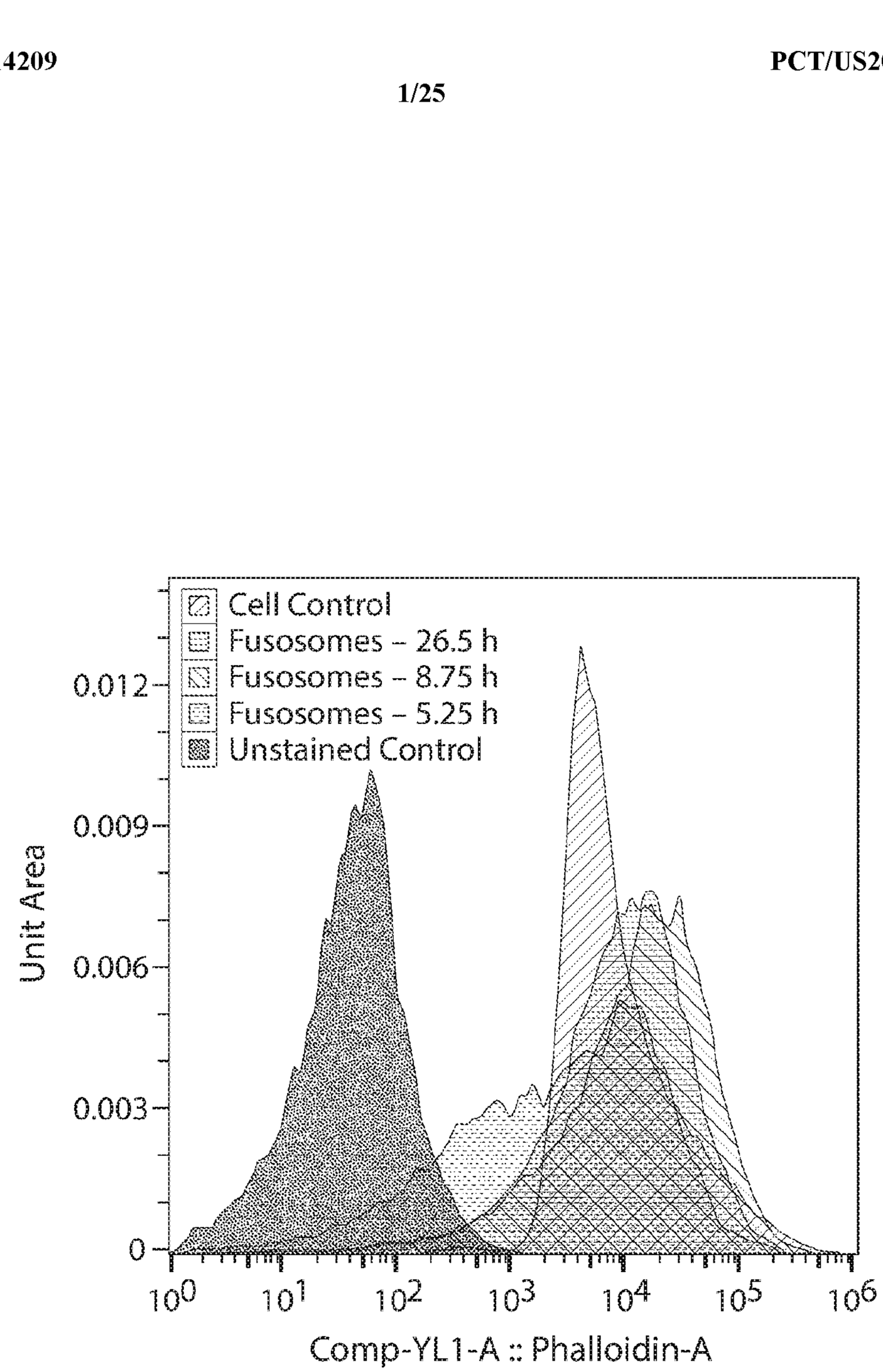

Cell Control
Fusosomes – 26.5 h
Fusosomes – 8.75 h
Fusosomes – 5.25 h
Unstained Control
Unit Area
0.012
0.009
0.006
0.003
0
10^0
10^1
10^2
10^3
10^4
10^5
10^6
Comp-YL1-A :: Phalloidin-A

Fig. 1

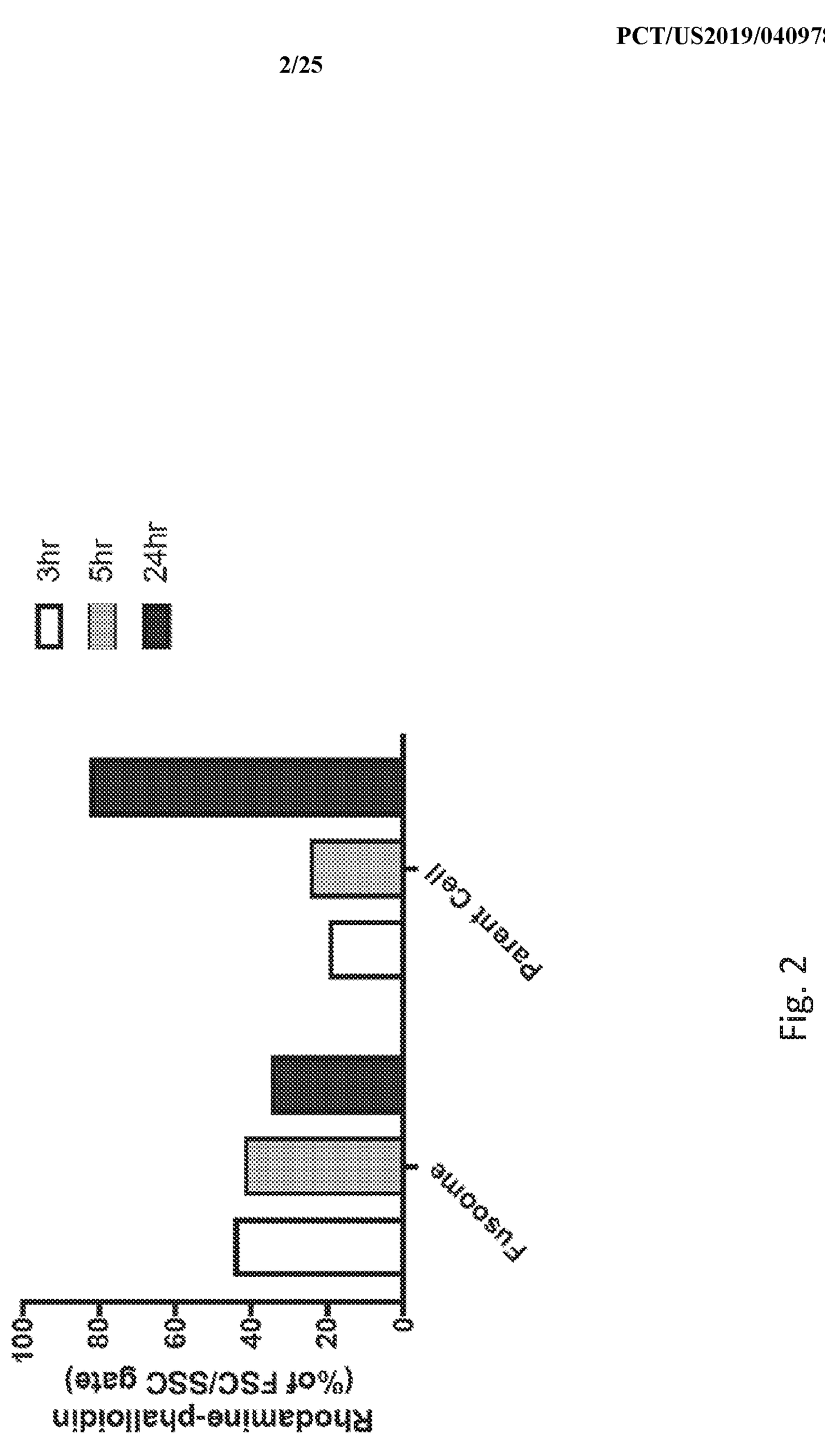

3hr
5hr
24hr
Parent Cell
Fusoorne
Rhodamine-phalloidin
(%of FSC/SSC gate)
100
80
60
40
20
0

Fig. 2

	Fusosomes	Parental Cells
Average diameter (nm)	128.7	175.4
Min Diameter (nm)	14	29
Max Diameter (nm)	18720	19802
Median Diameter (nm)	134	99
10% Quantile (nm)	53	52
25% Quantile (nm)	88	66
75% Quantile (nm)	226	241
90% Quantile (nm)	4450	10649
Average volume (μm^3)	0.067	7.421

Fig. 3

	Fusosomes	Parental Cells
Average diameter (nm)	128.7	175.4
Average volume (μm^3)	0.067	7.421

Fig. 4

	[Protein] (mg/mL) Insoluble	Soluble	Ratio
Cells	2.12	0.06	0.028
Fusosomes	1.28	0.72	0.563

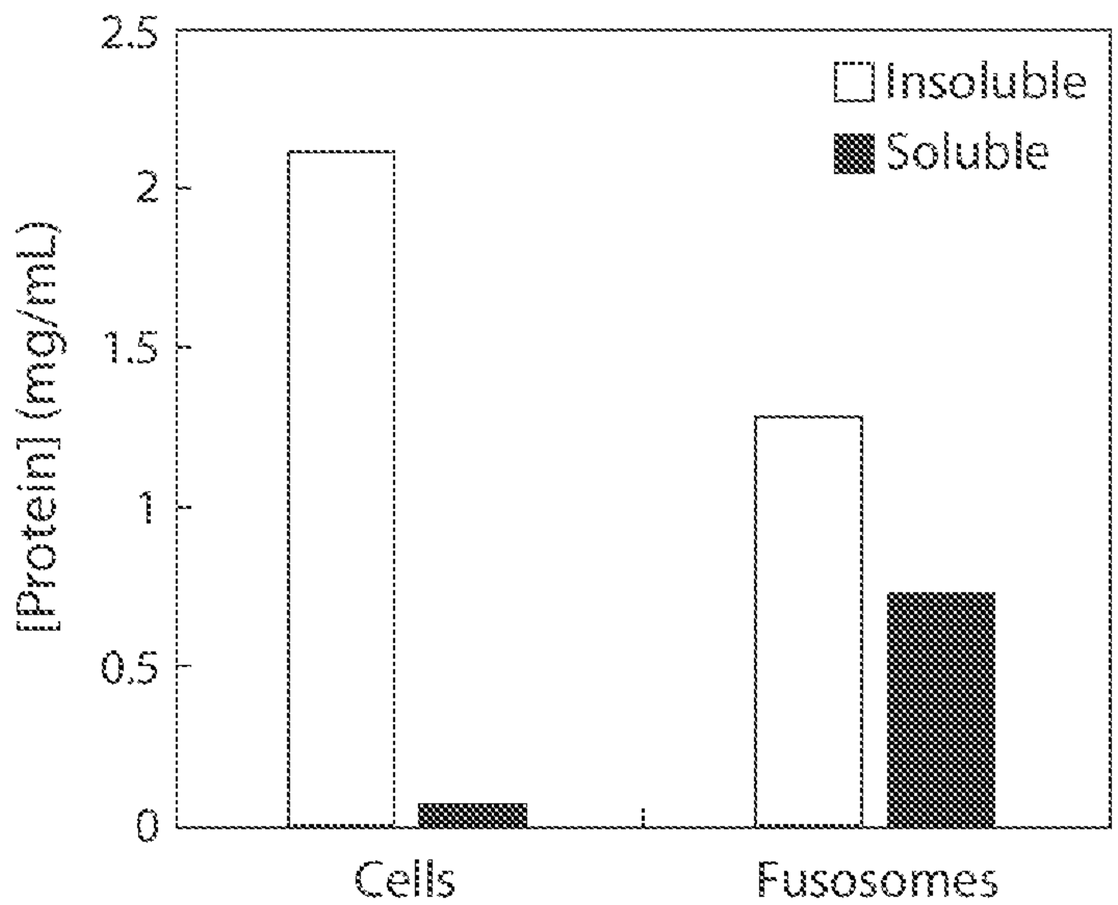
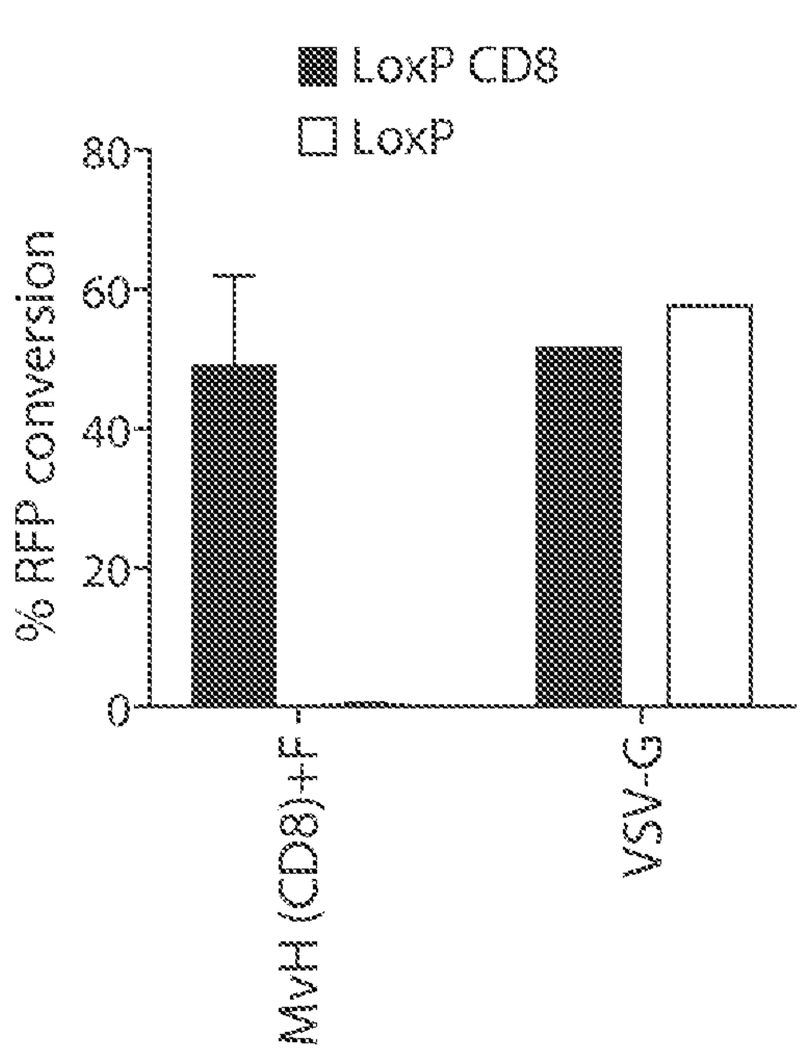


Fig. 5



Fusosome	Absolute amount of targeted fusion
MvH(CD8)+F	48.8%
VSV-G	0%

Fig. 6

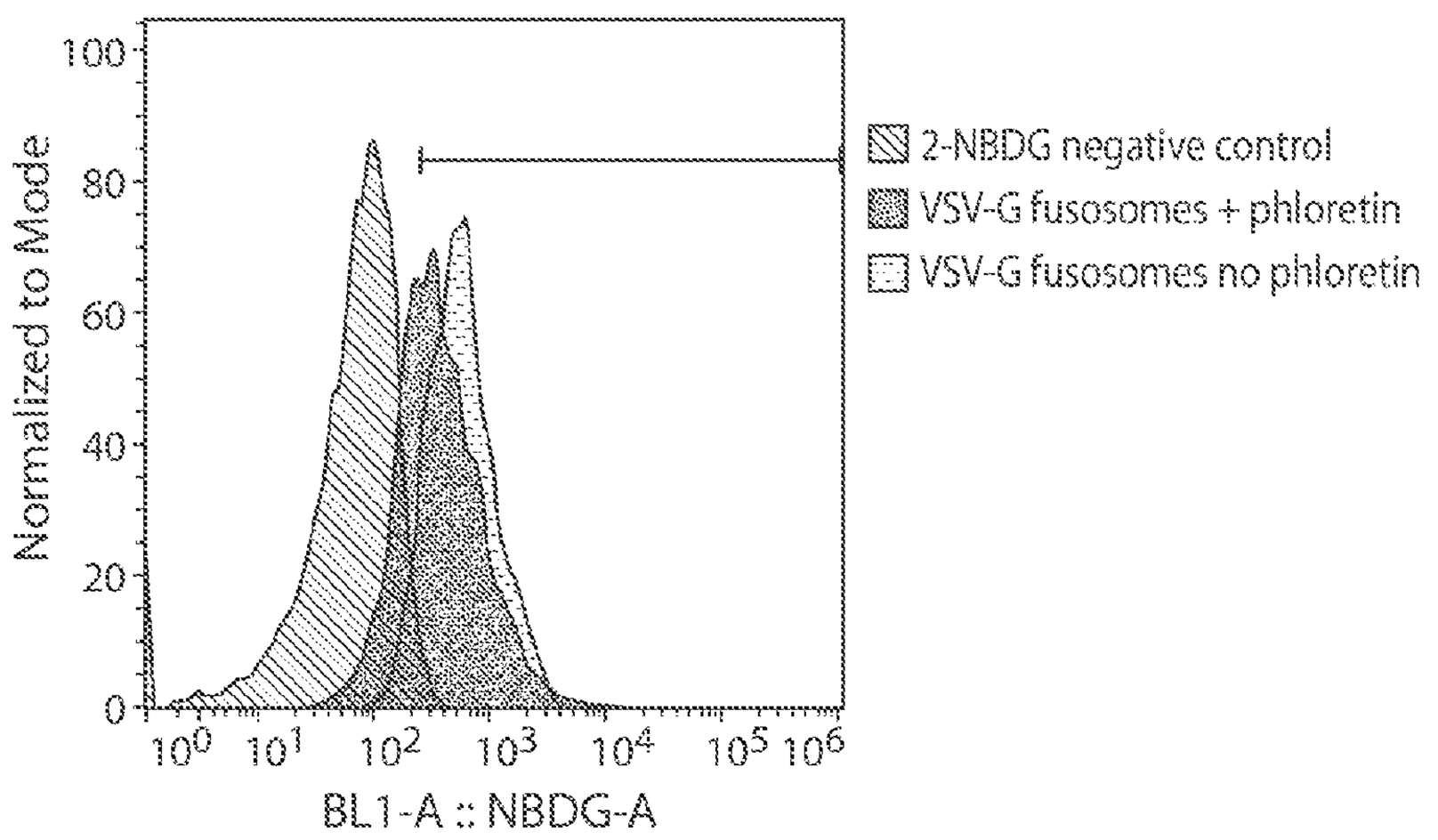

Normalized to Mode
100
80
60
40
20
0
10^0 10^1 10^2 10^3 10^4 10^5 10^6
BL1-A :: NBDG-A
2-NBDG negative control
VSV-G fusosomes + phloretin
VSV-G fusosomes no phloretin

Fig. 7

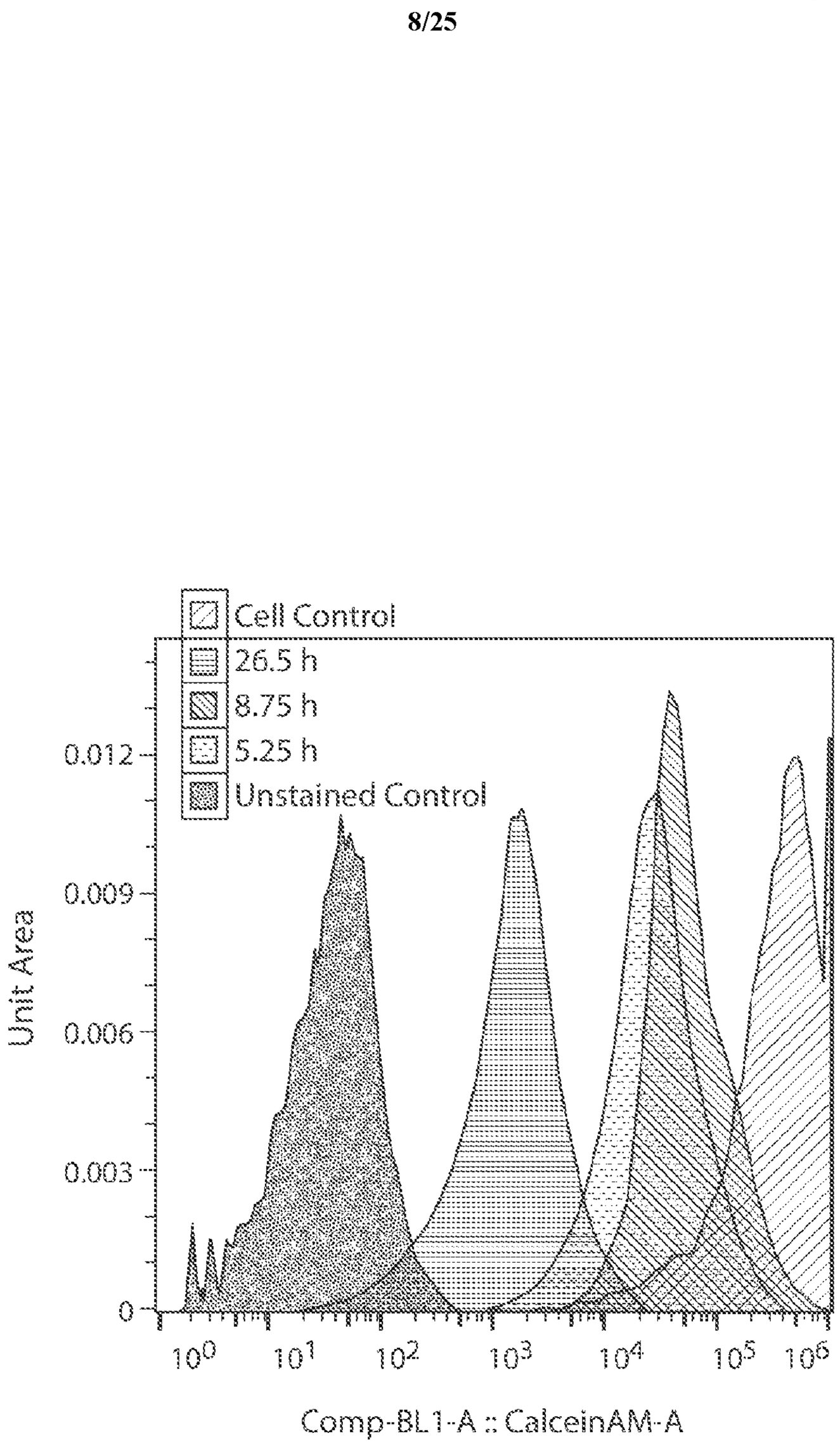

Cell Control
26.5 h
8.75 h
5.25 h
Unstained Control
Unit Area
0.012
0.009
0.006
0.003
0
10^0
10^1
10^2
10^3
10^4
10^5
10^6
Comp-BL1-A :: CalceinAM-A

Fig. 8

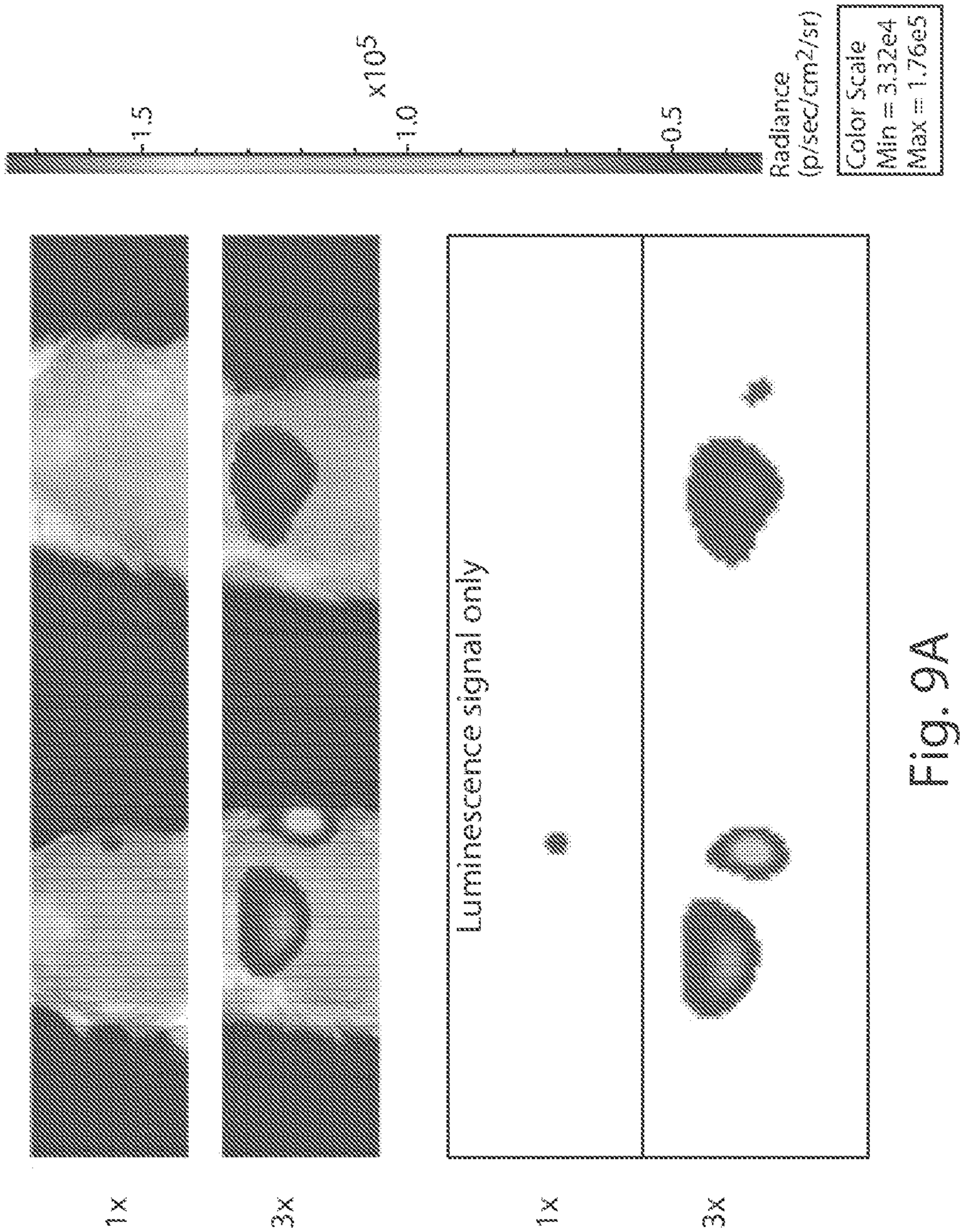

Radiance
(p/sec/cm2/sr)
x105
1.5
1.0
0.5
Color Scale
Min = 3.32e4
Max = 1.76e5
Luminescence signal only
1x
3x
1x
3x

Fig. 9A

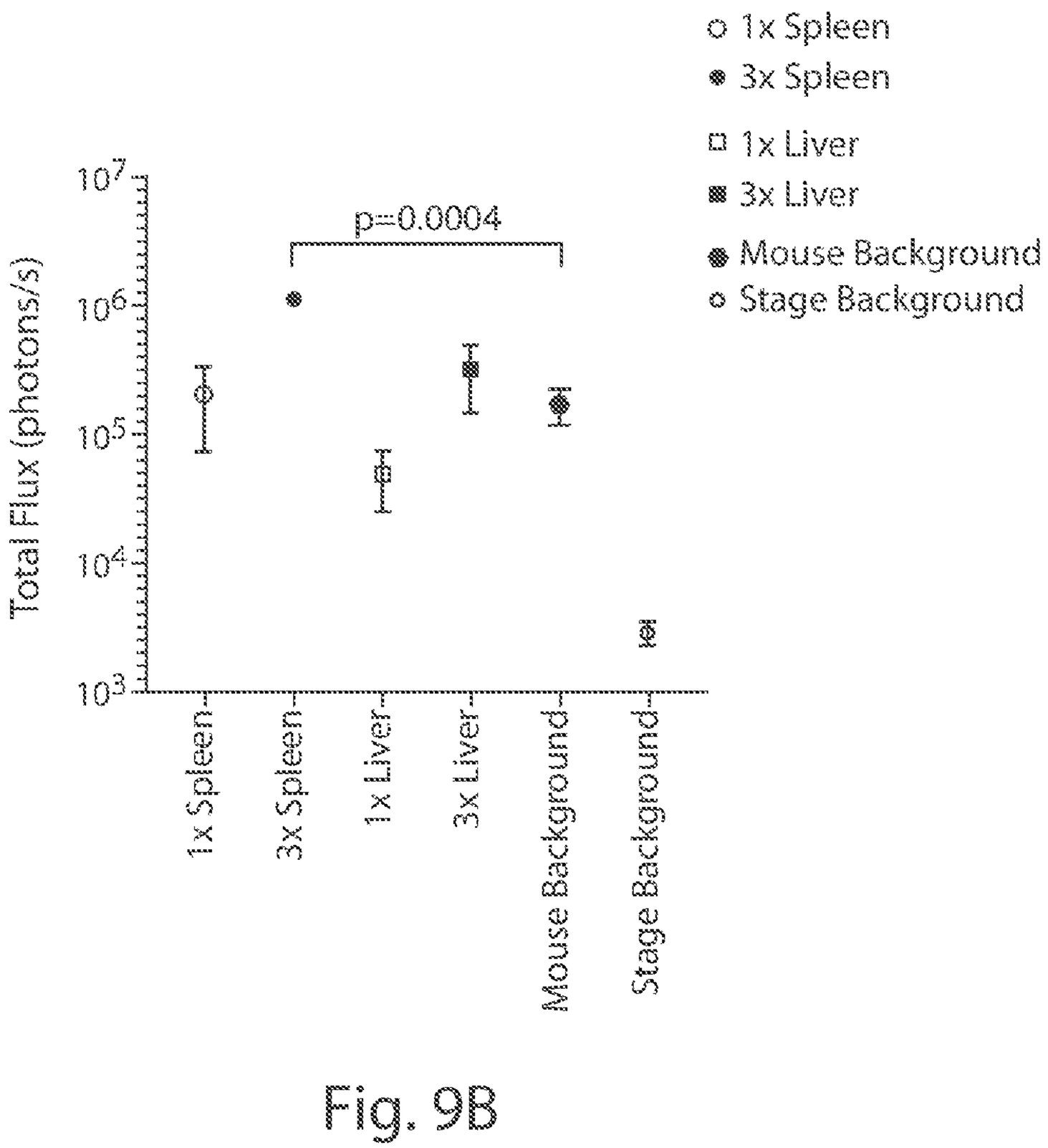

Total Flux (photons/s)
10^7
10^6
10^5
10^4
10^3
p=0.0004
1x Spleen
3x Spleen
1x Liver
3x Liver
Mouse Background
Stage Background
1x Spleen
3x Spleen
1x Liver
3x Liver
Mouse Background
Stage Background

Fig. 9B

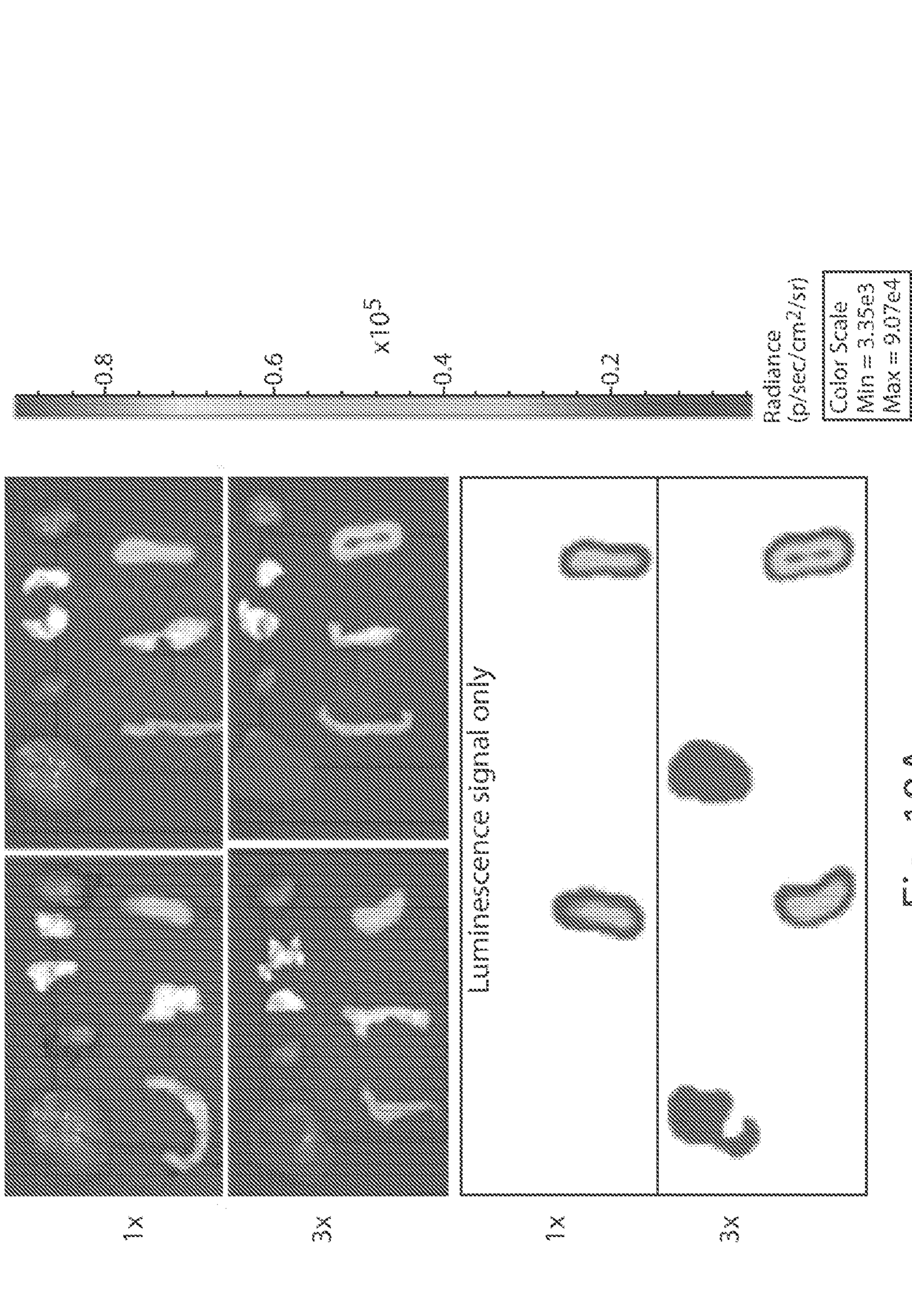

Luminescence signal only
1x
3x
1x
3x
0.8
0.6
0.4
0.2
x10^5
Radiance (p/sec/cm²/sr)
Color Scale
Min = 3.35e3
Max = 9.07e4

Fig. 10A

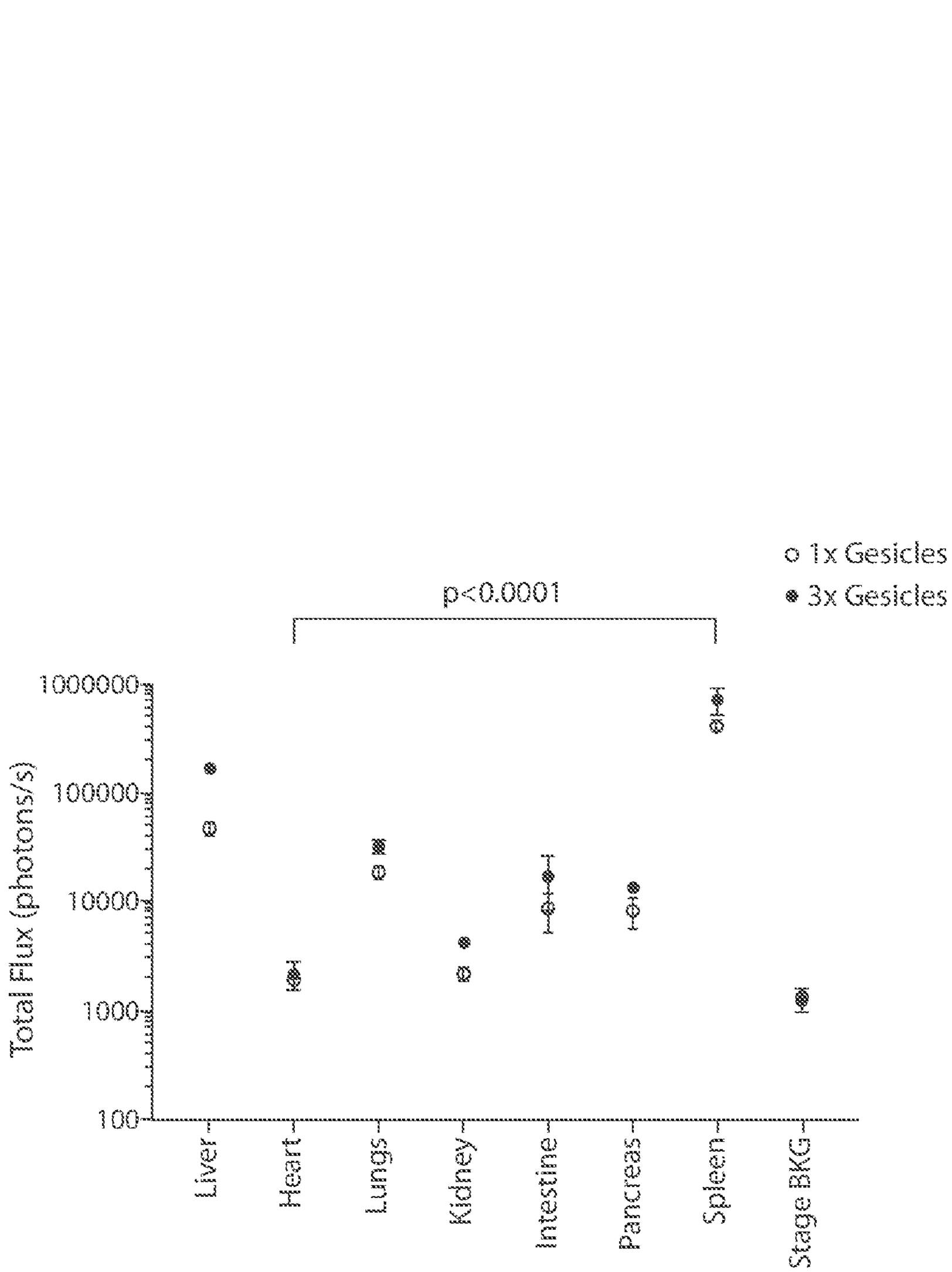

1x Gesicles
3x Gesicles
p<0.0001
Total Flux (photons/s)
1000000
100000
10000
1000
100
Liver
Heart
Lungs
Kidney
Intestine
Pancreas
Spleen
Stage BKG

Fig. 10B

Group	% RFP conversion (± SD)
Recipient + no fusosome	0.4 ± 0.2%
Recipient + NivG+F fusosome	88.9 ± 3.4%
Recipient + NivG+F fusosome + Baf	68.1 ± 2.7%

Fig. 11

SUBSTITUTE SHEET (RULE 26)

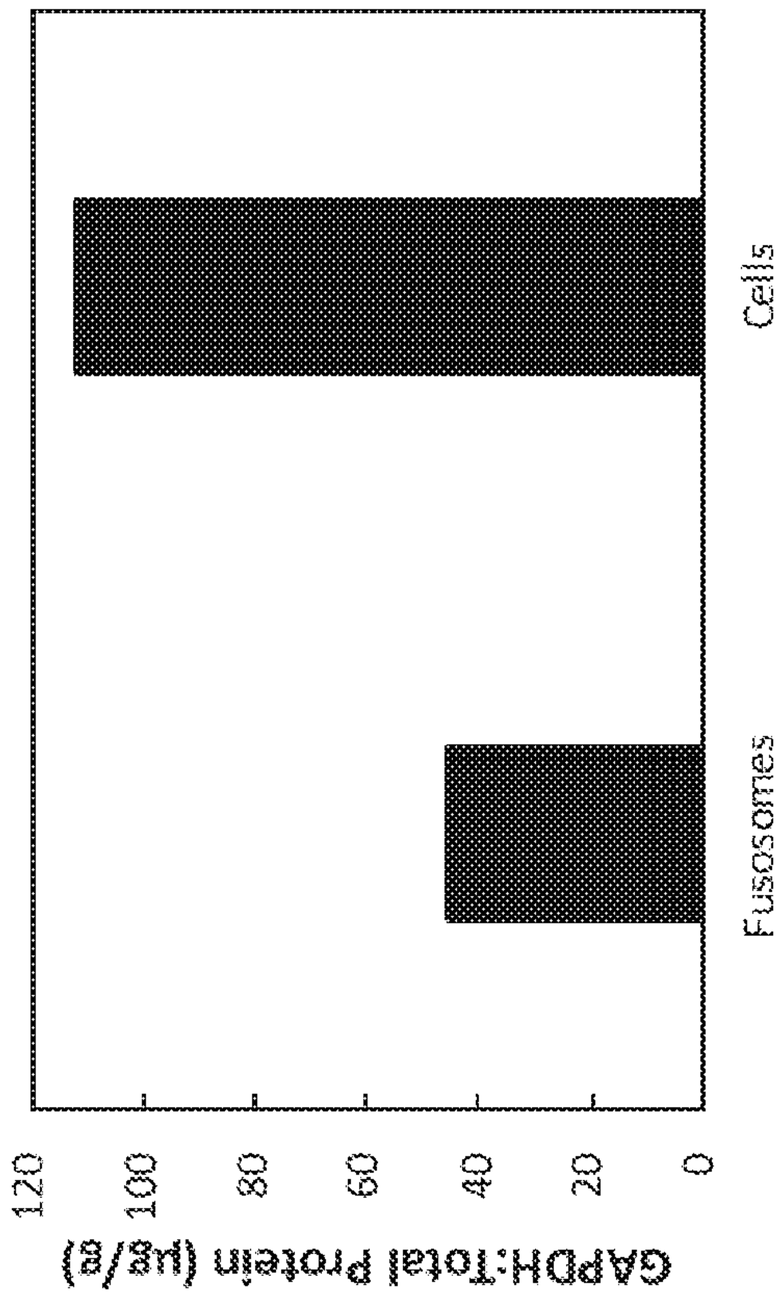


Fig. 12

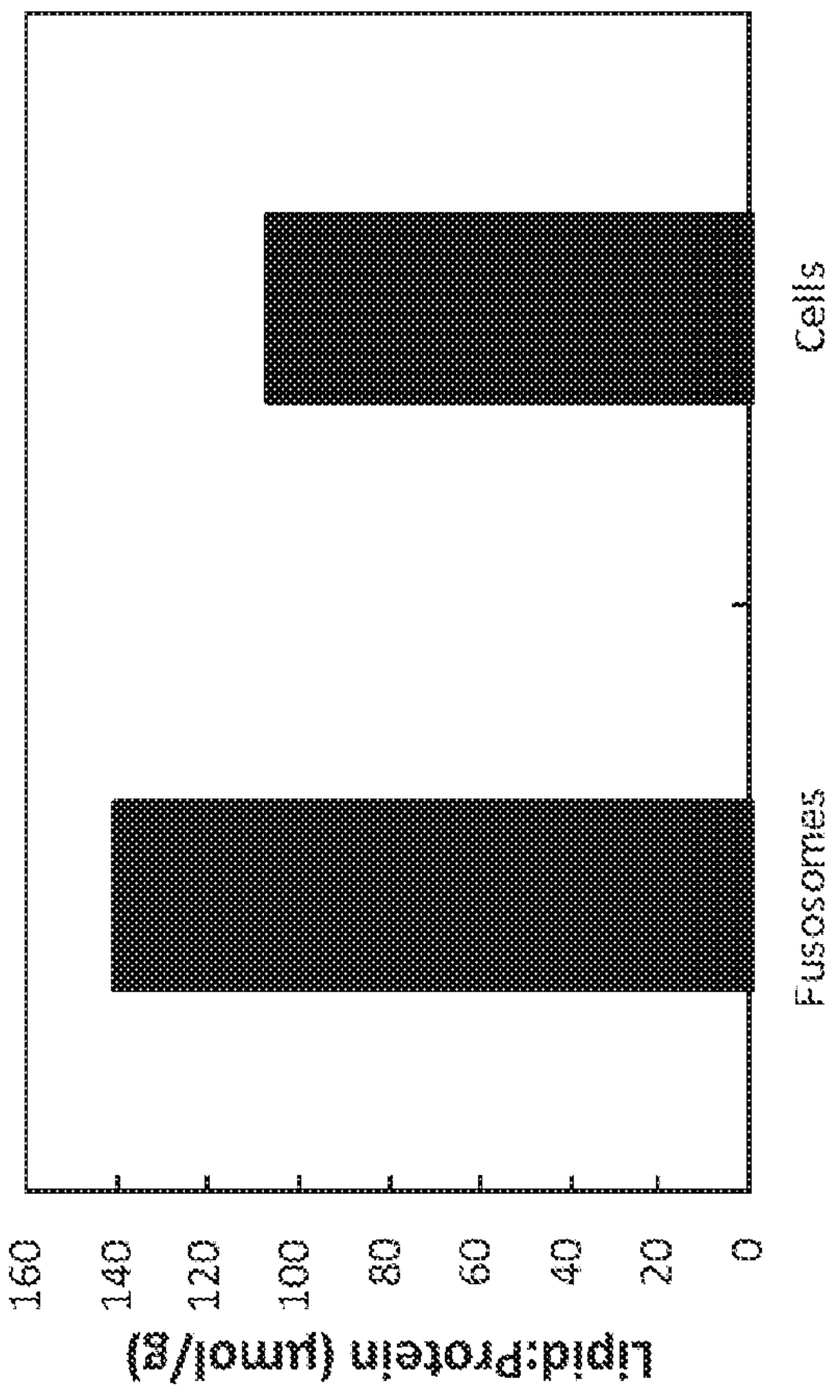

Cells
Fusosomes
Lipid:Protein (μmol/g)
160
140
120
100
80
60
40
20
0

Fig. 13

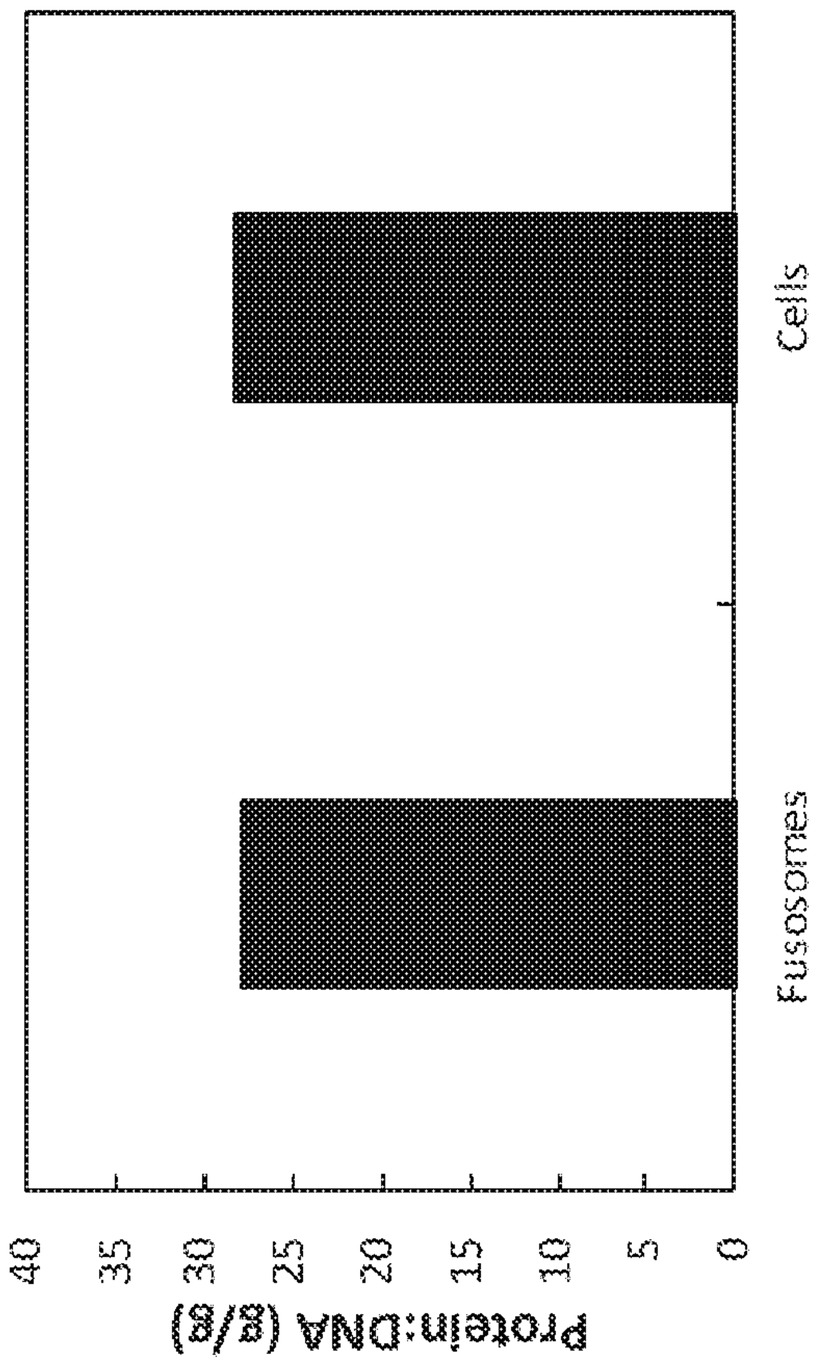


Fig. 14

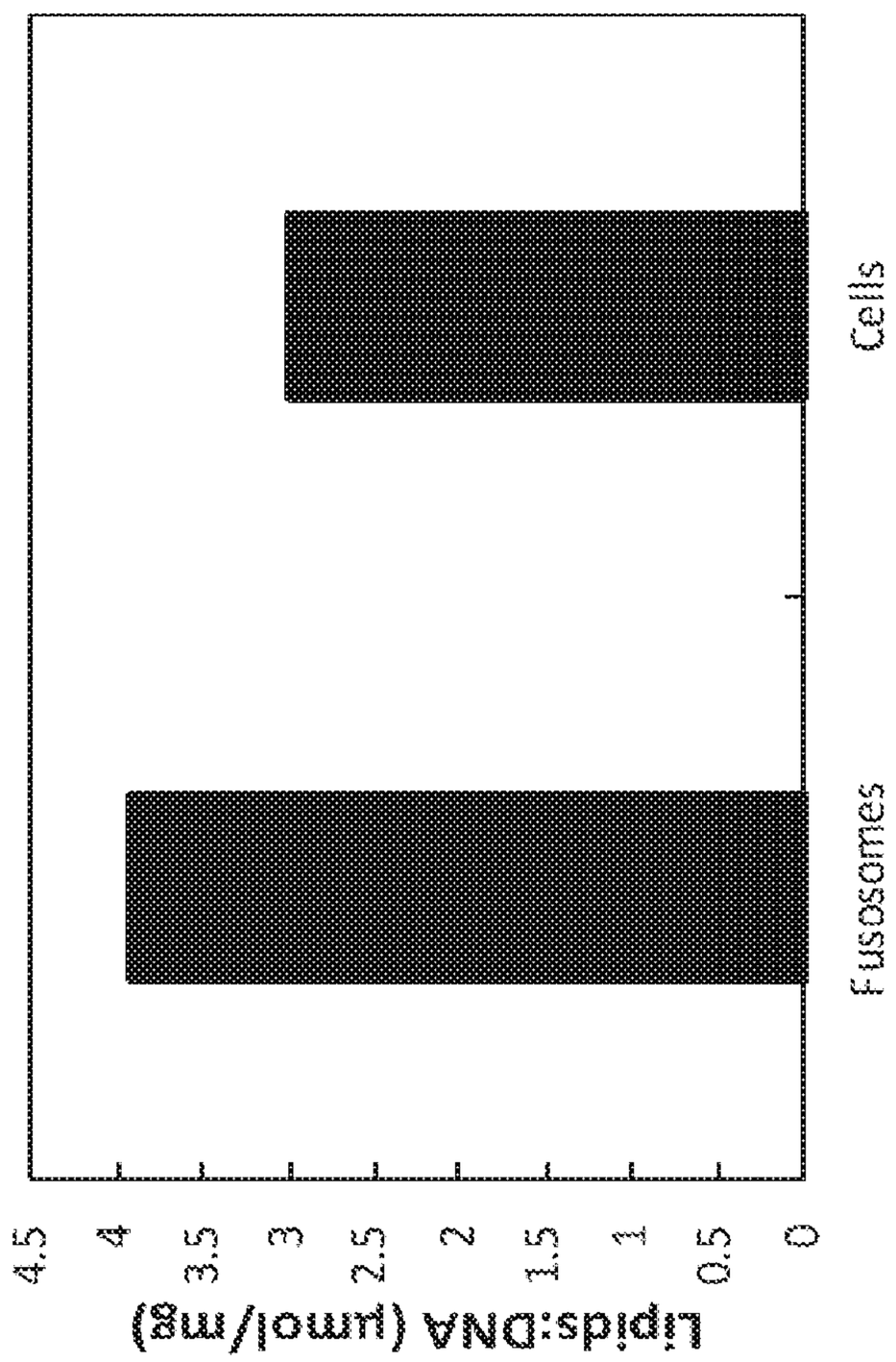


Fig. 15

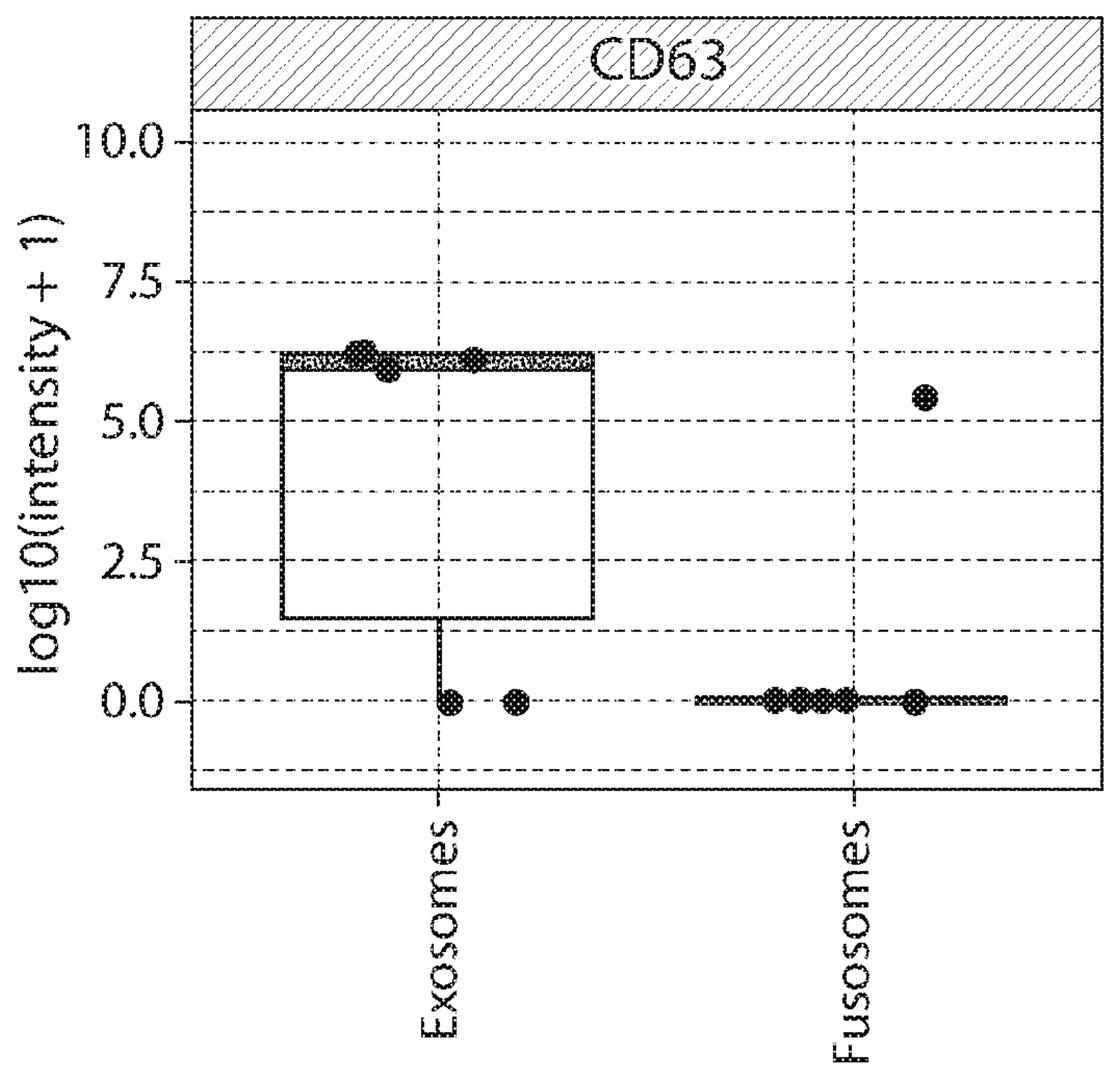

CD63
10.0
7.5
5.0
2.5
0.0
log10(intensity + 1)
Exosomes
Fusosomes
cohort

Fig. 16

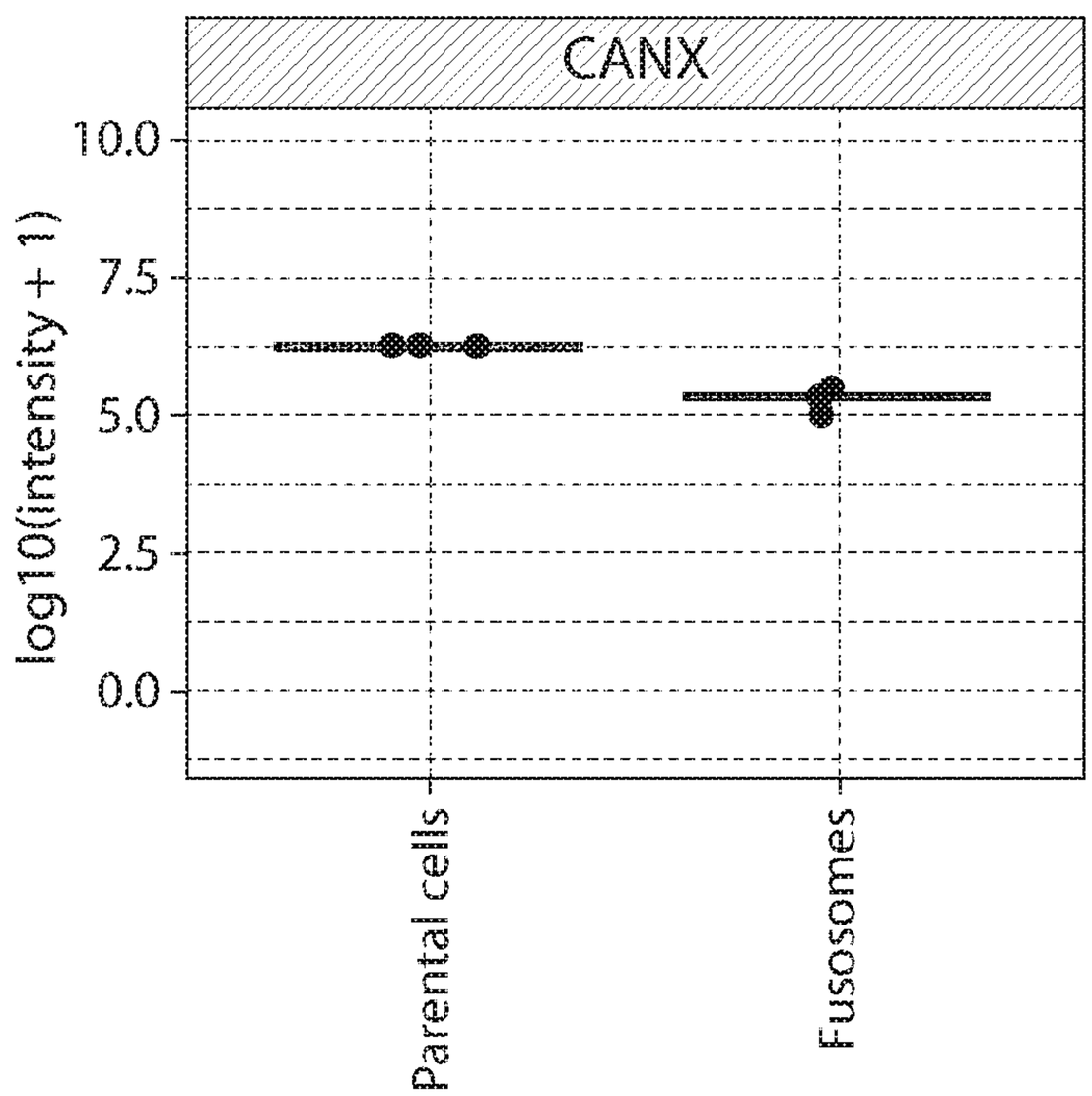

CANX
10.0
7.5
5.0
2.5
0.0
log10(intensity + 1)
Parental cells
Fusosomes
cohort

Fig. 17

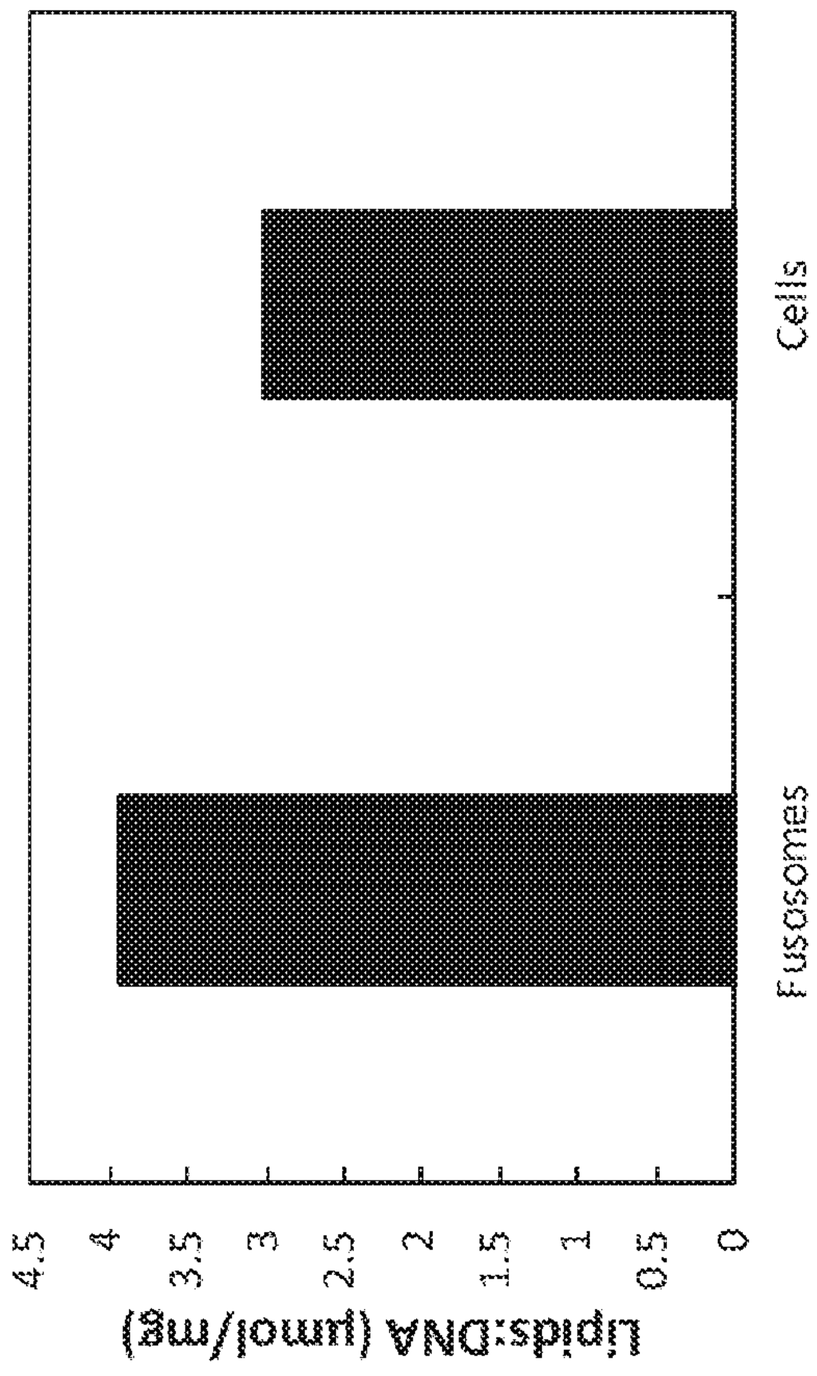


Fig. 18

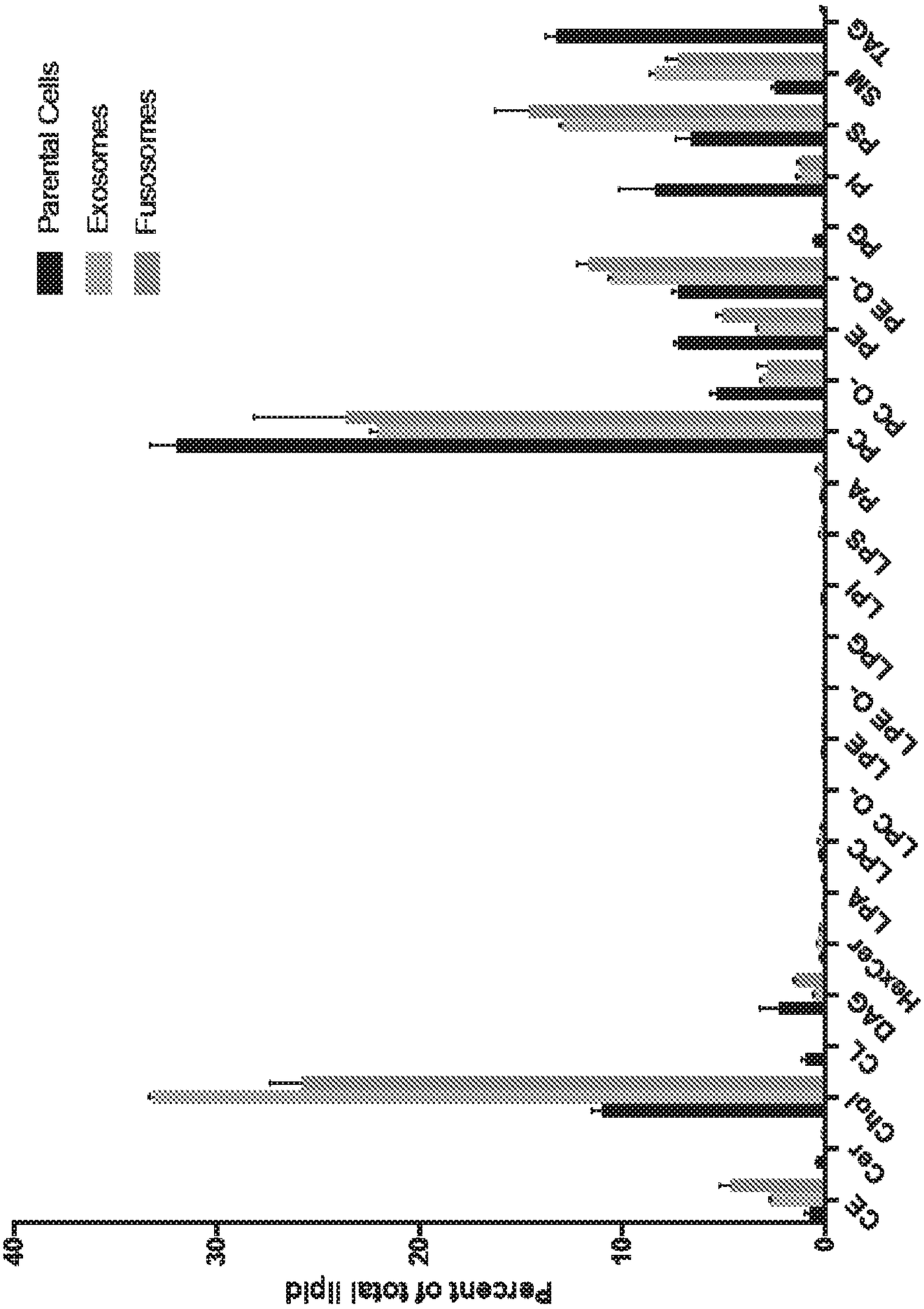

Parental Cells
Exosomes
Fusosomes
Percent of total lipid
0
10
20
30
40
CE
Cer
Chol
CL
DAG
HexCer
LPA
LPC
LPC O-
LPE
LPE O-
PA
PC
PC O-
PE
PE O-
PG
PI
PS
SM
TAG

Fig. 19A

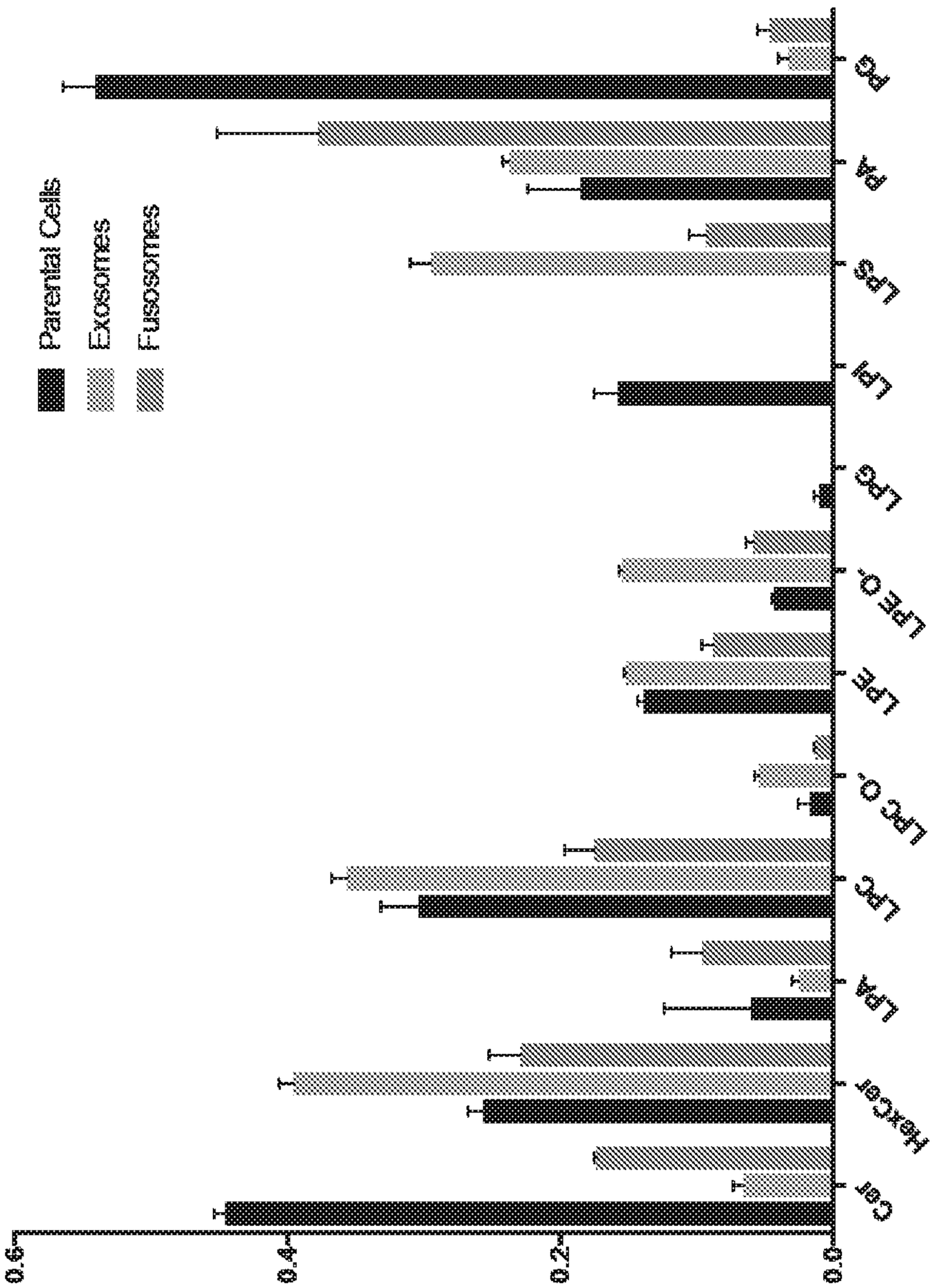

Parental Cells
Exosomes
Fusosomes
PC
PA
LPC
LPE
LPI
LPS
LPG
LPE O-
LPC O-
Cer
Hexcer
LPA
Percent of total lipid
0.0
0.2
0.4
0.6

Fig. 19B

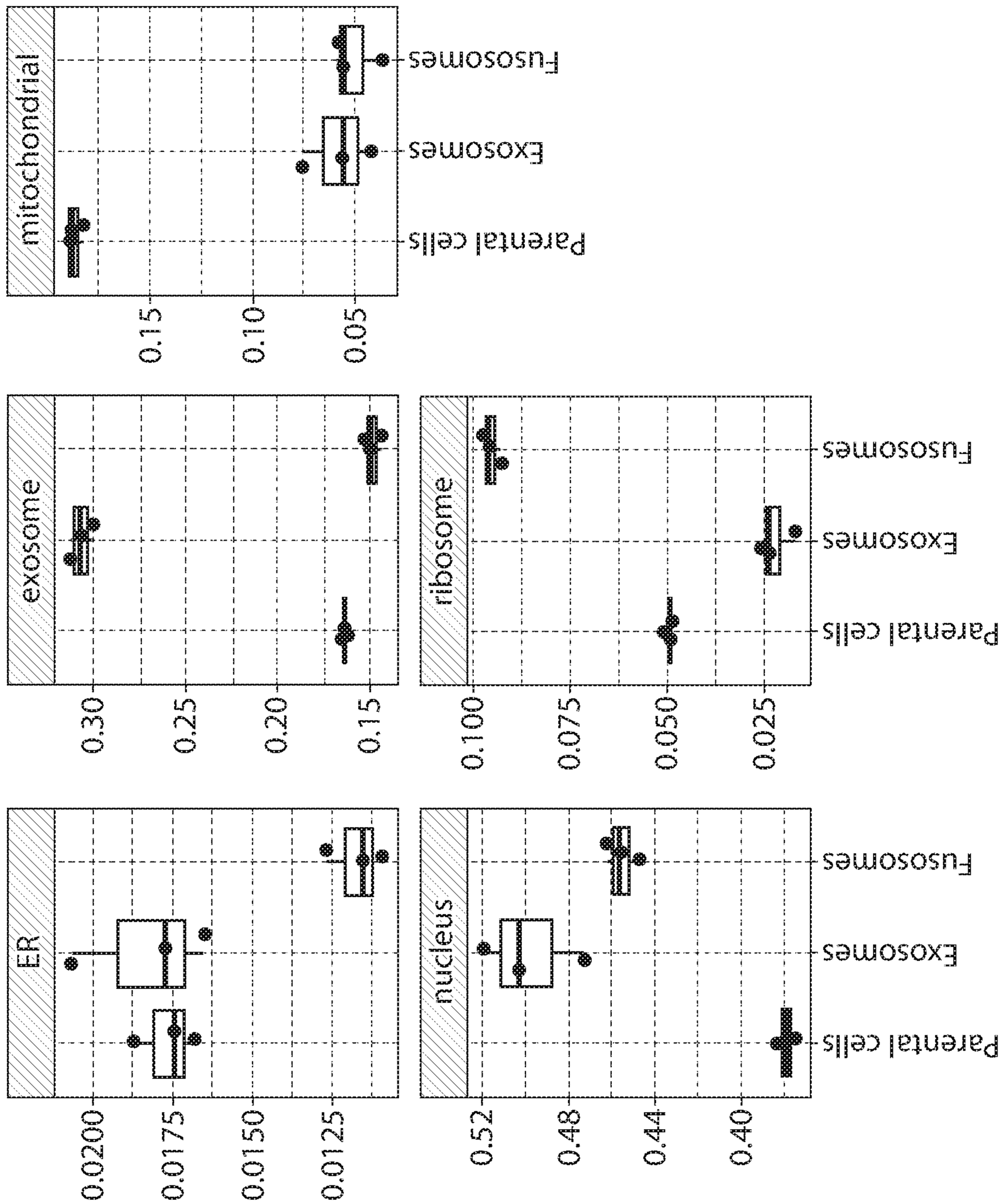

mitochondrial
exosome
ribosome
ER
nucleus
Parental cells
Exosomes
Fusosomes
0.15
0.10
0.05
0.30
0.25
0.20
0.100
0.075
0.050
0.025
0.0200
0.0175
0.0150
0.0125
0.52
0.48
0.44
0.40
Total fraction

Fig. 20

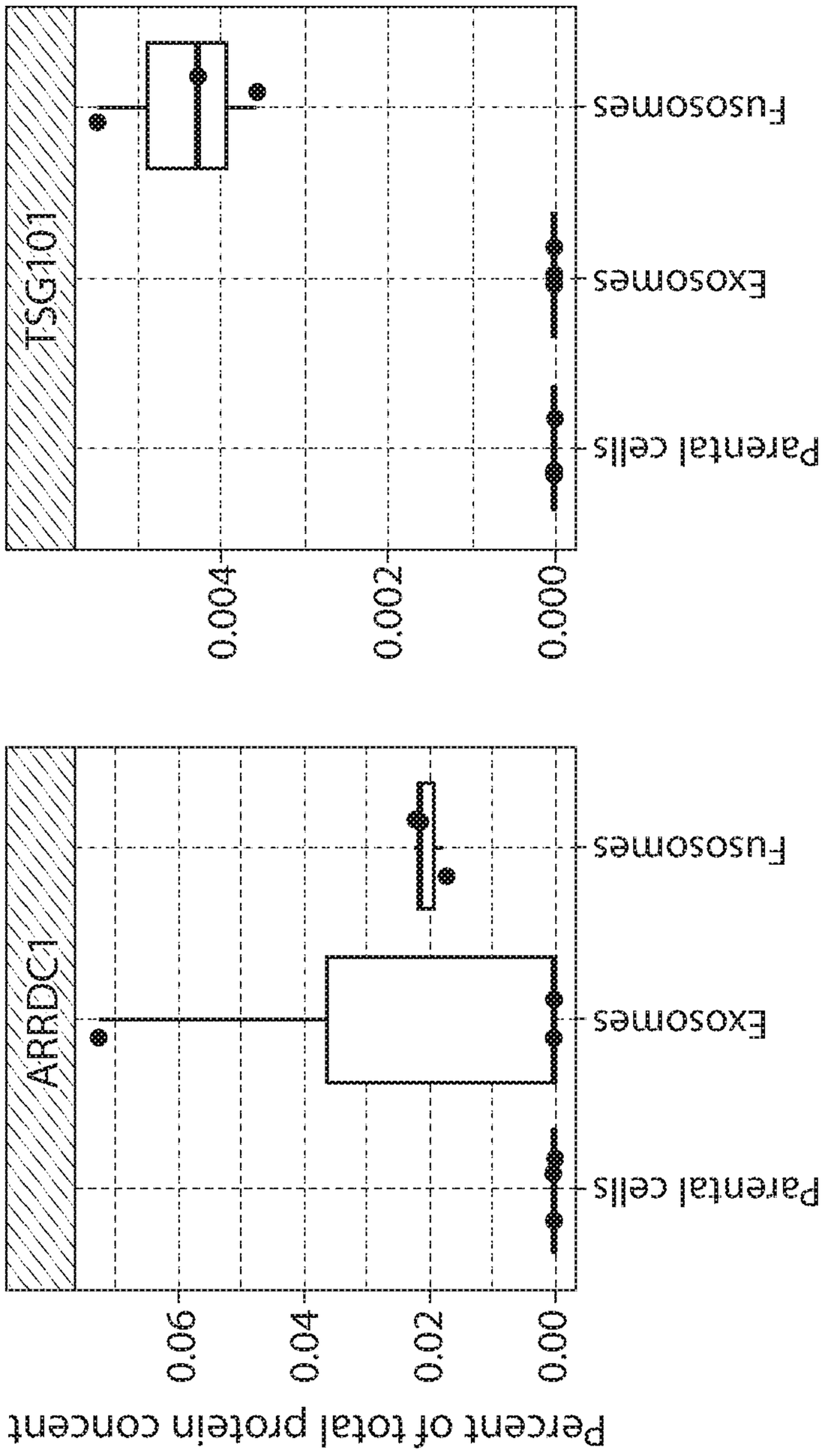

TSG101
ARRDC1
Fusosomes
Exosomes
Parental cells
0.004
0.002
0.000
6
4
2
0
Percent of total protein content

Fig. 21

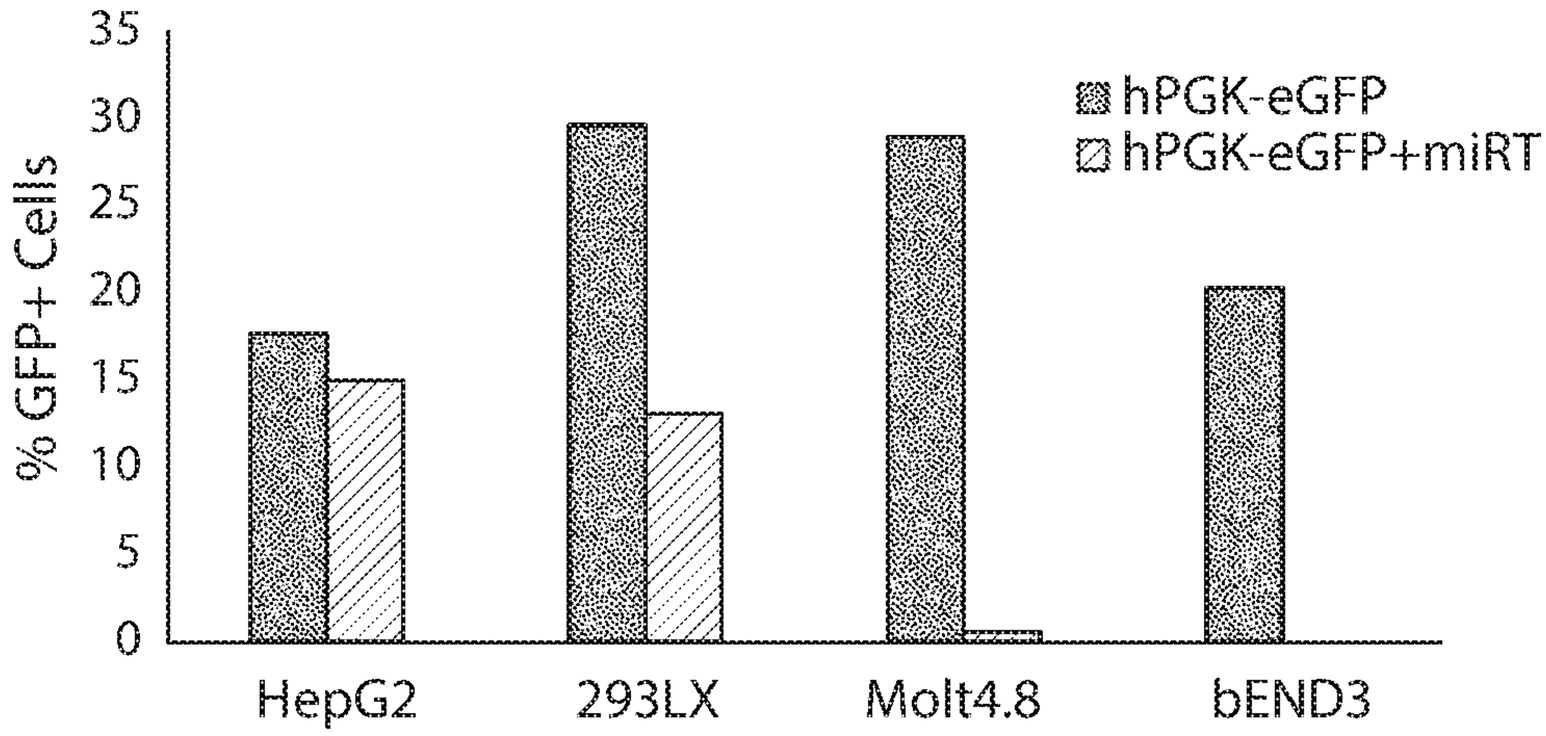


Fig. 22A

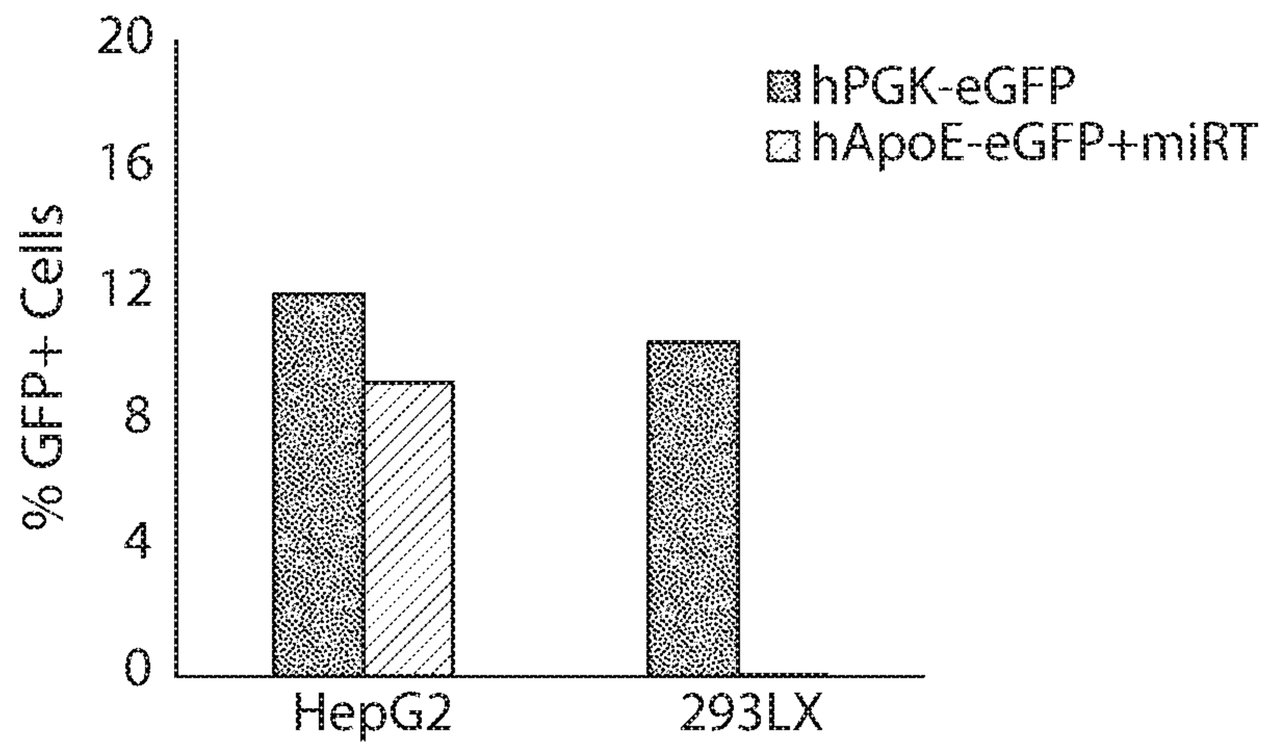


Fig. 22B

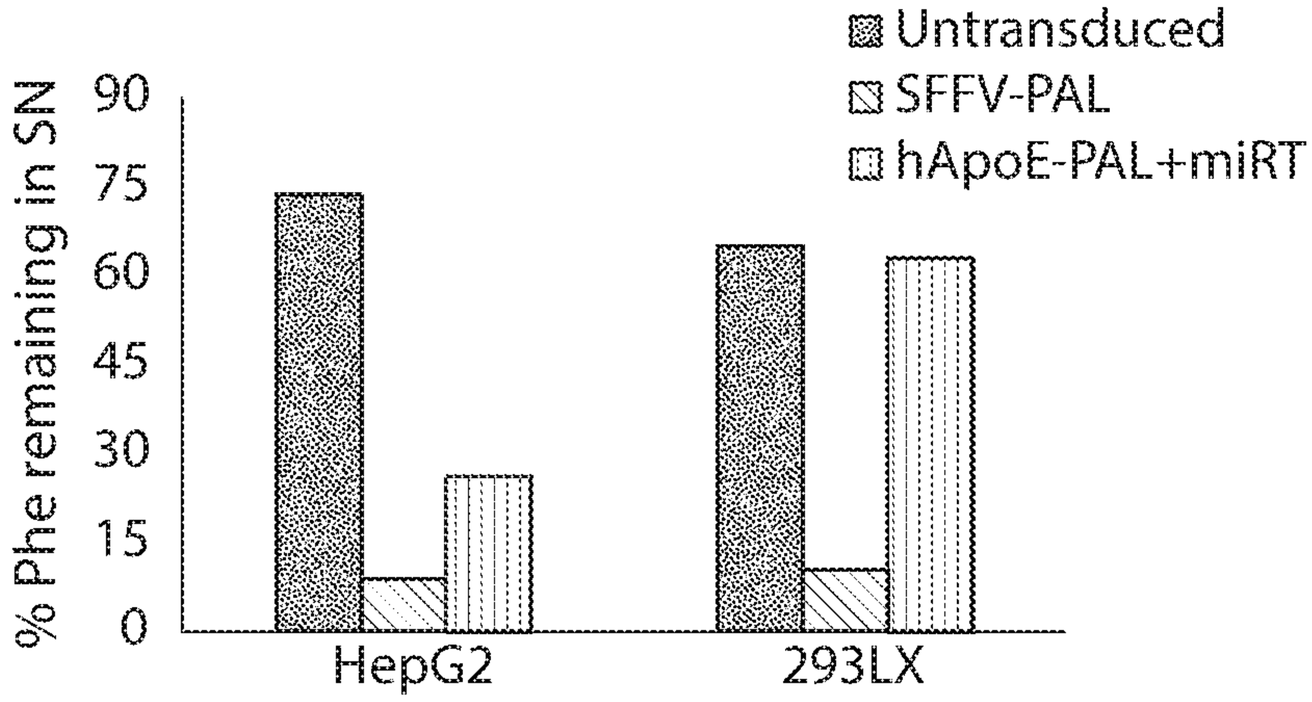


Fig. 22C