Figure 1

a) CD74v1 (296 aa; SEQ ID NO:1)

```
  1 mhrrrsrscr edqkpvmddq rdlisnneql pmlgrrpgap eskcsrgaly
 51 tgfsilvtll lagqattayf lyqqqgrldk ltvtsqnlql enlrmklpkp
101 pkpvskmrma tpllmqalpm galpqggpmqn atkygnmted hvmhllqnad
151 plkvypplkg sfpenlrhlk ntmetidwkv feswmhhwll femsrhsleq
201 kptdappkvl tkcqeevshi pavhpgsfrp kcdengnylp lqcygsigyc
251 wcvfpngtev pntrsrghhn csesleledp ssglgvtkqd lgpvpm
```

b) CD74v2 (232 aa; SEQ ID NO:2))

```
  1 mhrrrsrscr edqkpvmddq rdlisnneql pmlgrrpgap eskcsrgaly
 51 tgfsilvtll lagqattayf lyqqqgrldk ltvtsqnlql enlrmklpkp
101 pkpvskmrma tpllmqalpm galpqggpmqn atkygnmted hvmhllqnad
151 plkvypplkg sfpenlrhlk ntmetidwkv feswmhhwll femsrhsleq
201 kptdappkes leledpssgl gvtkqdlgpv pm
```

c) CD74v1del2-36 (261 aa; SEQ ID NO:3)

```
  1 mpgapeskcs rgalytgfsi lvtlllagqa ttayflyqqq grldkltvts
 51 qnlqlenlrm klpkppkpvs kmrmatpllm qalpmgalpq gpmqnatkyg
101 nmtedhvmhl lqnadplkvy pplkgsfpen lrhlkntmet idwkvfeswm
151 hhwllfemsr hsleqkptda ppkvltkcqe evshipavhp gsfrpkcden
201 gnylplqcyg sigycwcvfp ngtevpntrs rghhncsesl eledpssglg
251 vtkqdlgpvp m
```

d) CD74v2del2-36 (197 aa; SEQ D NO:4)

```
  1 mpgapeskcs rgalytgfsi lvtlllagqa ttayflyqqq grldkltvts
 51 qnlqlenlrm klpkppkpvs kmrmatpllm qalpmgalpq gpmqnatkyg
101 nmtedhvmhl lqnadplkvy pplkgsfpen lrhlkntmet idwkvfeswm
151 hhwllfemsr hsleqkptda ppkesleled pssglgvtkq dlgpvpm
```

e) HisCD74v1 (230 aa; SEQ ID NO:5)

```
  1 hhhhhhqqqg rldkltvtsq nlqlenlrmk lpkppkpvsk mrmatpllmq
 51 alpmgalpqg pmqnatkygn mtedhvmhll qnadplkvyp plkgsfpenl
101 rhlkntmeti dwkvfeswmh hwllfemsrh sleqkptdap pkvltkcqee
151 vshipavhpg sfrpkcdeng nylplqcygs igycwcvfpn gtevpntrsr
201 ghhncsesle ledpssglgv tkqdlgpvpm
```

f) HisCD74v2 (166 aa; SEQ ID NO:6)

```
  1 hhhhhhqqqg rldkltvtsq nlqlenlrmk lpkppkpvsk mrmatpllmq
 51 alpmgalpqg pmqnatkygn mtedhvmhll qnadplkvyp plkgsfpenl
101 rhlkntmeti dwkvfeswmh hwllfemsrh sleqkptdap pkesleledp
151 ssglgvtkqd lgpvpm
```

Figure 2

a) V_H:

```
                        |--CDR1--|              |--CDR2--|                                  |------CDR3-------|
QVQLVESGGGVVQPGRSLRLSCAASGFTFSSYAMHWVRQAPGKGLEWVAVISYDGSNKYYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCASGRYYGSGSYSSYFDYWGQGTLVTVSS VH2013-005 (7)

QVQLVESGGGVVQPGRSLRLSCAASGFTFSSYAMHWVRQAPGKGLEWVAVISYDGSIKYYADSVKGRFTISRDNSKNTLYLQMNSLRVEDTAVFYCARGREITSQNIVILLDYWGQGTLVTVTS VH2013-006 (11)

QVQLVESGGGVVQPGRSLRLSCAASGFTFSSYAMHWVRQAPGKGLEWVAVISYDGSNKYYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCARGREITSQNIVILLDYWGQGTLVTVSS VH2013-008 (15)

QVQLVESGGGVVQPGRSLRLSCAASGFTFSSYGMHWVRQAPDKGLEWVAVIWYDGSNKYYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCARGGTLVRG-AMYGTDVWGQGTTVTVSS VH2013-011 (19)
```

b) V_L:

```
                       |-CDR1-|               CDR2                              |---CDR3--|
DIQMTQSPSSLSASVGDRVTITCRASQGISSWLAWFQQKPEKAPKSLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQYNSYPLTFGGGTKVEIK VL2013-005 (23)

DIQMTQSPSSLSASVGDRVTITCRASQGISSWLAWYQQKPEKAPKSLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQYNSYPLTFGGGTKVEIK VL2013-006 (26)

DIQMTQSPSSLSASVGDRVTITCRASQGISSWLAWYQQKPEKAPKSLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQYNSYPLTFGGGTKVEIK VL2013-008 (26)

DIQMTQSPSSLSASVGDRVTITCRASQGISSWLAWYQQKPEKAPKSLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQYNSYPLTFGGGTKVEIK VL2013-011 (26)
```

Figure 3

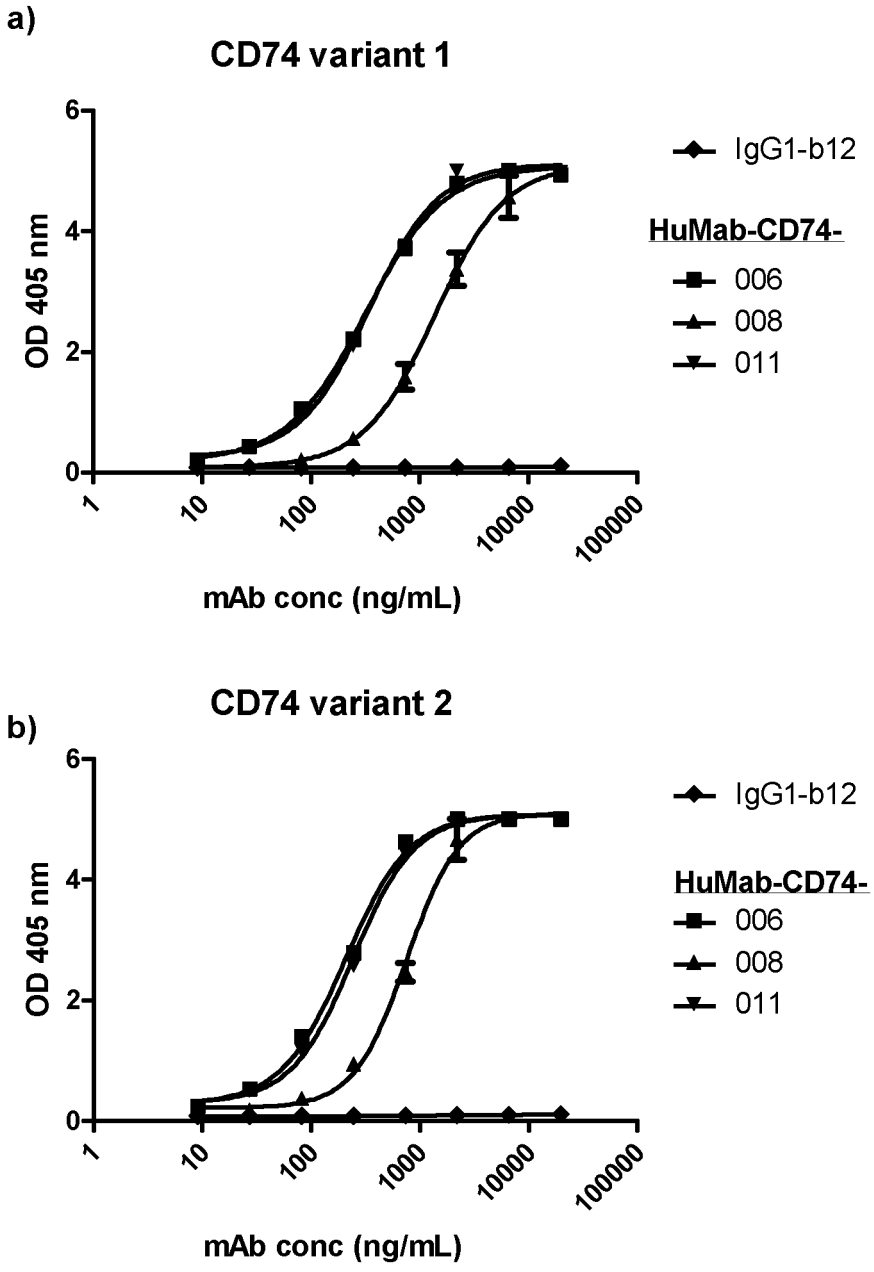

a)
CD74 variant 1
OD 405 nm
mAb conc (ng/mL)
IgG1-b12
HuMab-CD74-
006
008
011
b)
CD74 variant 2
OD 405 nm
mAb conc (ng/mL)
IgG1-b12
HuMab-CD74-
006
008
011

Figure 4

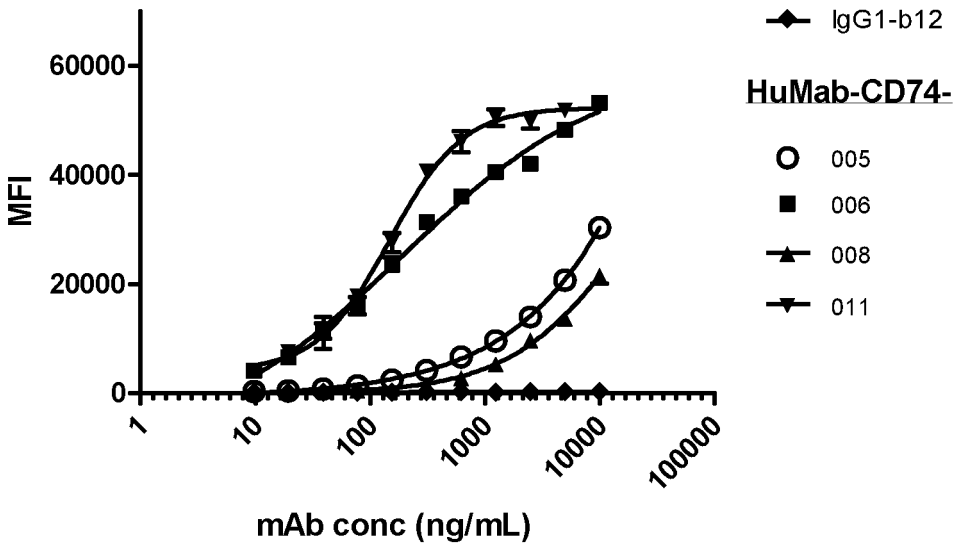

60000
40000
20000
0
MFI
1
10
100
1000
10000
100000
mAb conc (ng/mL)
IgG1-b12
HuMab-CD74-
005
006
008
011

Figure 5

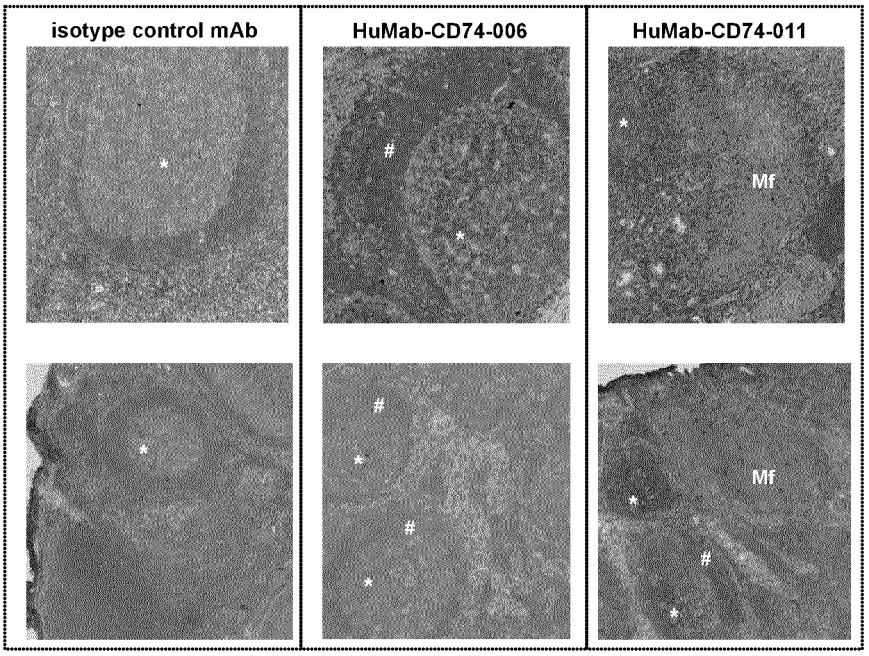


Figure 6

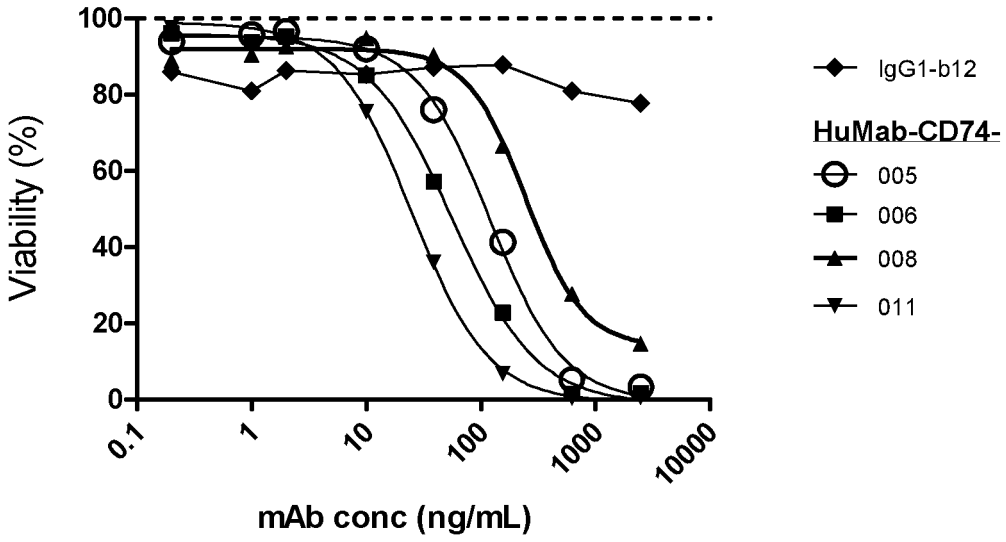
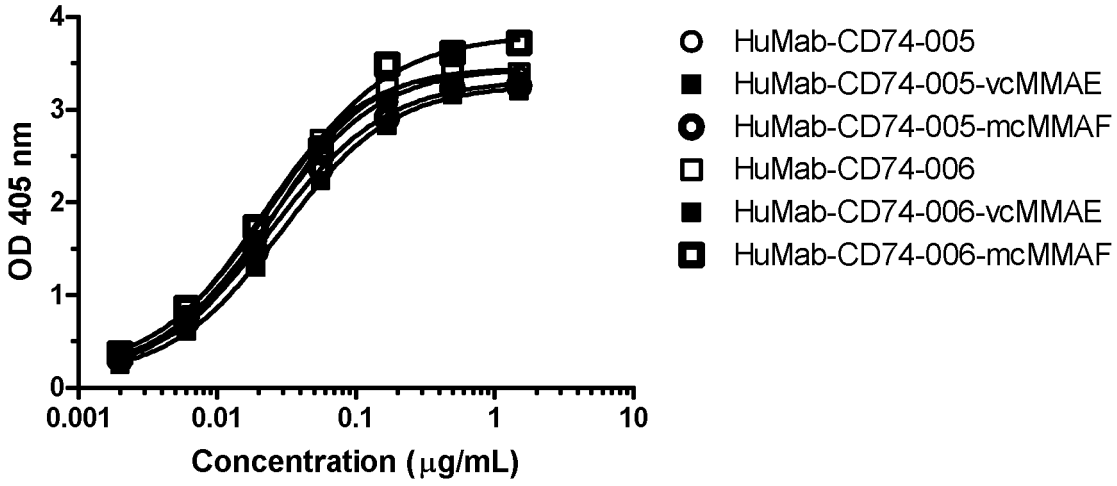

100
80
60
40
20
0
Viability (%)
0.1
1
10
100
1000
10000
mAb conc (ng/mL)
IgG1-b12
HuMab-CD74-
005
006
008
011

Figure 7

A


OD 405 nm
0
1
2
3
4
0.001
0.01
0.1
1
10
Concentration (μg/mL)
HuMab-CD74-005
HuMab-CD74-005-vcMMAE
HuMab-CD74-005-mcMMAF
HuMab-CD74-006
HuMab-CD74-006-vcMMAE
HuMab-CD74-006-mcMMAF

B

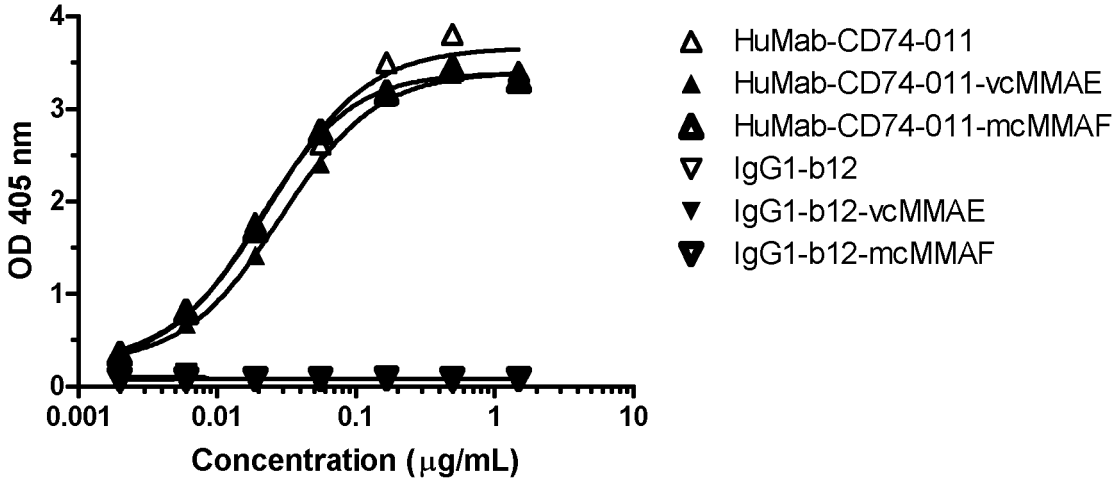
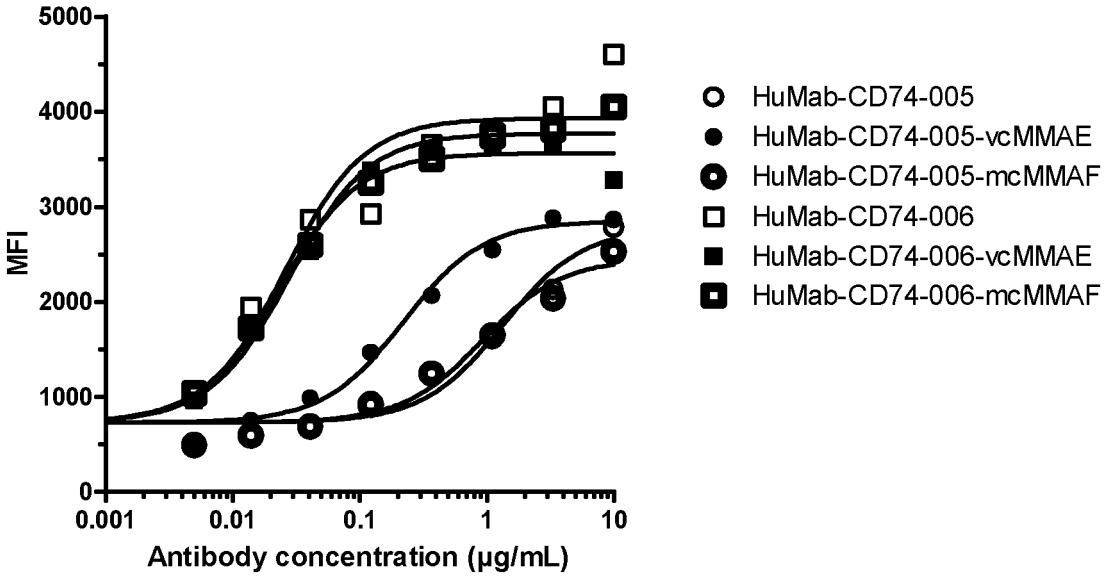

OD 405 nm
0
1
2
3
4
0.001
0.01
0.1
1
10
Concentration (μg/mL)
HuMab-CD74-011
HuMab-CD74-011-vcMMAE
HuMab-CD74-011-mcMMAF
IgG1-b12
IgG1-b12-vcMMAE
IgG1-b12-mcMMAF

Figure 8

A


5000
4000
3000
2000
1000
0
MFI
0.001
0.01
0.1
1
10
Antibody concentration (µg/mL)
HuMab-CD74-005
HuMab-CD74-005-vcMMAE
HuMab-CD74-005-mcMMAF
HuMab-CD74-006
HuMab-CD74-006-vcMMAE
HuMab-CD74-006-mcMMAF

B

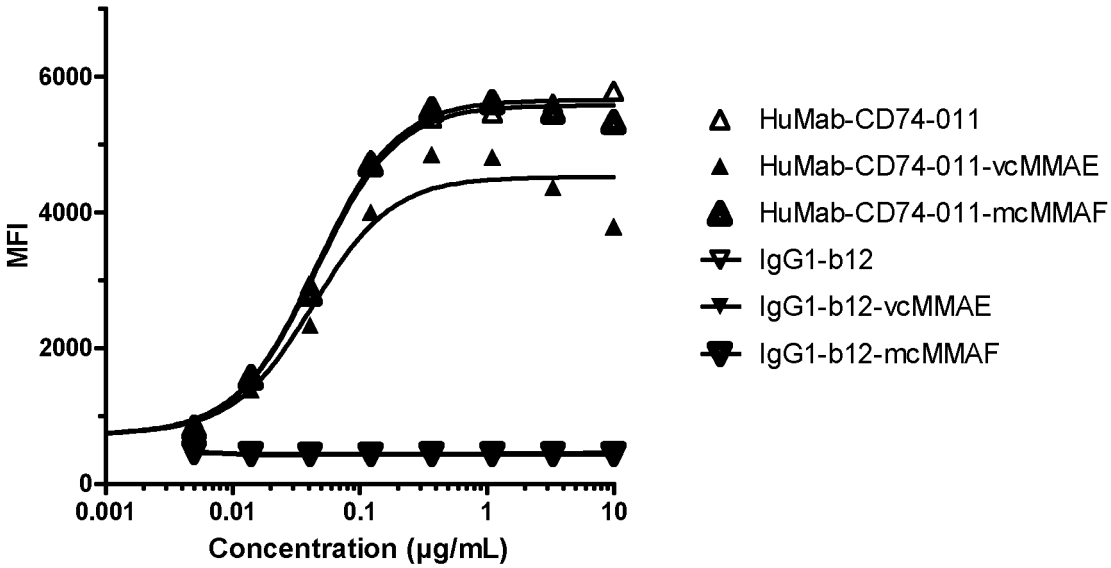

6000
4000
2000
0
MFI
0.001
0.01
0.1
1
10
Concentration (µg/mL)
HuMab-CD74-011
HuMab-CD74-011-vcMMAE
HuMab-CD74-011-mcMMAF
IgG1-b12
IgG1-b12-vcMMAE
IgG1-b12-mcMMAF

Figure 9

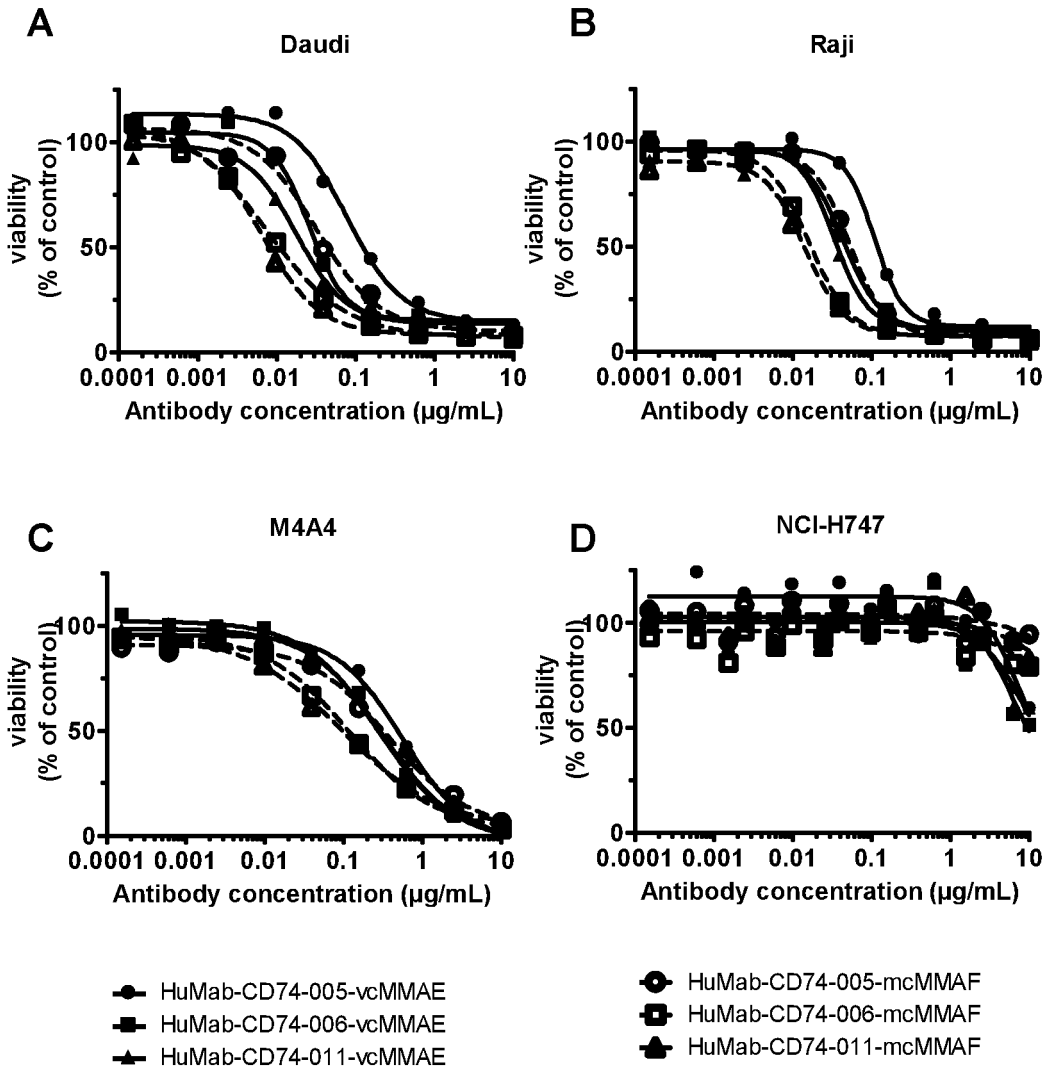

A
Daudi
B
Raji
C
M4A4
D
NCI-H747
viability (% of control)
100
50
0
0.0001 0.001 0.01 0.1 1 10
Antibody concentration (µg/mL)
HuMab-CD74-005-vcMMAE
HuMab-CD74-006-vcMMAE
HuMab-CD74-011-vcMMAE
HuMab-CD74-005-mcMMAF
HuMab-CD74-006-mcMMAF
HuMab-CD74-011-mcMMAF

Figure 10

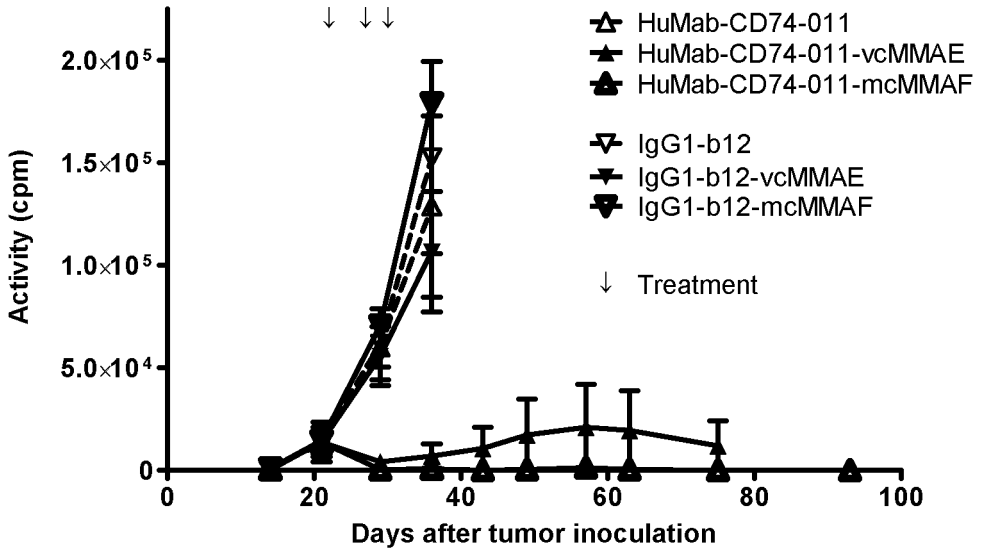


Figure 11

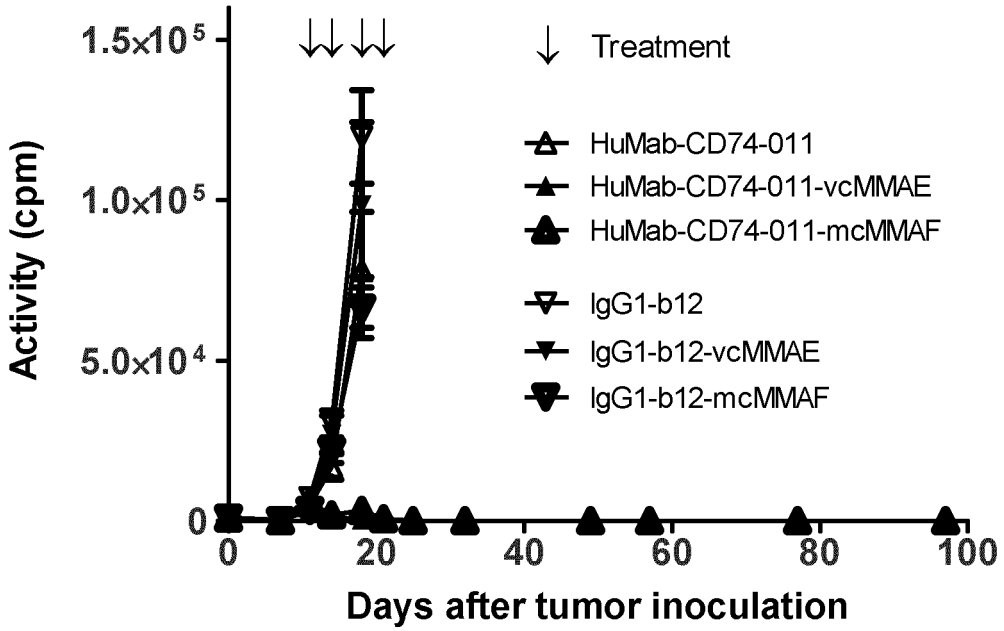


Figure 12

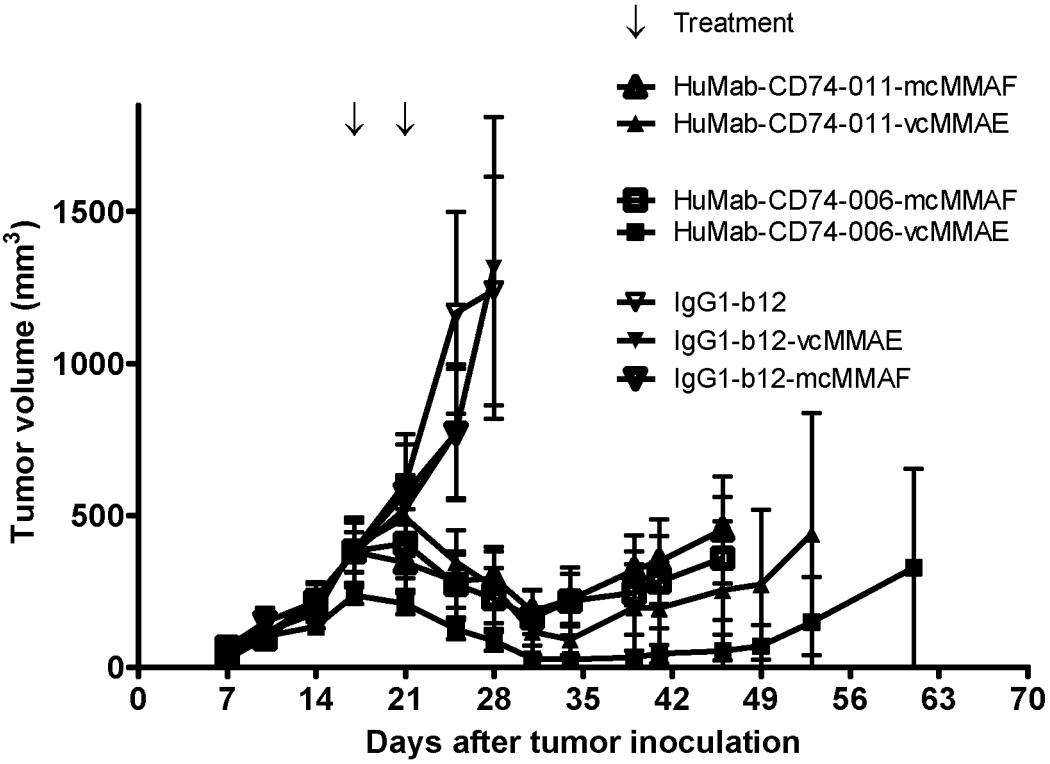


Figure 13

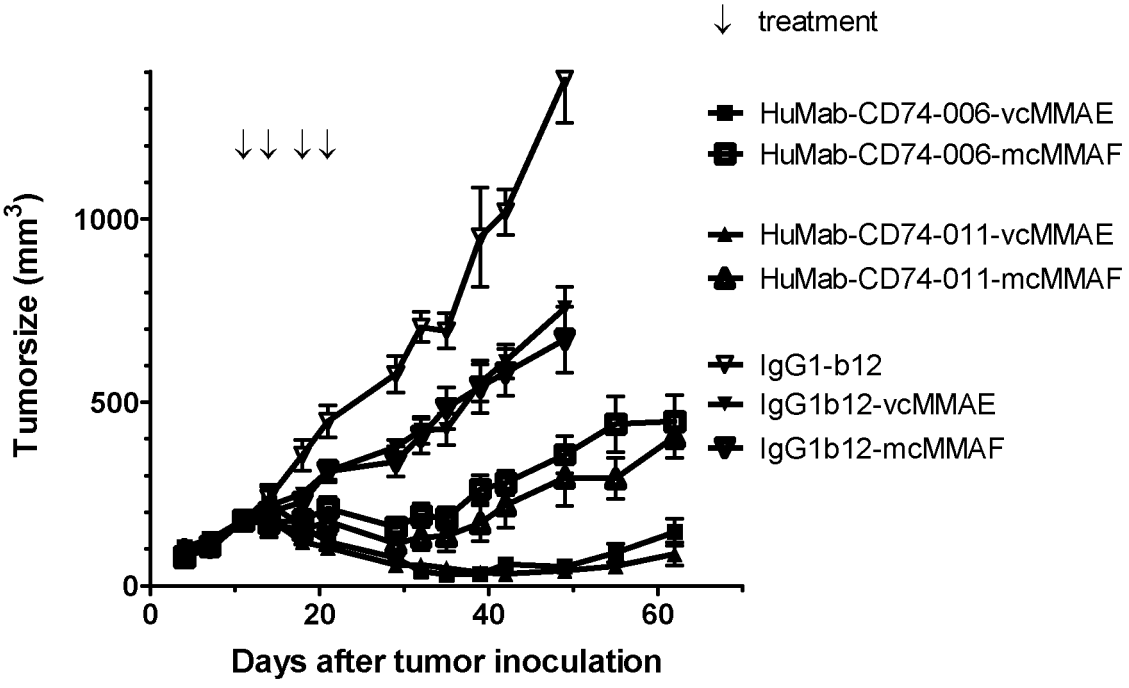


Figure 14

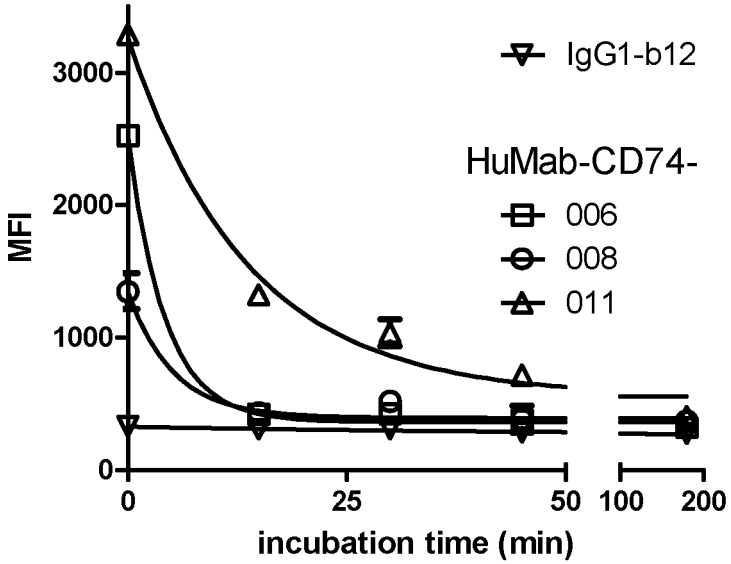


Figure 16

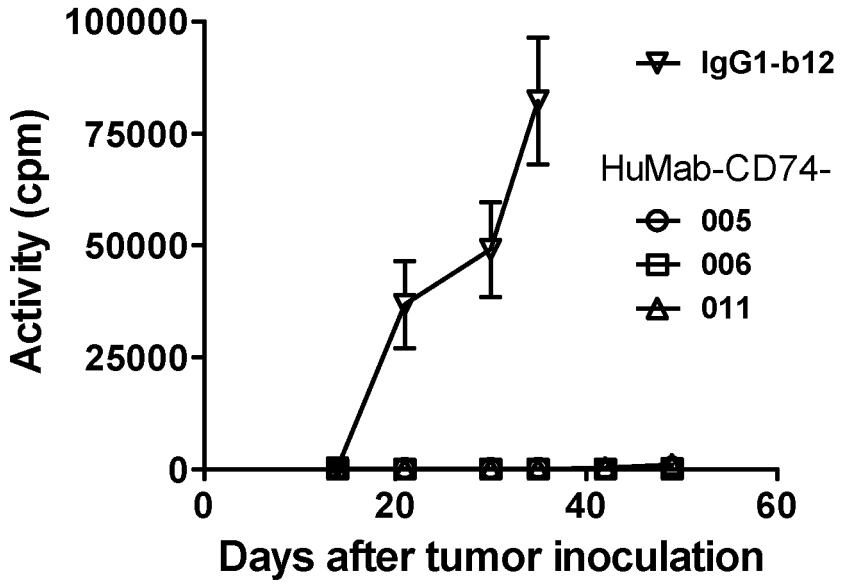
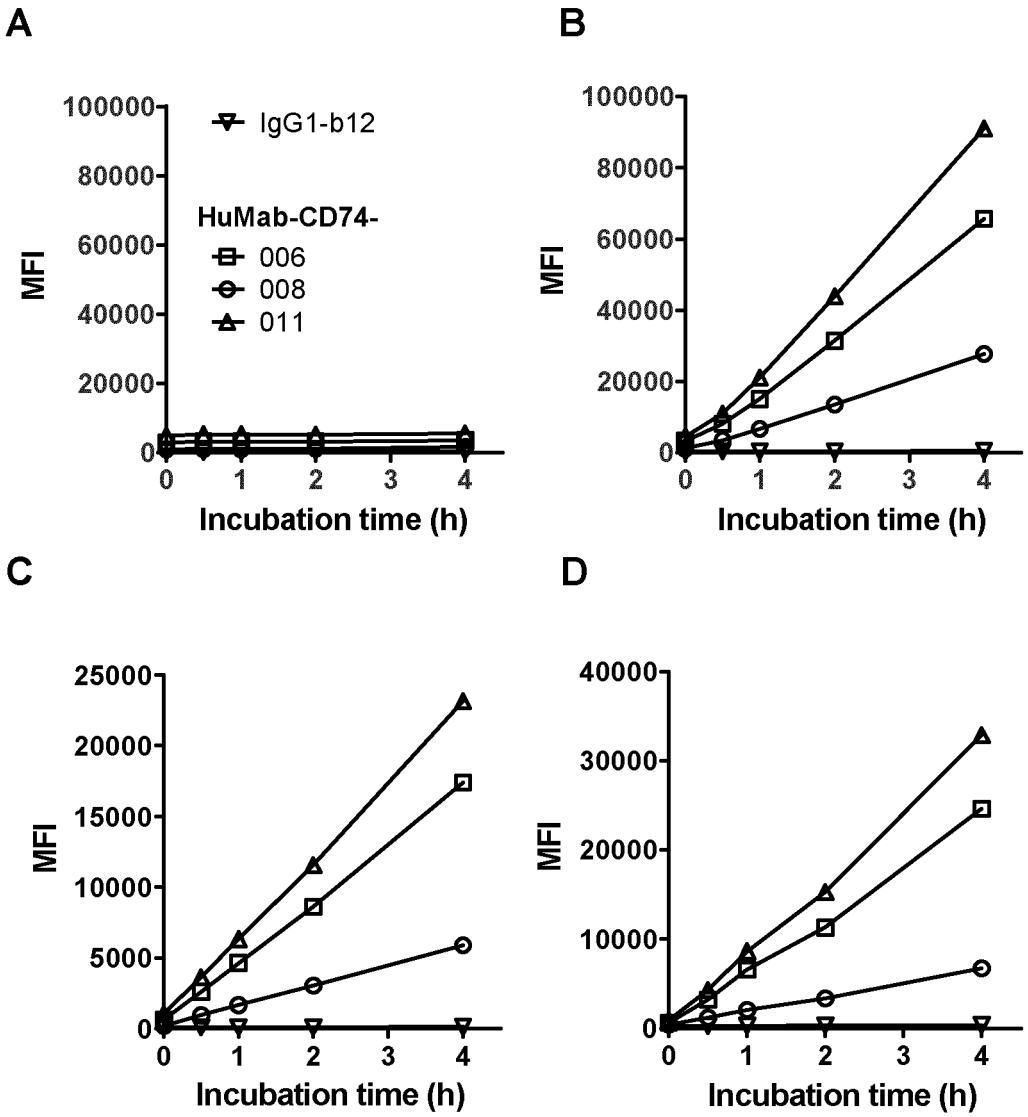


Figure 15


A
B
C
D
MFI
Incubation time (h)
IgG1-b12
HuMab-CD74-
006
008
011
100000
80000
60000
40000
20000
0
25000
15000
10000
5000
30000
0
1
2
3
4