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(73) 专利 人
453007
46

(72) 发 人

(74) 专利代
() 41139

员

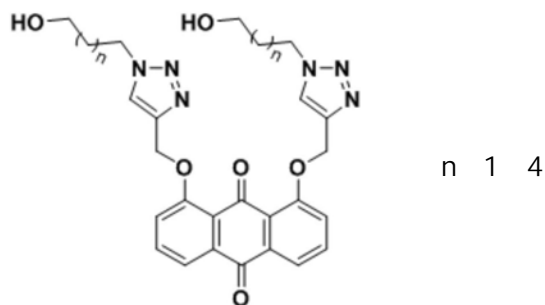
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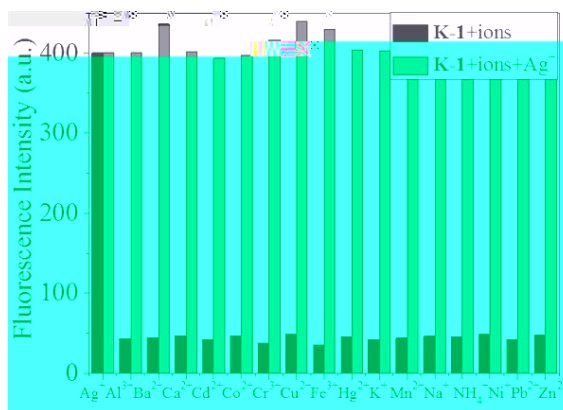
权利要求书2页 说明书6页 附图8页

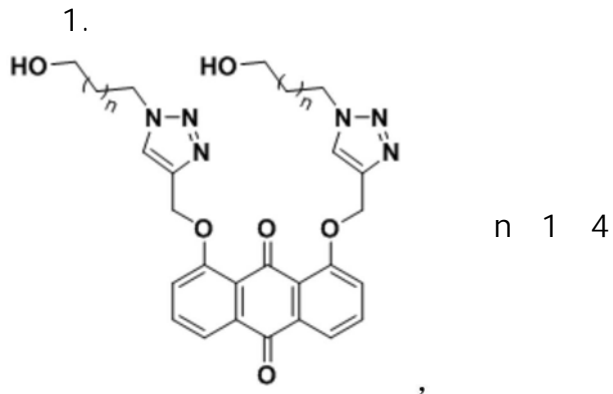
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(57)



HepG2





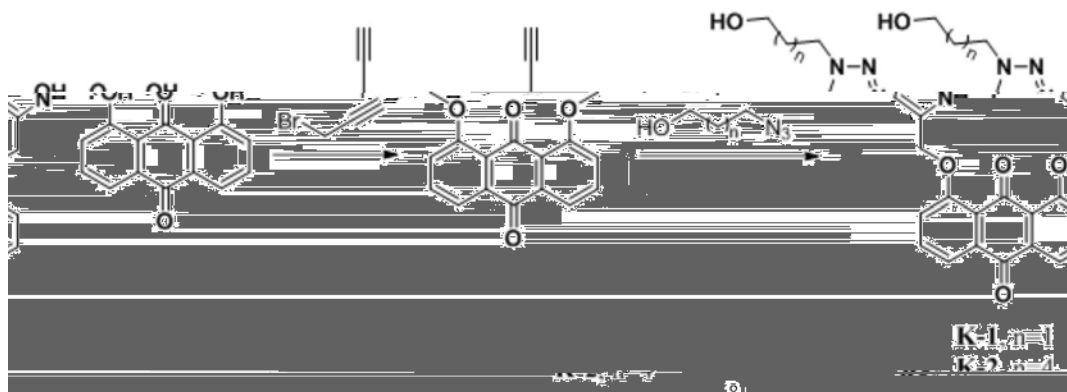
2. 1

S1 1,8 N,N 3 1
TLC

1,8 S2 N,N 80 100

TLC
S3 S2 S1 1,8 H₂O
THF L 50 60
TLC

K 1 K 2



3. 2
S1 1,8 3 1 8.38 42
33.5
4. 2
S2 3:1
5. 2
S3 1,8 L

	1.58: 0.46: 0.91: 6.08	H ₂ O THF	H ₂ O THF	1:1 1:
3				
6.	1			
7.	6			
0.05mmol /L		HEPES		
30μL		3mL		5mi n
	466nm			
	3mL	5mi n	30μL	
			466nm	
10.0nm	HEPES	pH 6 8		Ex
8.	Em 20.0nm	340nm	1s	
	7			
	0.05 0.5mmol /L			
9.	7	HEPES	pH 7.2	

一 三 唑 光 及其制 和

[0001]

[0002]

DNA

[0003]

[0004]

(Click Chemistry)

Cu(I)

1, 2, 3

1, 3

[0005]

(21702051)

(qd15108)

(2016QK10)

(17A350006 18A150009)

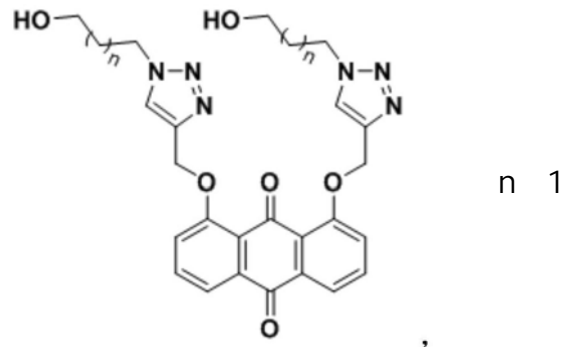
(KF2016 01)

发 内

[0006]

Click

[0007]



4

[0008]

[0009] S1 1,8 N,N 3
1 TLC

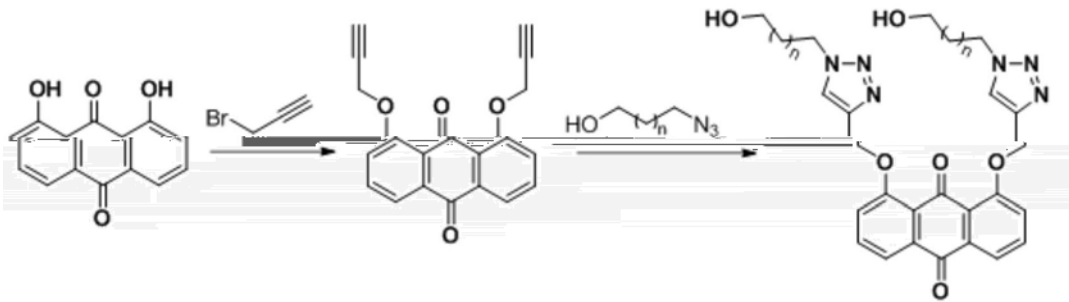
1,8
[0010] S2 N,N 80
100 TLC

[0011] S3 S2 S1 1,8 50 60
H₂O THF L TLC

K 1 K 2

[0012]

[0013]



K-1, n=1
K-2, n=4

[0014] S1 1,8 3 1
8.38 42 33.5

[0015] S2 3:1

[0016] S3 1,8 L
1.58: 0.46: 0.91: 6.08 H₂O THF H₂O THF

1: 1 1: 3

[0017]

[0018]

HEPES 0.05mmol /L
 3mL 30μL
 5min 466nm 3mL

HEPES pH 6 8 Ex 10.0nm Em
 20.0nm 340nm 1s

[0019]

0.5mmol /L

0.05

[0020]

HEPES pH 7.2

[0021]

AgNO₃ 1000 HepG2 1mmol /L
 1000 HepG2 1mmol /L
 HepG2 30min HepG2 1mmol /L
 [0022] 30min PBS 3 Olympus FV
 [0023] 1 HepG2

[0024] 2

0.5mmol /L

0.05

[0025] 3

[0026] 4

[0027] 1 K 1 (1.0mmol /L)

[0028] 2 K 1(0.05mmol /L)

[0029] 3 K 1

[0030] 4 466nm K 1

[0031] 5 Job (em 466nm)

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[0032]	6		K 1	Benesi Hildebrand
[0033]	7	pH		
[0034]	8		K 1(0.05mmol /L)	HepG2

具体

[0035] 6

[0036] $\Delta \epsilon_{400}^{\circ} = 4.0 \times 10^4 \text{ L} \cdot \text{mol}^{-1} \cdot \text{cm}^{-1}$ o'

1.92(m, 4H). ¹³C NMR(150MHz, DMSO) 183.2, 181.1, 157.5, 142.3, 134.2, 125.0, 123.9, 120.9, 118.8, 62.6, 57.4, 46.8, 33.0. ESI (+) HRMS(m/z): [MNa]⁺ cal cd. for C₂₆H₂₆N₆O₆Na 541.1806 found 541.1802

[0046] K 2 ¹H NMR(400MHz, DMSO) 8.25(s, 2H), 7.75 7.69(m, 6H), 5.34(s, 4H), 4.70(s, 2H), 4.41 4.33(m, 4H), 3.35(t, J 12.6, 6.4Hz, 4H), 1.85 1.75(m, 4H), 1.43 1.33(m, 4H), 1.32 1.25(m, 4H), 1.25 1.15(m, 4H). ¹³C NMR(150MHz, DMSO) 183.2, 181.1, 157.5, 135.9, 133.1, 128.6, 120.4, 119.1, 117.7, 62.8, 57.4, 46.8, 30.1, 29.2, 26.1, 25.4. ESI (+) HRMS(m/z): [MNa]⁺ cal cd. for C₃₂H₃₈N₆O₆Na 625.2745 found 625.2745

[0047] 2

[0048]

[0049] 10.0nm 20.0nm 340nm 1s

1cm

[0050] 5mL 1.0x 10²mol /L

K 1 K 2 25μL 5mL
50μM HEPES 1.0x 10³mol /L HEPES

[0051] K 1 K 2 x 10.0nm m 20.0nm

[0052] 3

[0053]

[0054] HEPES(10mM) 7.5mL 0.05mM /L
Fe³⁺ K⁺ Mn²⁺ Na⁺ NH₄⁺ Ni⁺ Pb²⁺ Zn²⁺ P Ag⁺ Al³⁺ Ba²⁺ Ca²⁺ Cd²⁺ Co²⁺ Cr³⁺ Cu²⁺ Hg²⁺

466nm

1 20 D 4

[0061]

[0062] Job's Plot K 1 Ag⁺ 0.25mmol /L
 K 1 Ag⁺ em 466nm 5
 K 1 Ag⁺ 1:1 K 1
 1:1

[0063]

K 1 K 1 466nm
 Benesi Hildebrand $1/[Ag^+](F_{max}-F_{min})$
 $1/(F-F_{min})$ y $7.31 \times 10^4 / Ka + 0.003(R^2)$
 0.978) 6 Ka 1368M

[0064]

$$\frac{1}{F-F_{min}} = \frac{1}{K_a(F_{max}-F_{min})[Ag^+]} + \frac{1}{F_{max}-F_{min}}$$

[0065]

6

[0066]

pH K 1 K 1+Ag⁺

[0067]

pH K 1 K 1+Ag⁺ em 466nm
 5 pH 5.0 11.0 K 1 pH
 6.0 8.0 K 1+Ag⁺ pH 6.0 8.0
 K 1 Ag⁺ pH
 pH 7.2 HEPES

[0068]

7

[0069]

K 1 Ag⁺

[0070]

K 1 Ag⁺ HepG2
 (PBS) 1mM K 1 37 30min PBS 3
 1mM AgNO₃ PBS 37 30min PBS
 3 Olympus FV 1000 8
 Ag⁺ HepG2

[0071]

