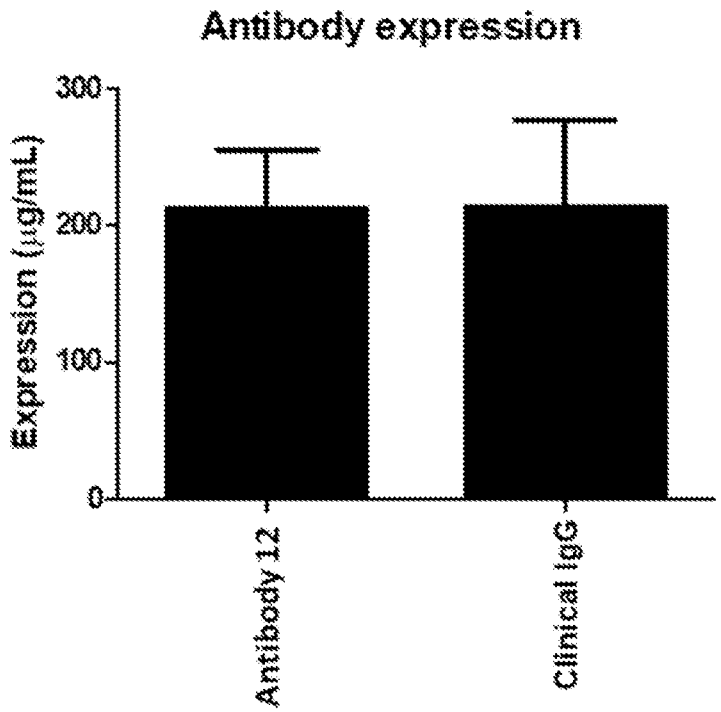
Figure 1

A


Antibody expression
Expression (µg/mL)
300
200
100
0
Antibody 12
Clinical IgG

B

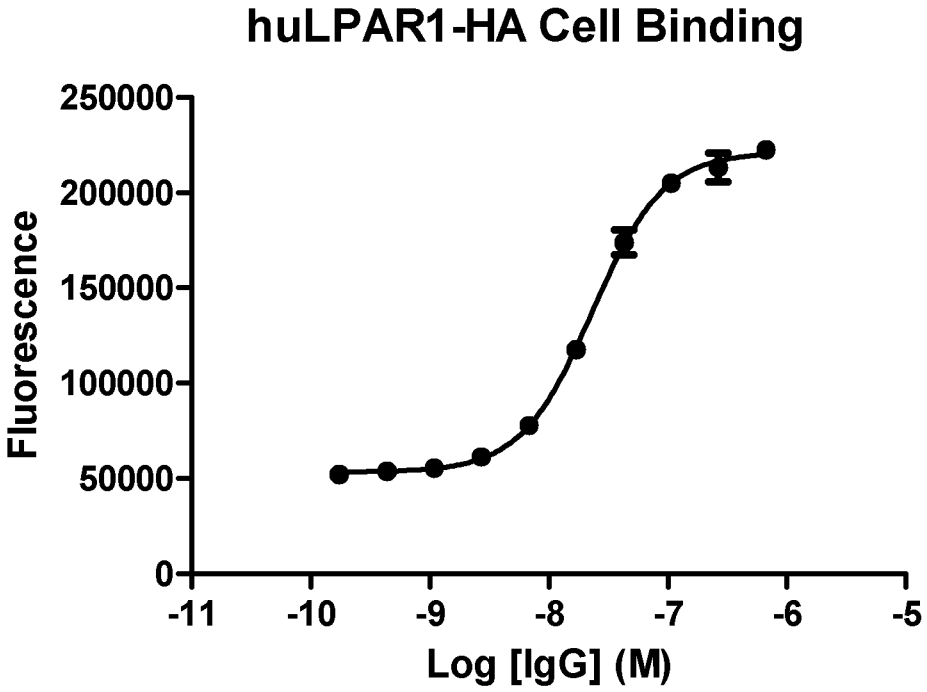
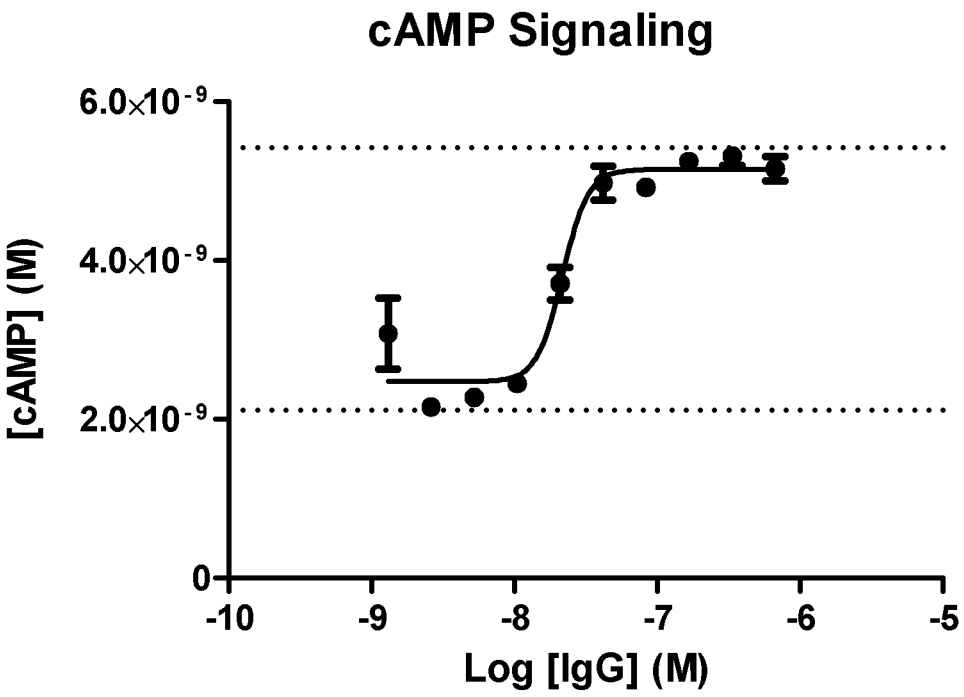

huLPAR1-HA Cell Binding
Fluorescence
250000
200000
150000
100000
50000
0
-11
-10
-9
-8
-7
-6
-5
Log [IgG] (M)

Figure 1 continued

C



D

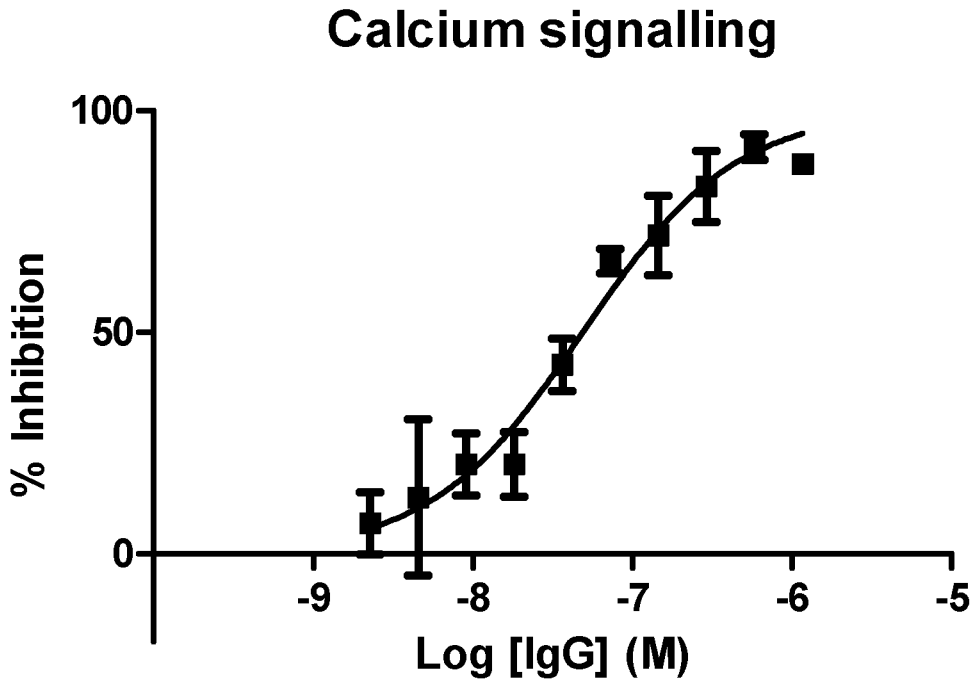


Figure 1 continued

E

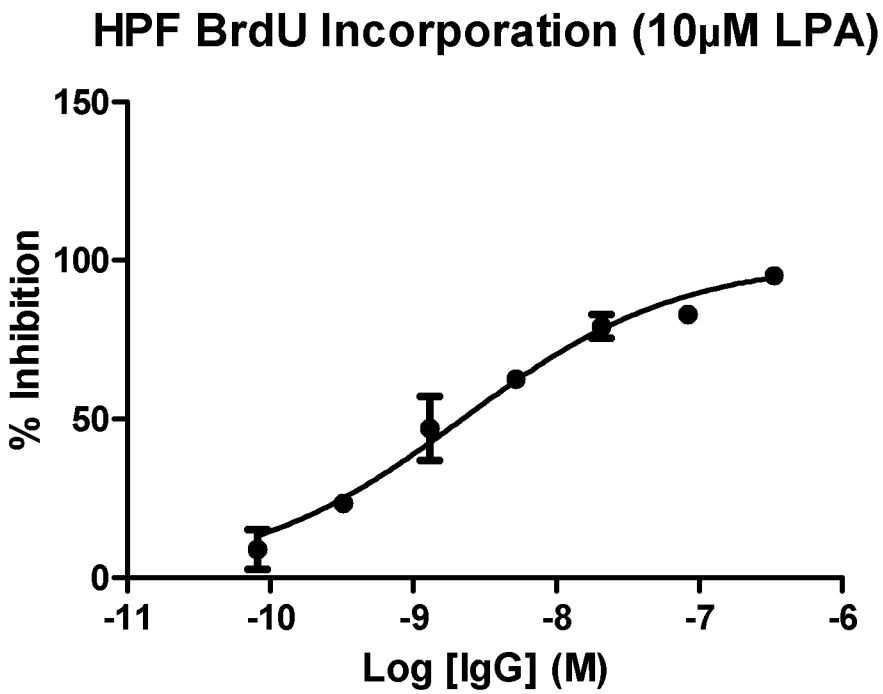
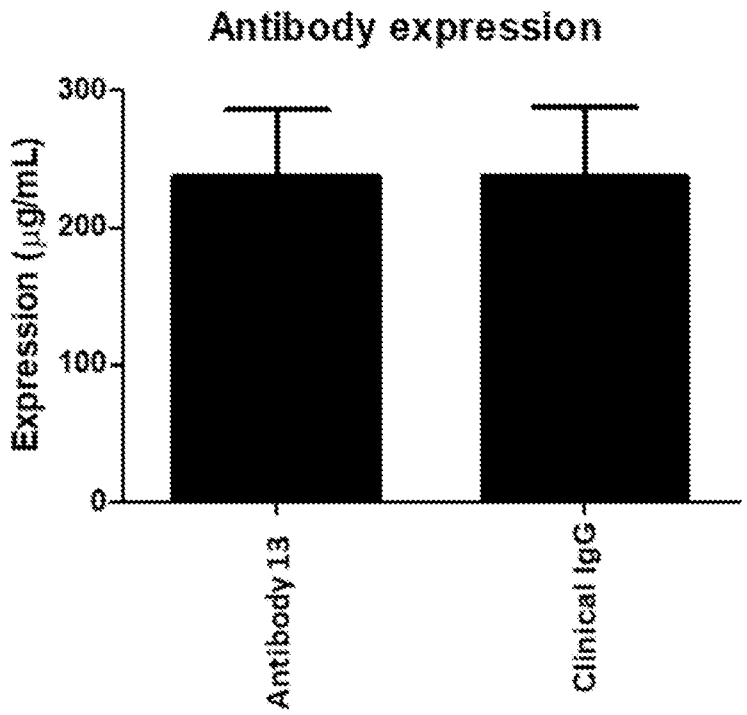


Figure 2

A


Antibody expression
Expression (μg/mL)
300
200
100
0
Antibody 13
Clinical IgG

B

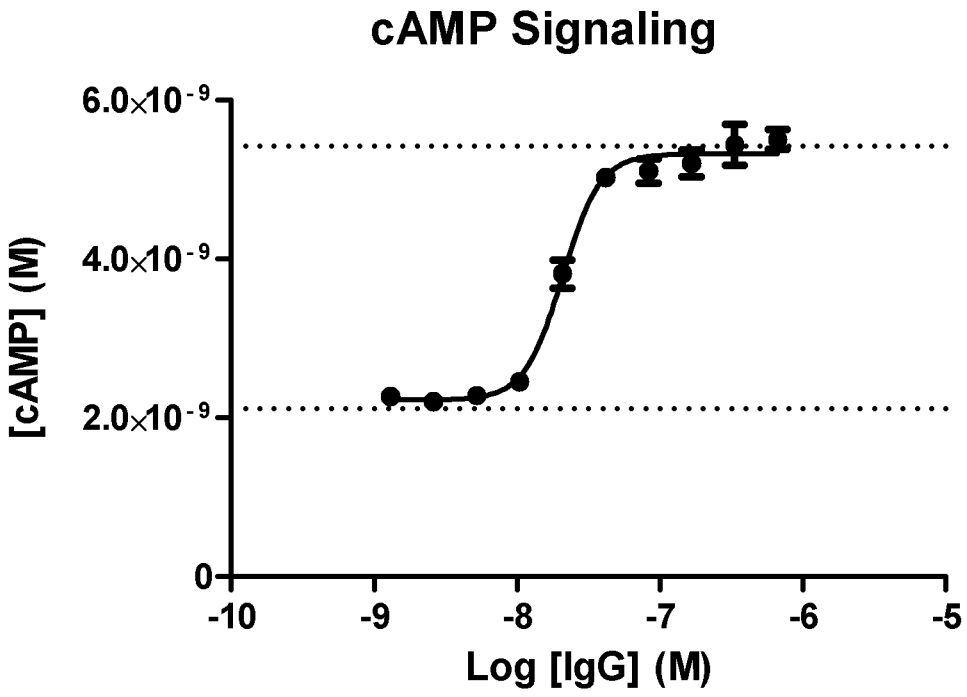
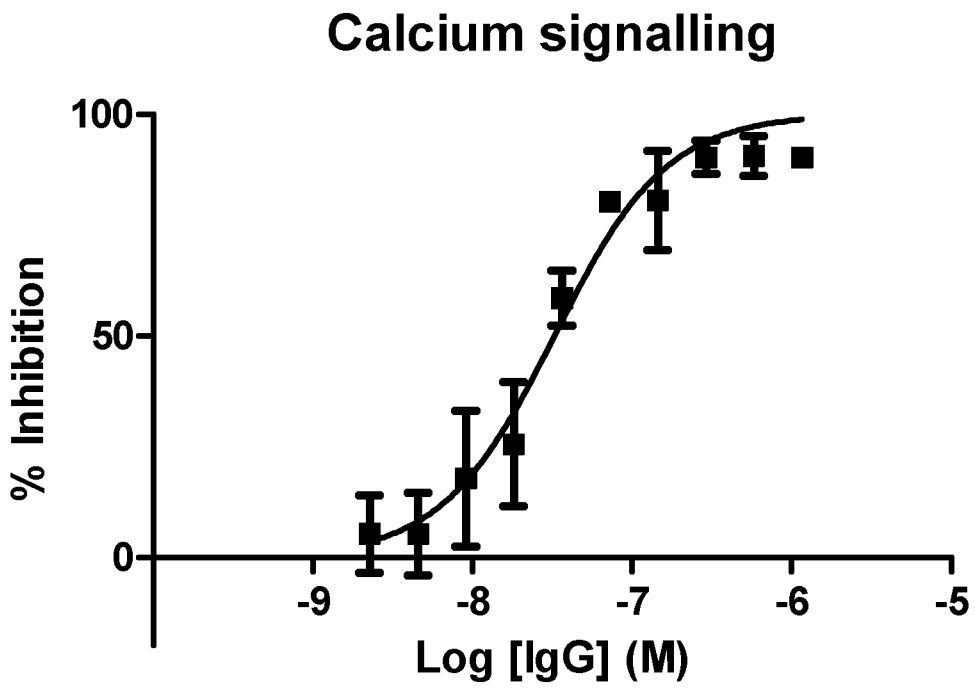
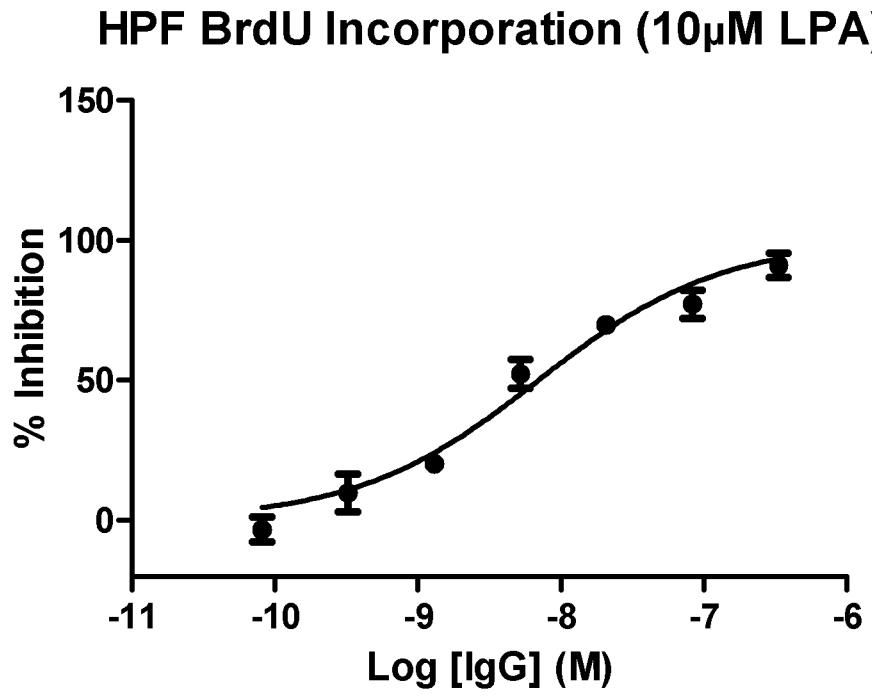

cAMP Signaling
[cAMP] (M)
6.0×10⁻⁹
4.0×10⁻⁹
2.0×10⁻⁹
0
-10
-9
-8
-7
-6
-5
Log [IgG] (M)

Figure 2 continued

C



D



A

```
      #< <    <#  <&&>>###  <<
 1-   QCFYNESIAF FYNRSGKHLA TEWNTVSKLV MGLGITVCIF IMLANLLVMV AIYVNRRFHF

                                        #
61-   PIYYLMANLA AADFFAGLAY FYLMFNTGPN TRRLTVSIWL LRQGLIDTSL TASVANLLAI

                                                          #>> &>< >
121-  AIERHITVFR MQLHTRMSNR RVVVVIVVIW TMAIVMGAIP SVGWNCICDI ENCSNMAPLY

        <
181-  SDSYLVFWAI FNLVTFVVMV VLYAHIFGYV RNRDTMMSLL KTVVIVLGAF IICWTPGLVL

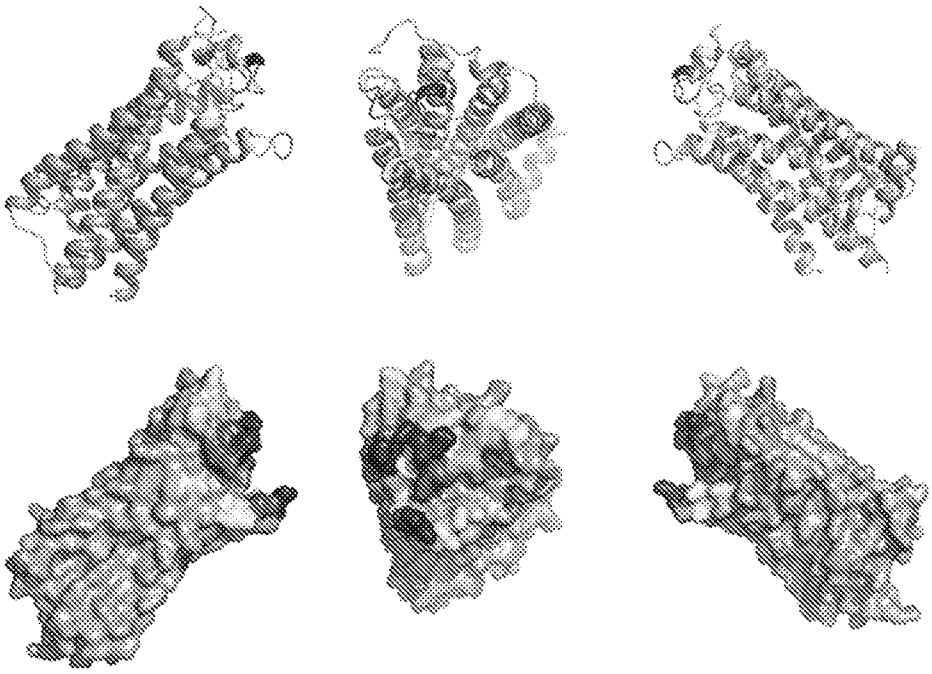
          << >&  << <
241-  LLLDVCCPQC DVLAYEKFFL LLAEFNSAMN PIIYSYRDKE MSATFRQILG
```

Interaction Regions	Epitope Residues
Region 1	& Very highly probable
Region 2	> Highly probable
Region 3	# Probable
Region 4	< Possible

Figure 3

Figure 3 continued

B



C

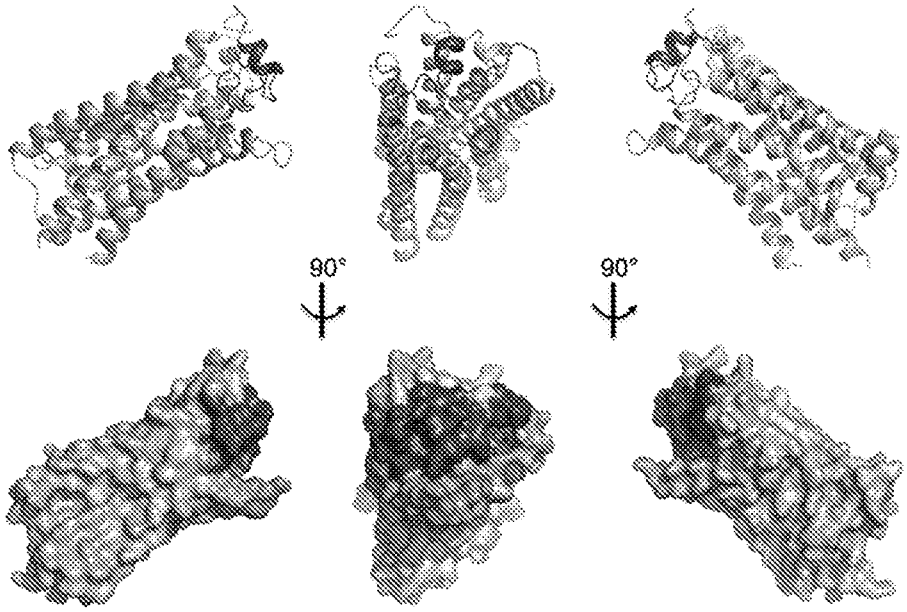


Figure 4

VH

```
                                        <                &     > >#  ##<
 1- QVQLVQSGSE LKKPGASVKV SCKASGYTFT SSGISWVRQA PGQGLEWMGE ILPRSGYTNY

    <#  <                                      <# <<&>&
61- NQGFTGRFVF SADKSVSTAY LQISSLKAED TAVYYCARDF RSGRYAMDYW GQGTTVTVSS
```

VL

```
    #                          <>> #< &                  >
 1- SIQMTQSPSS LSASVGDRVT ITCQASQSVR YNVAWYQQKP GKAPKLLIYY ASNRYTGVPS

          <                        <# >&#<
61- RFSGSGSGTD FTFTISSLQP EDIATYFCQH HYSSPLTFGG GTKLEIK
```

CDR (Chothia definition)

Paratope Residues

& Very highly probable

> Highly probable

Probable

< Possible

Figure 5

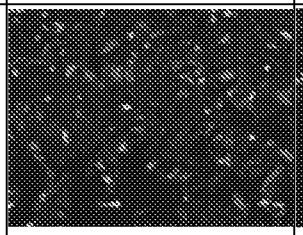
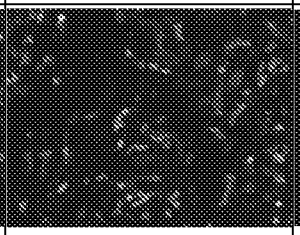
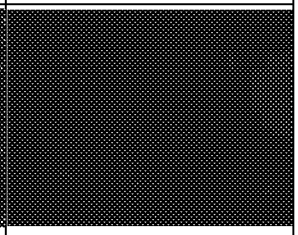
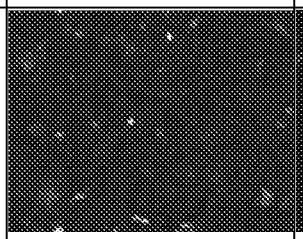
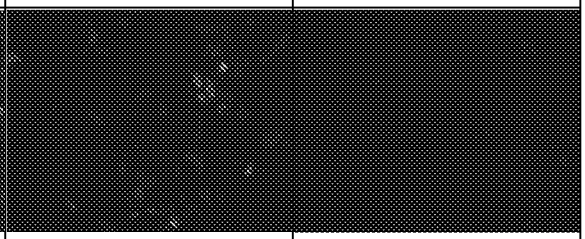
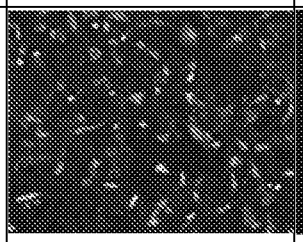
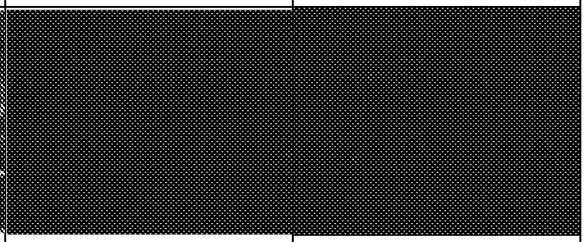
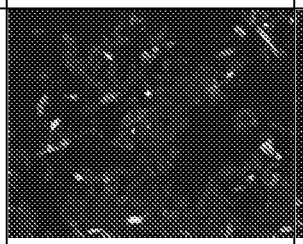
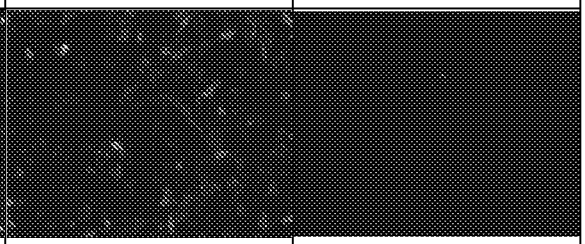
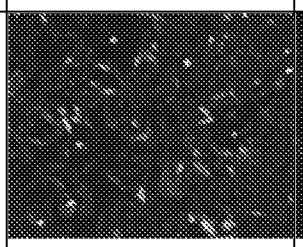
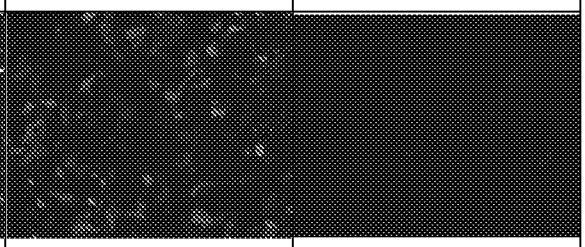
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hLPAR1				
hLPAR1_N35A	Interaction region 1 – Very highly probable			
hLPAR1_R36A	Interaction region 1 – Very highly probable			
hLPAR1_T43A	Interaction region 1 – Possible			
hLPAR1_E44A	Interaction region 1 – Possible			

Figure 5 continued

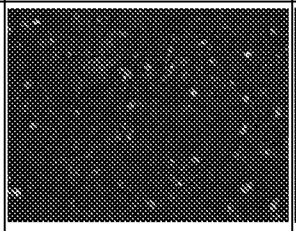
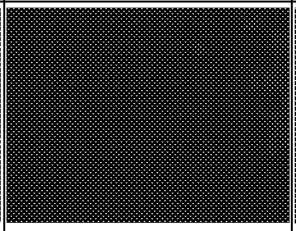
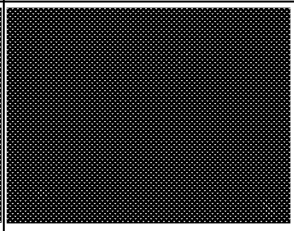
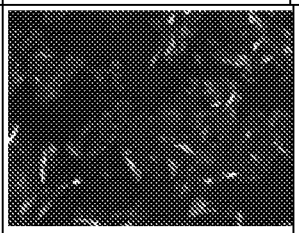
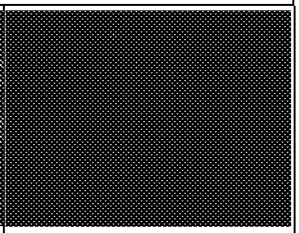
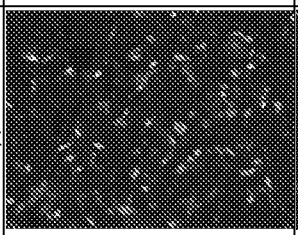
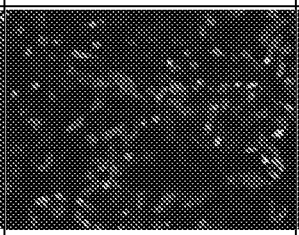
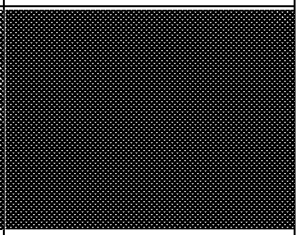
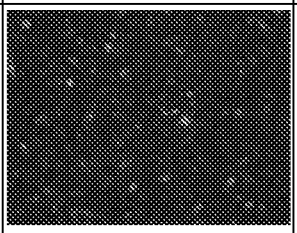
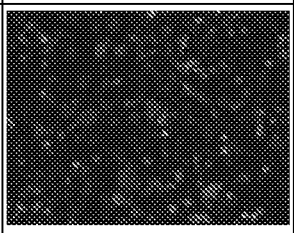
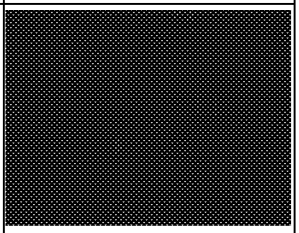
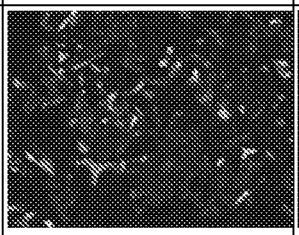
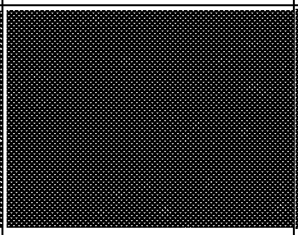
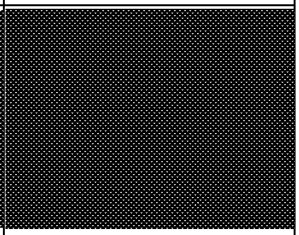
Epitope Residue	mAbSilico Prediction	Anti-HA	Anti-LPAR1	Negative control Ab
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hLPAR1_R114A	Interaction region 2 - Probable			
hLPAR1_R115A	Interaction region 2 – Not highlighted			
hLPAR1_R114A_R115A	Interaction region 2			
hLPAR1_E193A	Interaction region 3 – Very highly probable			

Figure 5 continued

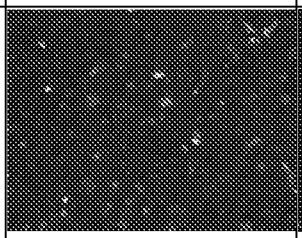
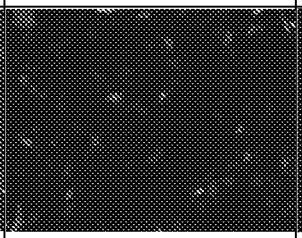
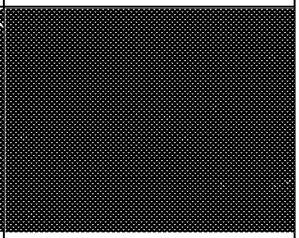
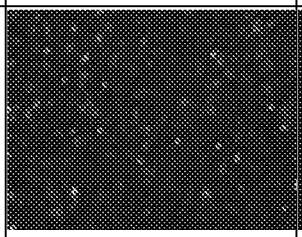
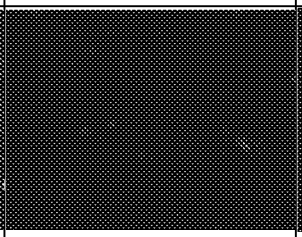
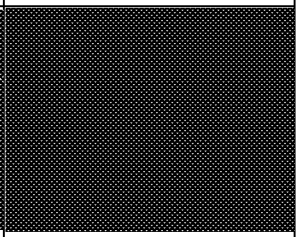
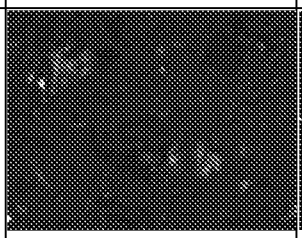
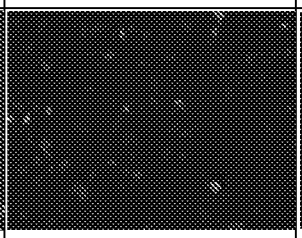
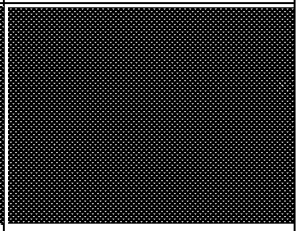
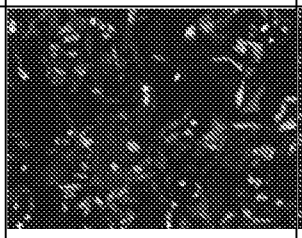
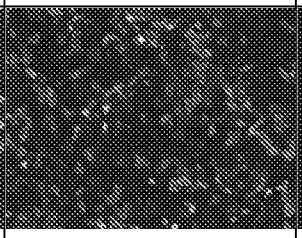
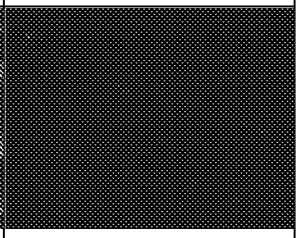
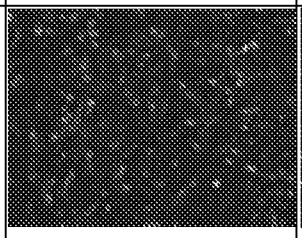
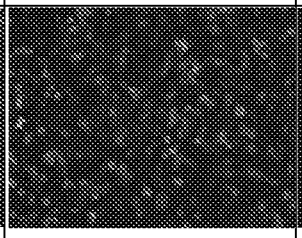
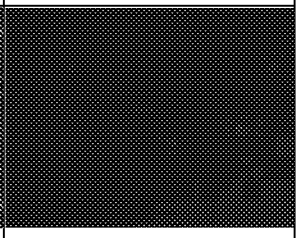
Epitope Residue	mAbSilico Prediction	Anti-HA	Anti-LPAR1	Negative control Ab
hLPAR1_N194A	Interaction region 3 – Highly probable			
hLPAR1_E193A_N194A	Interaction region 3			
hLPAR1_Q286A	Interaction region 3 - Very highly probable			
hLPAR1_V289A	Interaction region 4 - Possible			
hLPAR1_Q286A_V289A	Interaction region 4			

Figure 6

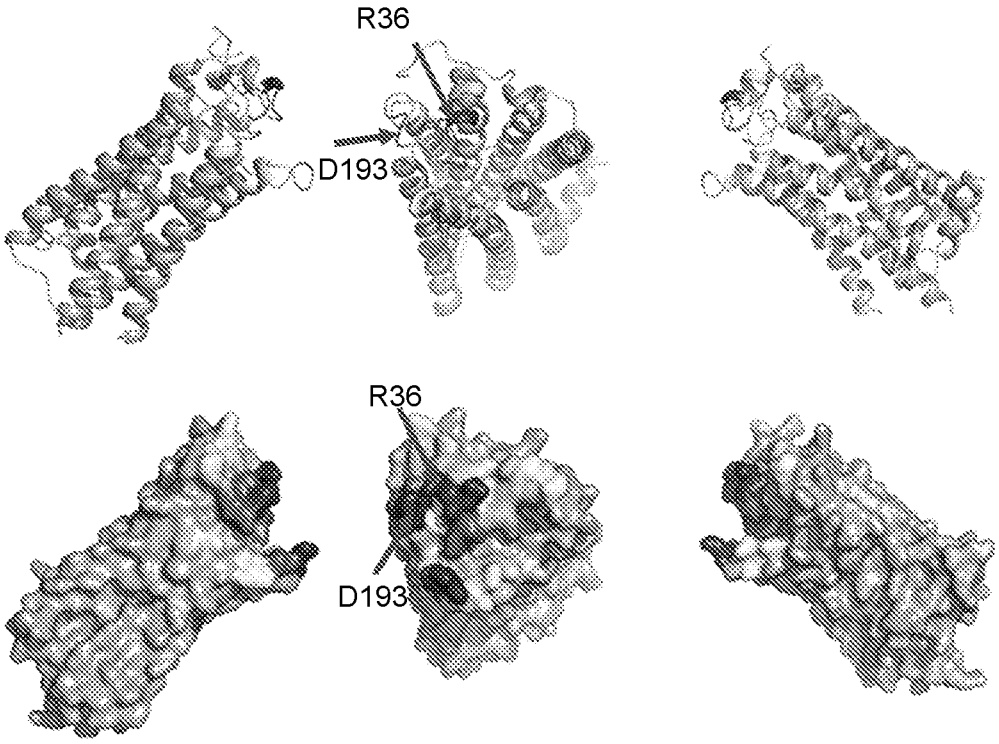
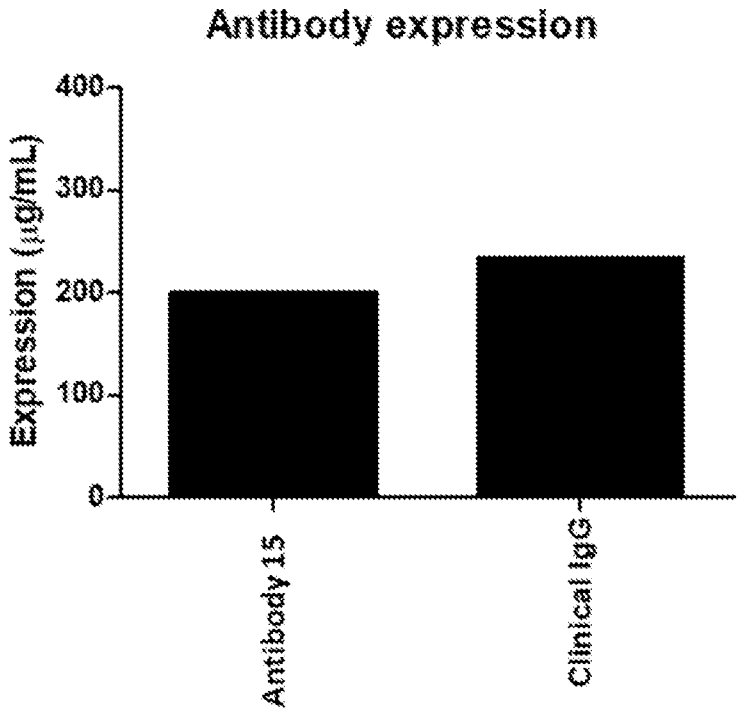


Figure 7

A


Antibody expression
Expression (μg/mL)
400
300
200
100
0
Antibody 15
Clinical IgG

B

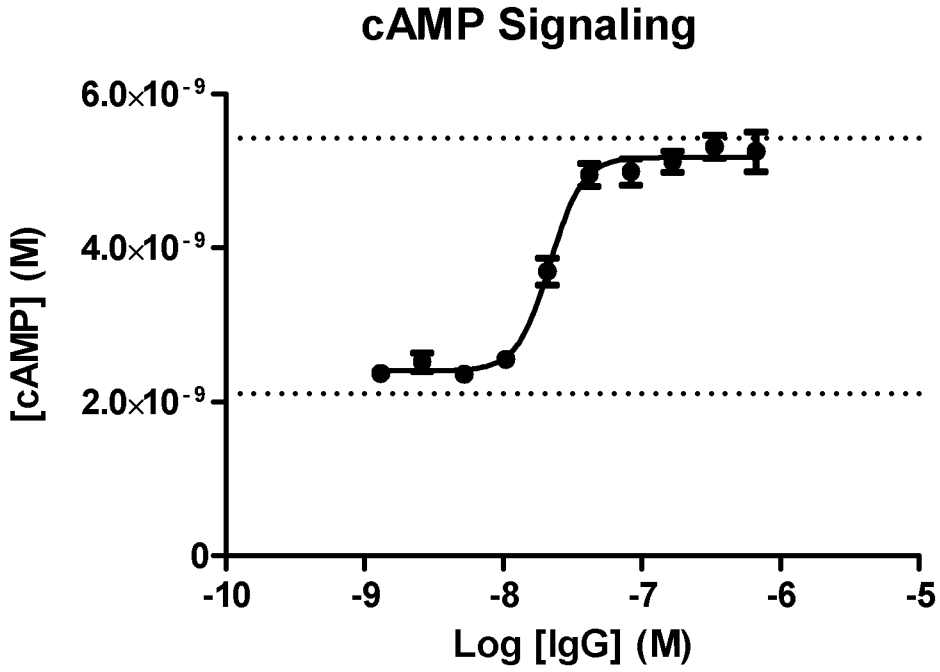
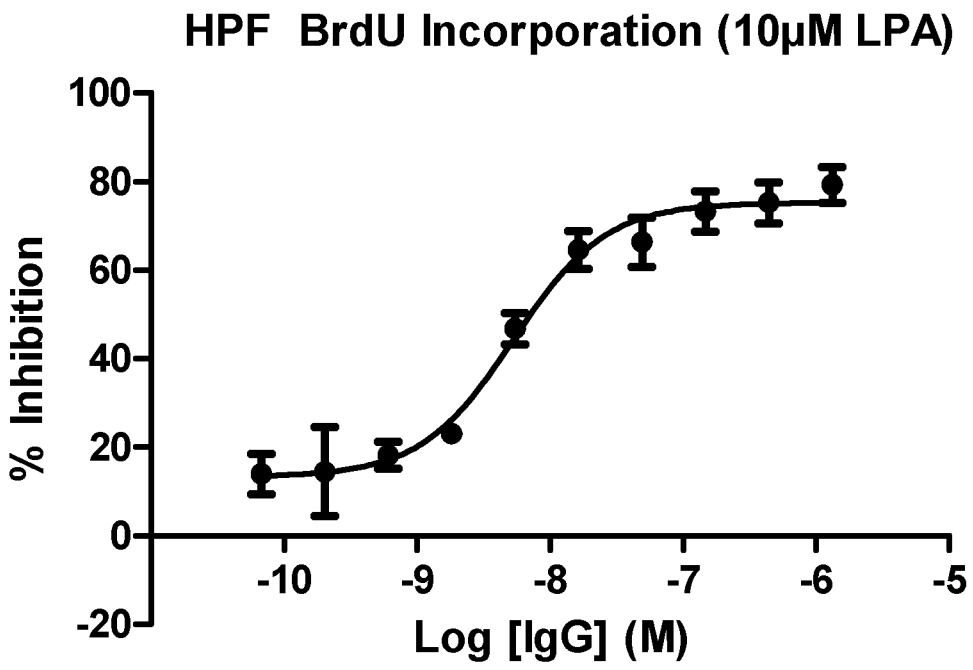

cAMP Signaling
[cAMP] (M)
6.0×10⁻⁹
4.0×10⁻⁹
2.0×10⁻⁹
0
-10
-9
-8
-7
-6
-5
Log [IgG] (M)

Figure 7 continued

C



D

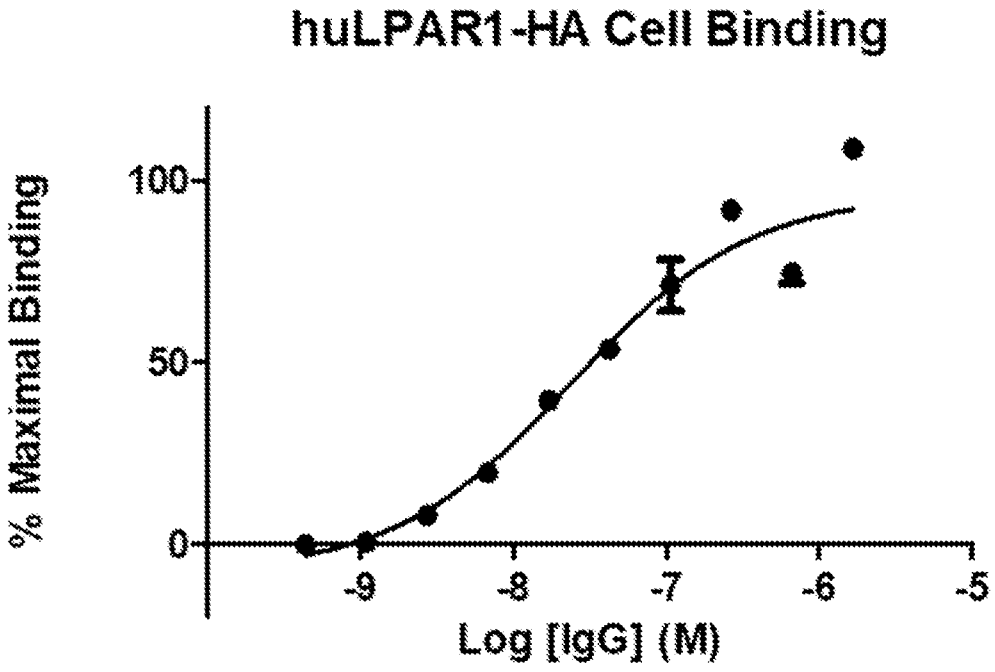
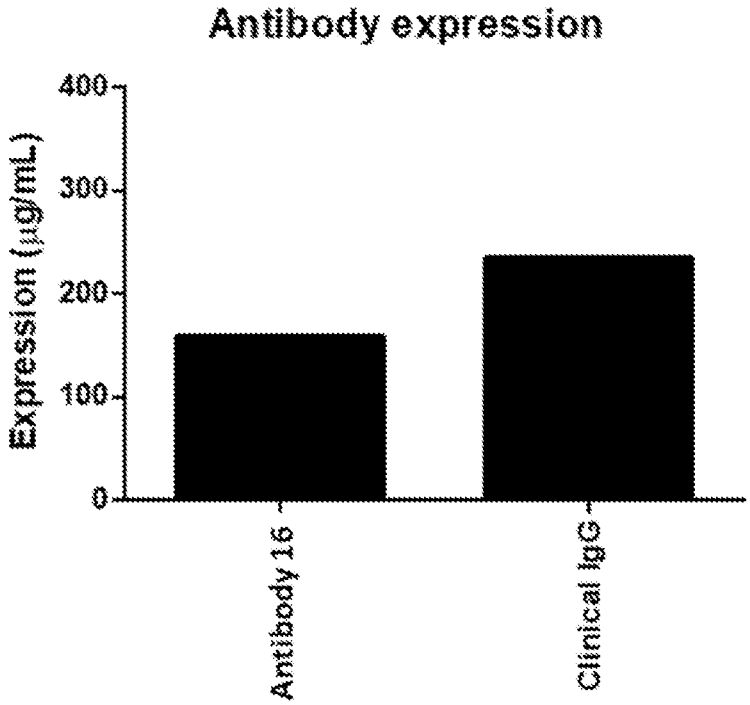


Figure 8

A


Antibody expression
Expression (µg/mL)
400
300
200
100
0
Antibody 16
Clinical IgG

B

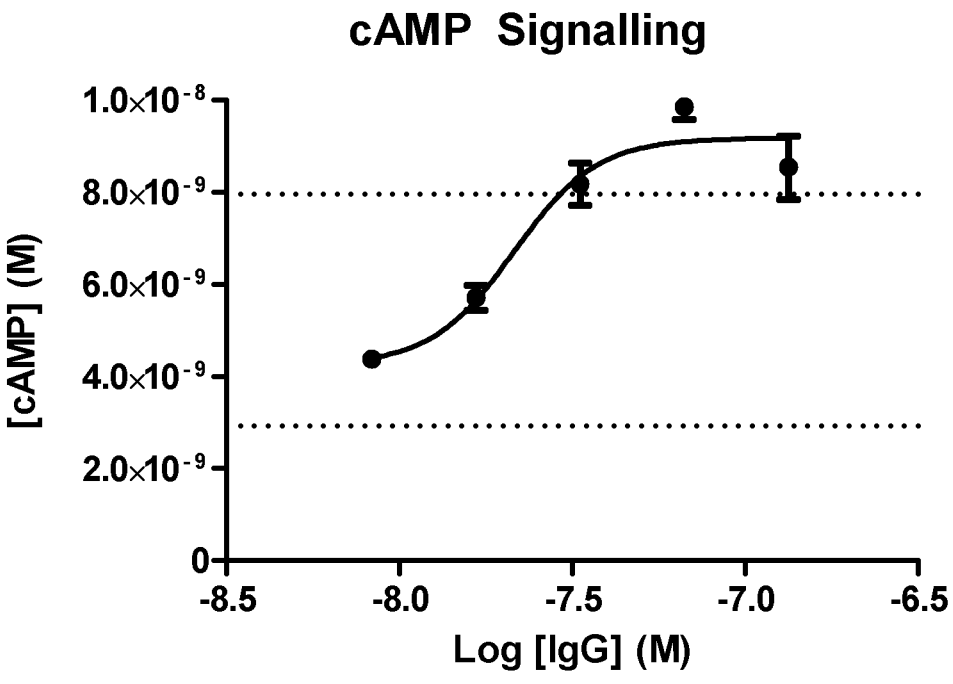

cAMP Signalling
[cAMP] (M)
1.0×10-8
8.0×10-9
6.0×10-9
4.0×10-9
2.0×10-9
0
-8.5
-8.0
-7.5
-7.0
-6.5
Log [IgG] (M)

Figure 8 continued

C

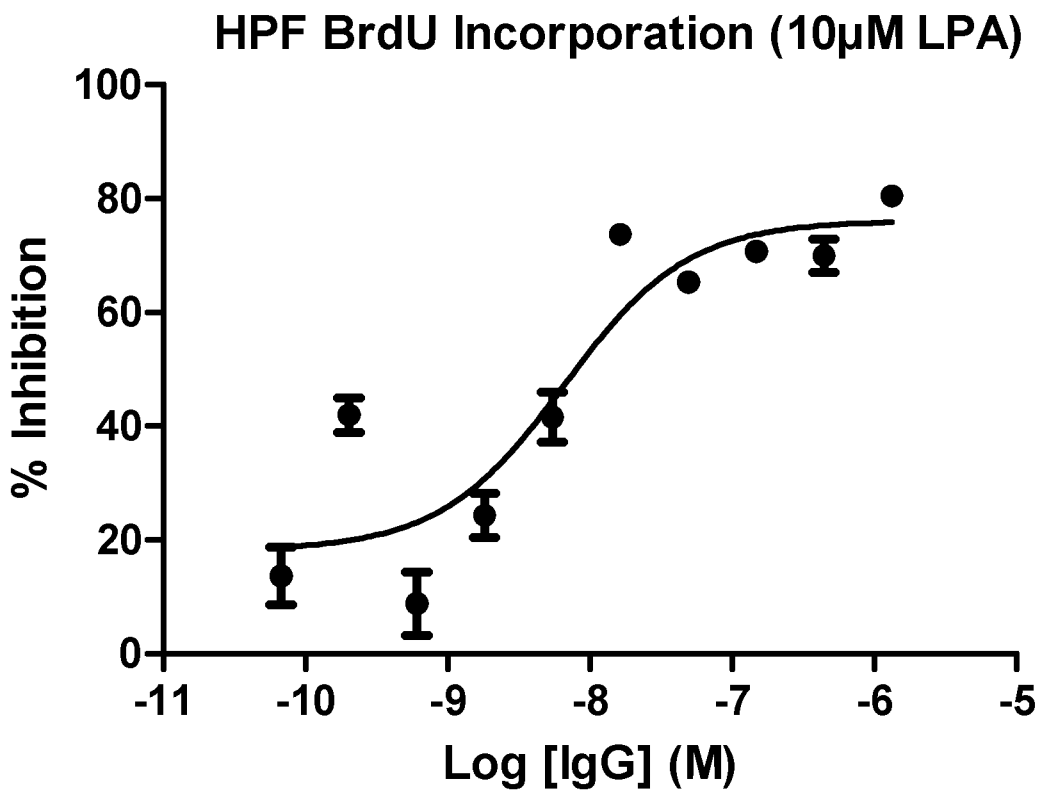
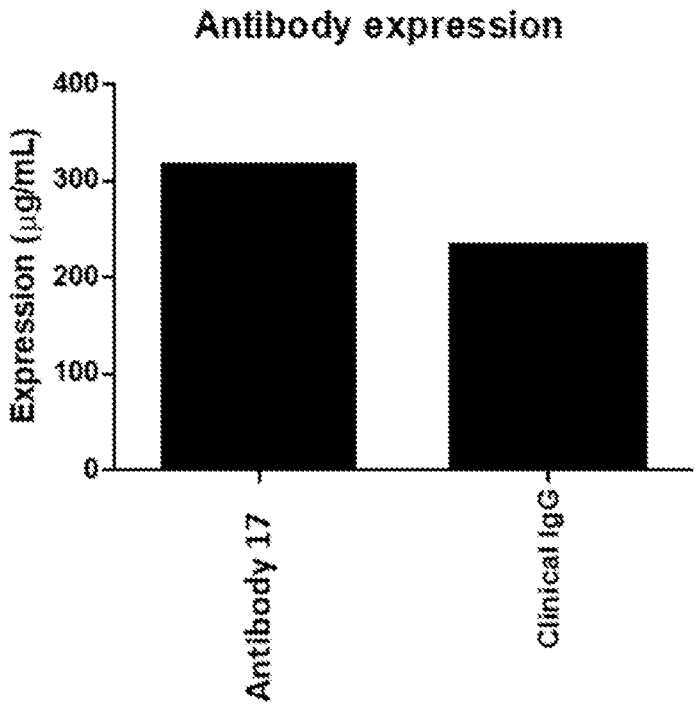


Figure 9

A


Antibody expression
Expression (µg/mL)
400
300
200
100
0
Antibody 17
Clinical IgG

B

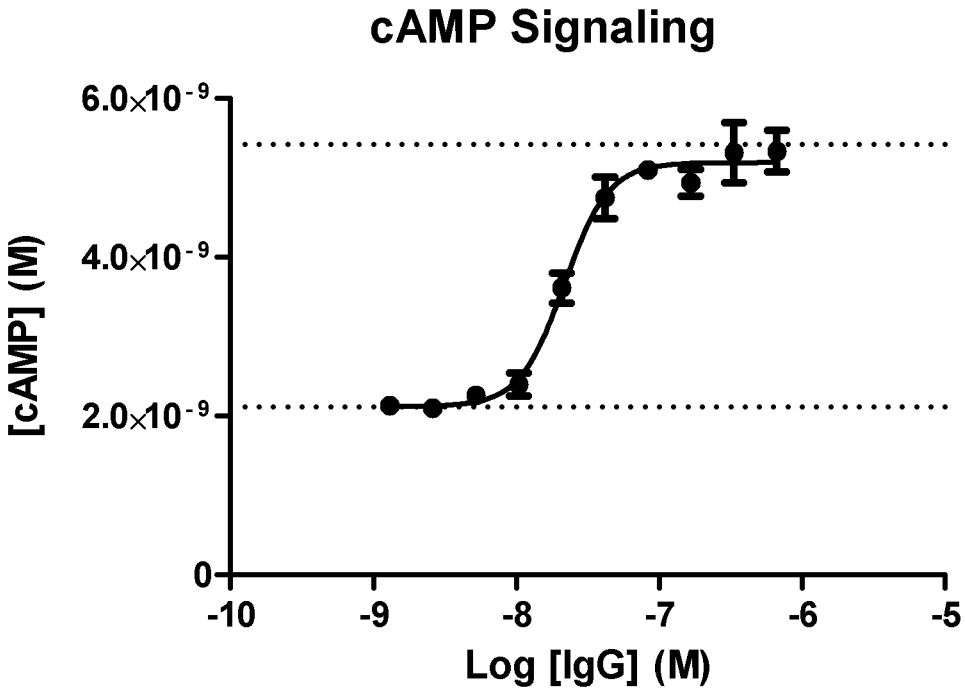
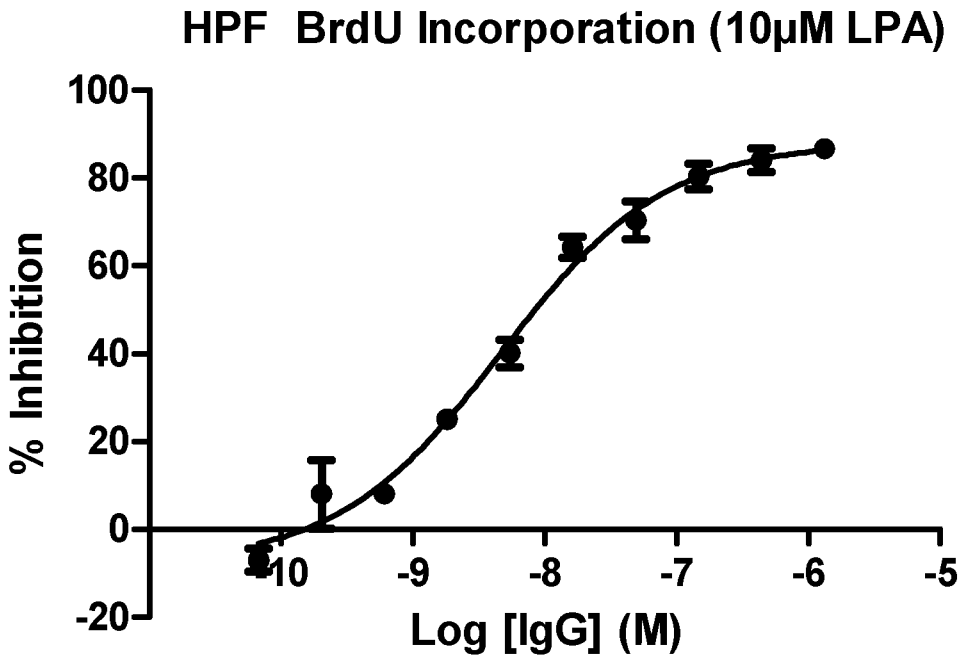

cAMP Signaling
[cAMP] (M)
6.0×10-9
4.0×10-9
2.0×10-9
0
-10
-9
-8
-7
-6
-5
Log [IgG] (M)

Figure 9 continued

C



D

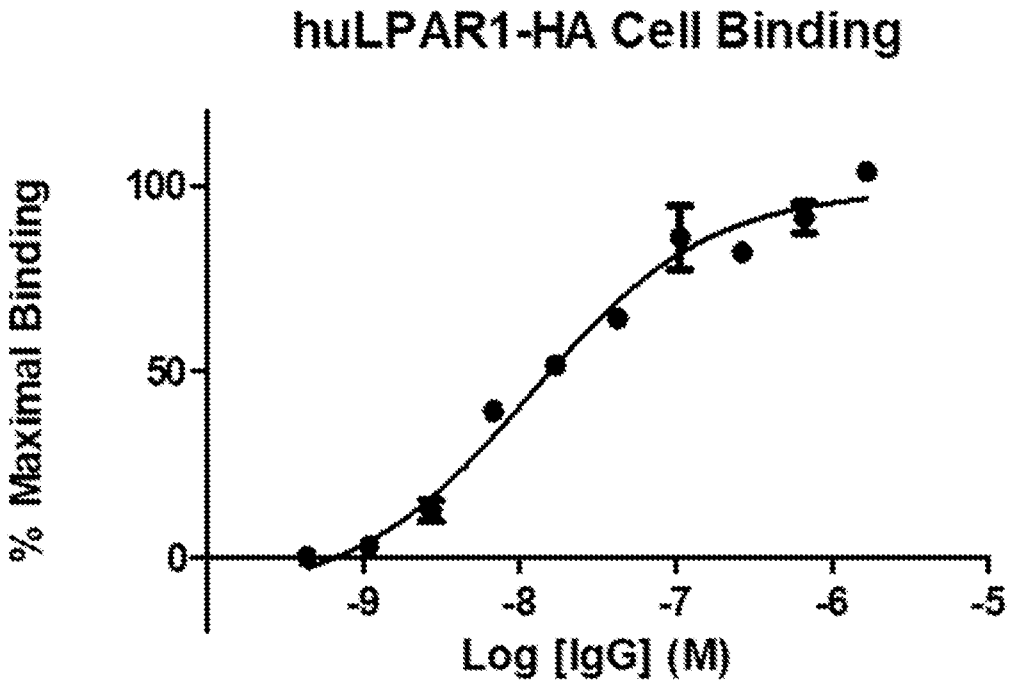
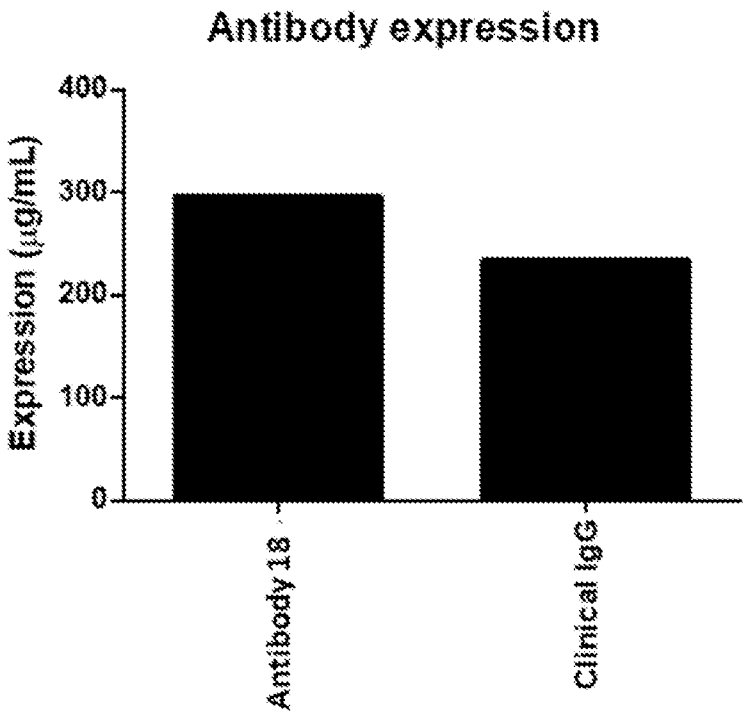


Figure 10

A


Antibody expression
Expression (μg/mL)
400
300
200
100
0
Antibody 18
Clinical IgG

B

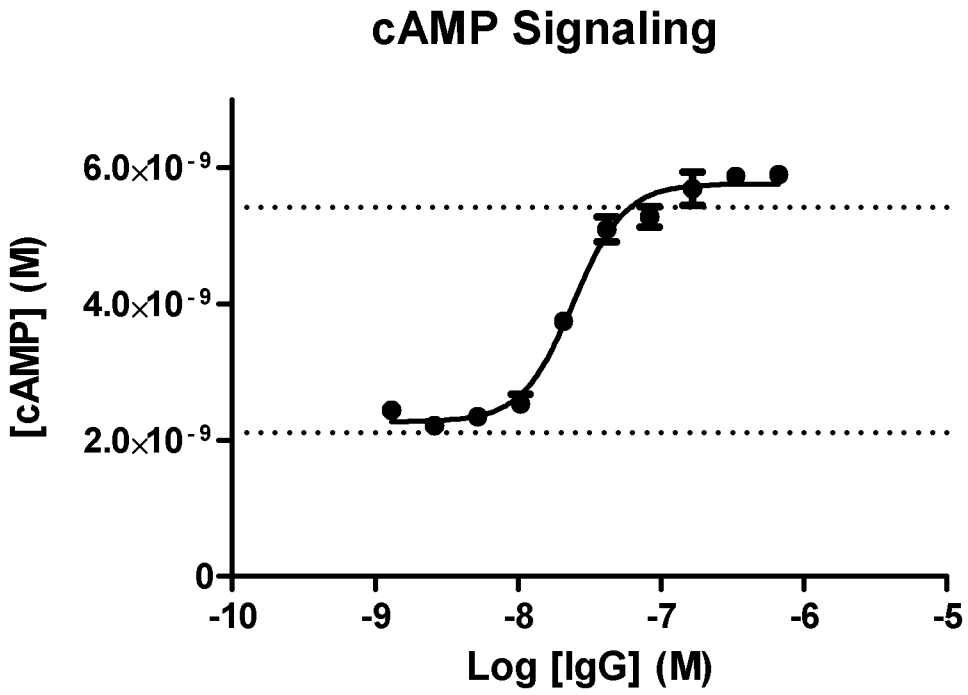
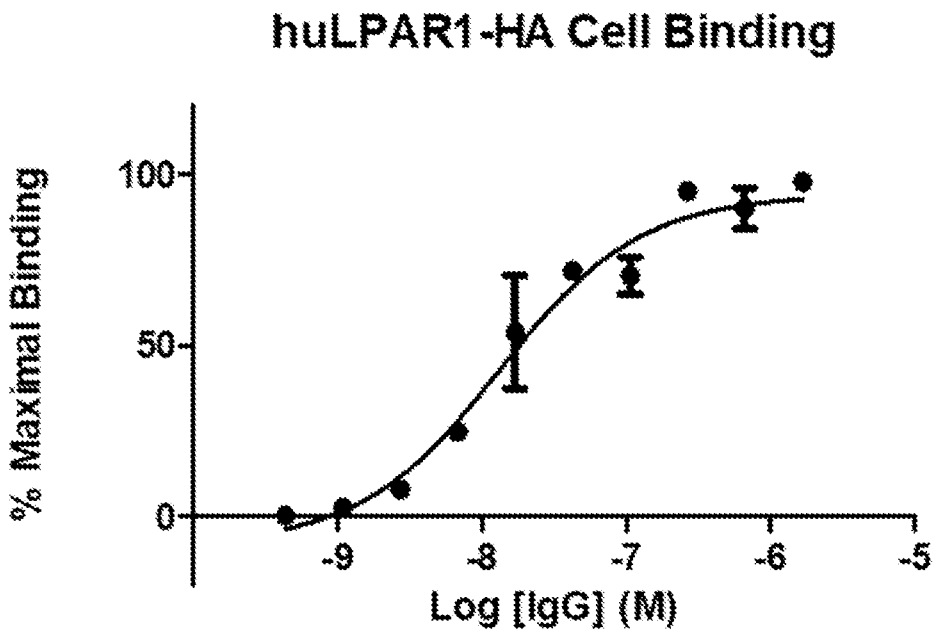

cAMP Signaling
[cAMP] (M)
6.0×10-9
4.0×10-9
2.0×10-9
0
-10
-9
-8
-7
-6
-5
Log [IgG] (M)

Figure 10 continued

C



D

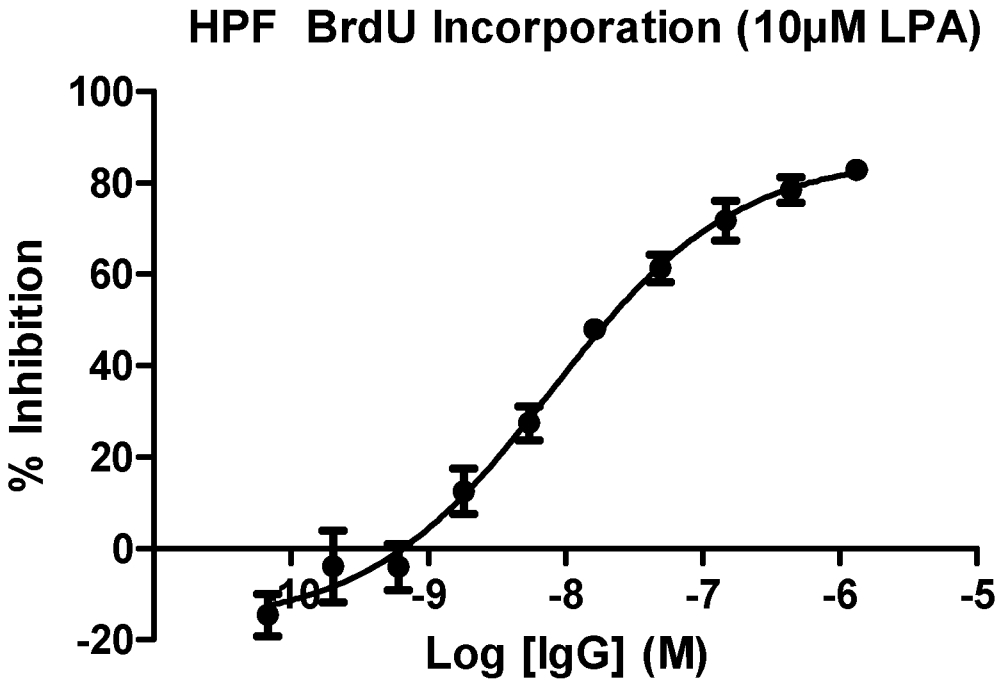


Figure 11

LPAR1

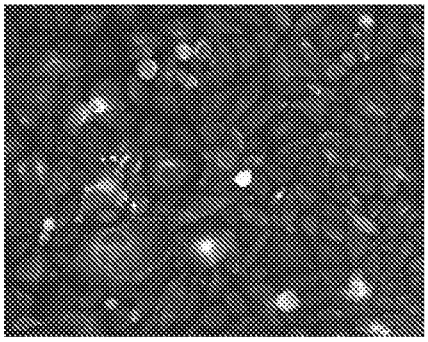
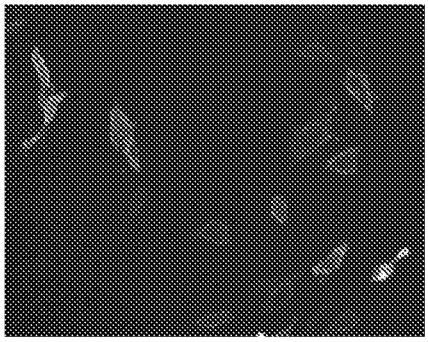
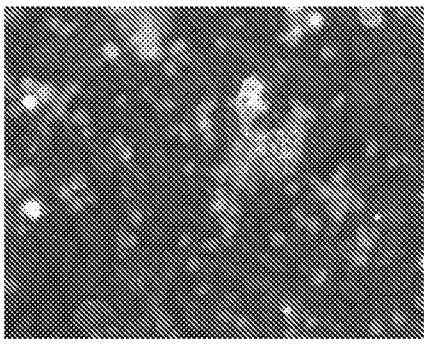
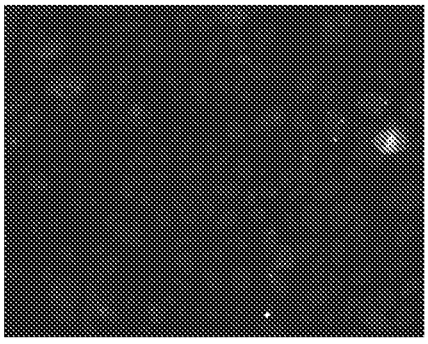
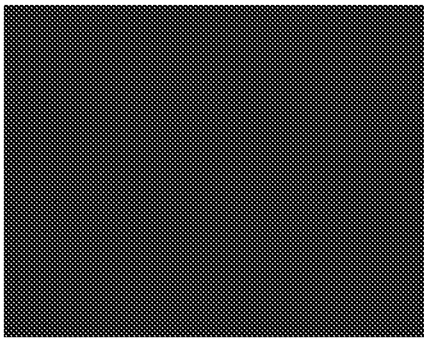
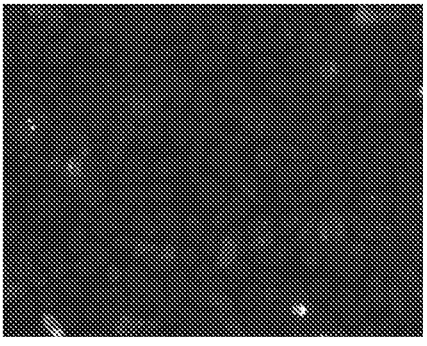
Antibody	Fixed and permeabilized (5 µg/ml)	Live (5 µg/ml)
Antibody 13	 1	 19
Antibody 12	 2	 20
EPR9710	 3	 21
4C3	 4	 22

Figure 11 continued

LPAR1

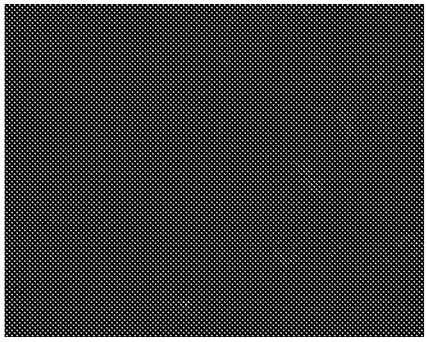
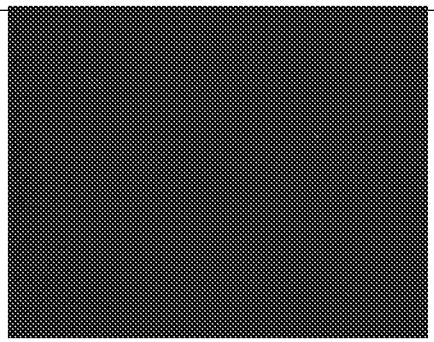
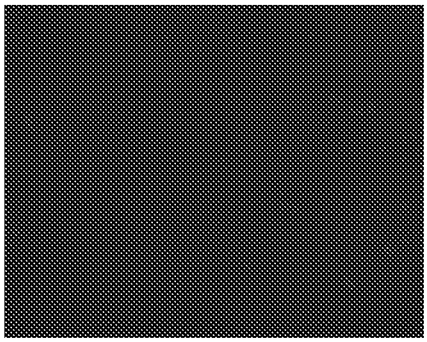
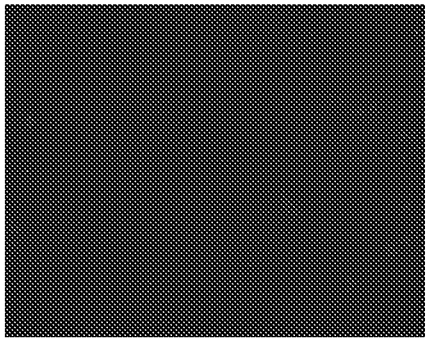
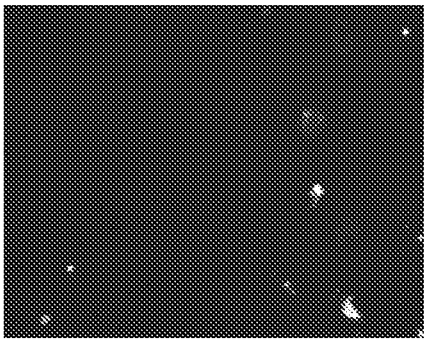
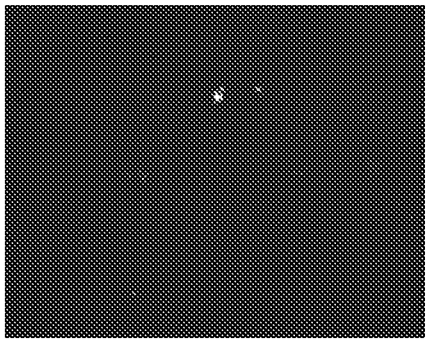
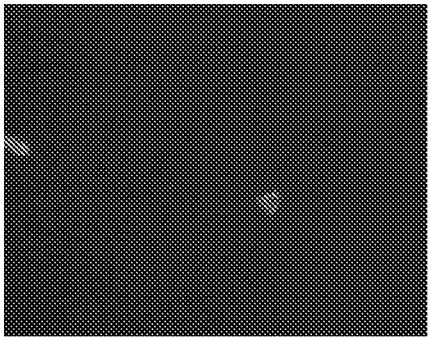
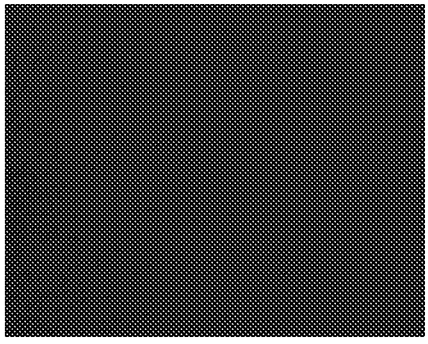
Antibody	Fixed and permeabilized (5 µg/ml)	Live (5 µg/ml)
#999807	 5	 23
2E2	 6	 24
OTIG6	 7	 25
2H7	 9	 27

Figure 11 continued

Irrelevant GPCR

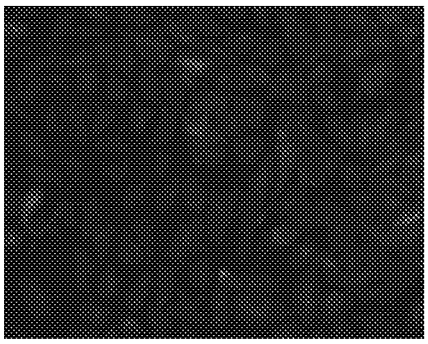
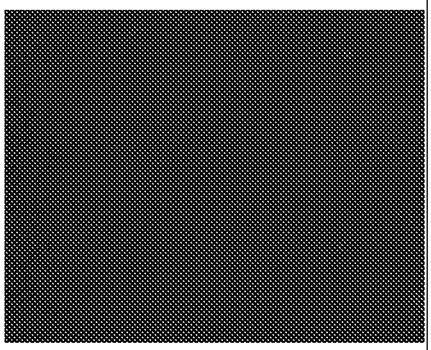
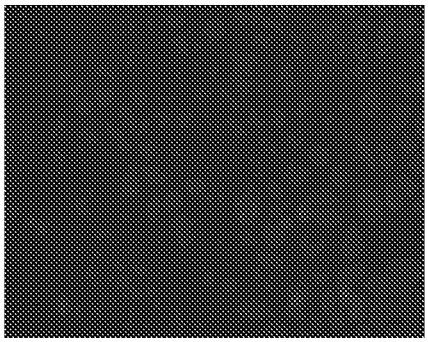
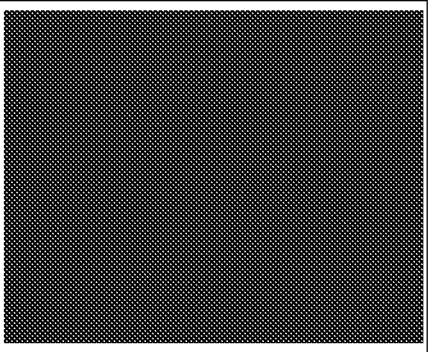
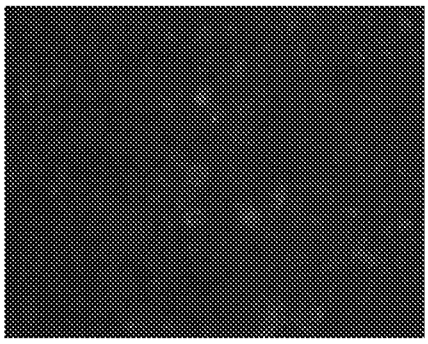
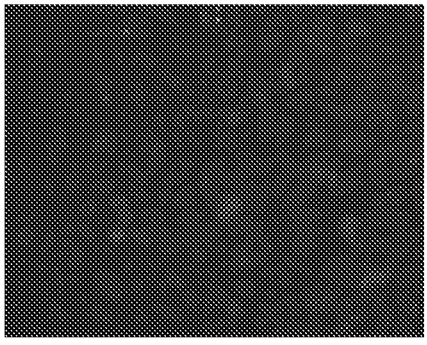
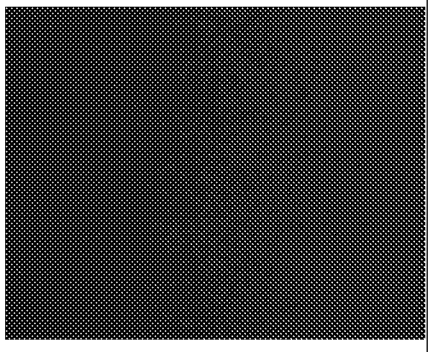
Antibody	Fixed and permeabilized (5 µg/ml)	Live (5 µg/ml)
Antibody 13	 10	 28
Antibody 12	 11	 29
EPR9710	 12	 30
4C3	 13	 31

Figure 11 continued

Irrelevant GPCR

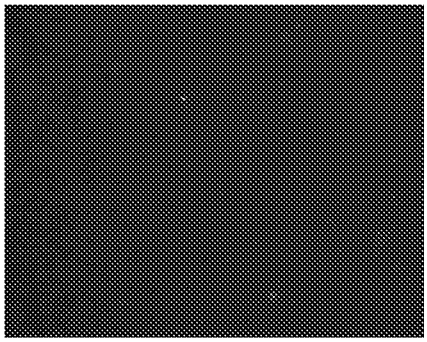
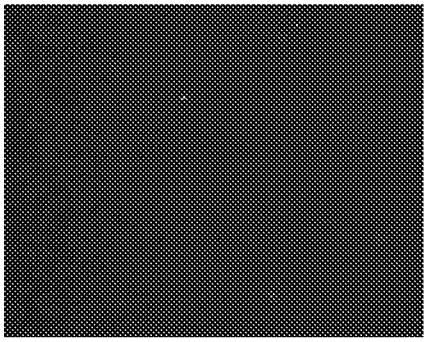
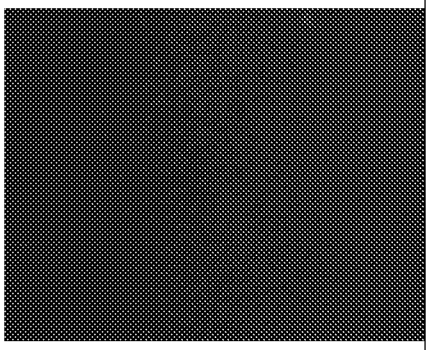
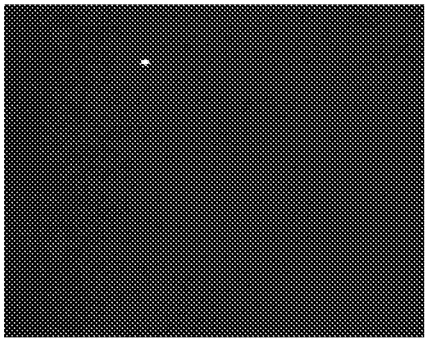
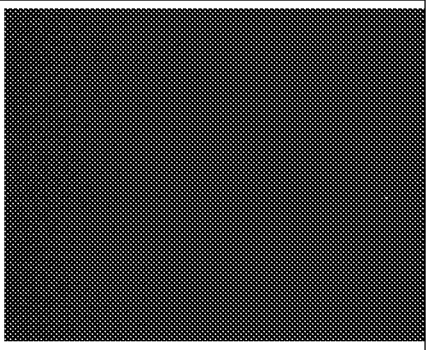
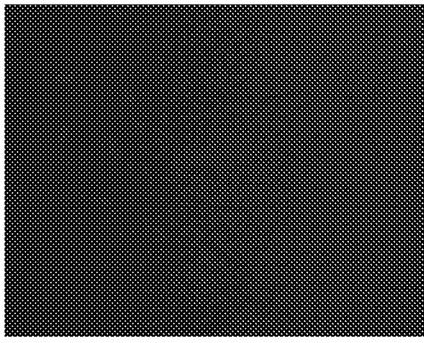
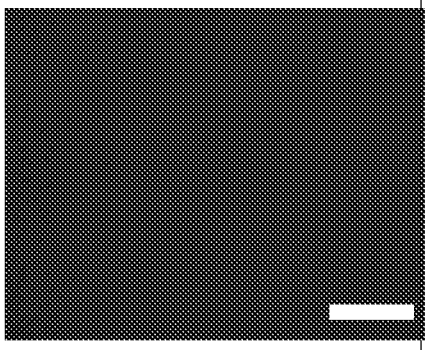
Antibody	Fixed and permeabilized (5 µg/ml)	Live (5 µg/ml)
#999807	 14	 32
2E2	 15	 33
OTIG6	 16	 34
2H7	 18	 36

Figure 12

LPAR1

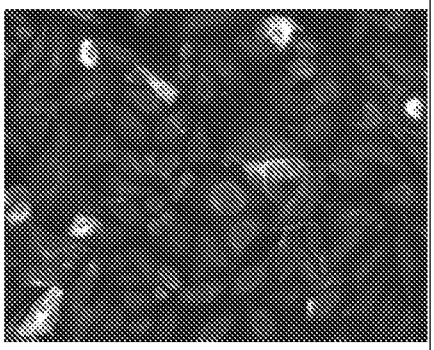
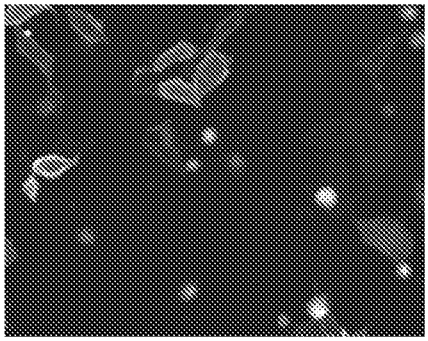
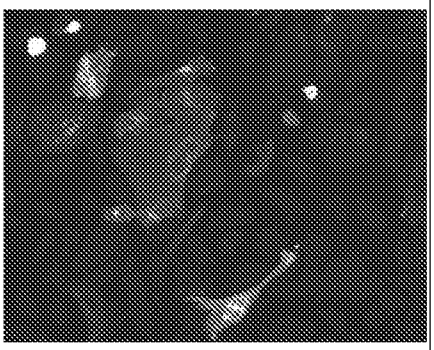
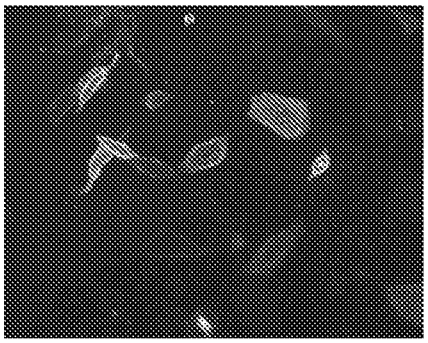
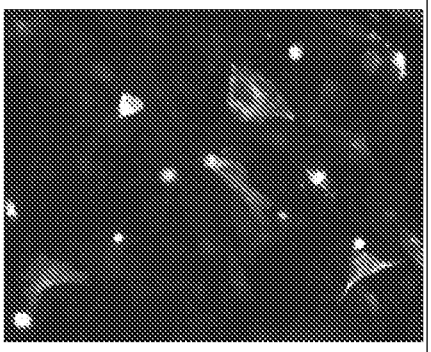
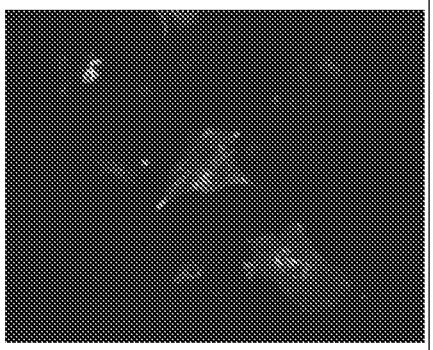
Antibody	Fixed and permeabilized (5 µg/ml)	Live (20 µg/ml)
Antibody 13	 1	 21
Antibody 12	 2	 22
63D8	 3	 23
Antibody 4	 4	 24

Figure 12 continued

LPAR1

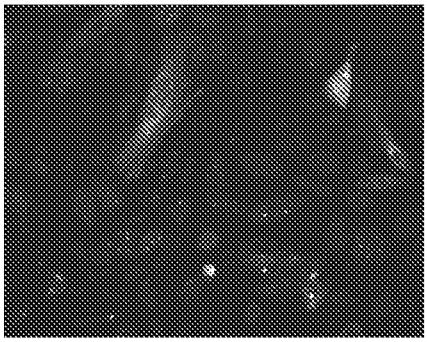
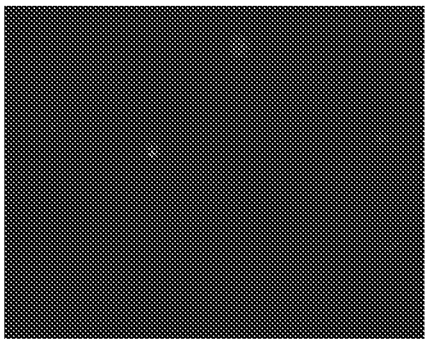
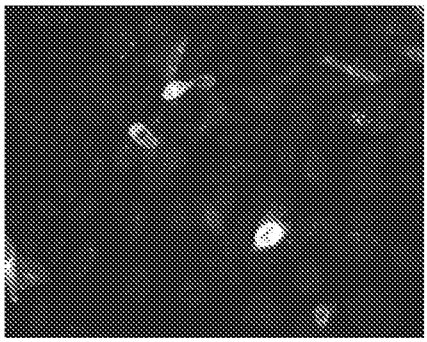
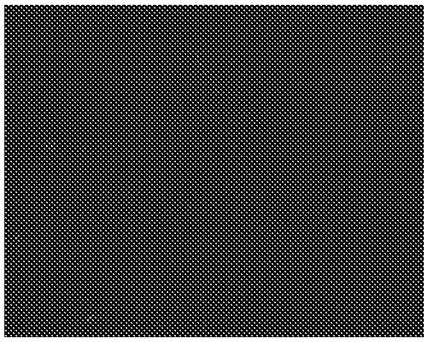
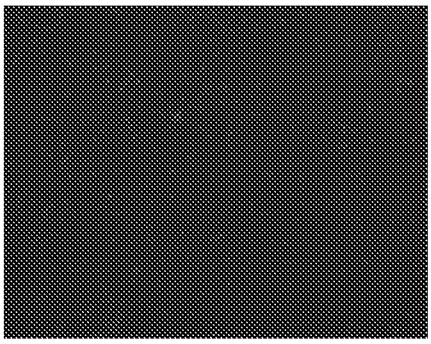
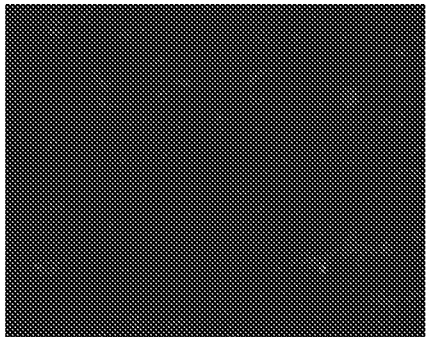
Antibody	Fixed and permeabilized (5 µg/ml)	Live (20 µg/ml)
EPR9710	5 	25 
4C3	6 	26 
#999807	7 	27 
2E2	8 	28 

Figure 12 continued

LPAR1

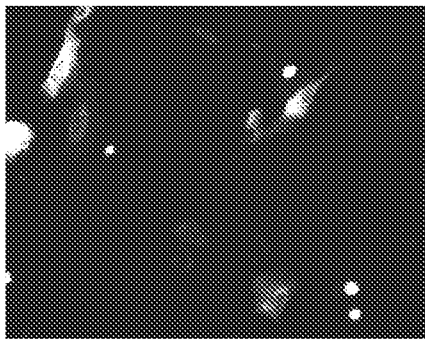
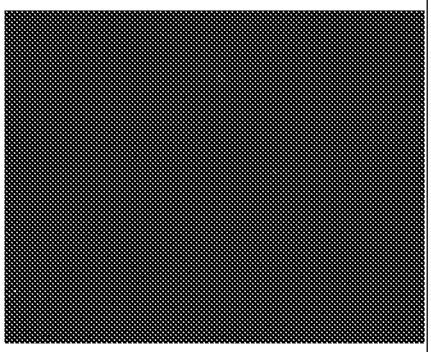
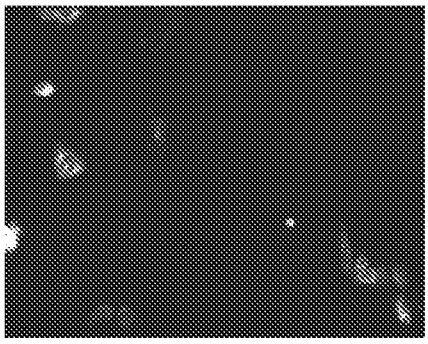
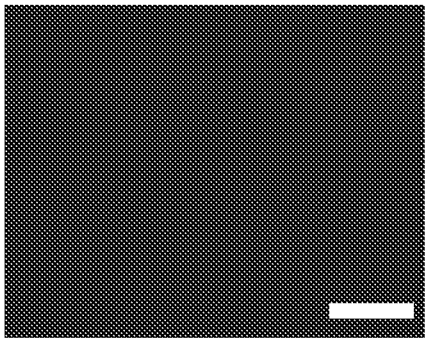
Antibody	Fixed and permeabilized (5 µg/ml)	Live (20 µg/ml)
OTIG6	 9	 29
2H7	 10	 30

Figure 12 continued

Irrelevant GPCR

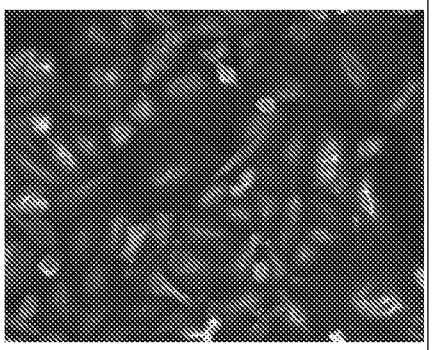
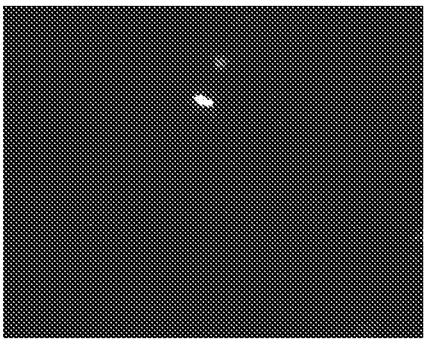
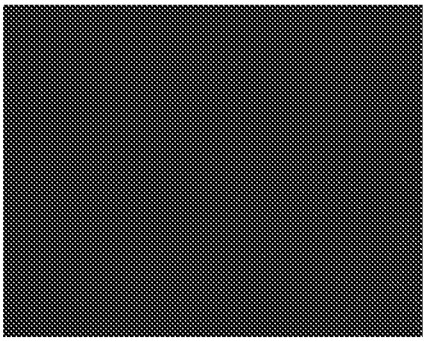
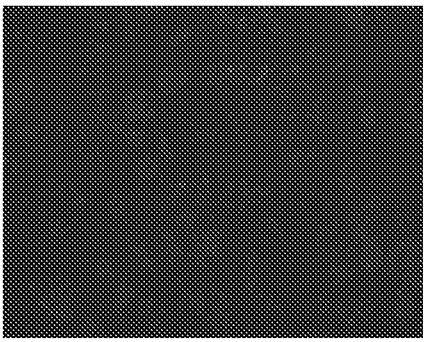
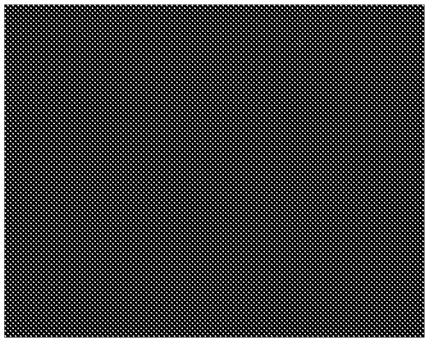
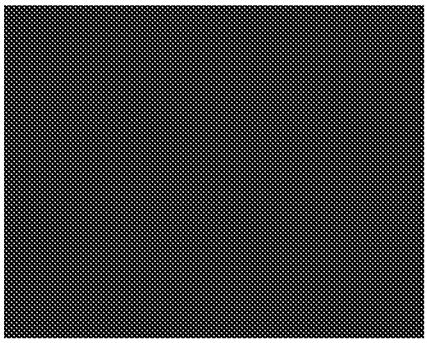
Antibody	Fixed and permeabilized (5 µg/ml)	Live (20 µg/ml)
Antibody 13	 11	 31
Antibody 12	 12	 32
63D8	 13	 33
Antibody 4	 14	 34

Figure 12 continued

Irrelevant GPCR

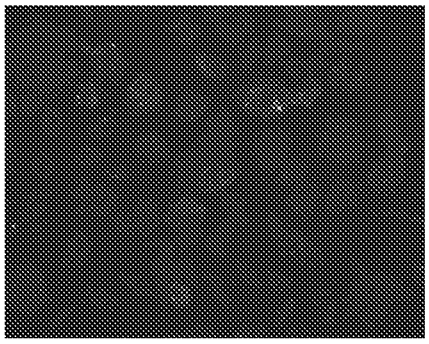
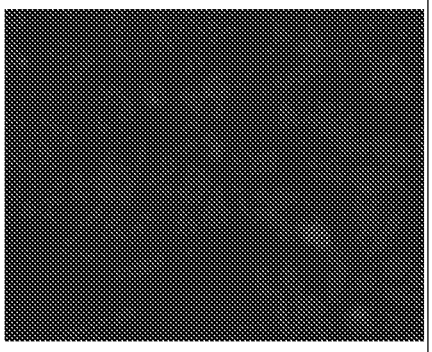
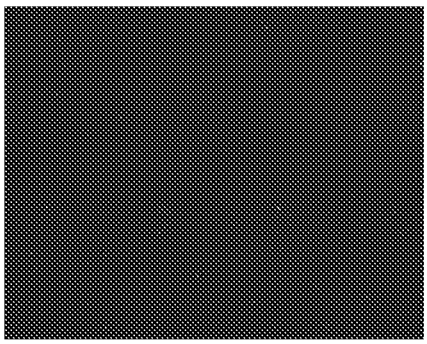
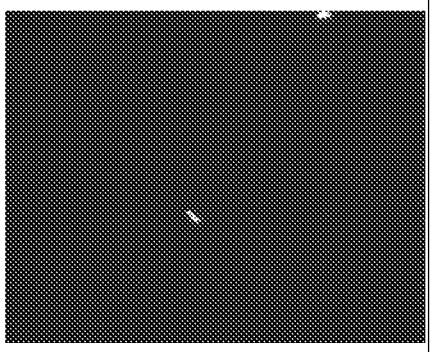
Antibody	Fixed and permeabilized (5 µg/ml)	Live (20 µg/ml)
EPR9710	 15	 35
4C3	 16	 36
#999807	 17	 37
2E2	 18	 38

Figure 12 continued

Irrelevant GPCR

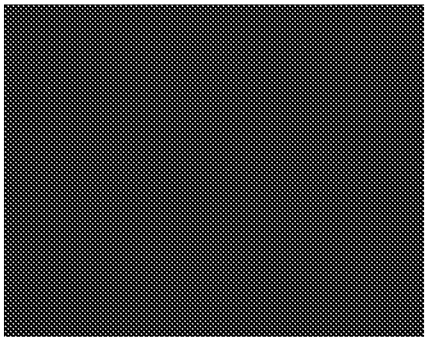
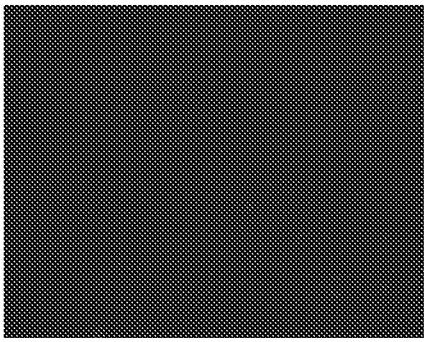
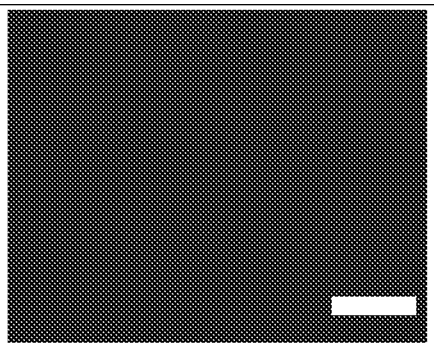
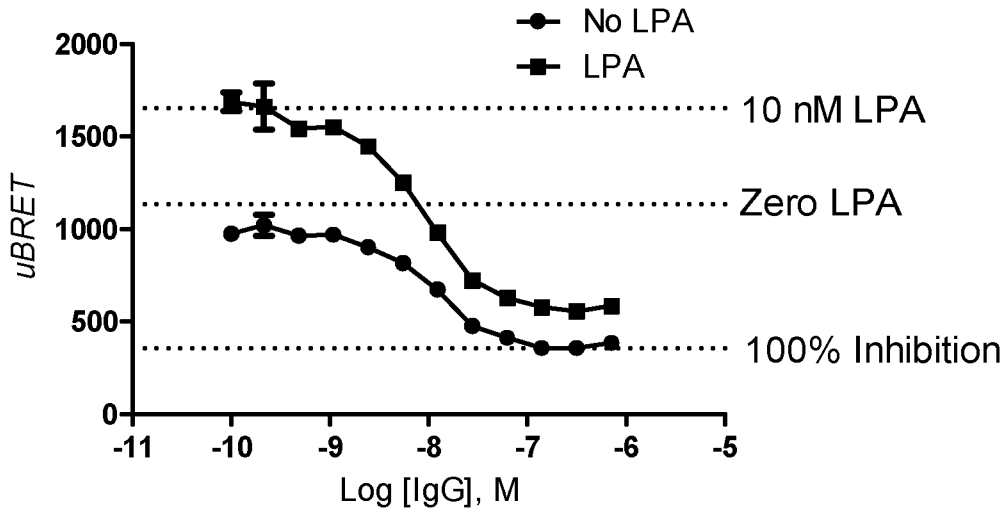
Antibody	Fixed and permeabilized (5 µg/ml)	Live (20 µg/ml)
OTIG6	 19	 39
2H7	 20	 40

Figure 13

A


No LPA
LPA
10 nM LPA
Zero LPA
100% Inhibition
uBRET
2000
1500
1000
500
0
-11
-10
-9
-8
-7
-6
-5
Log [IgG], M

B

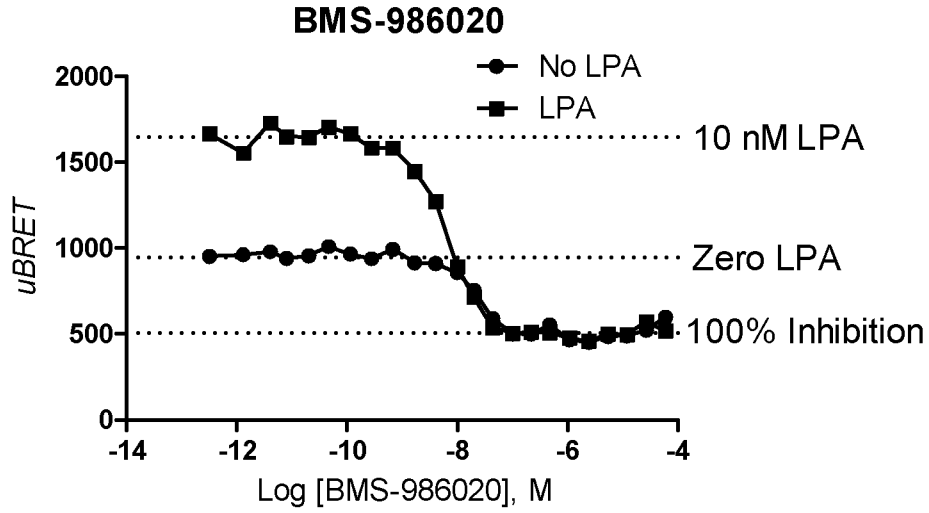
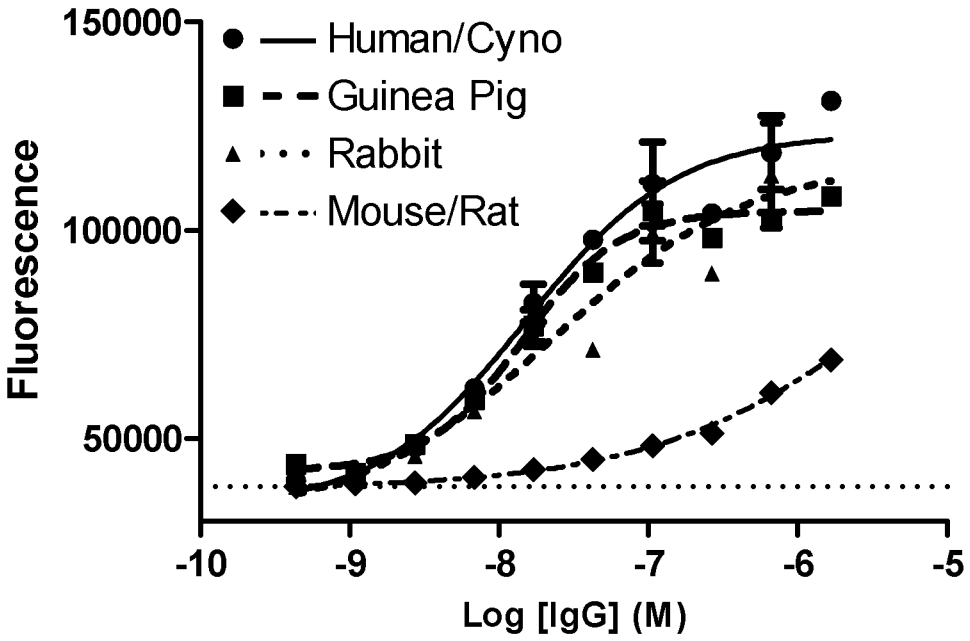

BMS-986020
No LPA
LPA
10 nM LPA
Zero LPA
100% Inhibition
uBRET
2000
1500
1000
500
0
-14
-12
-10
-8
-6
-4
Log [BMS-986020], M

Figure 14

A


150000
100000
50000
Fluorescence
Human/Cyno
Guinea Pig
Rabbit
Mouse/Rat
-10
-9
-8
-7
-6
-5
Log [IgG] (M)

B

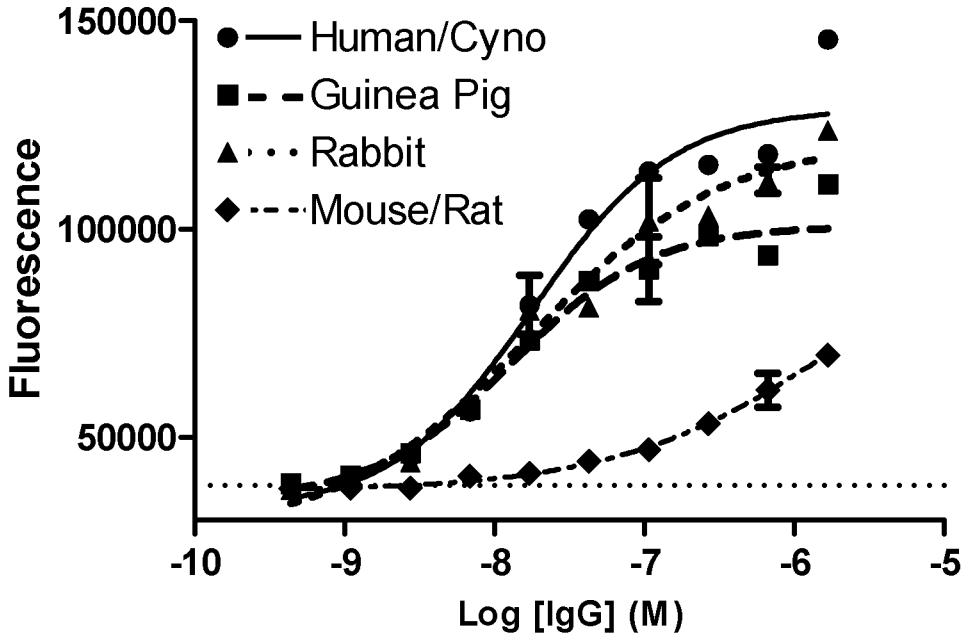
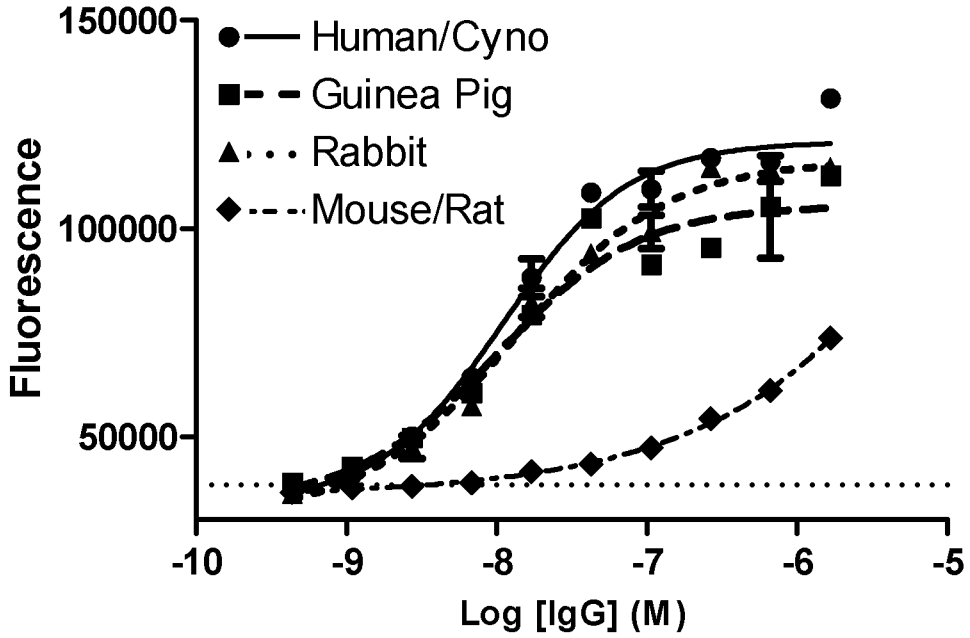

150000
100000
50000
Fluorescence
Human/Cyno
Guinea Pig
Rabbit
Mouse/Rat
-10
-9
-8
-7
-6
-5
Log [IgG] (M)

Figure 14 continued

C



D

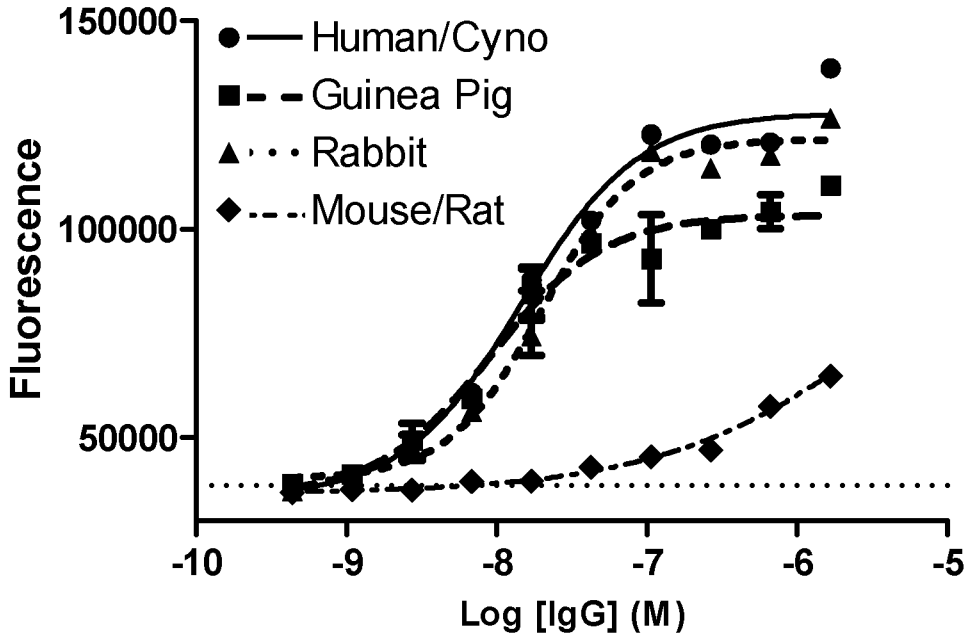
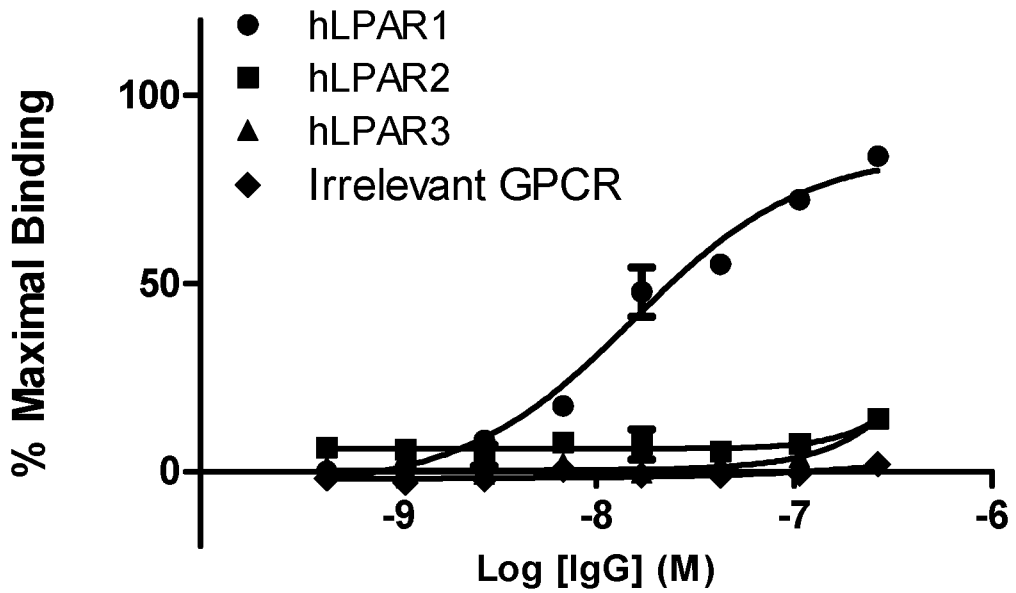


Figure 15

A


hLPAR1
hLPAR2
hLPAR3
Irrelevant GPCR
% Maximal Binding
100
50
0
-9
-8
-7
-6
Log [IgG] (M)

B

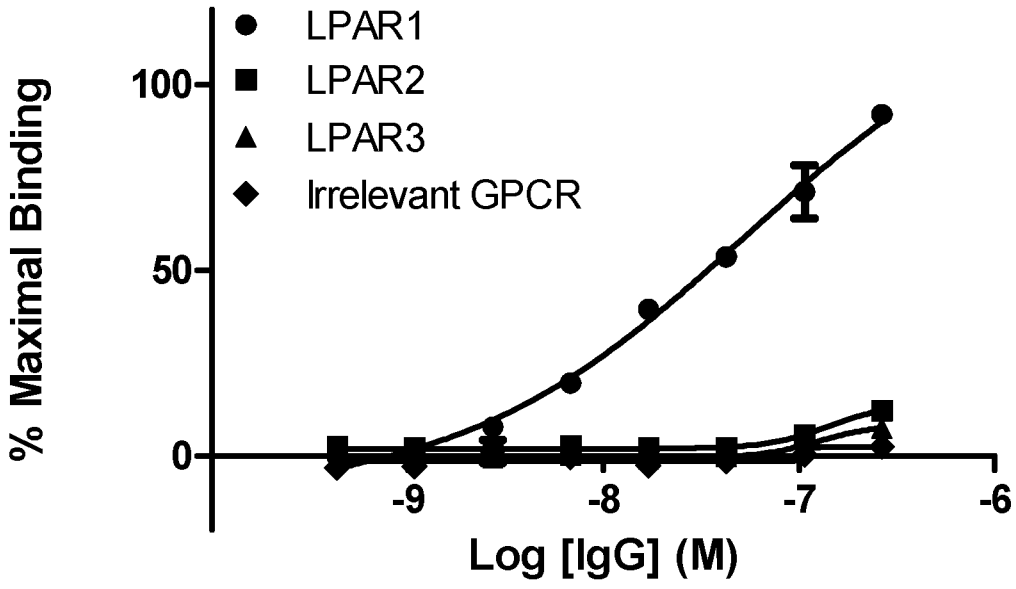
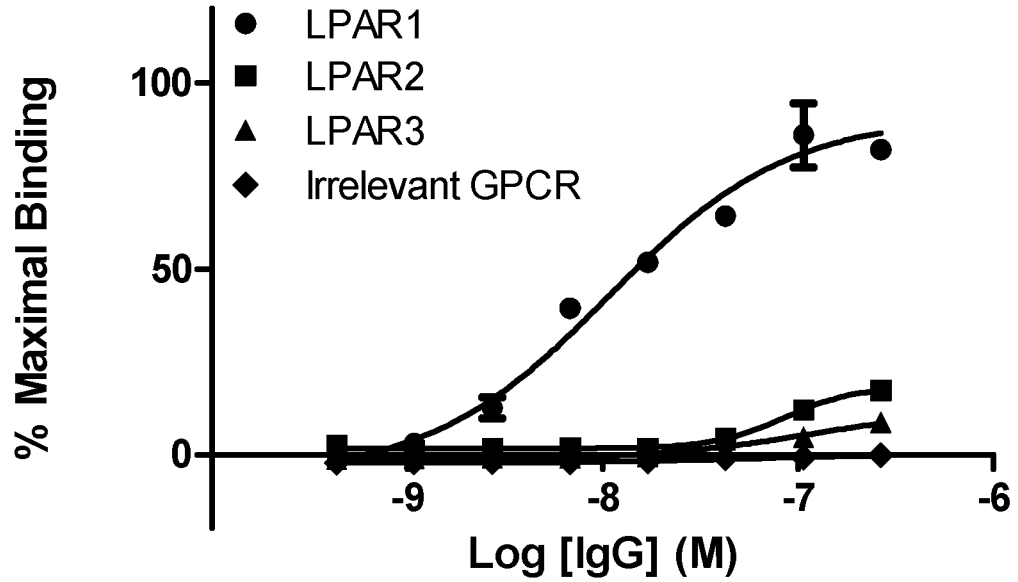

LPAR1
LPAR2
LPAR3
Irrelevant GPCR
% Maximal Binding
100
50
0
-9
-8
-7
-6
Log [IgG] (M)

Figure 15 continued

C



D

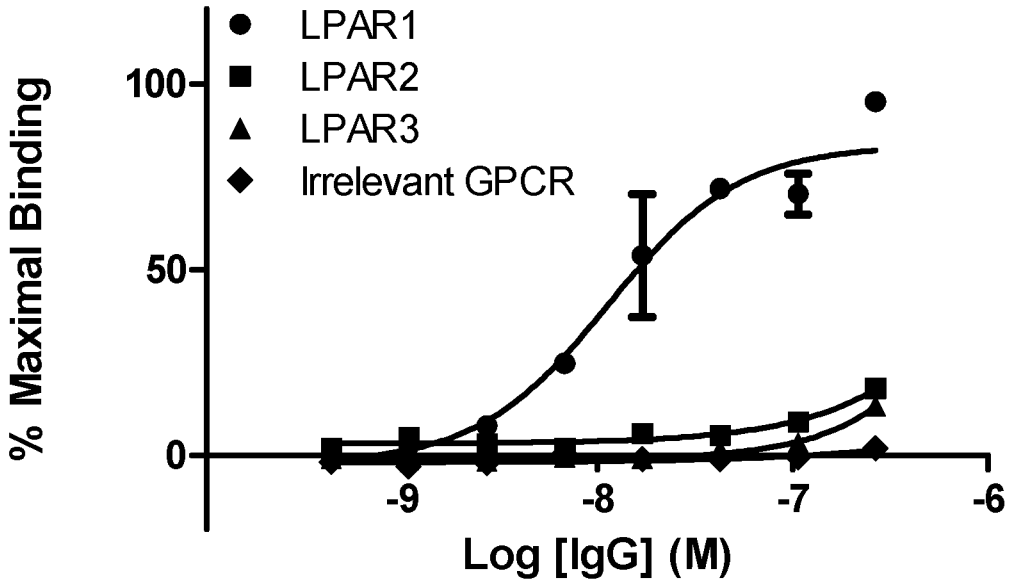
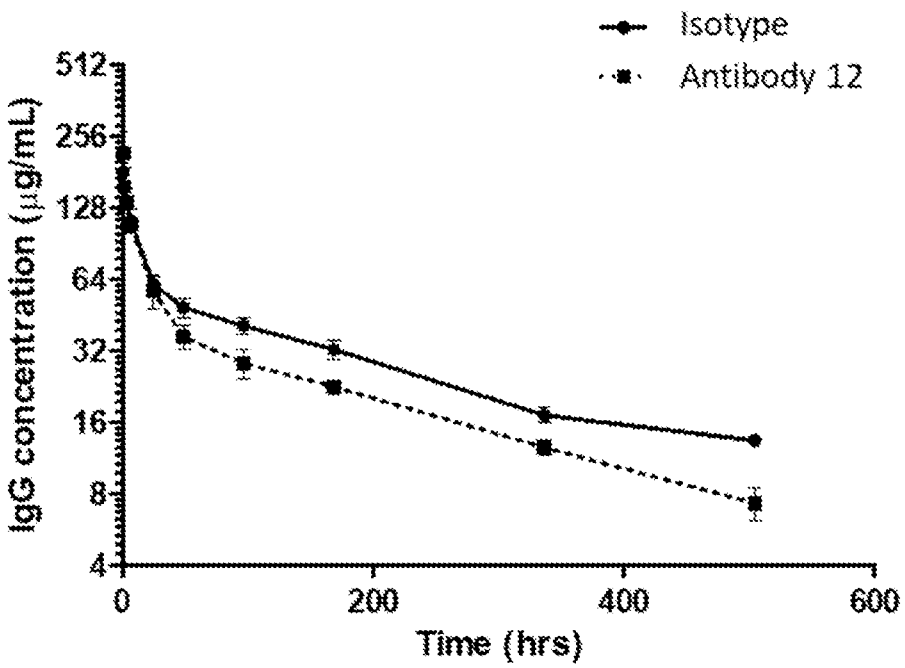


Figure 16

A


Isotype
Antibody 12
IgG concentration (µg/mL)
512
256
128
64
32
16
8
4
0
200
400
600
Time (hrs)

B

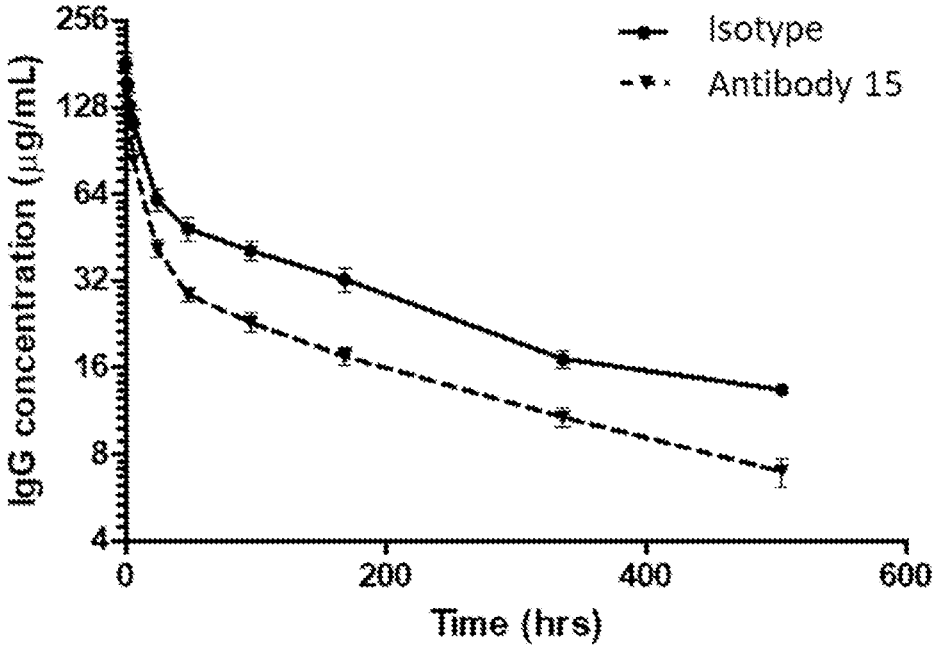
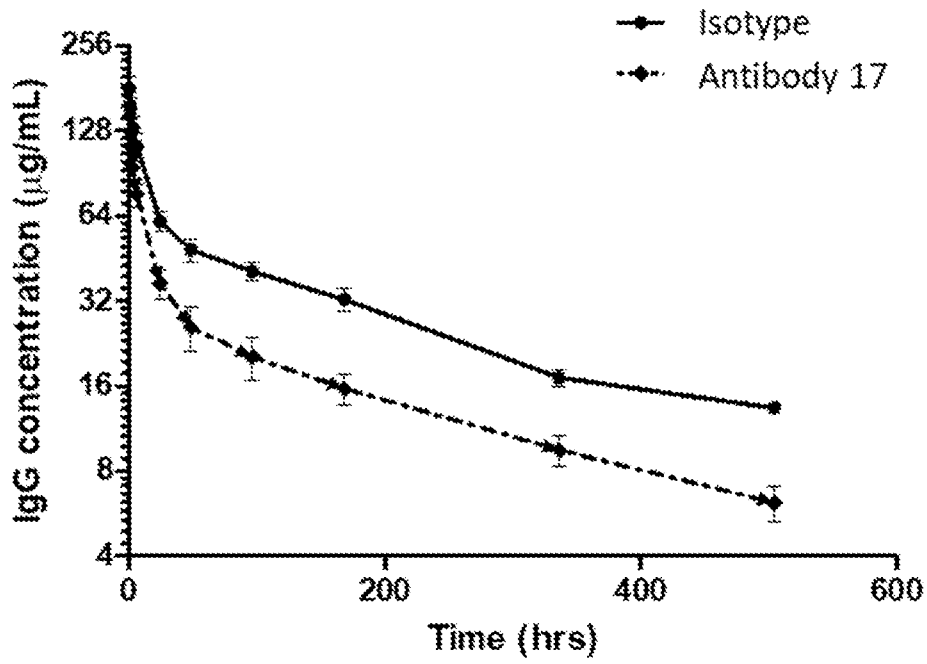

Isotype
Antibody 15
IgG concentration (µg/mL)
256
128
64
32
16
8
4
0
200
400
600
Time (hrs)

Figure 16 continued

C



D

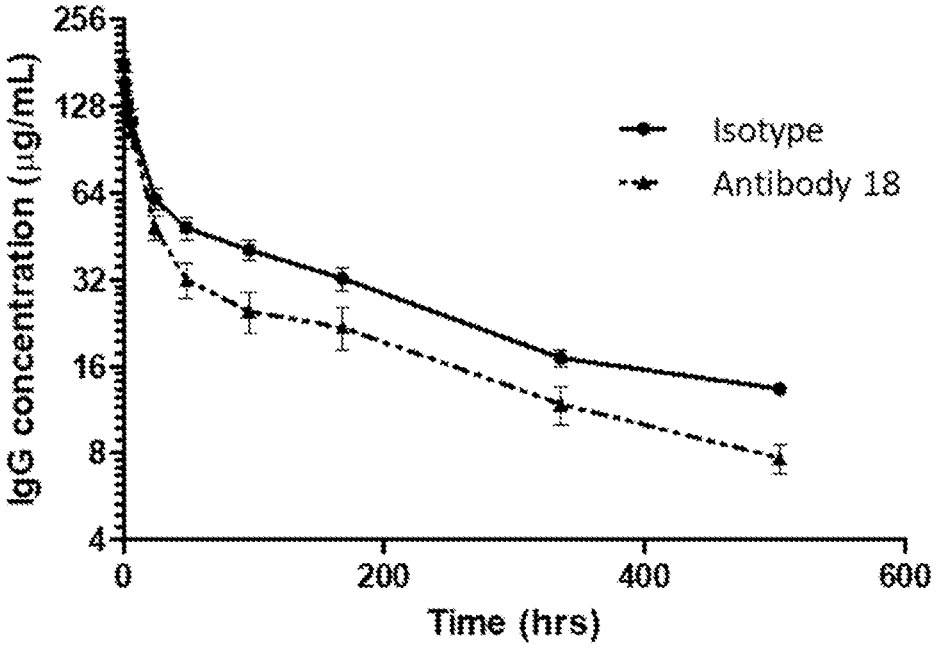
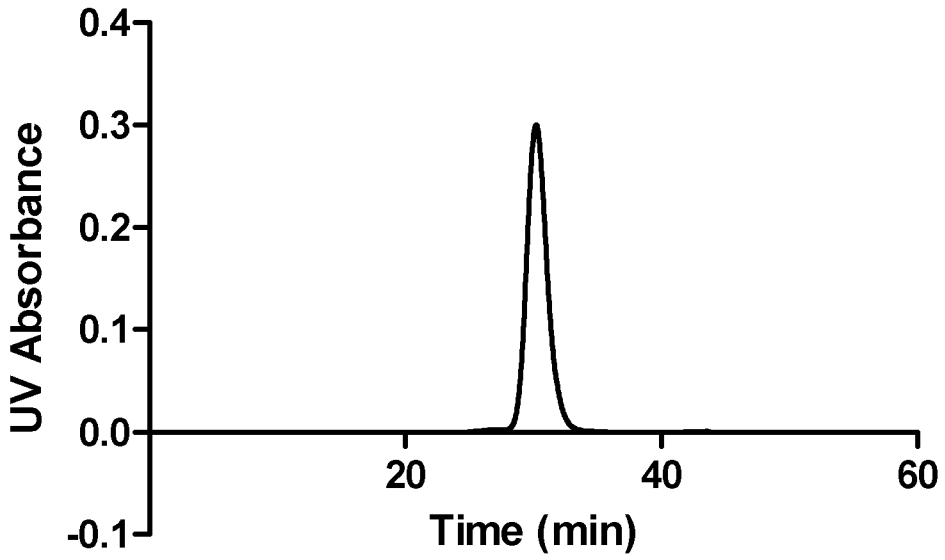


Figure 17

A


0.4
0.3
0.2
0.1
0.0
-0.1
UV Absorbance
20
40
60
Time (min)

B

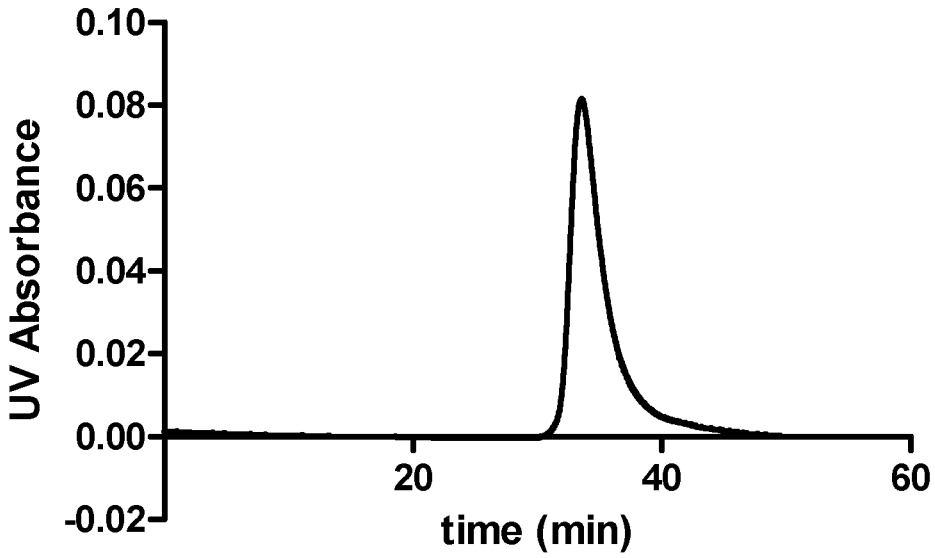
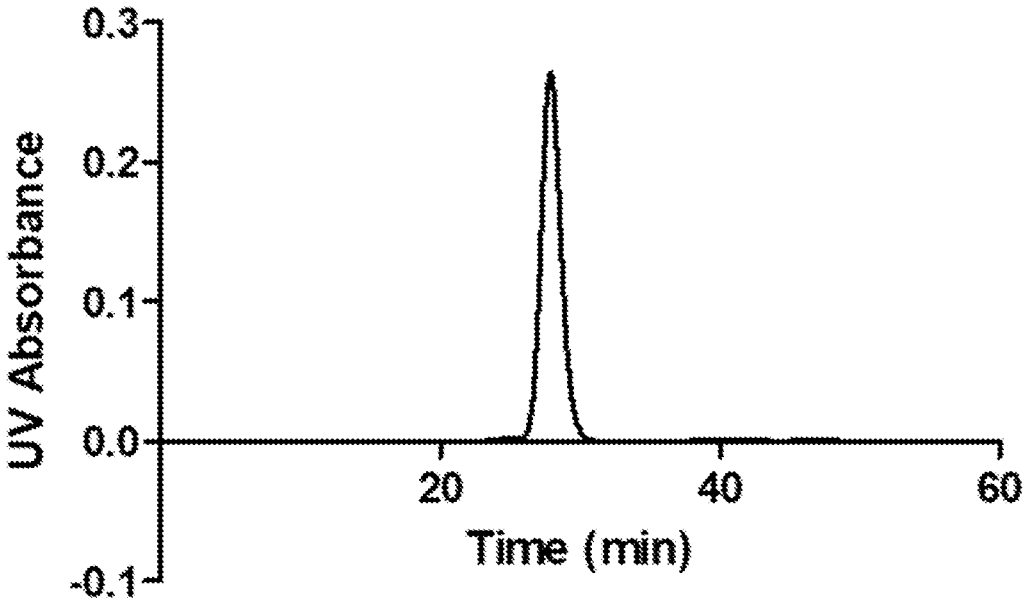

0.10
0.08
0.06
0.04
0.02
0.00
-0.02
UV Absorbance
20
40
60
time (min)

Figure 17 continued

C



D

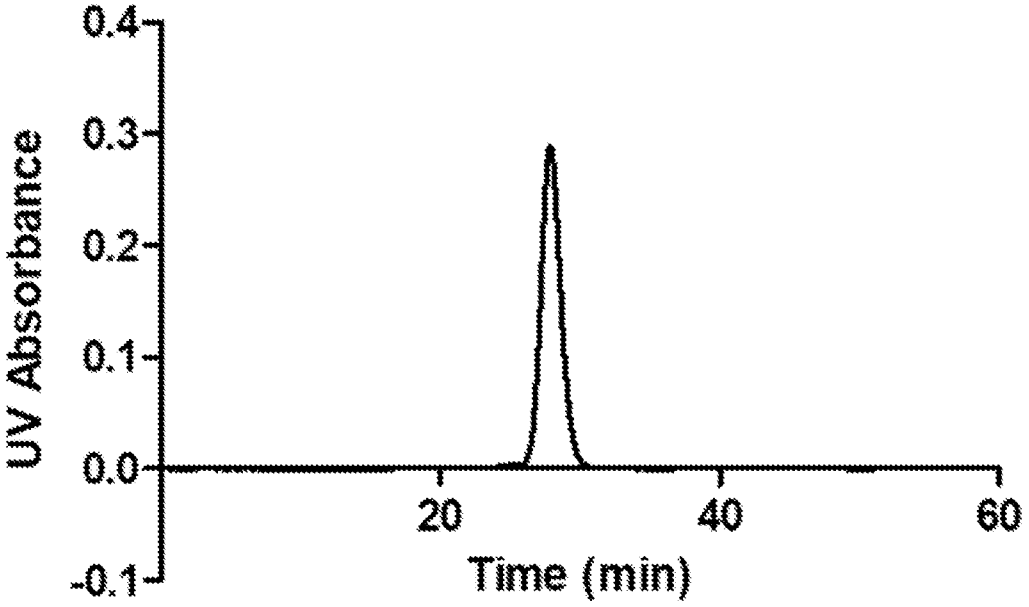
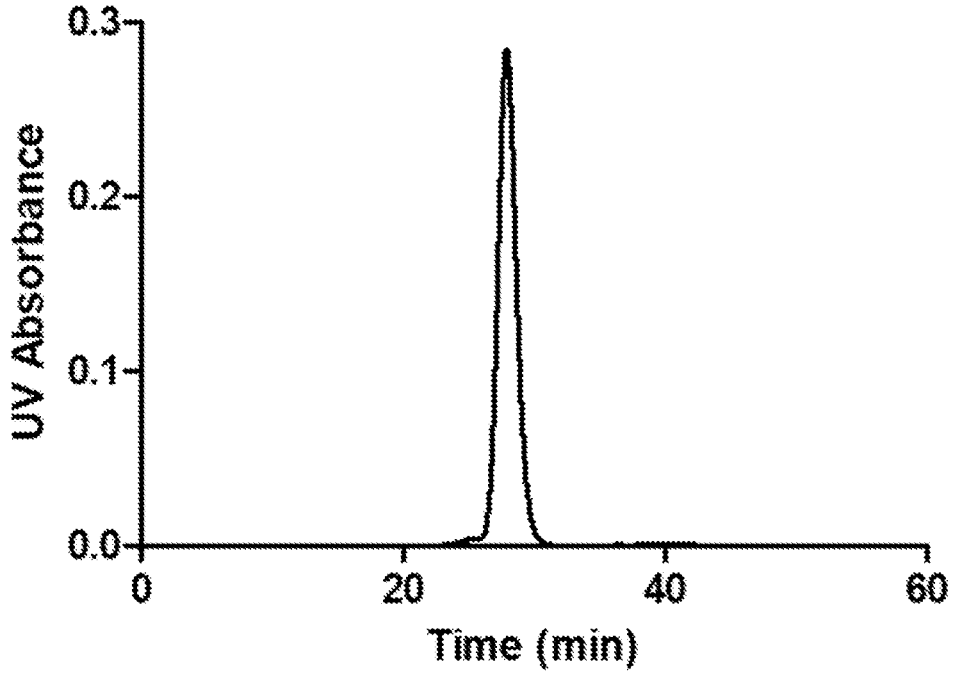


Figure 17 continued

E



F

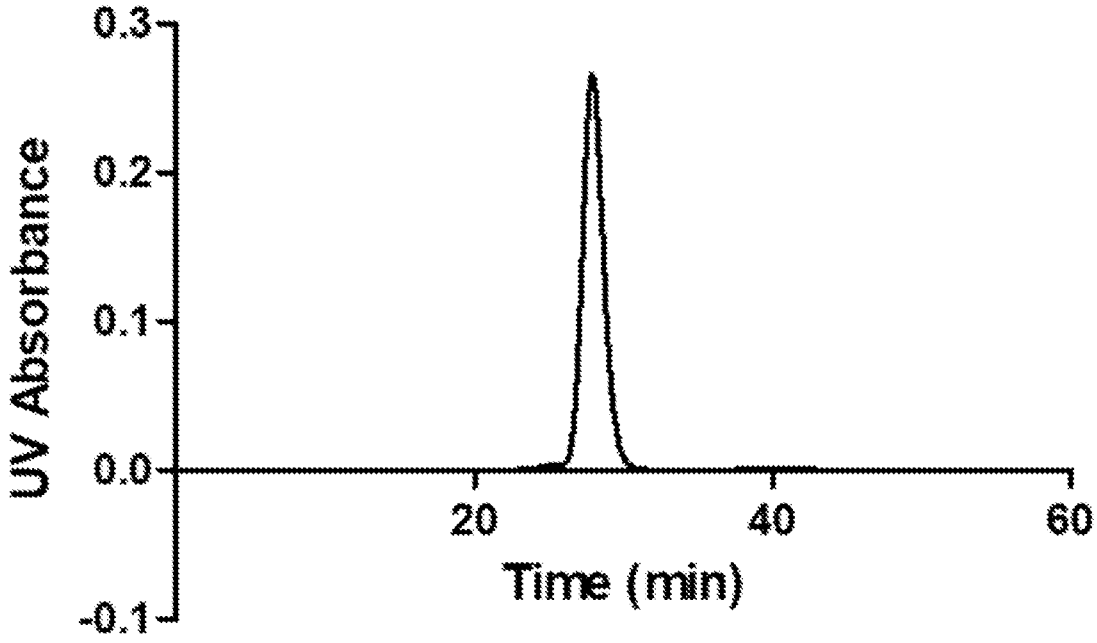
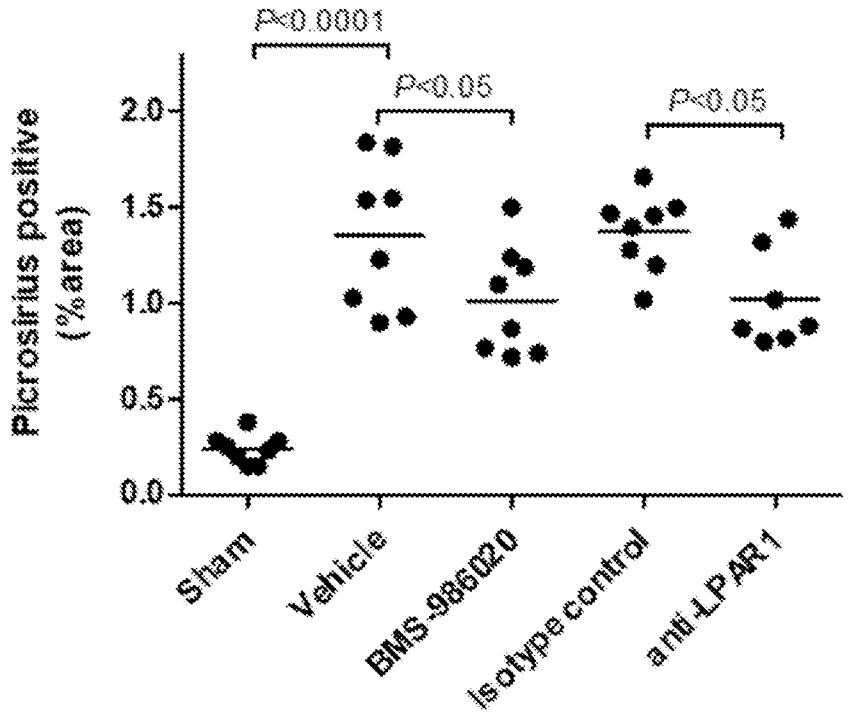
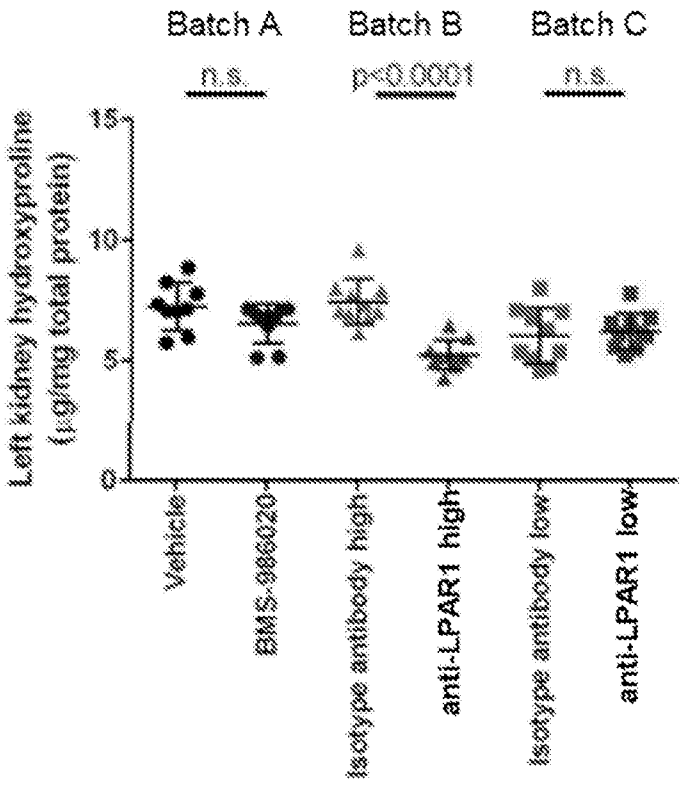


Figure 18

A


P<0.0001
P<0.05
P<0.05
Picrosirius positive (%area)
2.0
1.5
1.0
0.5
0.0
Sham
Vehicle
BMS-986020
Isotype control
anti-LPAR1

B


Batch A
Batch B
Batch C
n.s.
p<0.0001
n.s.
Left kidney hydroxyproline (ug/mg total protein)
15
10
5
0
Vehicle
BMS-986020
Isotype antibody high
anti-LPAR1 high
Isotype antibody low
anti-LPAR1 low