Fig. 1

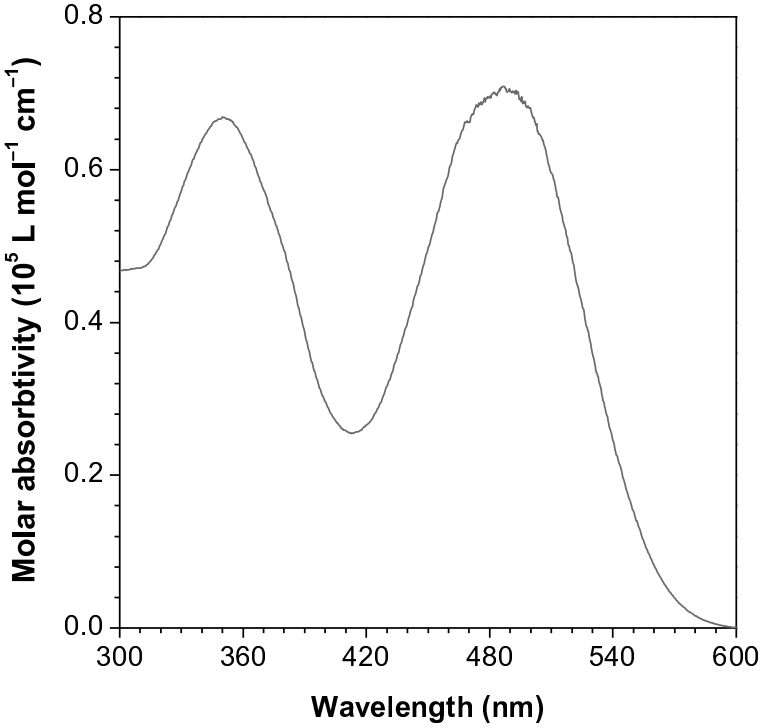

Molar absorbtivity (10^5 L mol^{-1} cm^{-1})
0.0
0.2
0.4
0.6
0.8
300
360
420
480
540
600
Wavelength (nm)

Fig. 2

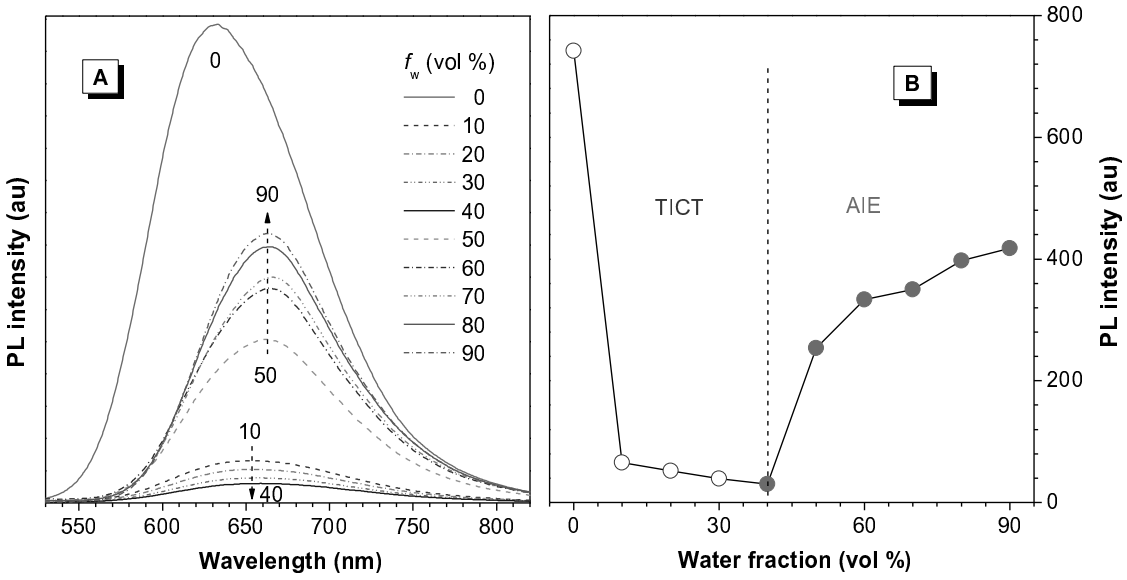

A
f_w (vol %)
0
10
20
30
40
50
60
70
80
90
PL intensity (au)
550
600
650
700
750
800
Wavelength (nm)
B
TICT
AIE
0
200
400
600
800
PL intensity (au)
0
30
60
90
Water fraction (vol %)

Fig. 3

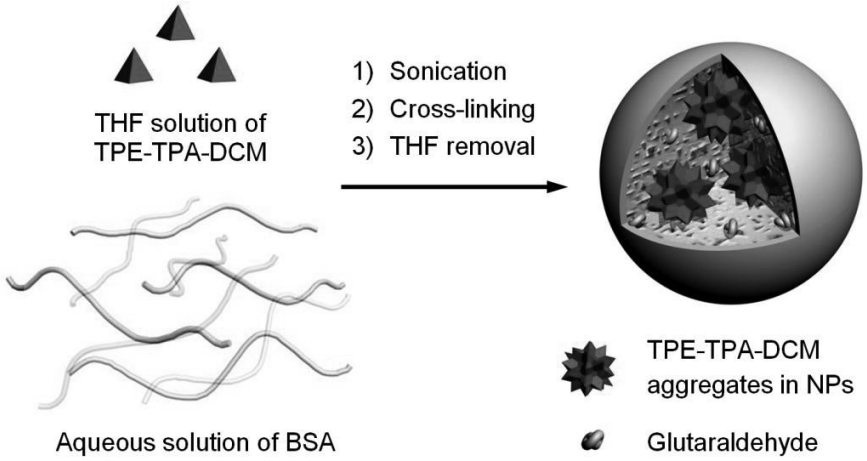

THF solution of
TPE-TPA-DCM
1) Sonication
2) Cross-linking
3) THF removal
TPE-TPA-DCM
aggregates in NPs
Aqueous solution of BSA
Glutaraldehyde

Fig. 4

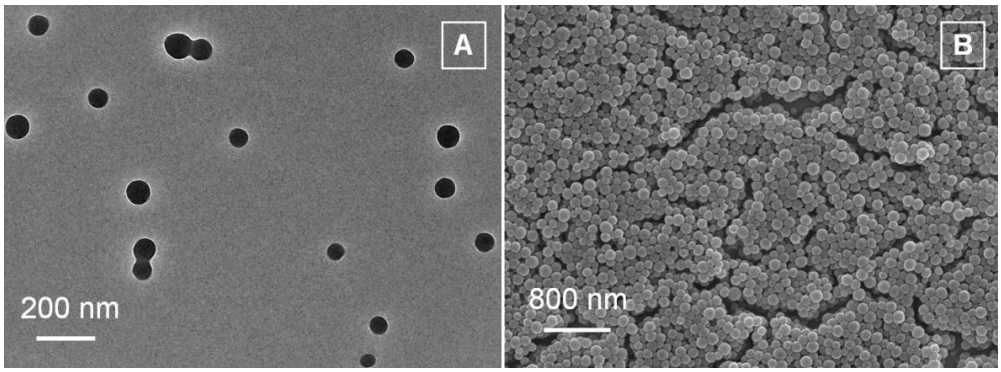

A
200 nm
B
800 nm

Fig. 5

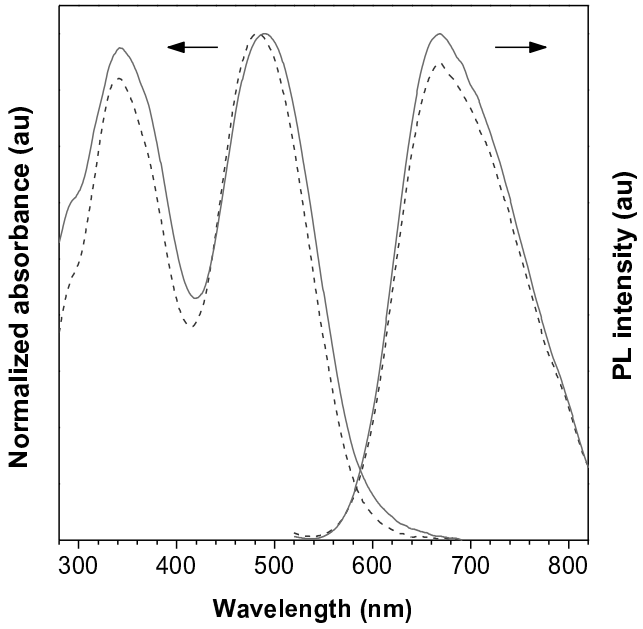

Normalized absorbance (au)
PL intensity (au)
300
400
500
600
700
800
Wavelength (nm)

Fig. 6

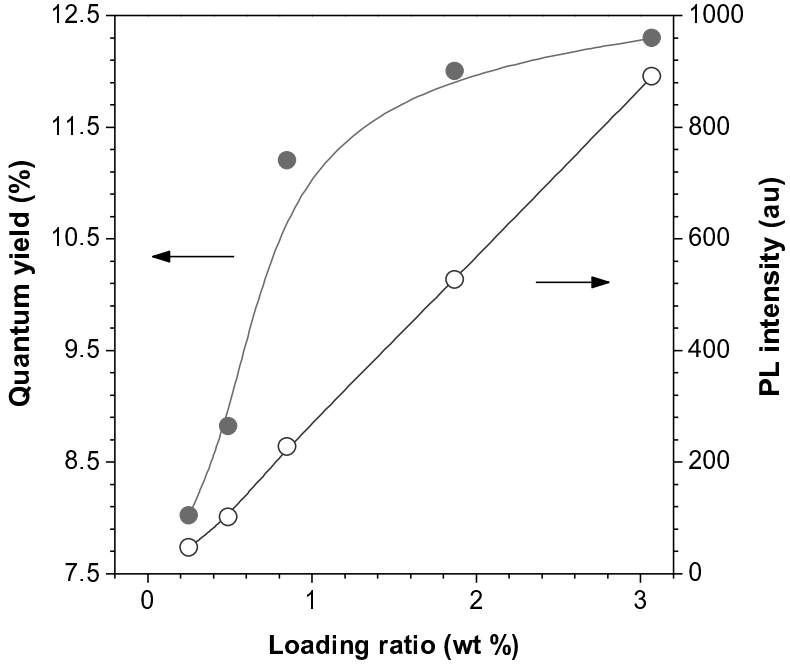

Quantum yield (%)
PL intensity (au)
12.5
11.5
10.5
9.5
8.5
7.5
1000
800
600
400
200
0
0
1
2
3
Loading ratio (wt %)

Fig. 7

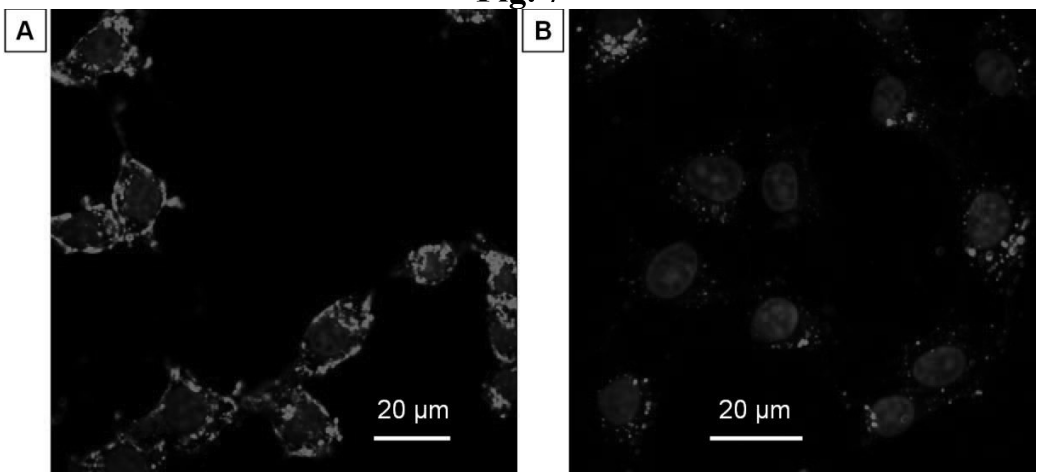


Fig. 8

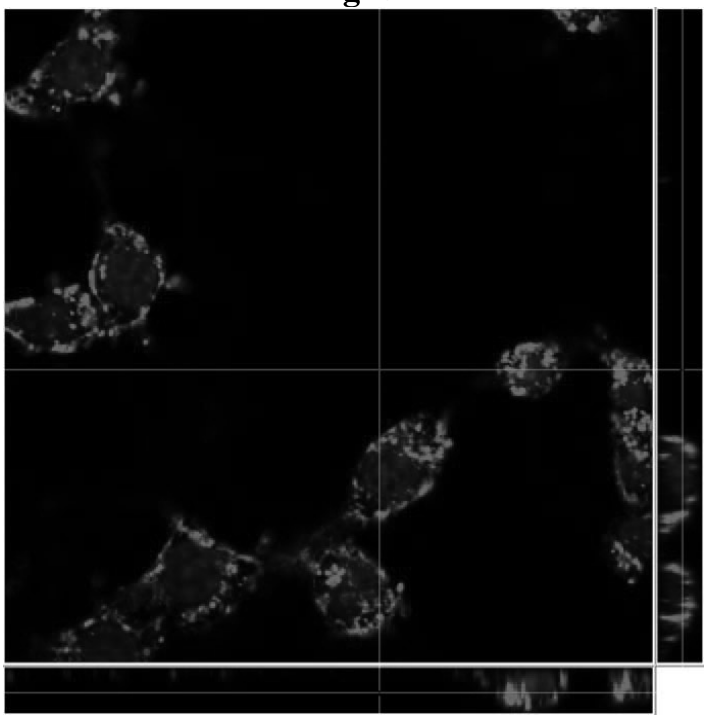


Fig. 9

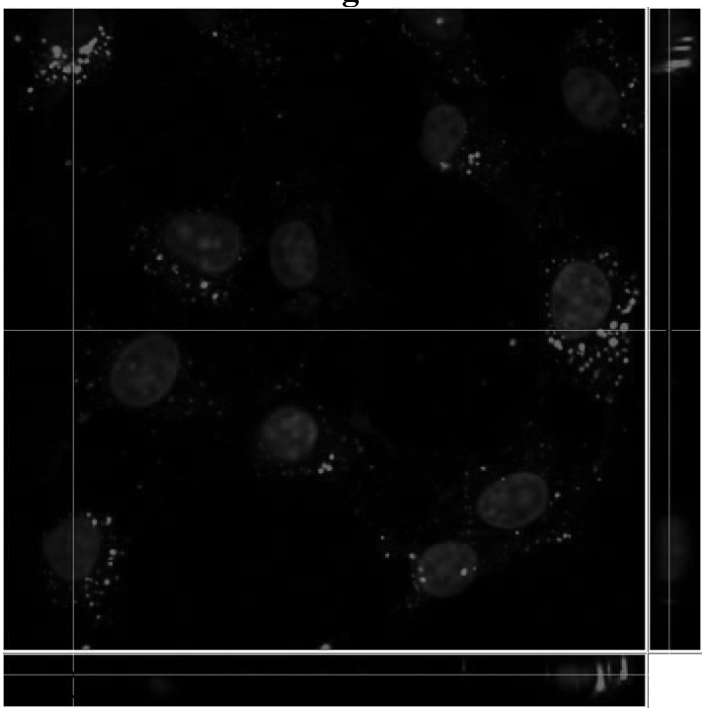


Fig. 10

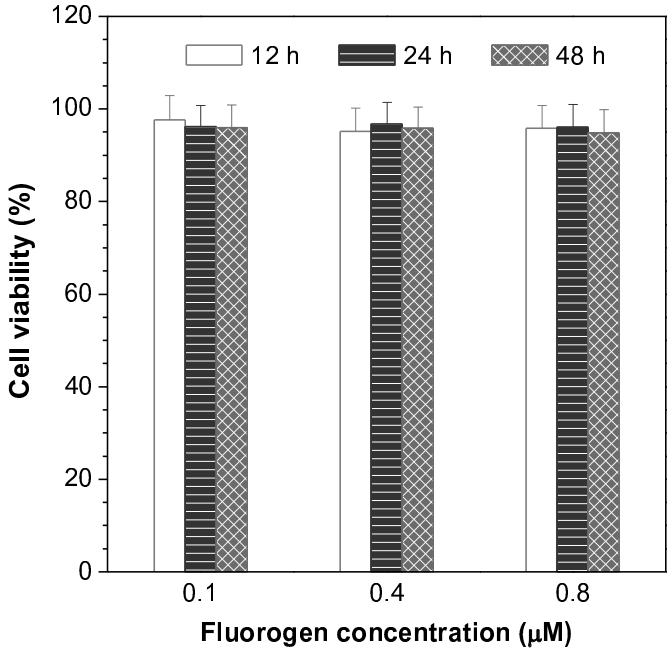

120
100
80
60
40
20
0
12 h
24 h
48 h
Cell viability (%)
0.1
0.4
0.8
Fluorogen concentration (μM)

Fig. 11

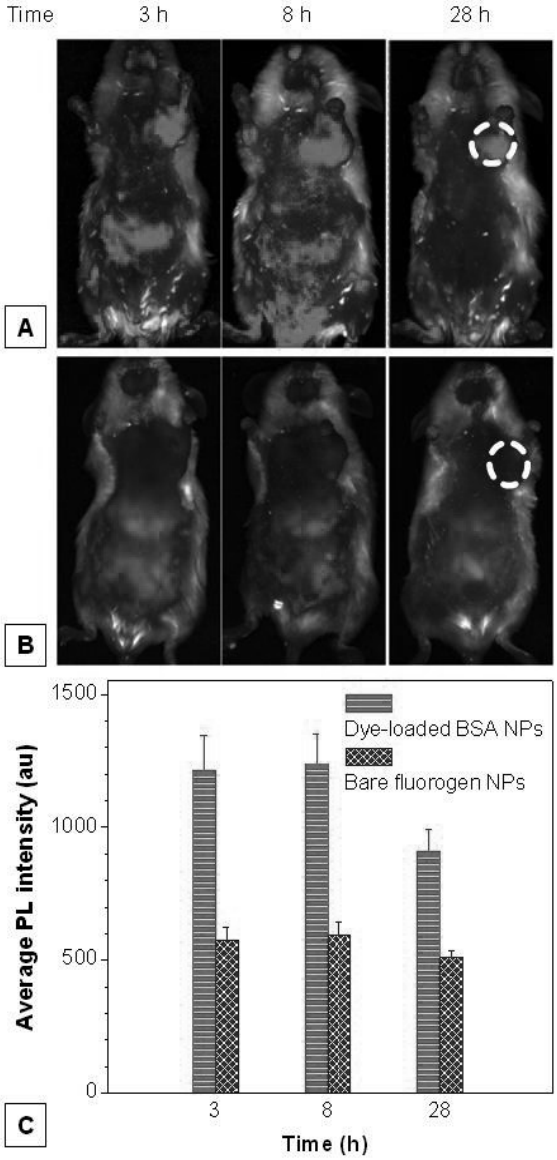

Time
3 h
8 h
28 h
A
B
C
Dye-loaded BSA NPs
Bare fluorogen NPs
Average PL intensity (au)
1500
1000
500
0
3
8
28
Time (h)

Fig. 12

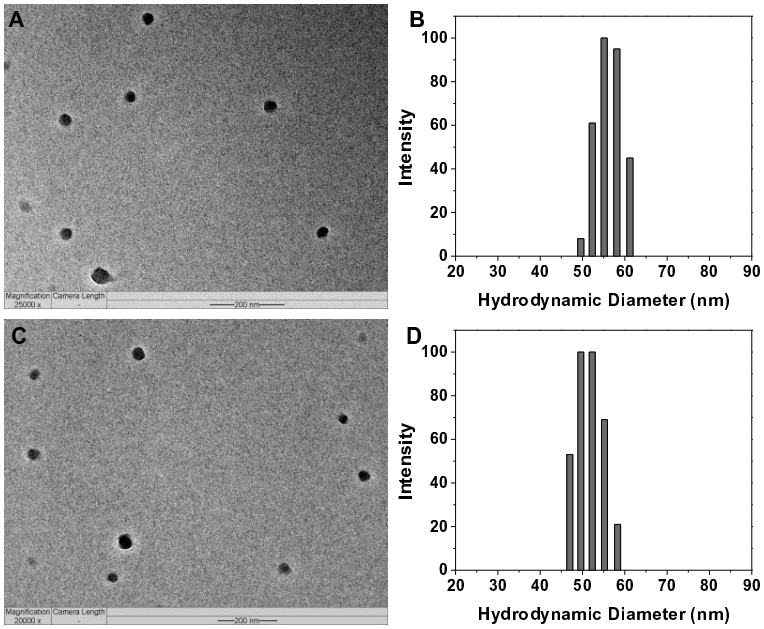

A
B
Intensity
Hydrodynamic Diameter (nm)
C
D
Intensity
Hydrodynamic Diameter (nm)

Fig. 13

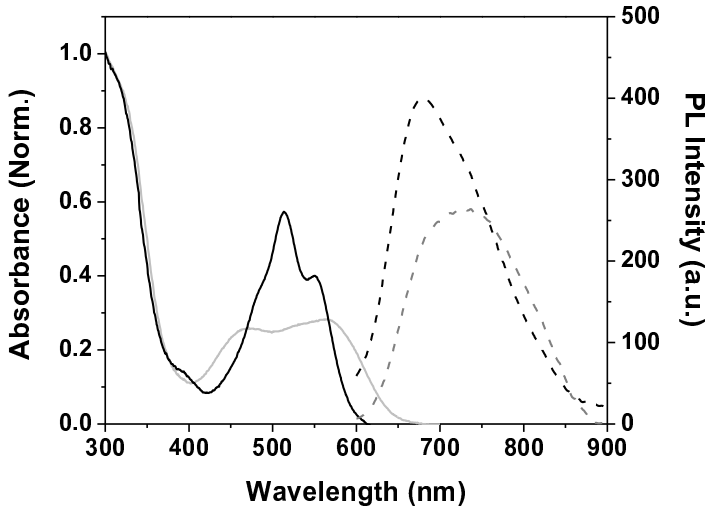

Absorbance (Norm.)
PL Intensity (a.u.)
Wavelength (nm)

Fig. 14

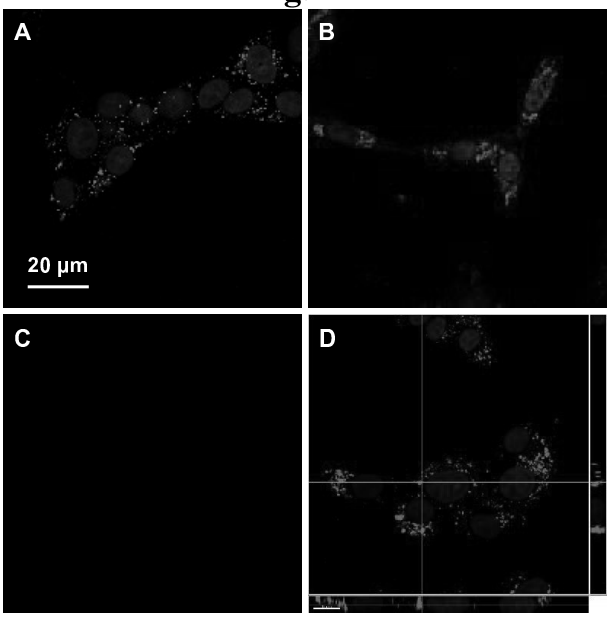


Fig. 15

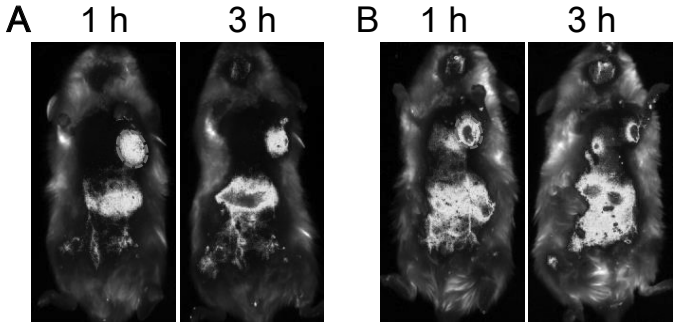


Fig. 16

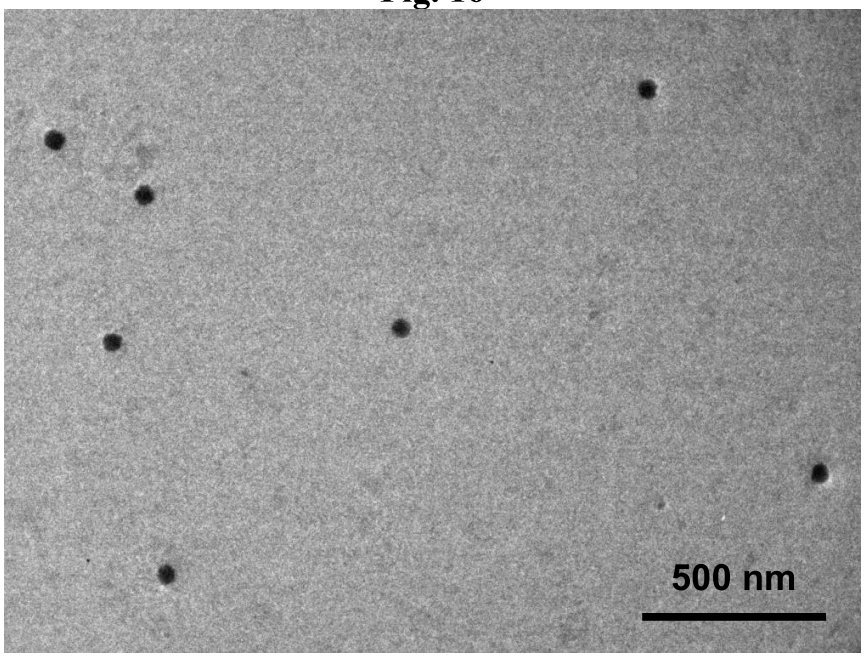

500 nm

Fig. 17

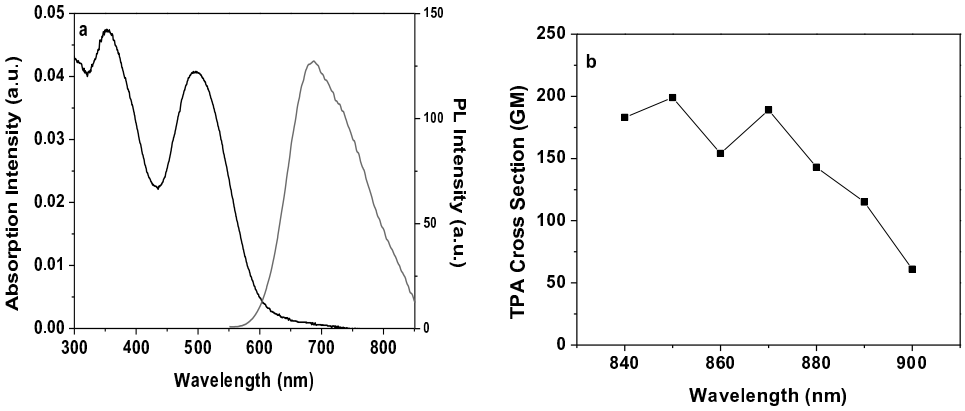

a
Absorption Intensity (a.u.)
PL Intensity (a.u.)
Wavelength (nm)
0.05
0.04
0.03
0.02
0.01
0.00
150
100
50
0
300
400
500
600
700
800
b
TPA Cross Section (GM)
Wavelength (nm)
250
200
150
100
50
0
840
860
880
900

Fig. 18

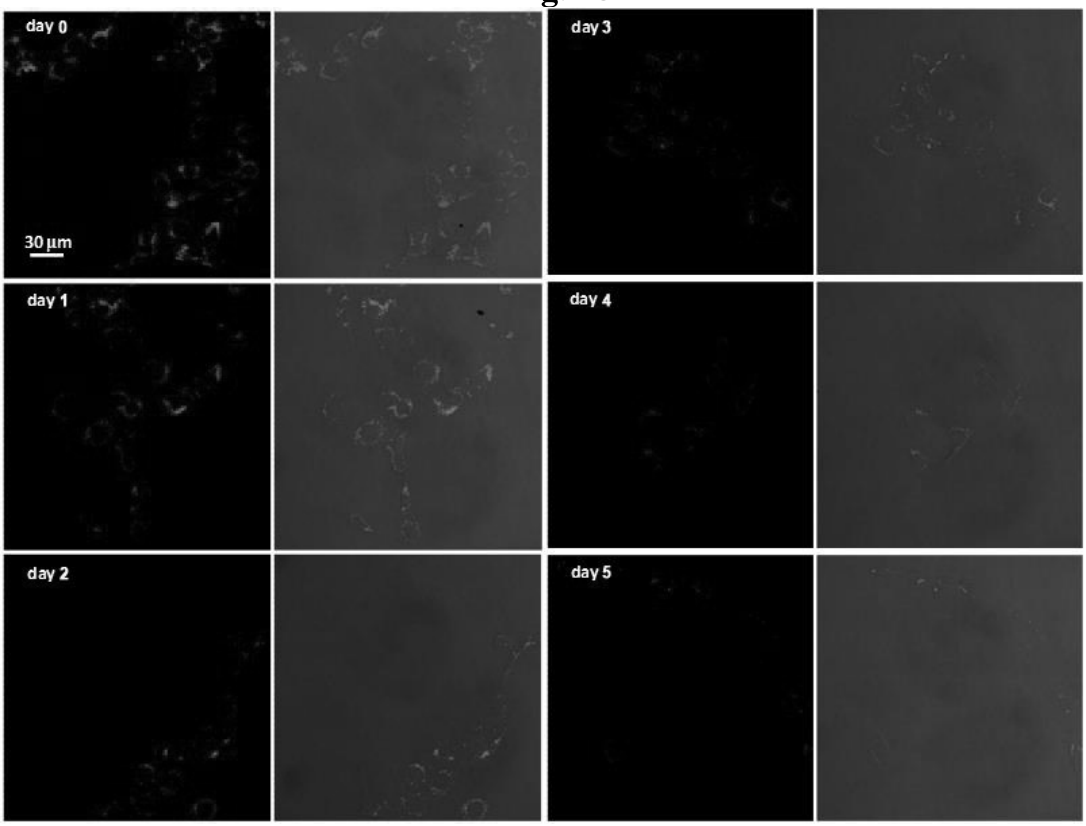


Fig. 19

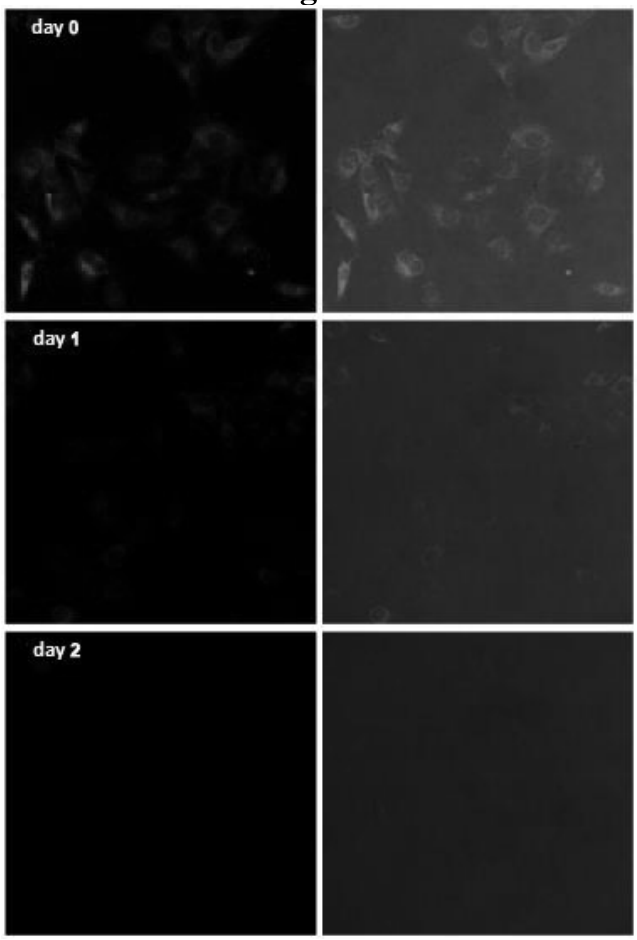

day 0
day 1
day 2

Fig. 20

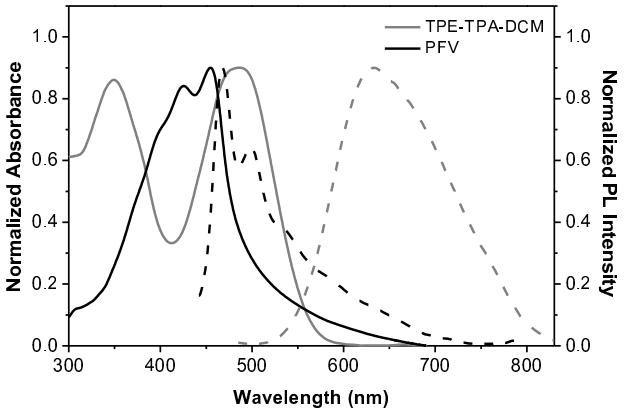

TPE-TPA-DCM
PFV
Normalized Absorbance
Normalized PL Intensity
Wavelength (nm)
0.0
0.2
0.4
0.6
0.8
1.0
300
400
500
600
700
800

Fig. 21

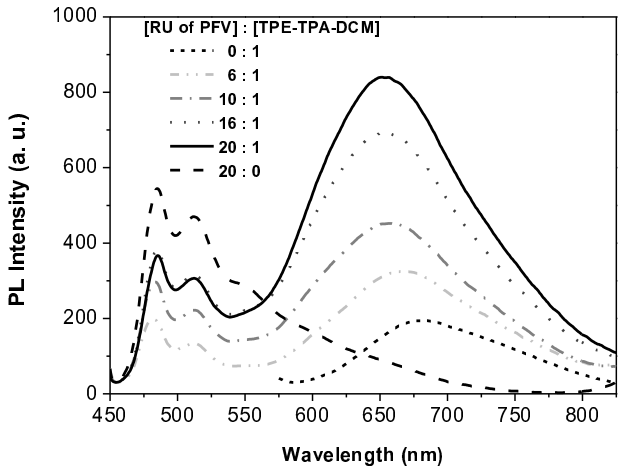


Fig. 22

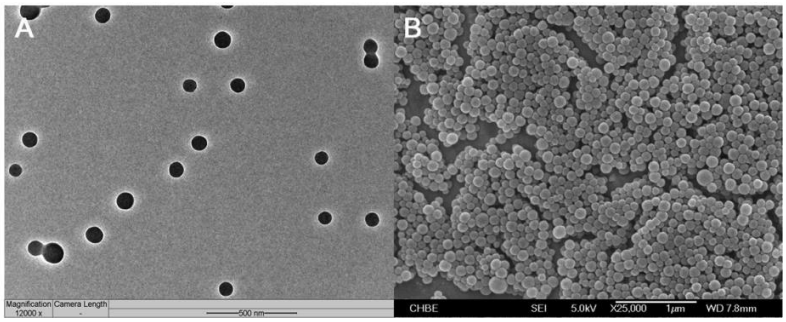


Fig. 23

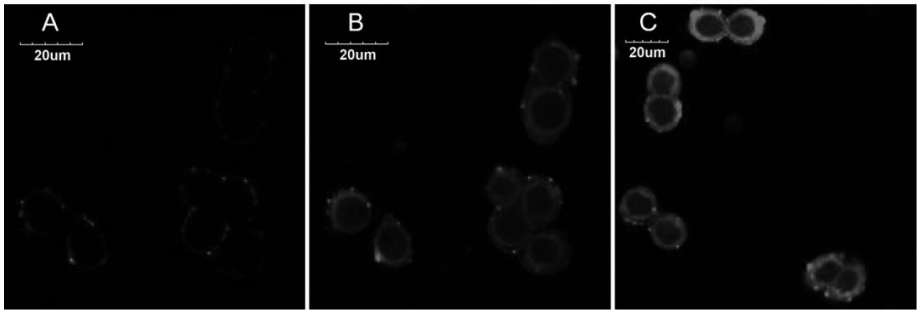


Fig. 24

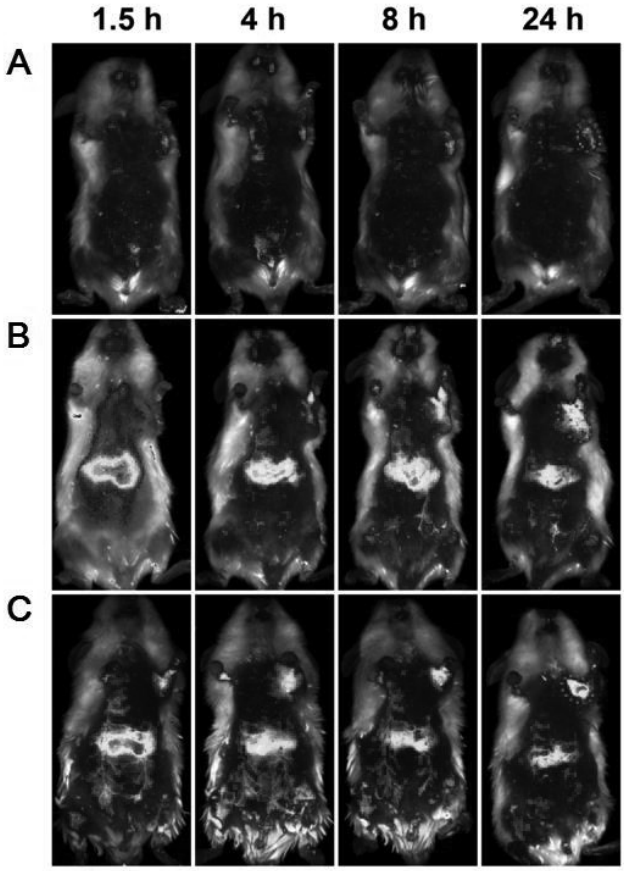


Fig. 25

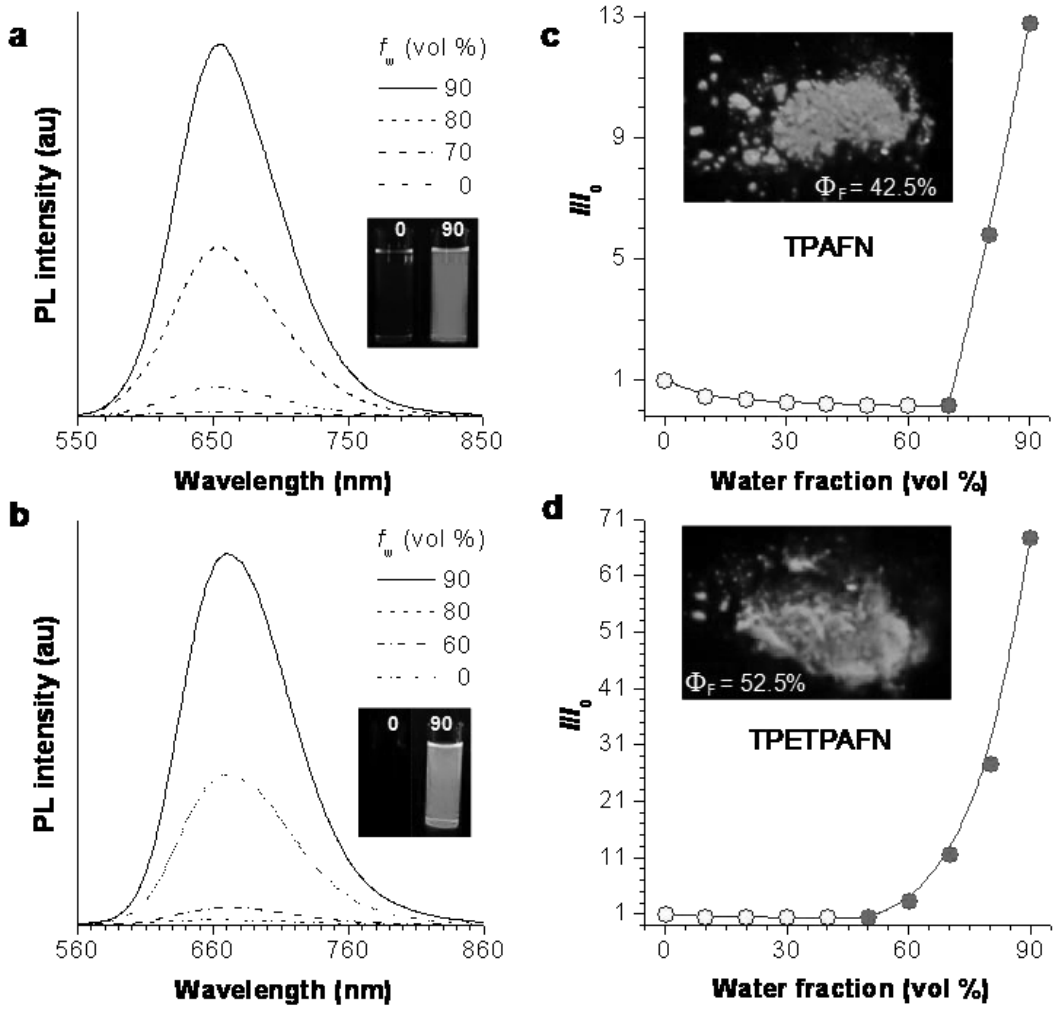

a
PL intensity (au)
f_w (vol %)
90
80
70
0
0
90
550
650
750
850
Wavelength (nm)
c
I/I_0
13
9
5
1
Φ_F = 42.5%
TPAFN
0
30
60
90
Water fraction (vol %)
b
PL intensity (au)
f_w (vol %)
90
80
60
0
0
90
560
660
760
860
Wavelength (nm)
d
I/I_0
71
61
51
41
31
21
11
1
Φ_F = 52.5%
TPETPAFN
0
30
60
90
Water fraction (vol %)

Fig. 26

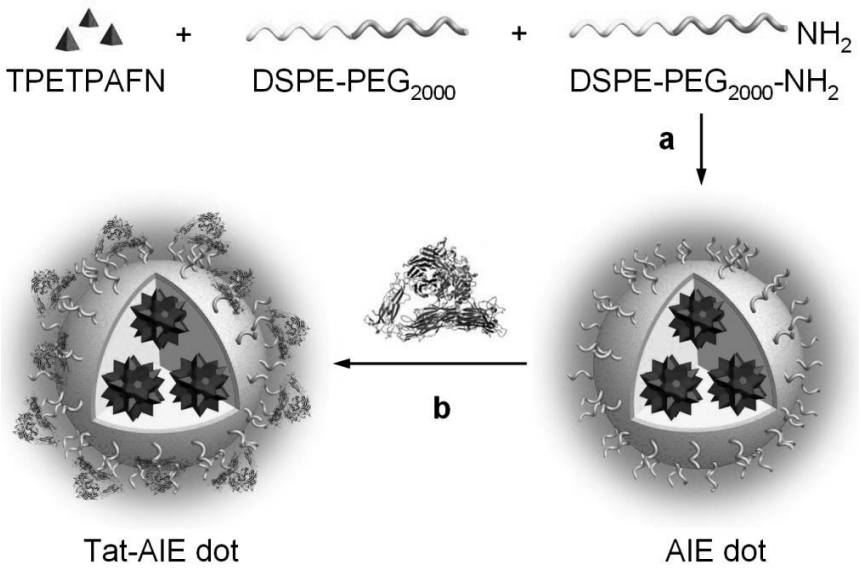

TPETPAFN
DSPE-PEG2000
DSPE-PEG2000-NH2
NH2
a
b
Tat-AIE dot
AIE dot

Fig. 27

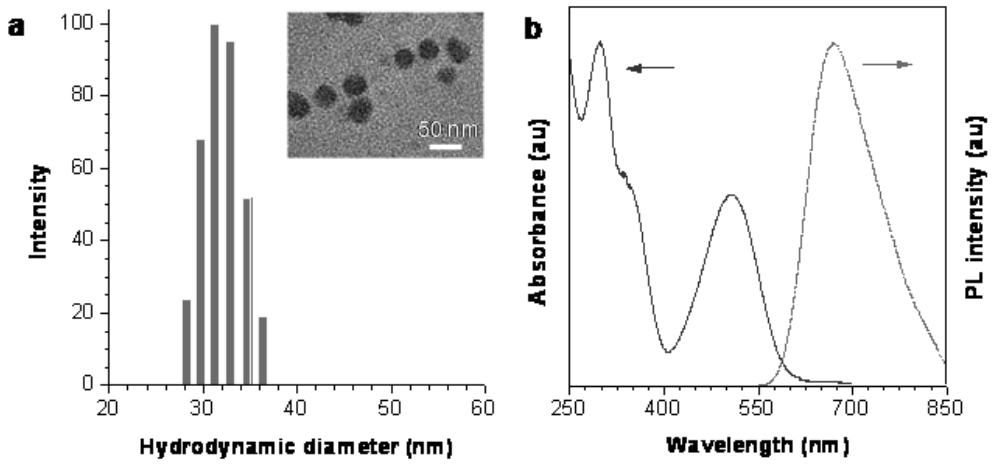

a
Intensity
Hydrodynamic diameter (nm)
50 nm
b
Absorbance (au)
PL intensity (au)
Wavelength (nm)

Fig. 28

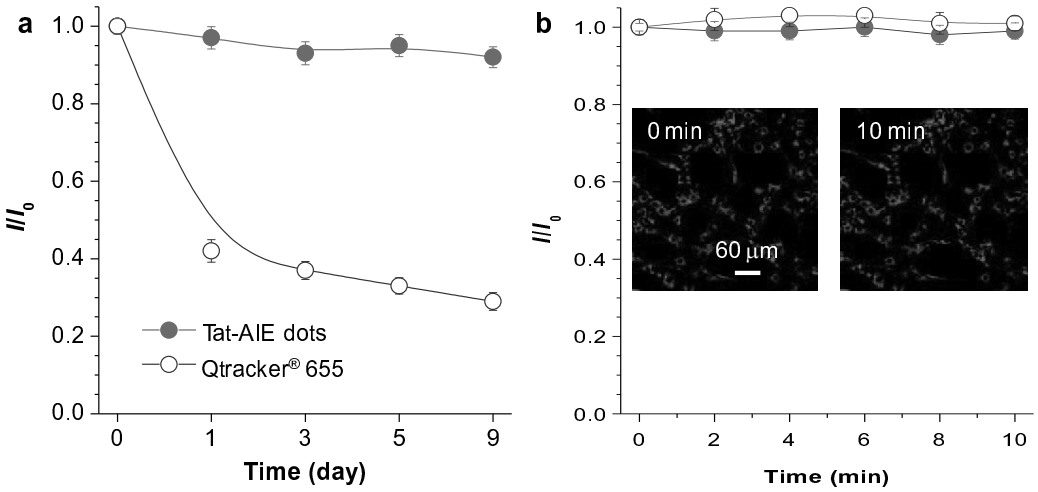

a
b
I/I0
Time (day)
Time (min)
Tat-AIE dots
Qtracker® 655
0 min
10 min
60 μm

Fig. 29

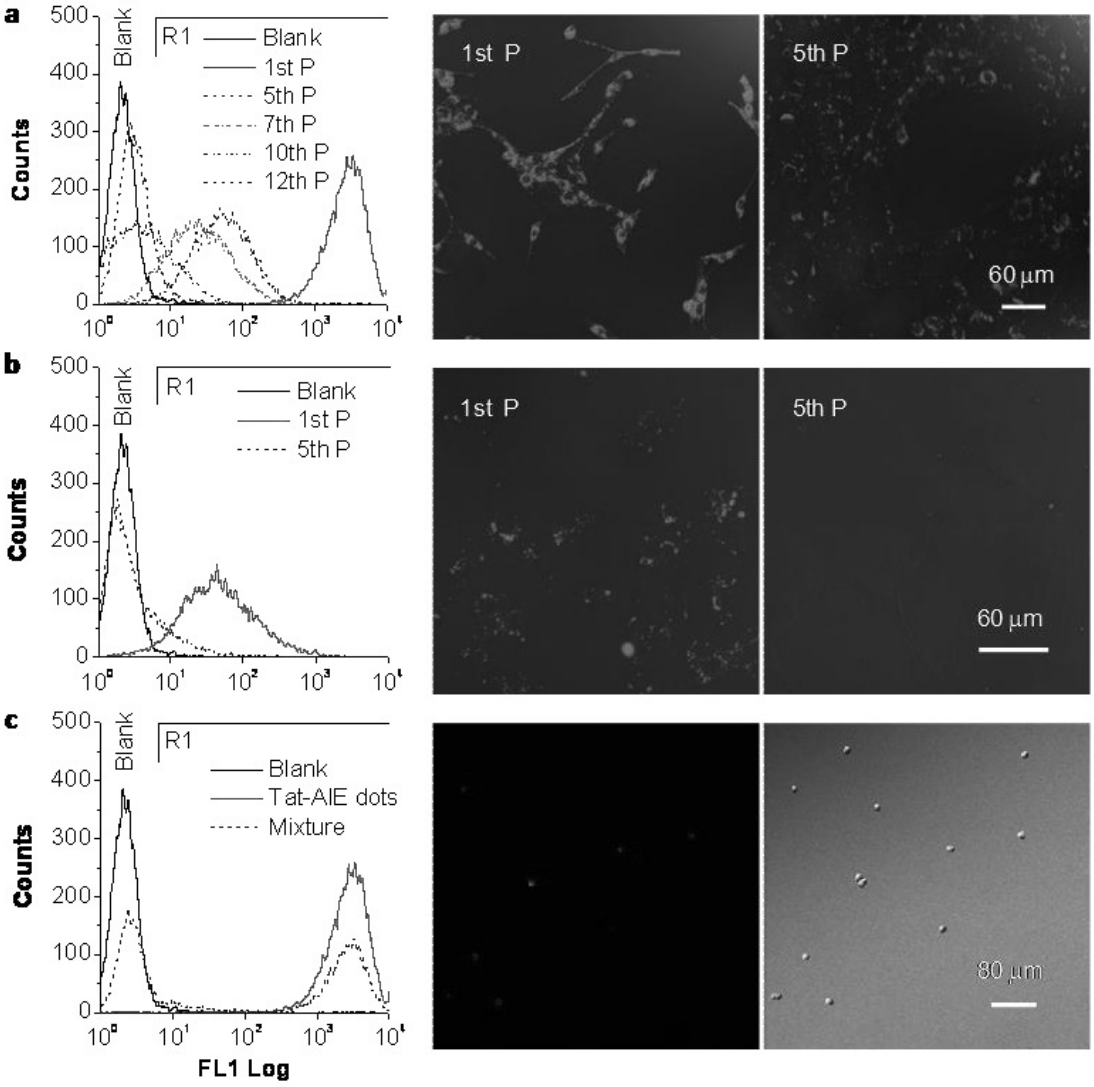

a
Blank
R1
Blank
1st P
5th P
7th P
10th P
12th P
Counts
1st P
5th P
60 μm
b
Blank
R1
Blank
1st P
5th P
Counts
1st P
5th P
60 μm
c
Blank
R1
Blank
Tat-AIE dots
Mixture
Counts
FL1 Log
80 μm

Fig. 30

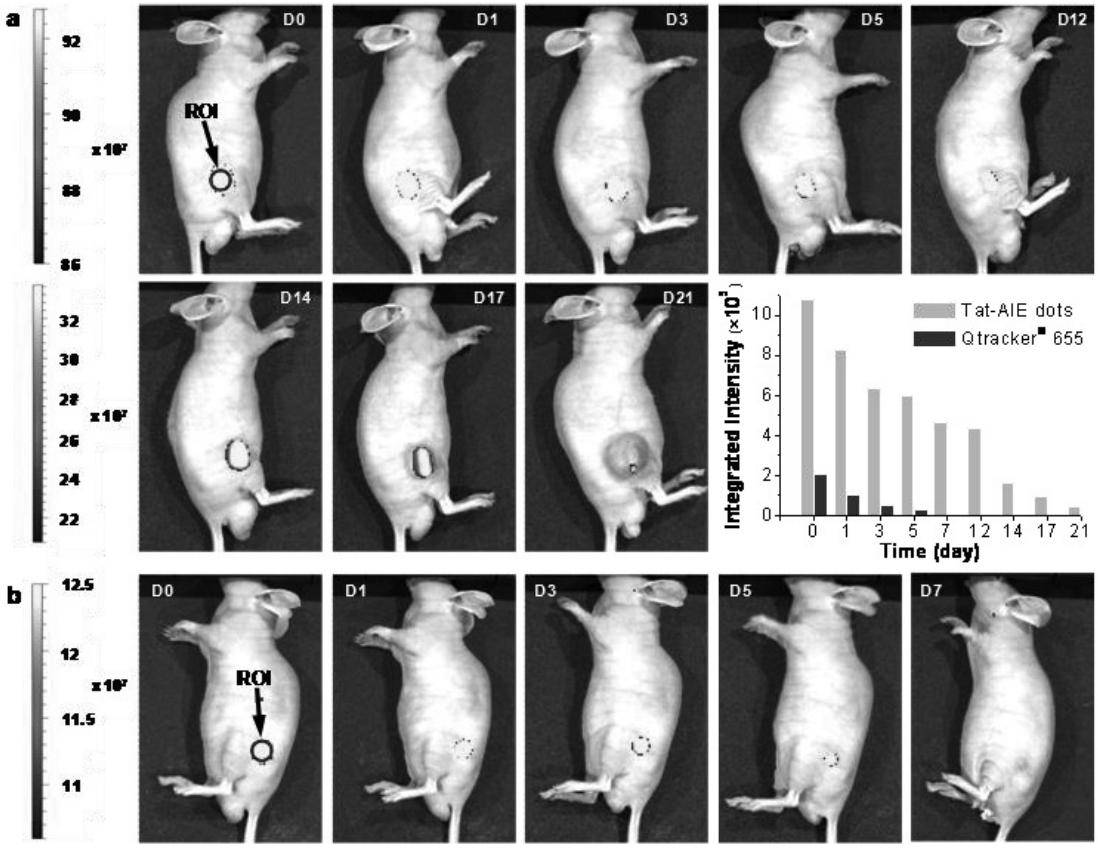

a
92
90
88
86
x10⁷
D0
ROI
D1
D3
D5
D12
32
30
28
26
24
22
x10⁷
D14
D17
D21
Tat-AIE dots
Qtracker® 655
Integrated Intensity (×10⁷)
10
8
6
4
2
0
0 1 3 5 7 12 14 17 21
Time (day)
b
12.5
12
11.5
11
x10⁷
D0
ROI
D1
D3
D5
D7

Fig. 31

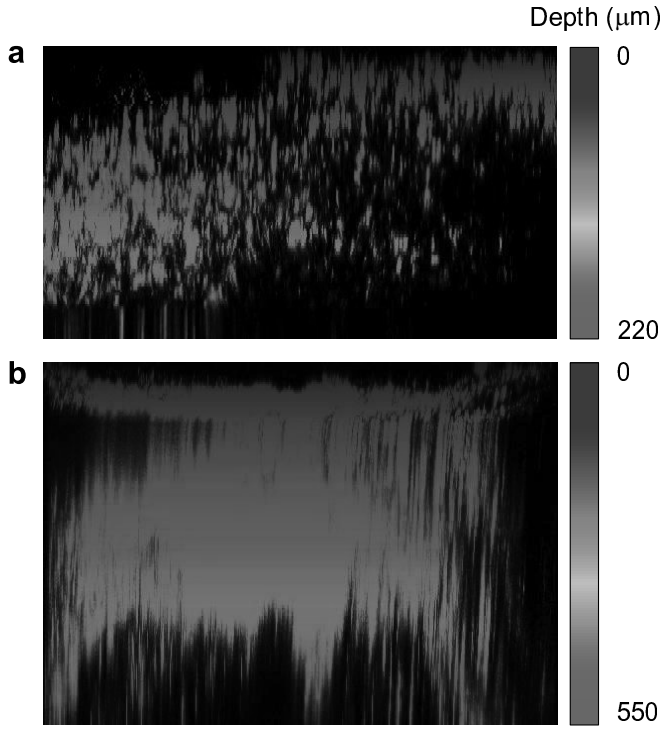

Depth (μm)
a
0
220
b
0
550

Fig. 32

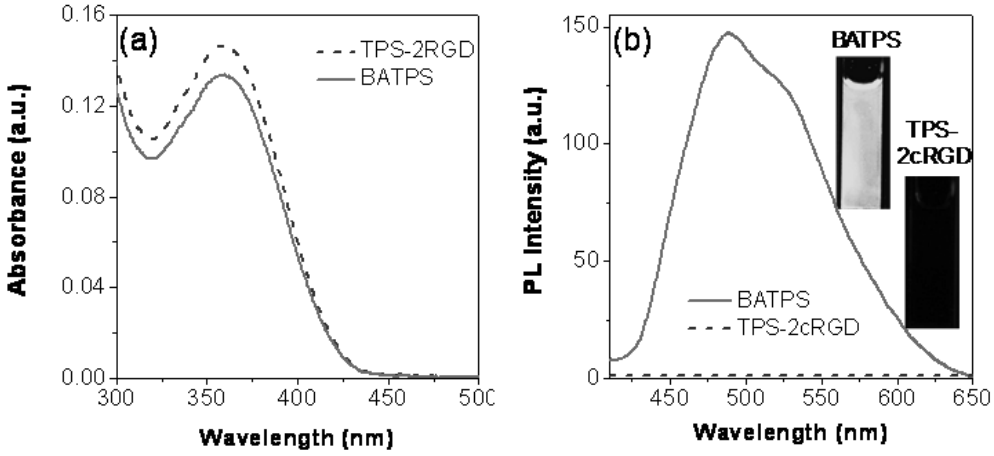

(a)
TPS-2RGD
BATPS
Absorbance (a.u.)
Wavelength (nm)
(b)
BATPS
TPS-2cRGD
PL Intensity (a.u.)
Wavelength (nm)

Fig. 33

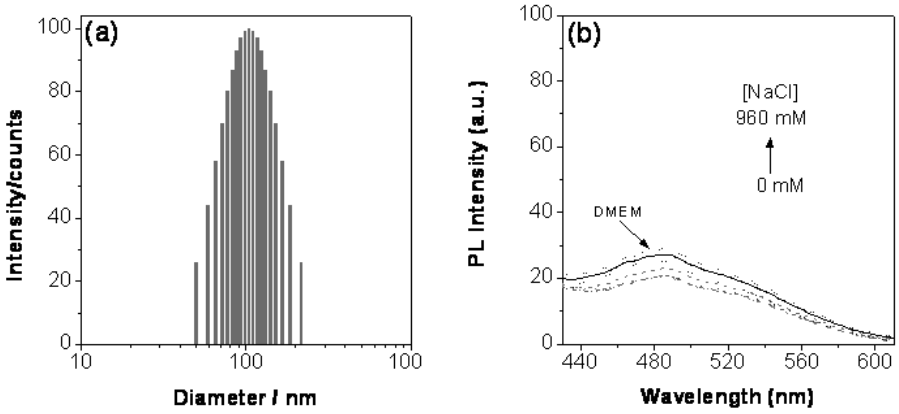

(a)
Intensity/counts
Diameter / nm
(b)
PL Intensity (a.u.)
Wavelength (nm)
[NaCl]
960 mM
0 mM
DMEM

Fig. 34

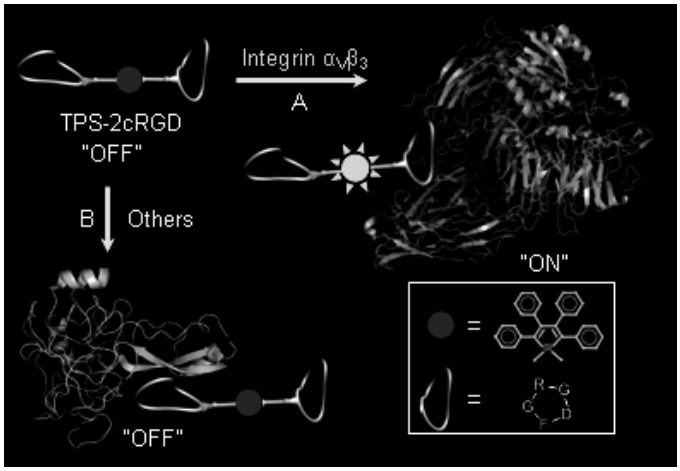

Integrin αvβ3
A
TPS-2cRGD
"OFF"
B
Others
"ON"
"OFF"

Fig. 35

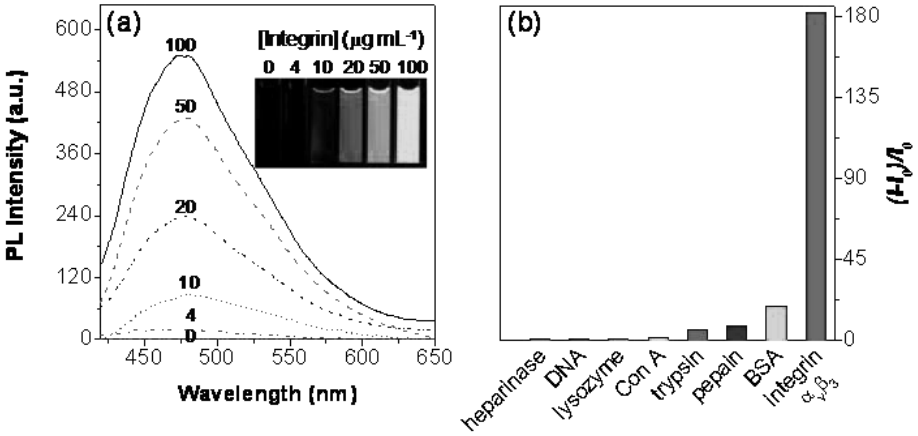

(a)
[Integrin] (μg mL-1)
0 4 10 20 50 100
100
50
20
10
4
0
PL Intensity (a.u.)
Wavelength (nm)
(b)
heparinase
DNA
lysozyme
Con A
trypsin
pepain
BSA
Integrin αvβ3

Fig. 36

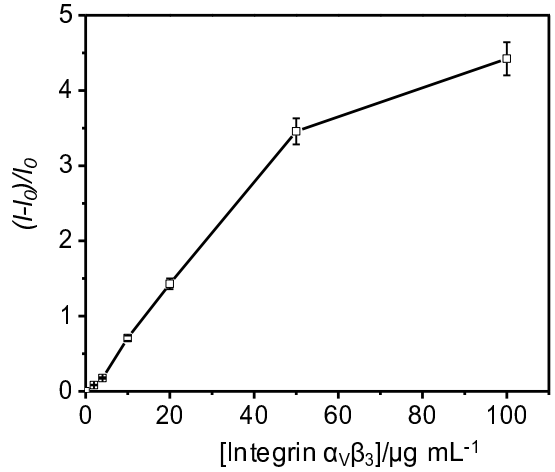

(I-I0)/I0
[Integrin αVβ3]/μg mL-1

Fig. 37

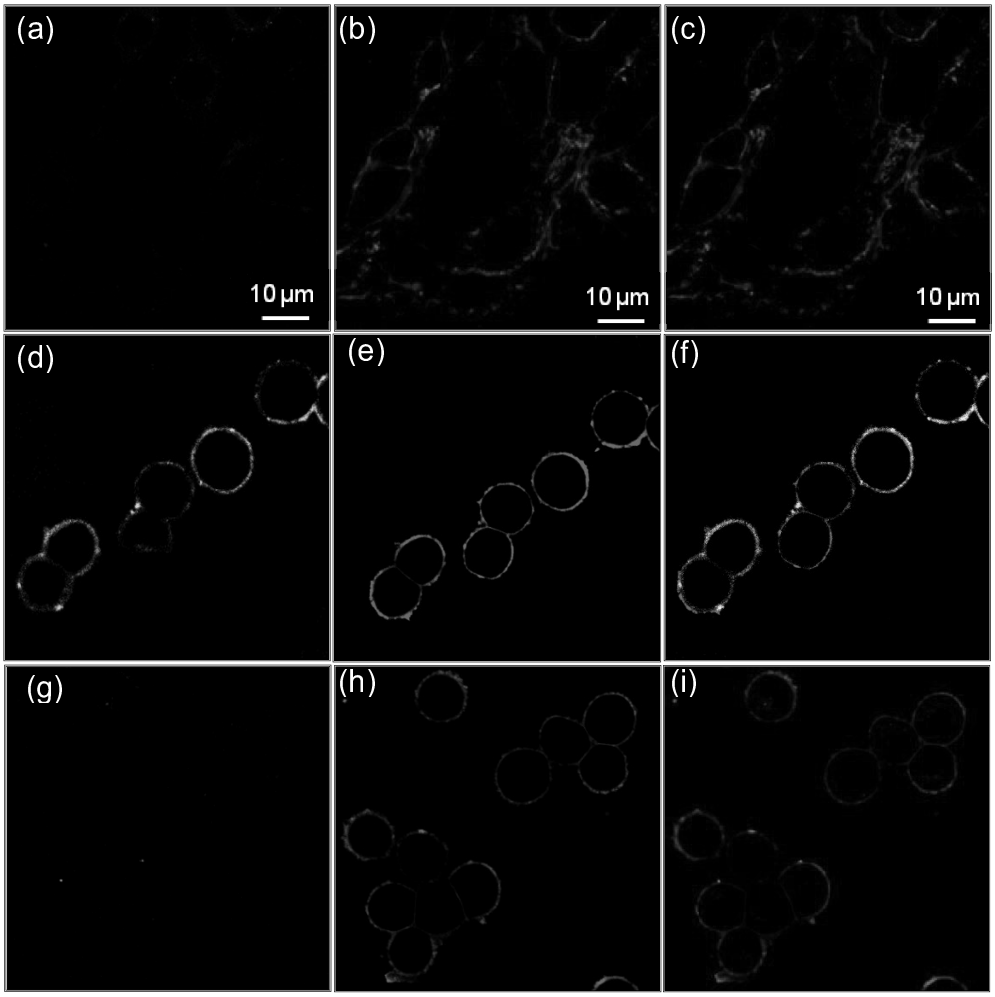


Fig. 38

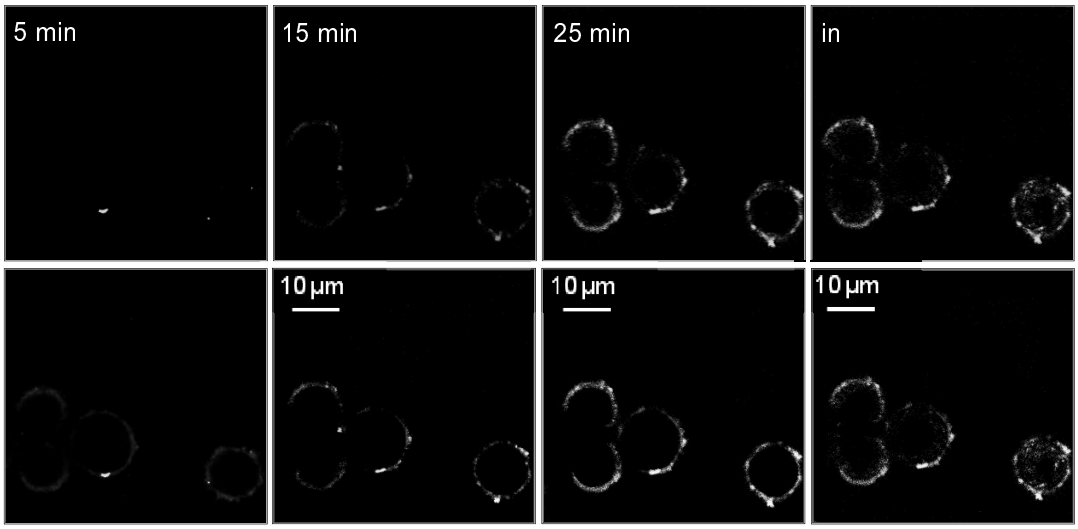

5 min
15 min
25 min
in
10 μm
10 μm
10 μm

Fig. 39

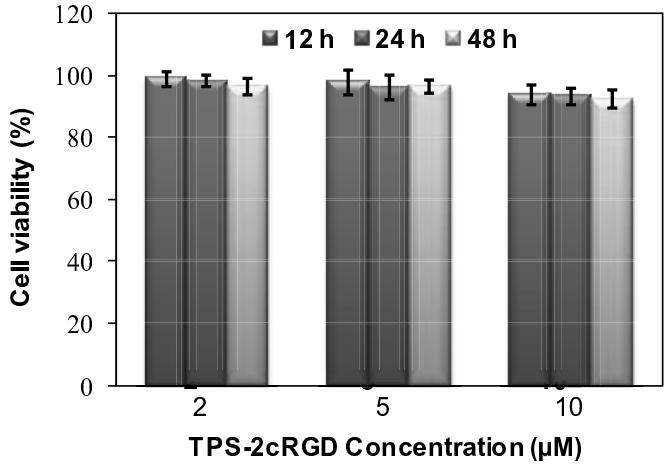

120
100
80
60
40
20
0
12 h
24 h
48 h
Cell viability (%)
2
5
10
TPS-2cRGD Concentration (μM)

Fig. 40

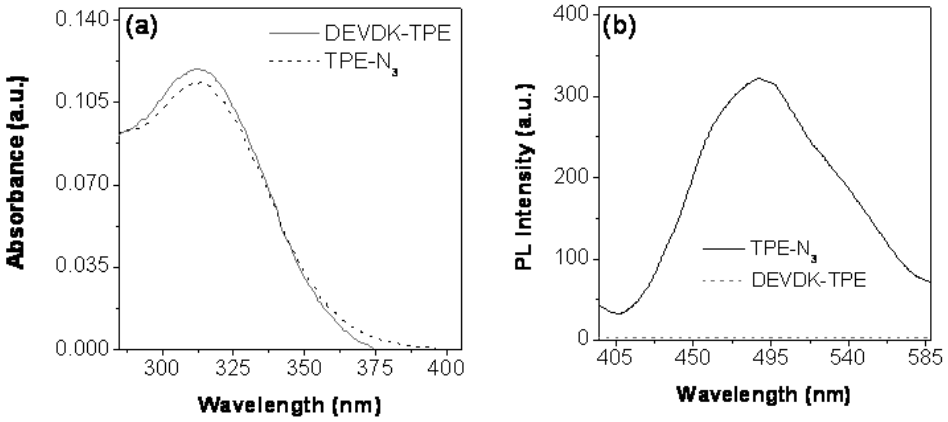

(a)
DEVDK-TPE
TPE-N3
Absorbance (a.u.)
0.140
0.105
0.070
0.035
0.000
300
325
350
375
400
Wavelength (nm)
(b)
TPE-N3
DEVDK-TPE
PL Intensity (a.u.)
400
300
200
100
0
405
450
495
540
585
Wavelength (nm)

Fig. 41

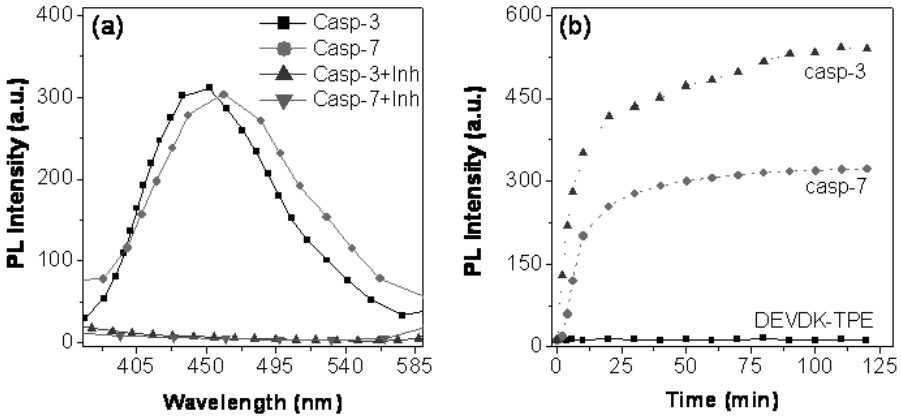

(a)
Casp-3
Casp-7
Casp-3+Inh
Casp-7+Inh
PL Intensity (a.u.)
400
300
200
100
0
405
450
495
540
585
Wavelength (nm)
(b)
casp-3
casp-7
DEVDK-TPE
PL Intensity (a.u.)
600
450
300
150
0
0
25
50
75
100
125
Time (min)

Fig. 42

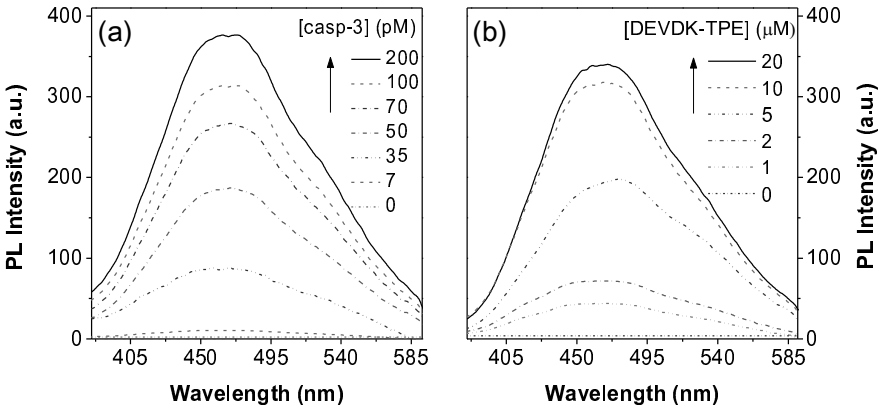

(a)
[casp-3] (pM)
200
100
70
50
35
7
0
PL Intensity (a.u.)
Wavelength (nm)
(b)
[DEVDK-TPE] (μM)
20
10
5
2
1
0
PL Intensity (a.u.)
Wavelength (nm)

Fig. 43

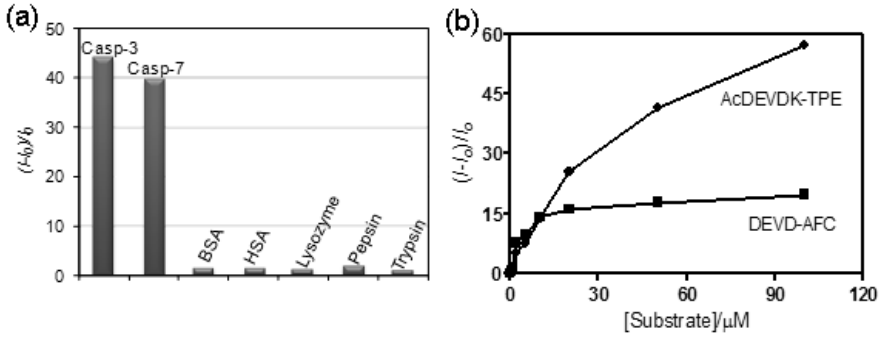

(a)
Casp-3
Casp-7
BSA
HSA
Lysozyme
Pepsin
Trypsin
(b)
AcDEVDK-TPE
DEVD-AFC
[Substrate]/μM

Fig. 44

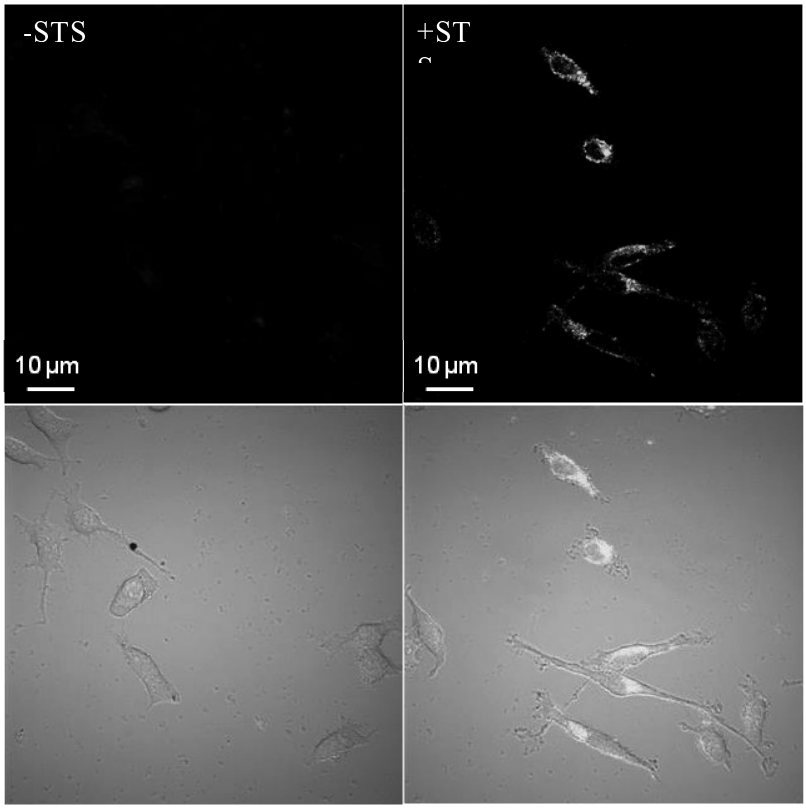


Fig. 45

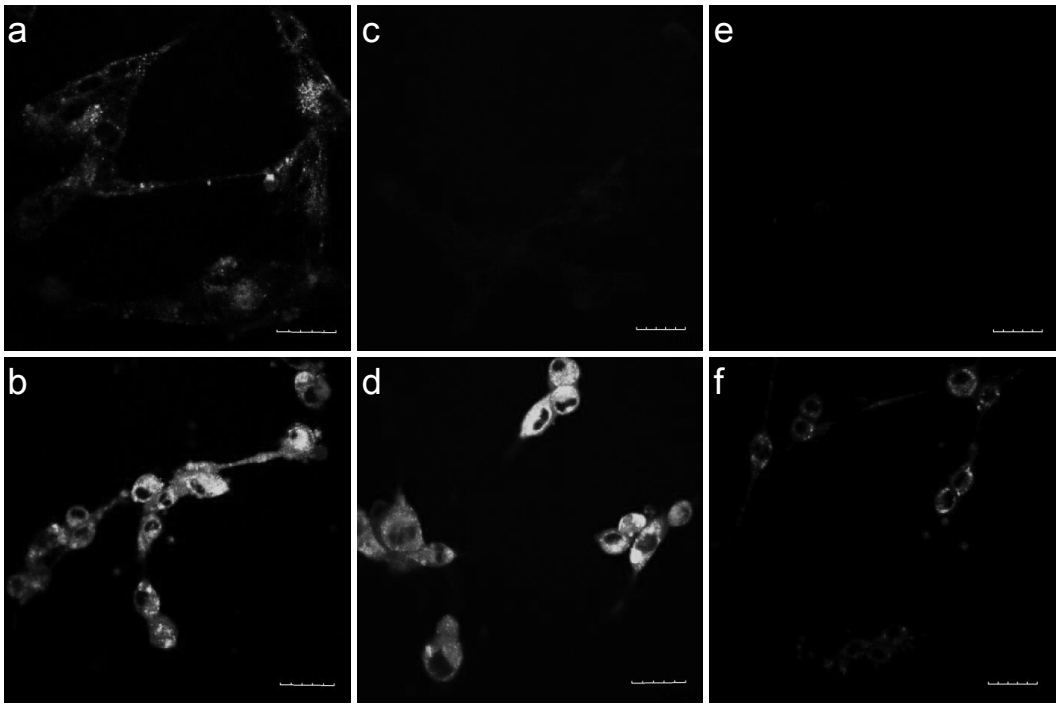

a
c
e
b
d
f

Fig. 46

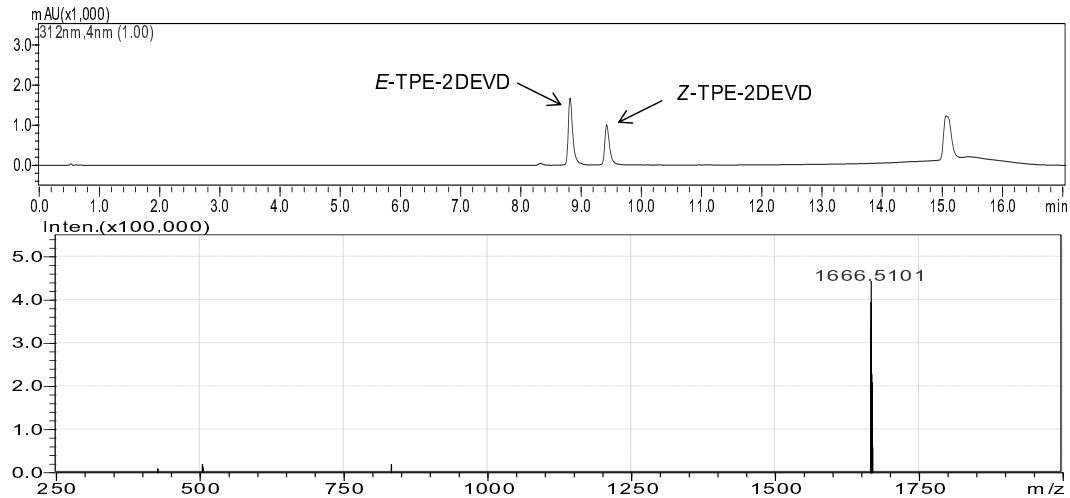

mAU(x1,000)
312nm,4nm (1.00)
E-TPE-2DEVD
Z-TPE-2DEVD
min
Inten.(x100,000)
1666.5101
m/z

Fig. 47

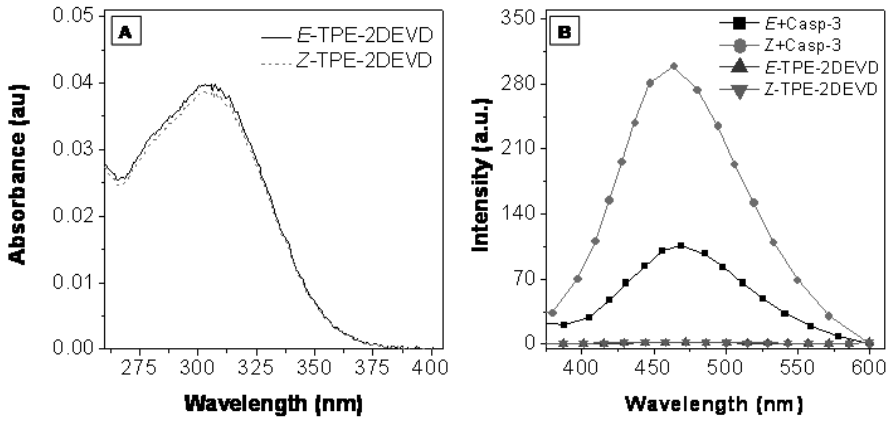

A
E-TPE-2DEVD
Z-TPE-2DEVD
Absorbance (au)
Wavelength (nm)
B
E+Casp-3
Z+Casp-3
E-TPE-2DEVD
Z-TPE-2DEVD
Intensity (a.u.)
Wavelength (nm)

Fig. 48

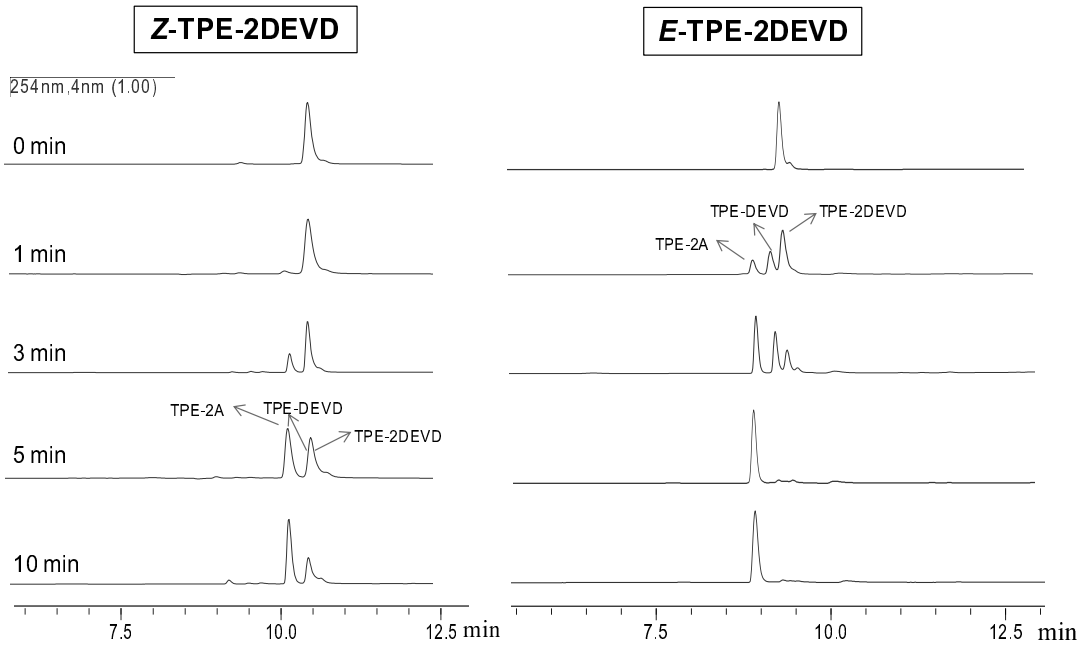
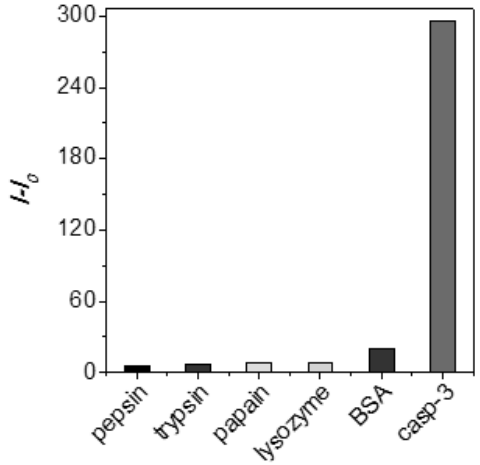

Z-TPE-2DEVD
E-TPE-2DEVD
254nm,4nm (1.00)
0 min
1 min
3 min
5 min
10 min
TPE-2A
TPE-DEVD
TPE-2DEVD
7.5
10.0
12.5 min

Fig. 49


300
240
180
120
60
0
$I-I_0$
pepsin
trypsin
papain
lysozyme
BSA
casp-3