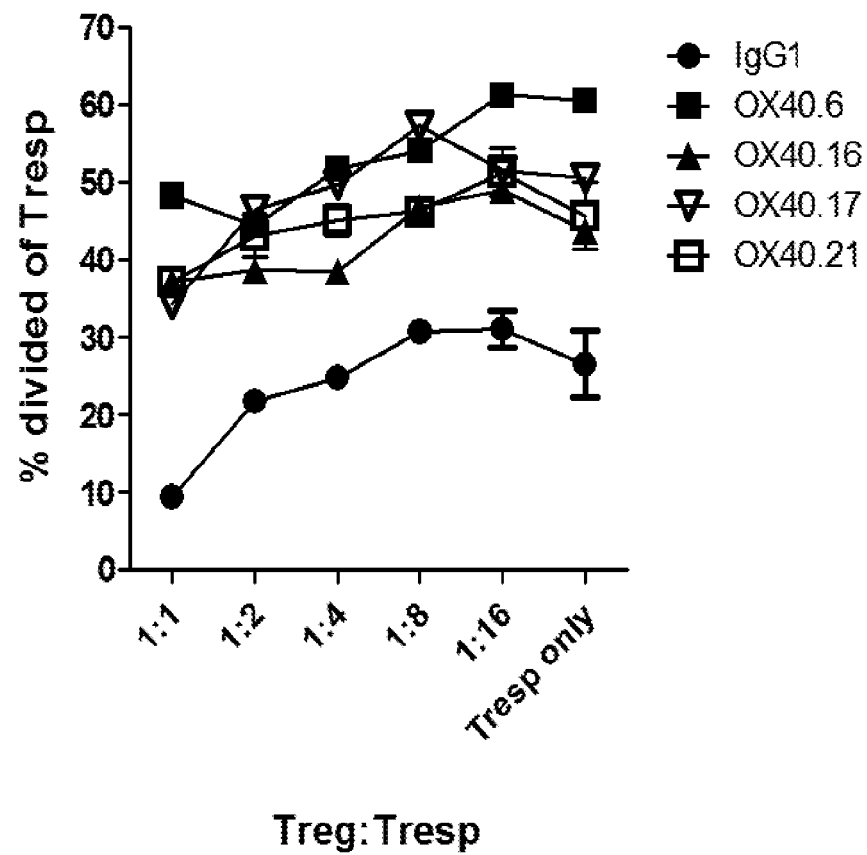


Figure 29

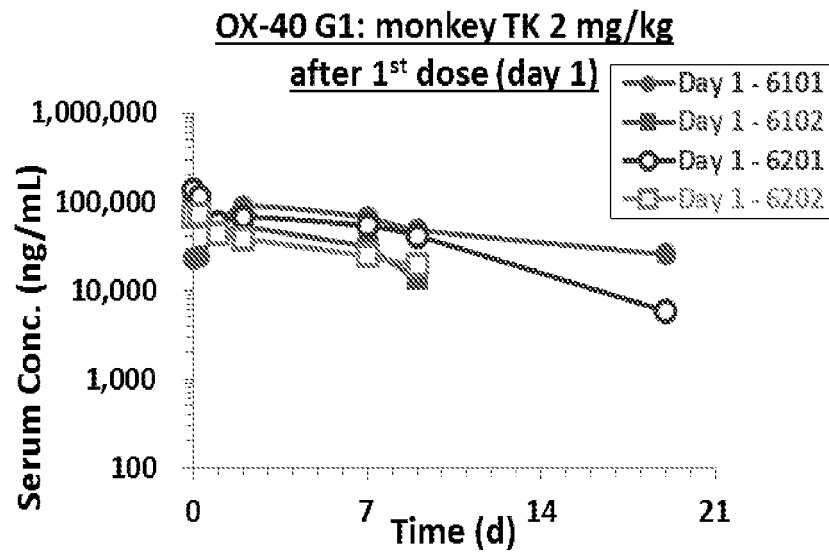


Figure 30A

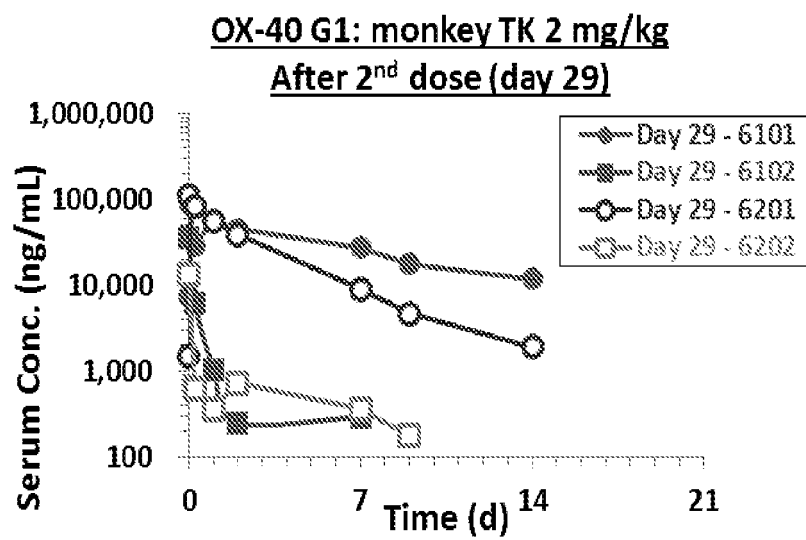


Figure 30B

Percentage Antigenicity Split by Donor

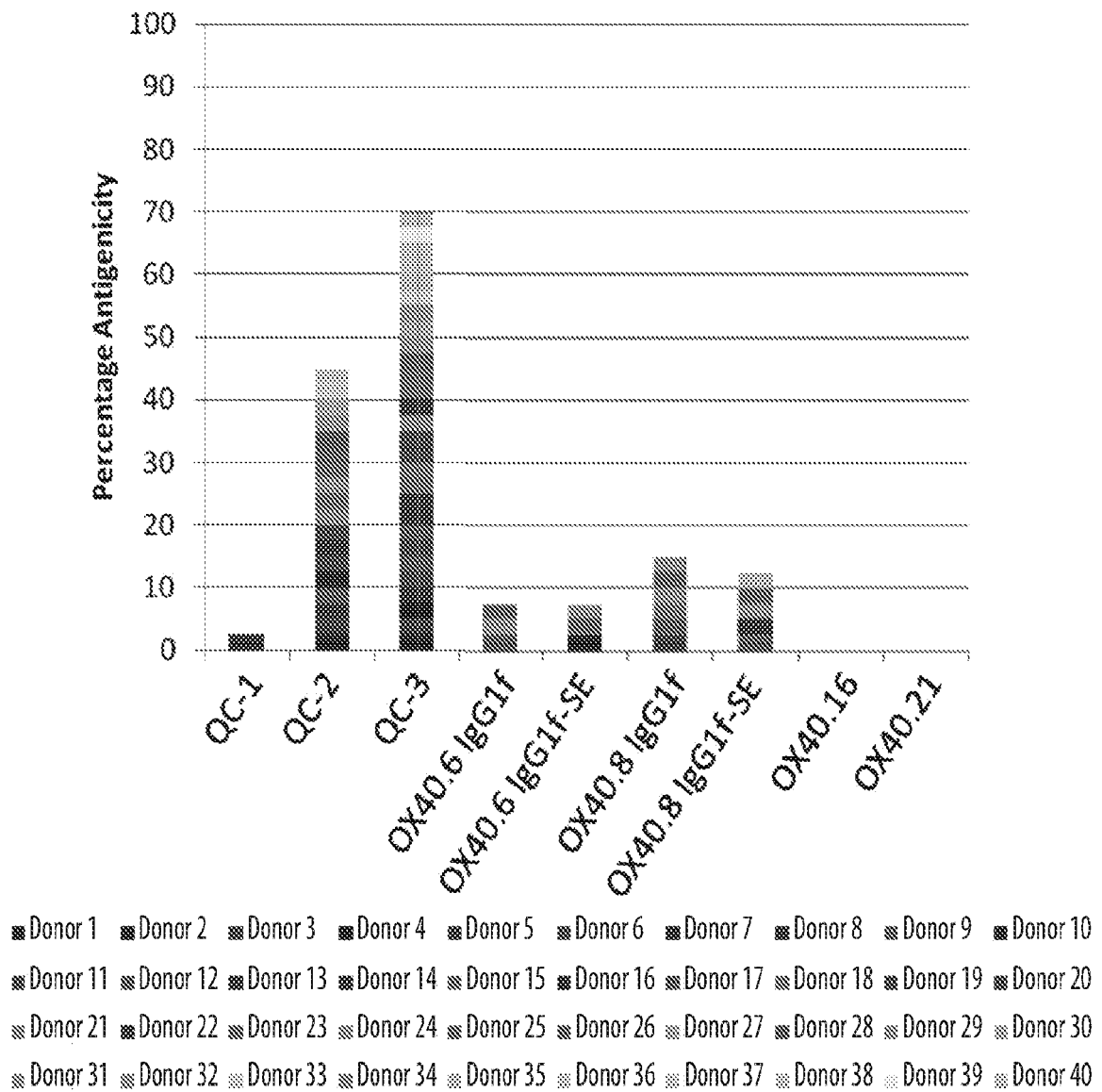


Figure 31

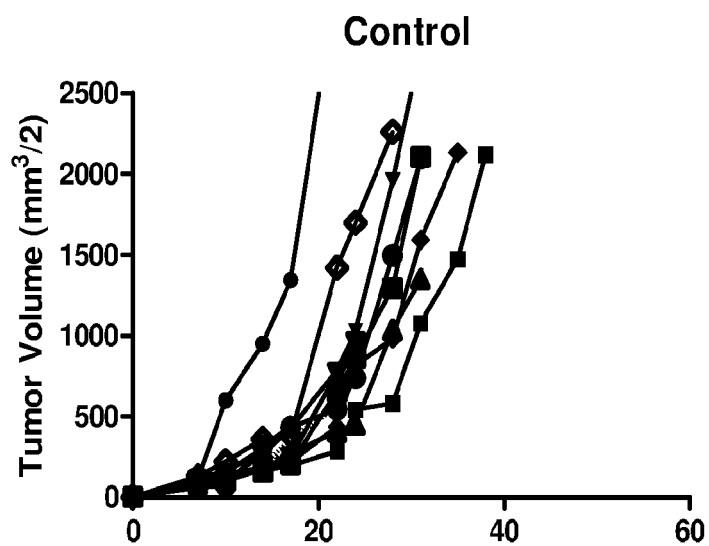


Figure 32A

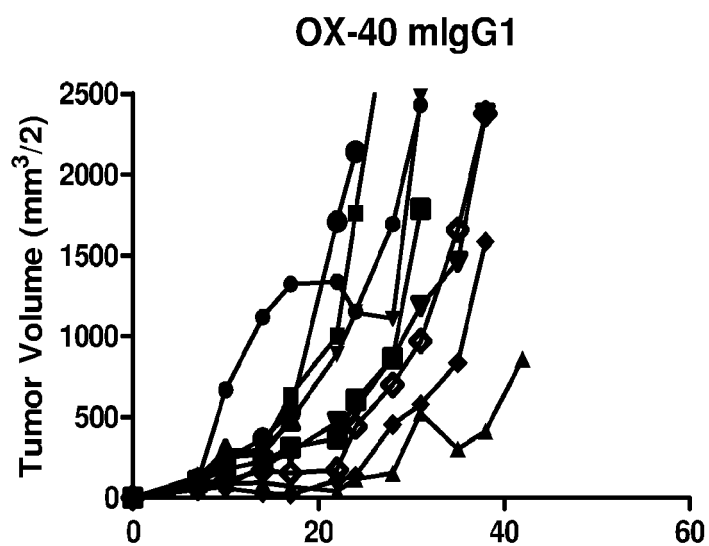


Figure 32B

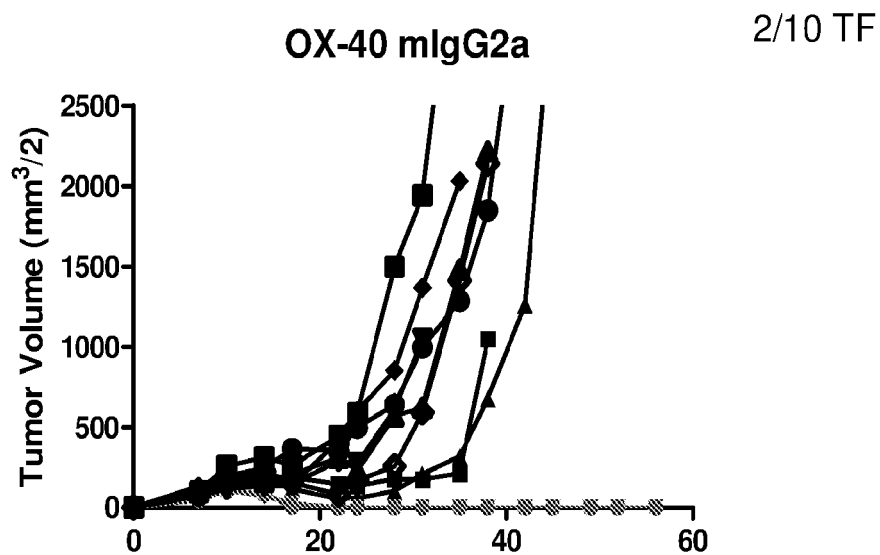


Figure 32C

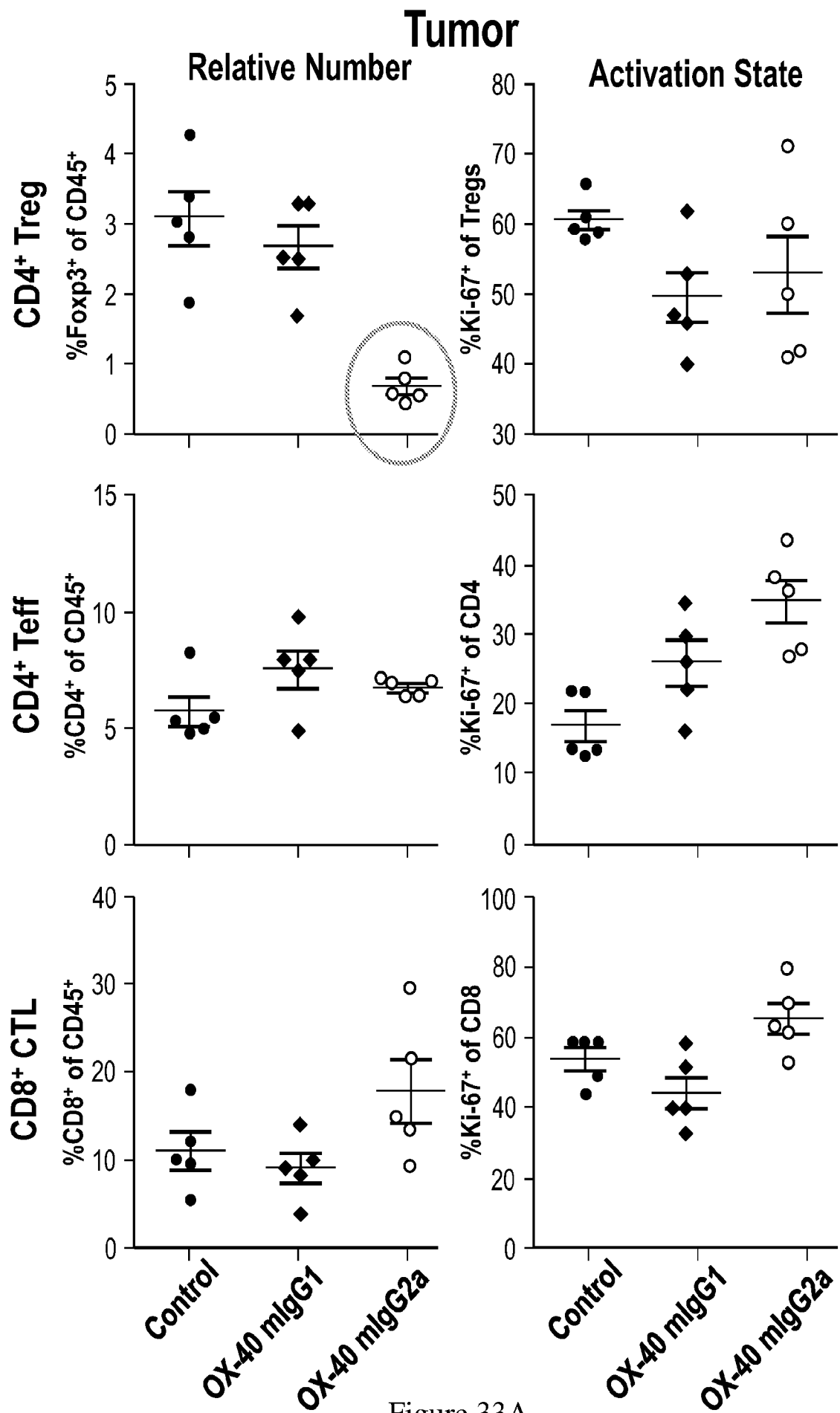


Figure 33A

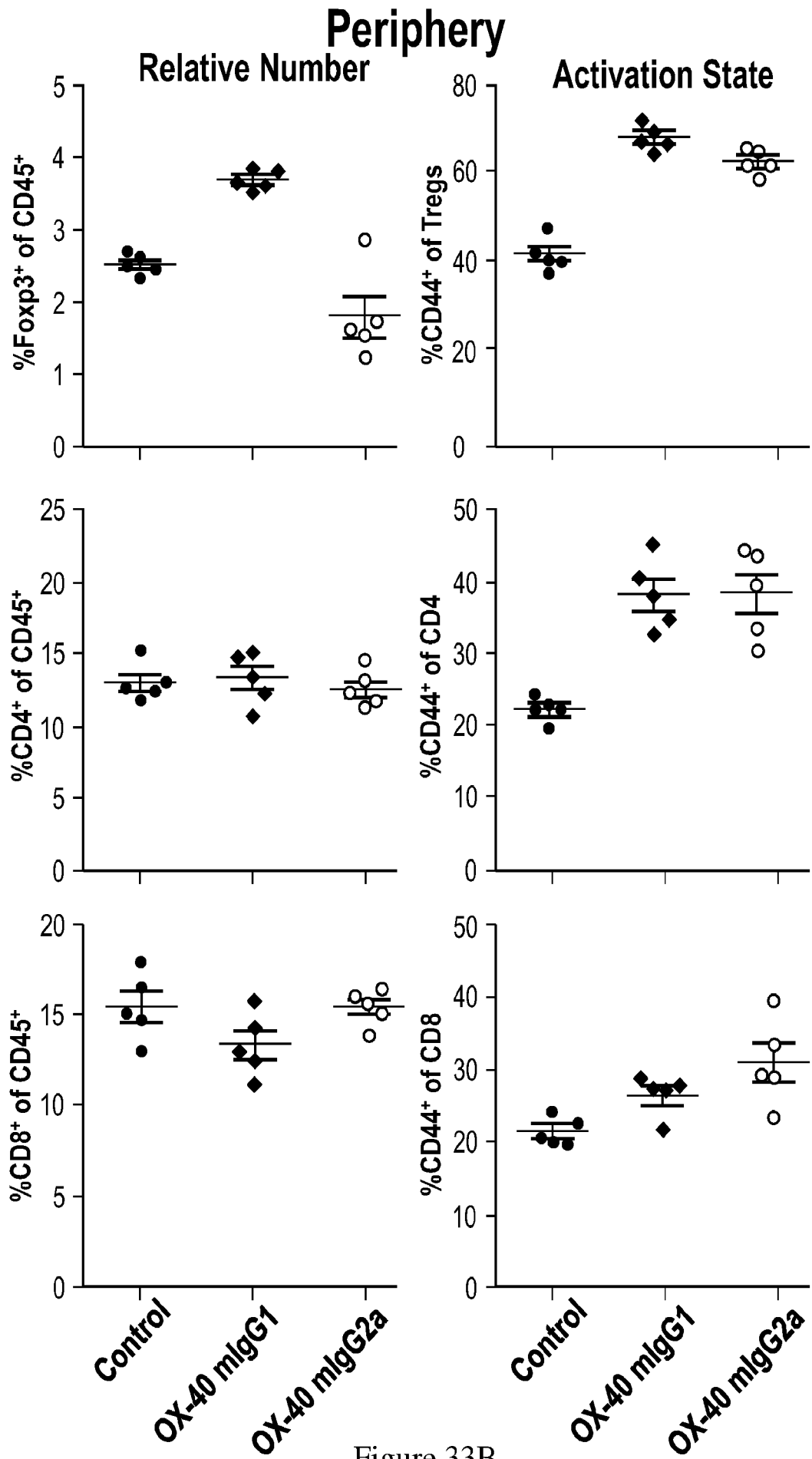


Figure 33B

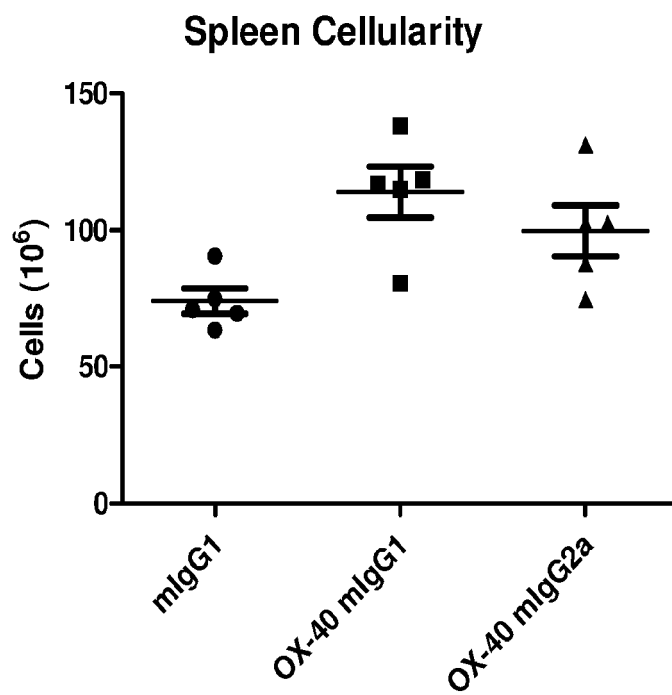


Figure 33C

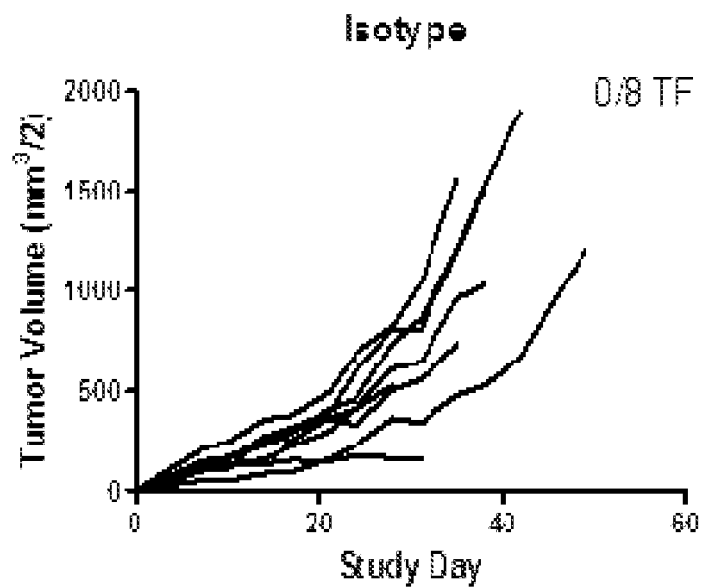


Figure 34A

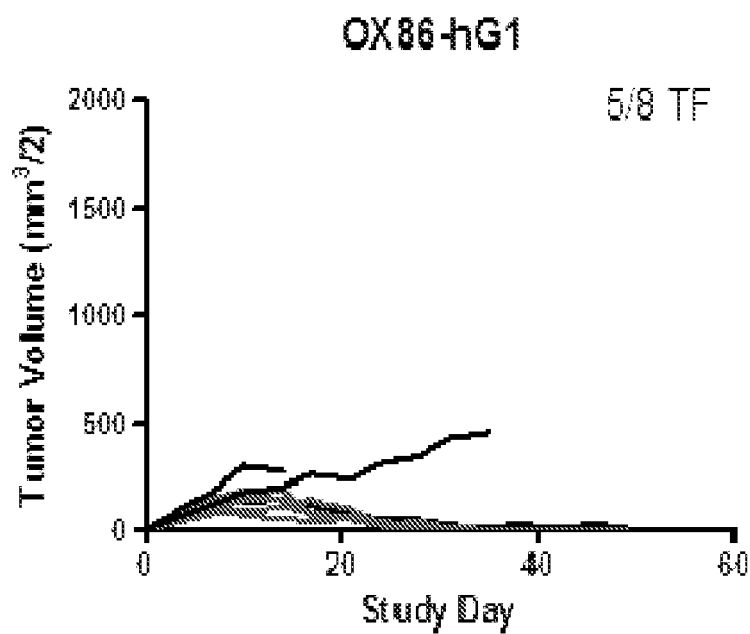


Figure 34B

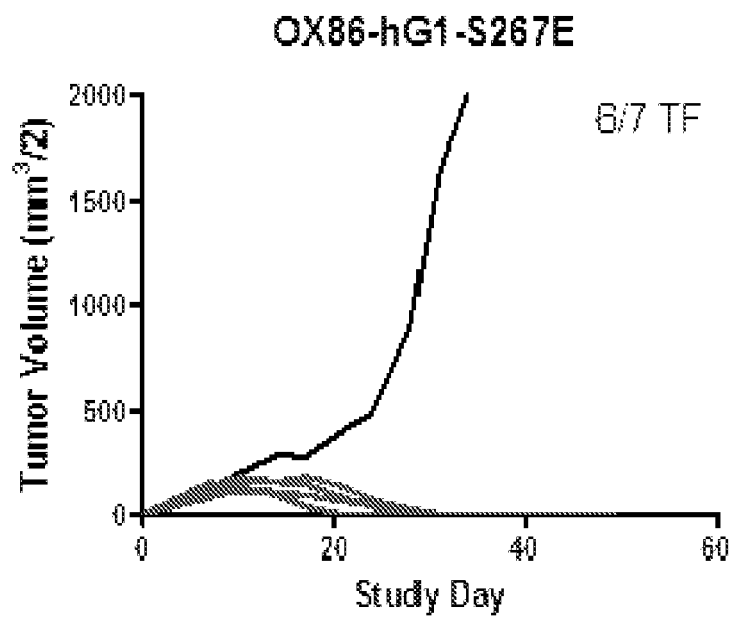


Figure 34C

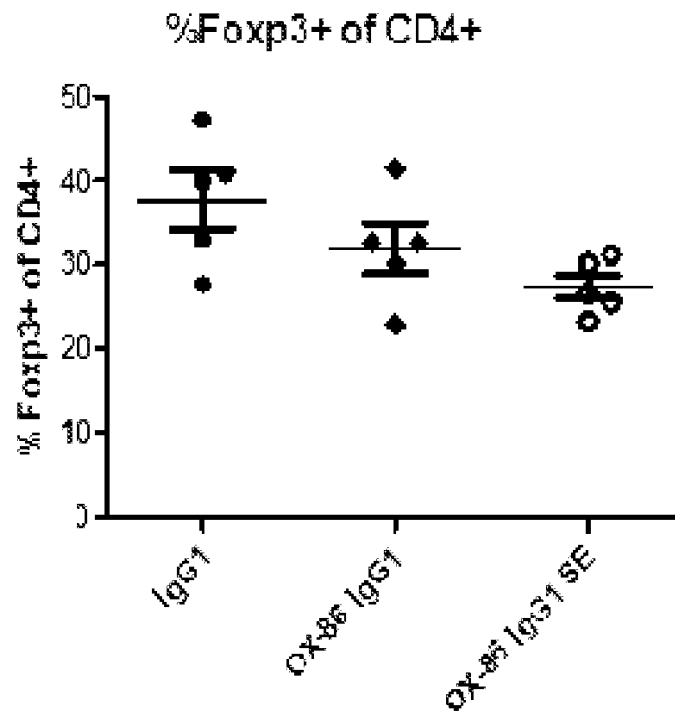


Figure 35A

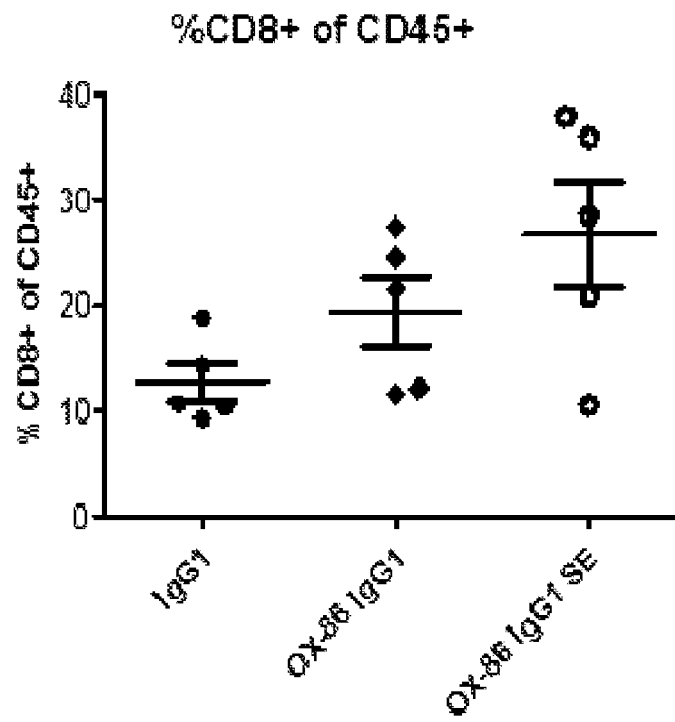


Figure 35B

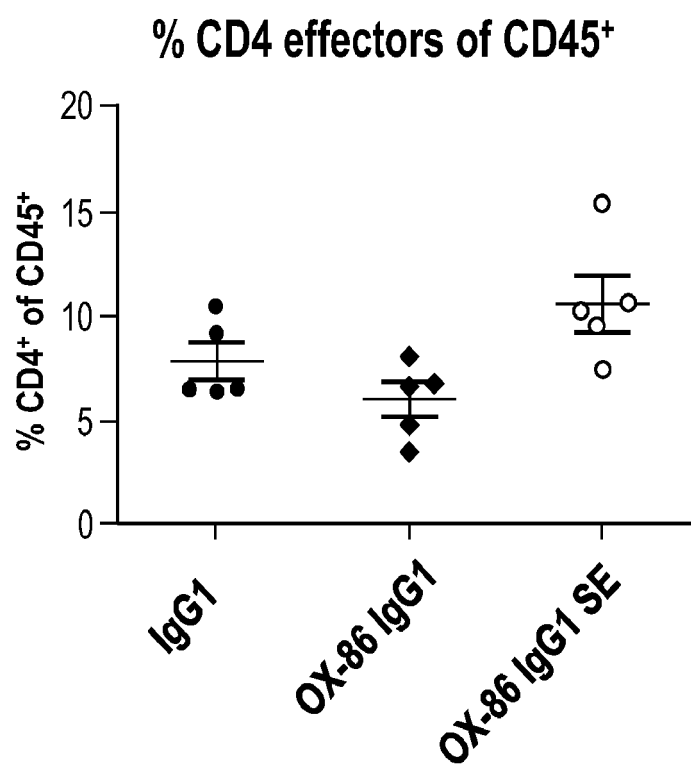


Figure 35C

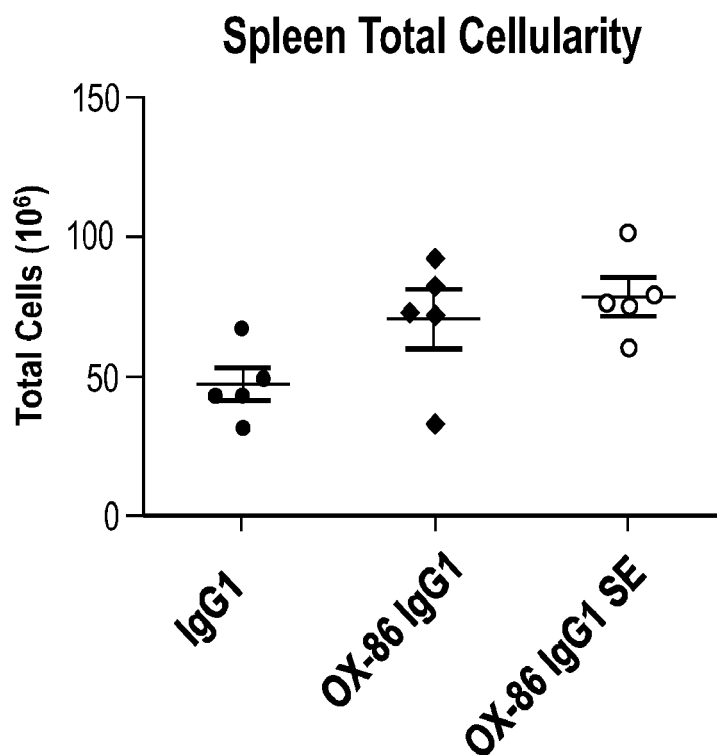


Figure 35D

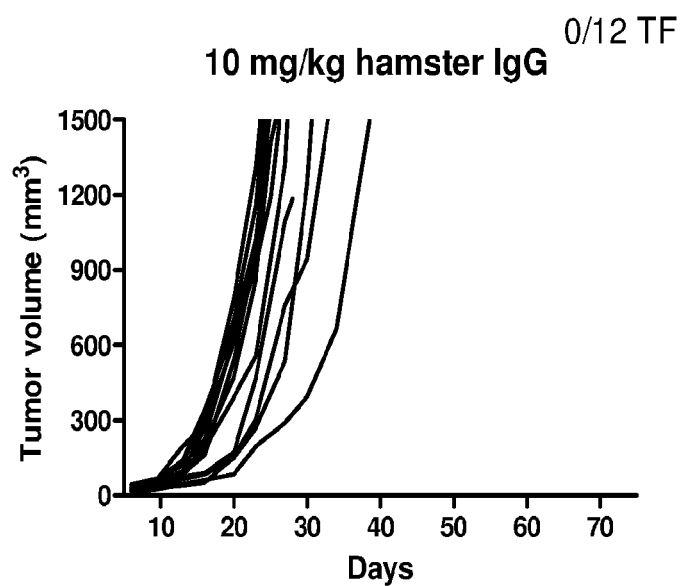


Figure 36A

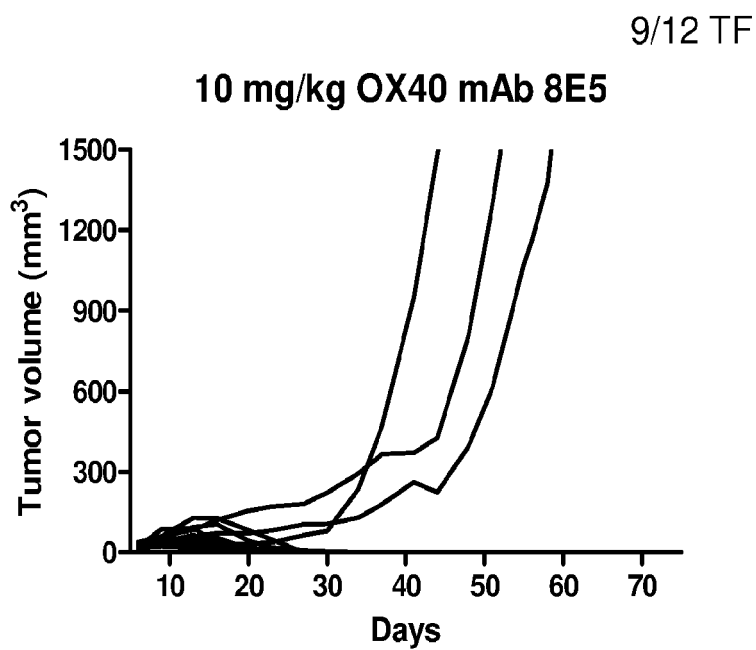


Figure 36B

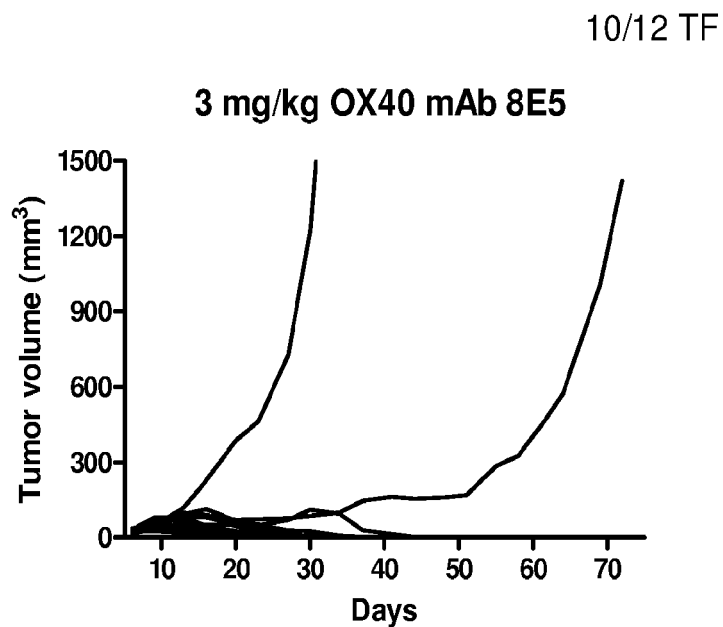


Figure 36C

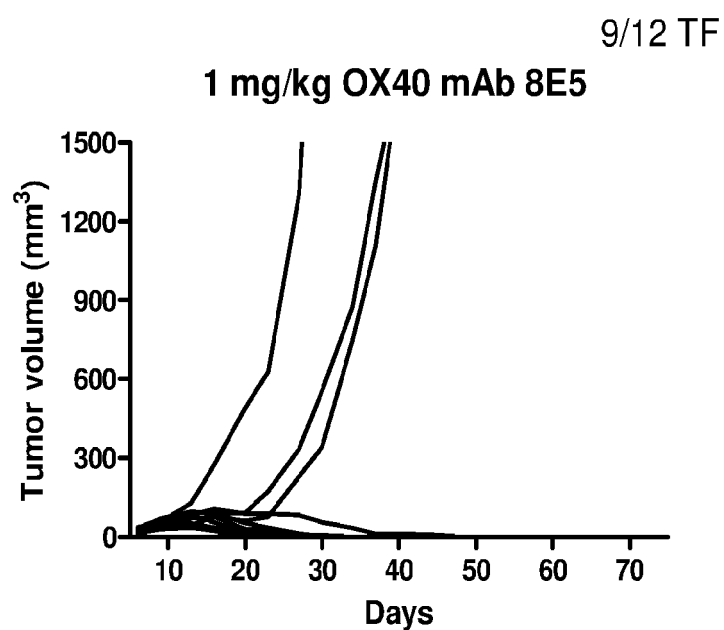


Figure 36D

10/12 TF

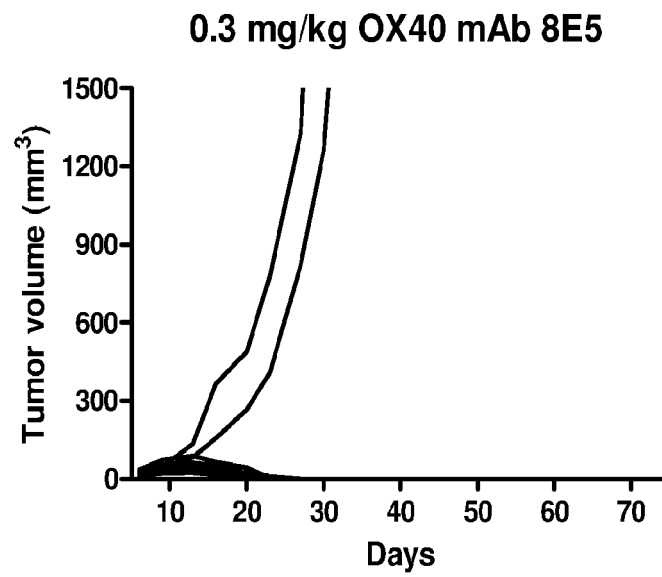


Figure 36E

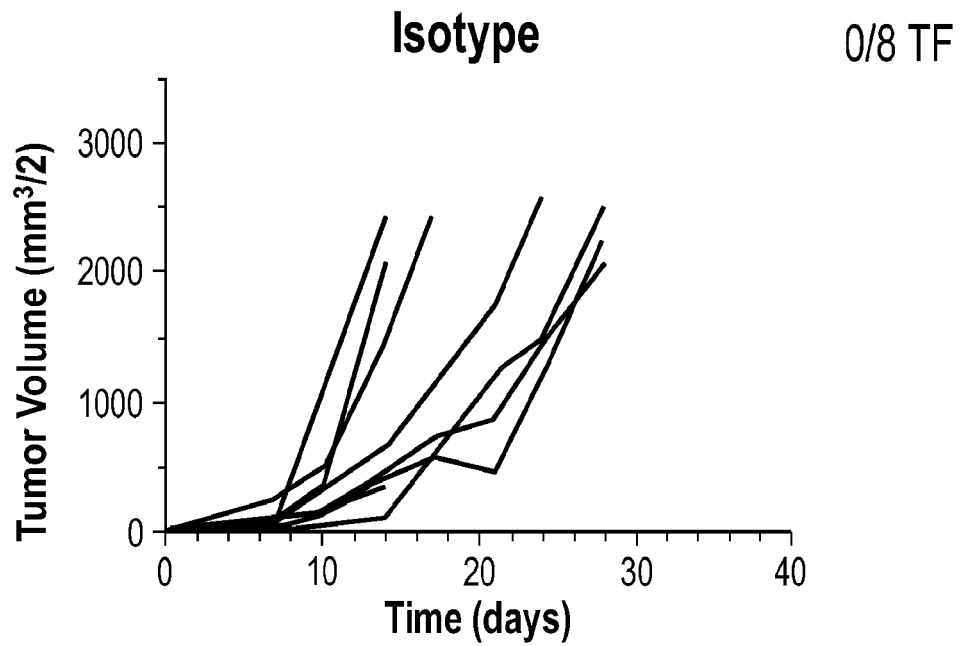


Figure 37A

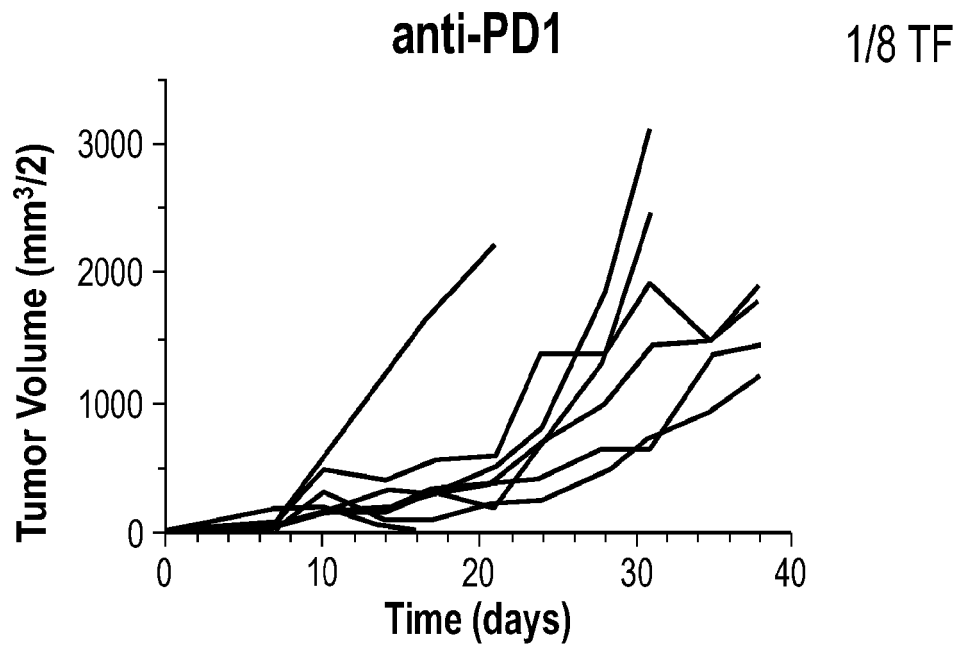


Figure 37B

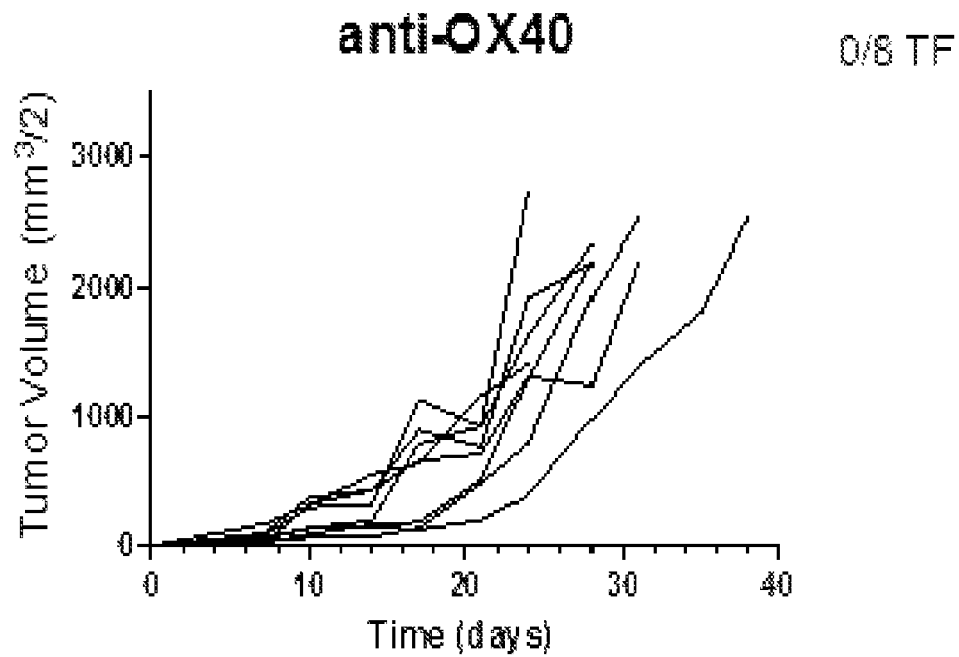


Figure 37C

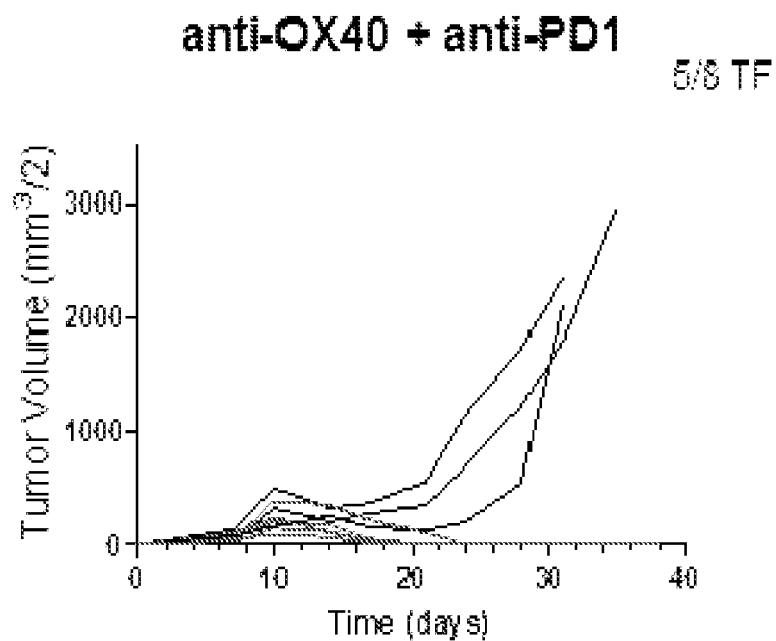


Figure 37D

KLH Ex vivo T cell response, Day 22

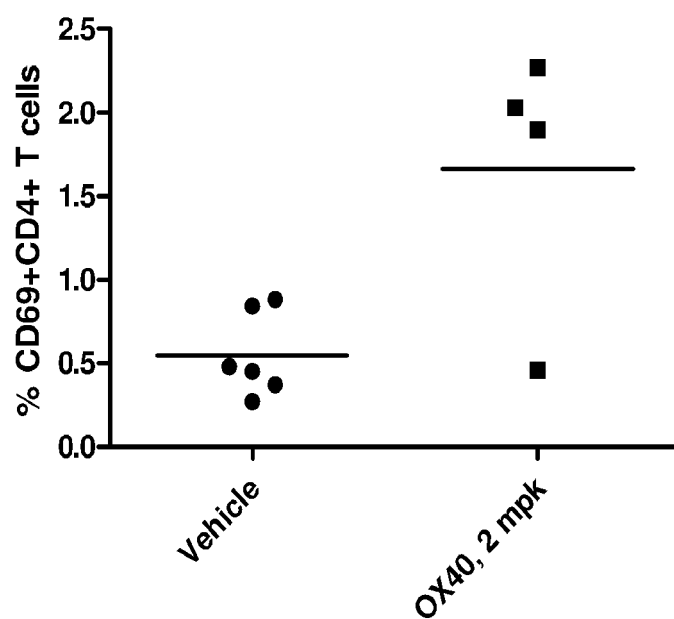


Figure 38A

KLH Ex vivo T cell response, Day 41

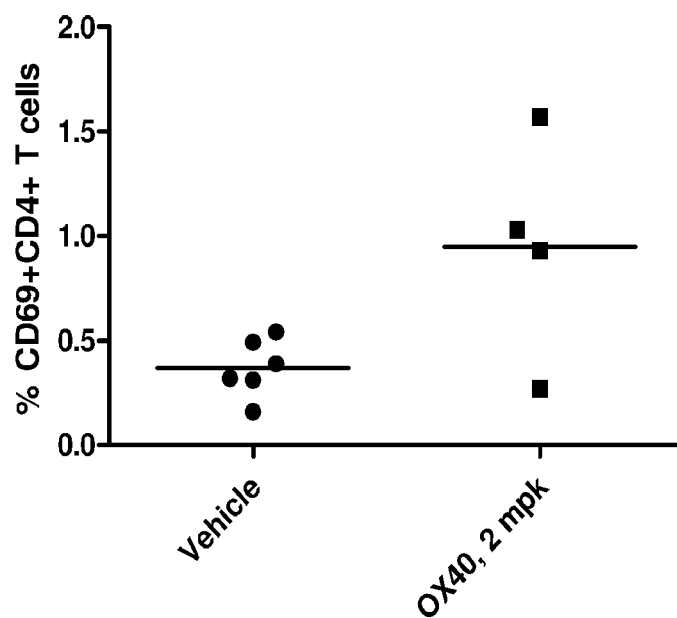


Figure 38B

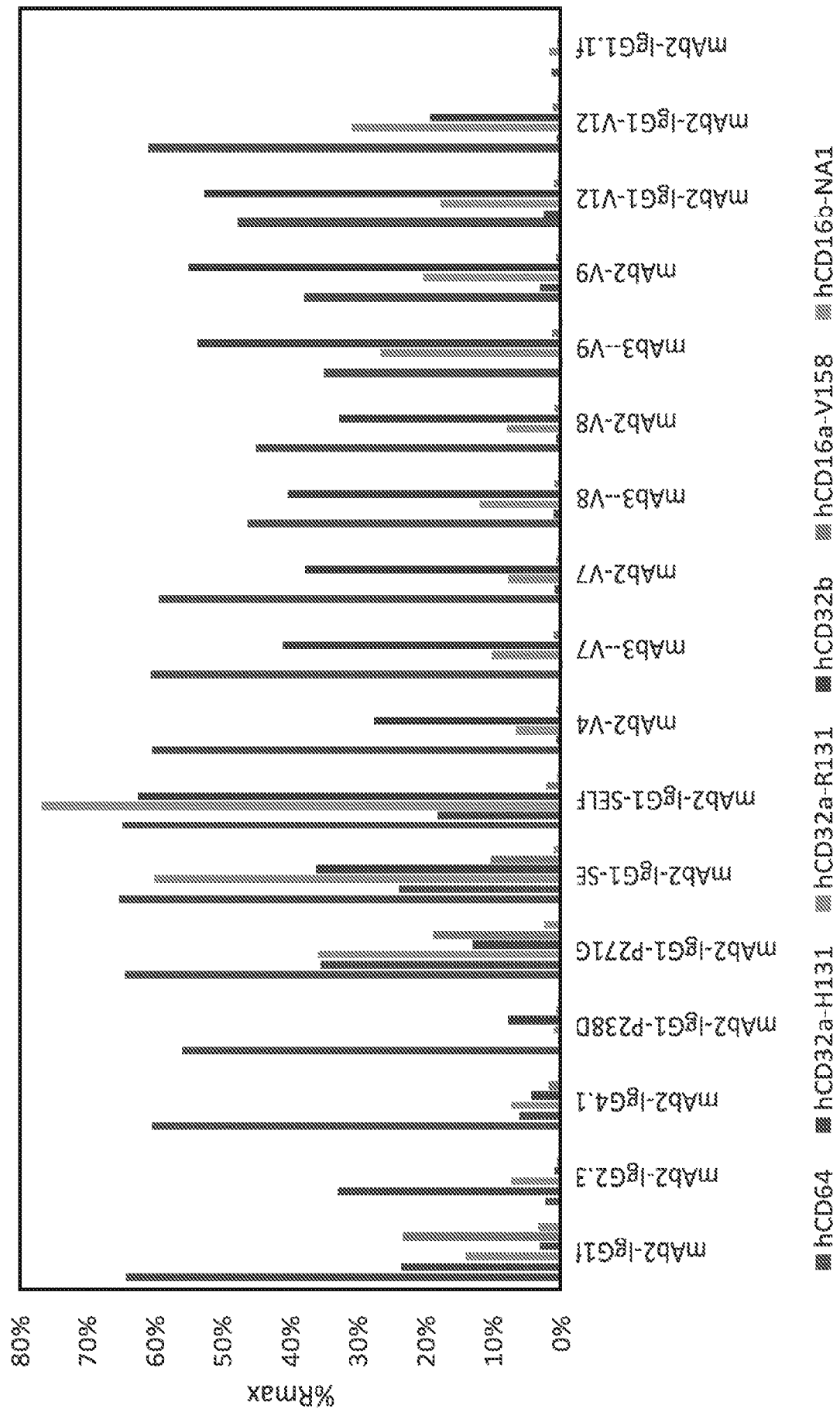


Figure 39

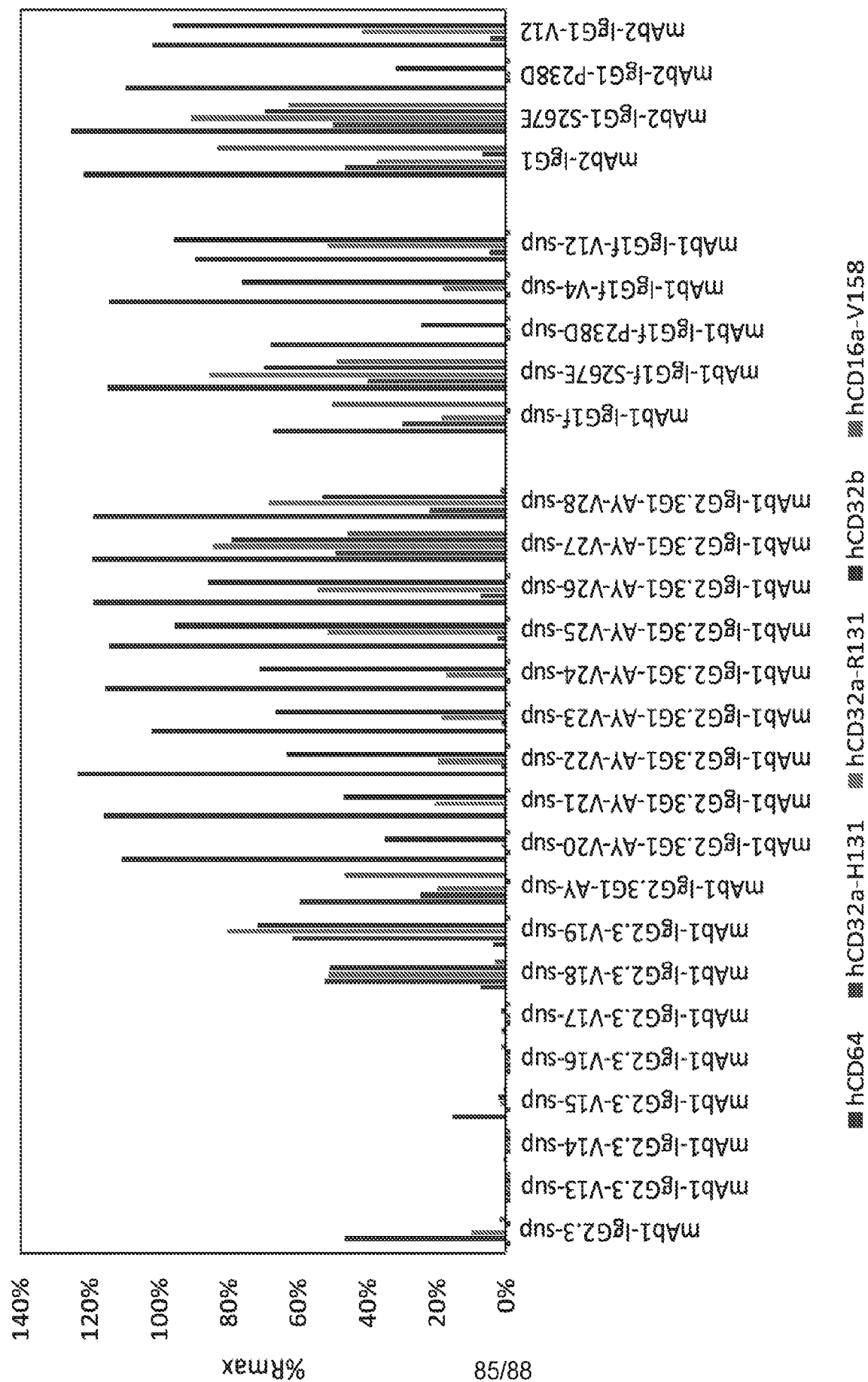


Figure 40

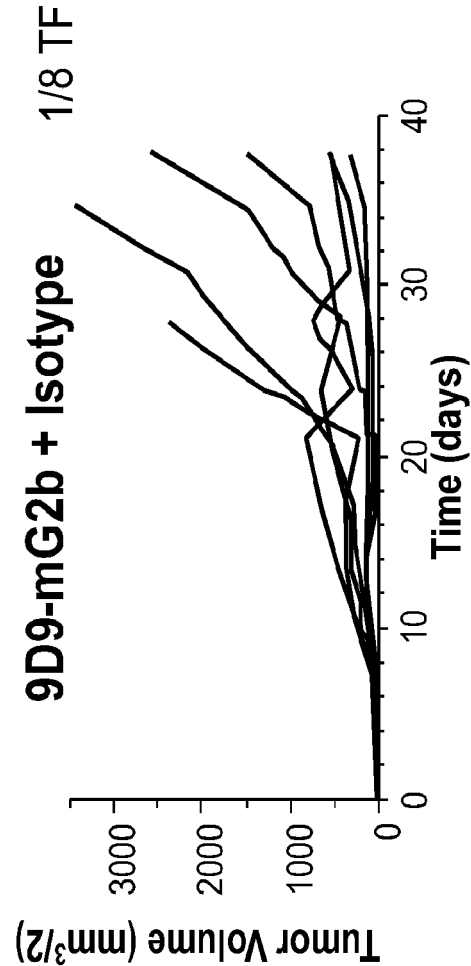


Figure 41B

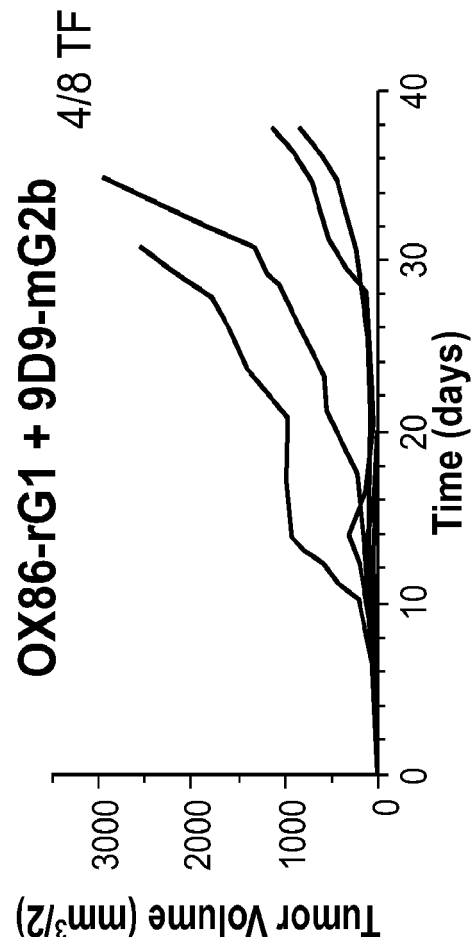


Figure 41D

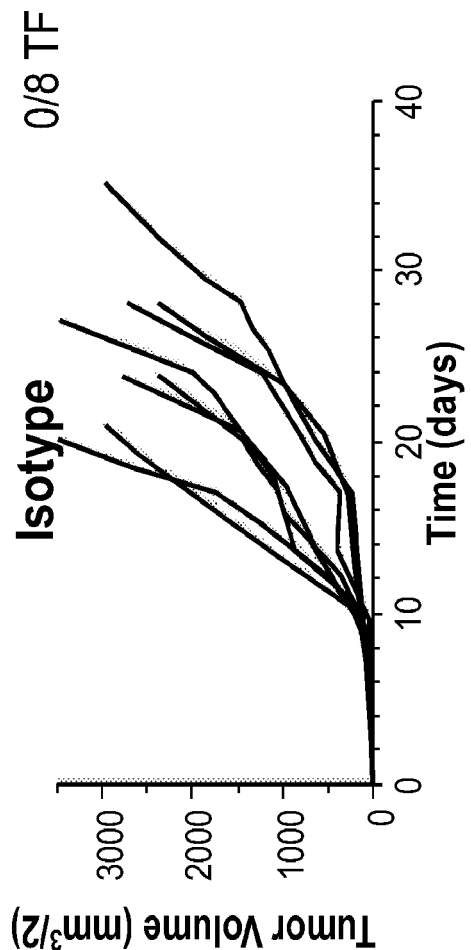


Figure 41A

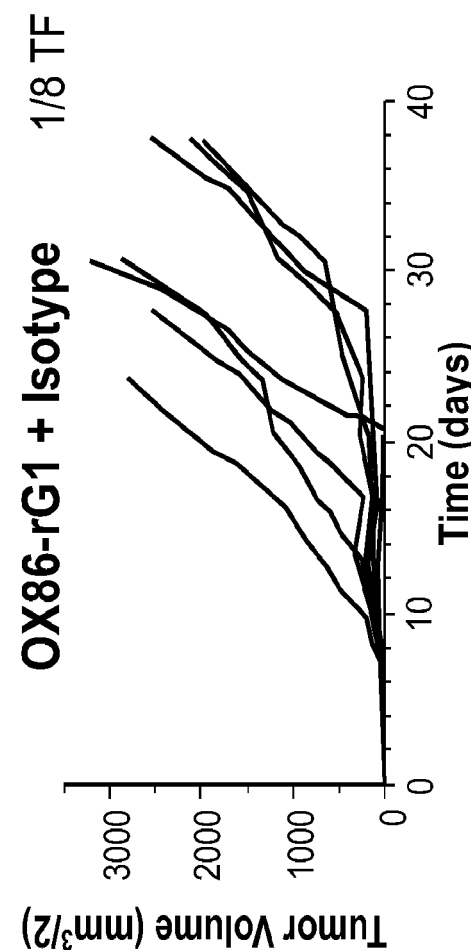


Figure 41C

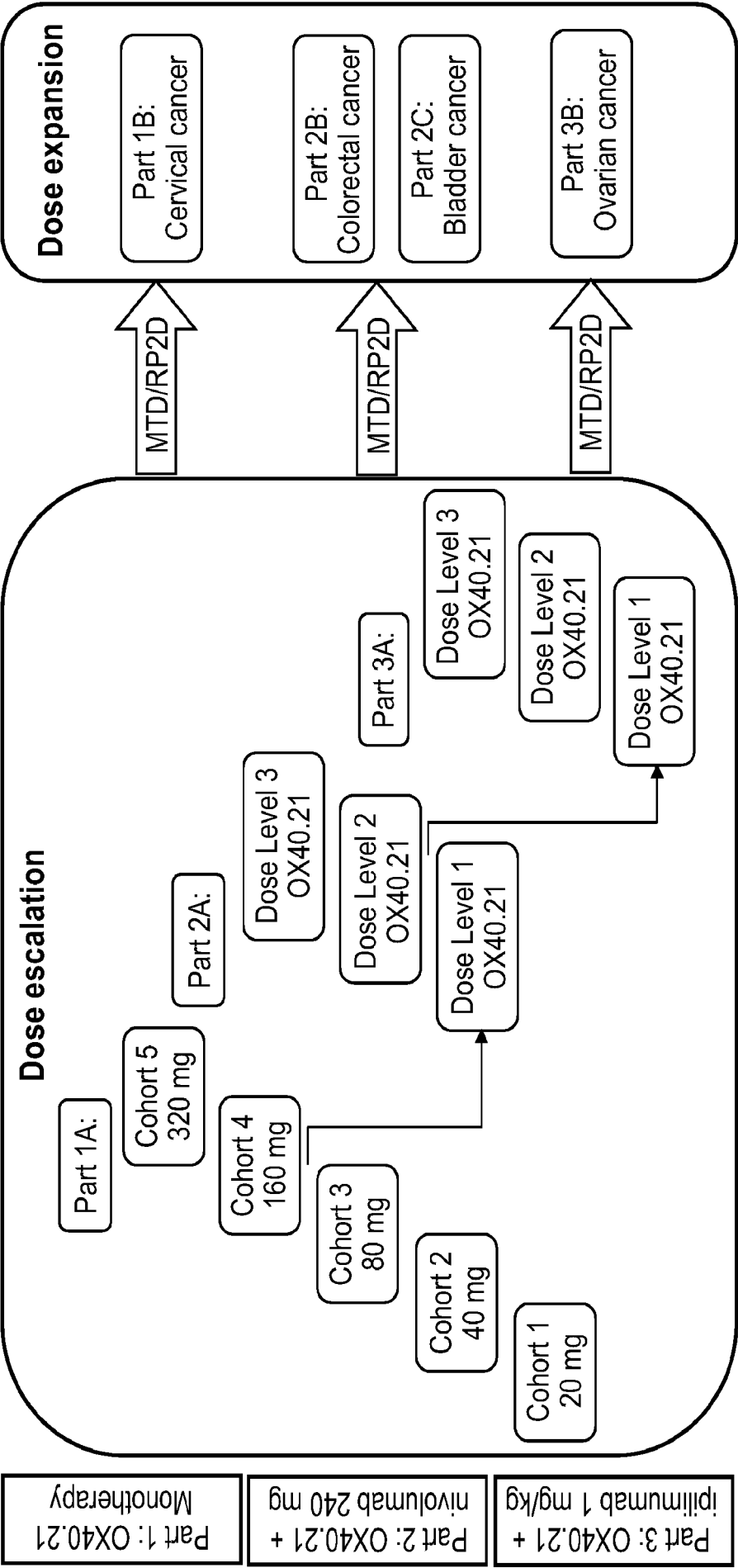


Figure 42

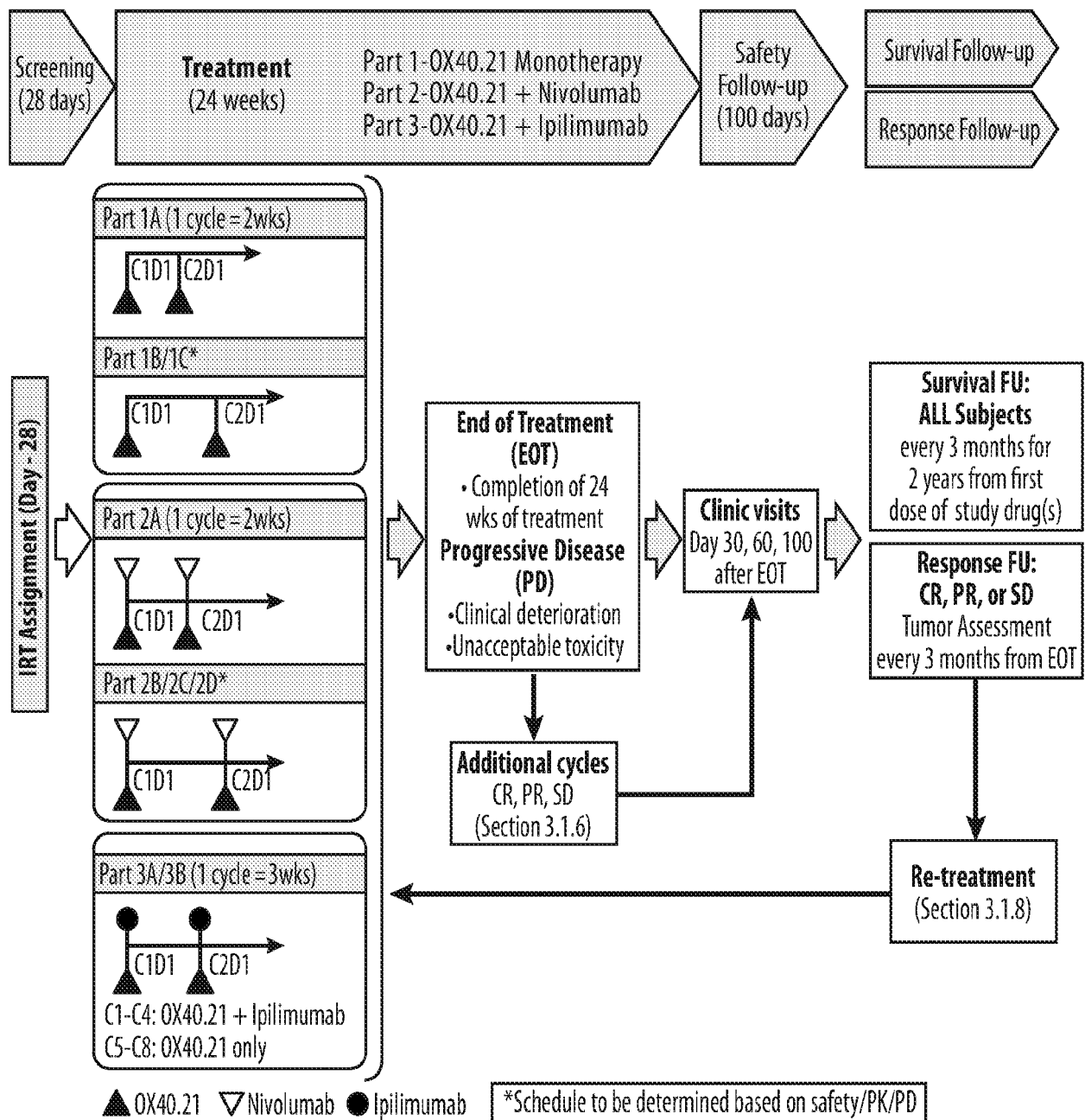


Figure 43