Electronic Supplementary Information

A high selective and sensitive turn on fluorescent probe for detection of holmium ion

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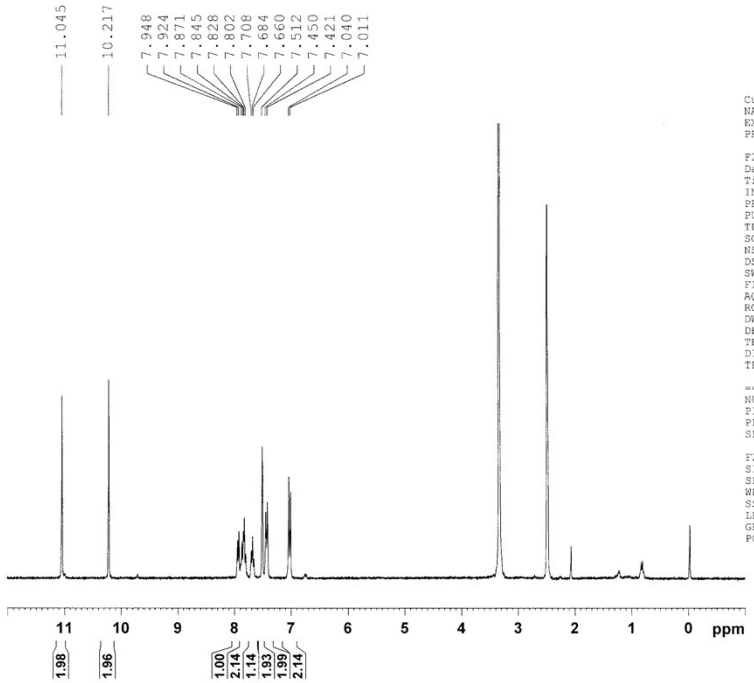
Figure S1:^{1}H NMR, ^{13}C NMR, EI-MS of probe.

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PROCNO                      1

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PULPROG                 zg30
TD                     16384
SOLVENT                 DMSO
NS                         8
DS                         0
SWH                 5995.204 Hz
FIDRES              0.365918 Hz
AQ                  1.3664756 sec
RG                       256
DW                    83.400 usec
DE                     6.00 usec
TE                    292.3 K
D1                  1.00000000 sec
TD0                         1

======== CHANNEL f1 ========
NUC1                       1H
P1                     10.00 usec
PL1                     5.50 dB
SFO1             300.1309004 MHz

F2 - Processing parameters
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SF                300.1292813 MHz
WDW                         no
SSB                          0
LB                        0.00 Hz
GB                           0
PC                        2.00
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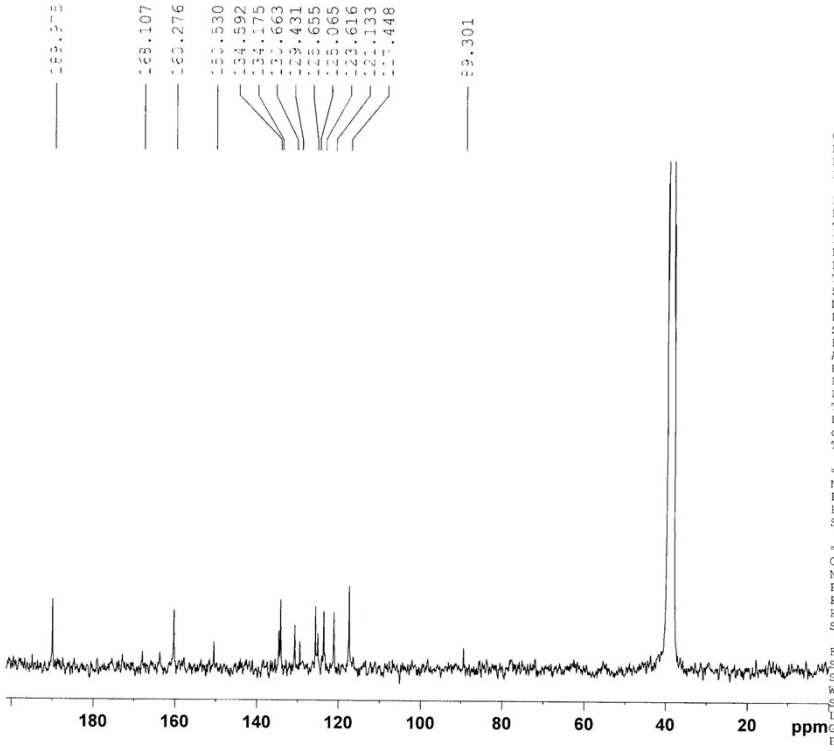


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TD                     65536
SOLVENT                 DMSO
NS                      5831
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SWH                22675.736 Hz
FIDRES              0.346004 Hz
AQ                  1.4451188 sec
RG                     9195.2
DW                    22.050 usec
DE                     6.00 usec
TE                    300.0 K
D1                  2.00000000 sec
d11                 0.03000000 sec
TD0                         1

======== CHANNEL f1 ========
NUC1                       13C
P1                     9.50 usec
PL1                    0.00 dB
SFO1            75.4752960 MHz

======== CHANNEL f2 ========
CPDPRG2                waltz16
NUC2                       1H
PCPD2                 80.00 usec
PL2                    6.00 dB
PL12                  24.06 dB
SFO2           300.1315010 MHz

F2 - Processing parameters
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SF                75.4676487 MHz
WDW                         EM
SSB                          0
LB                       10.00 Hz
GB                           0
PC                        1.40
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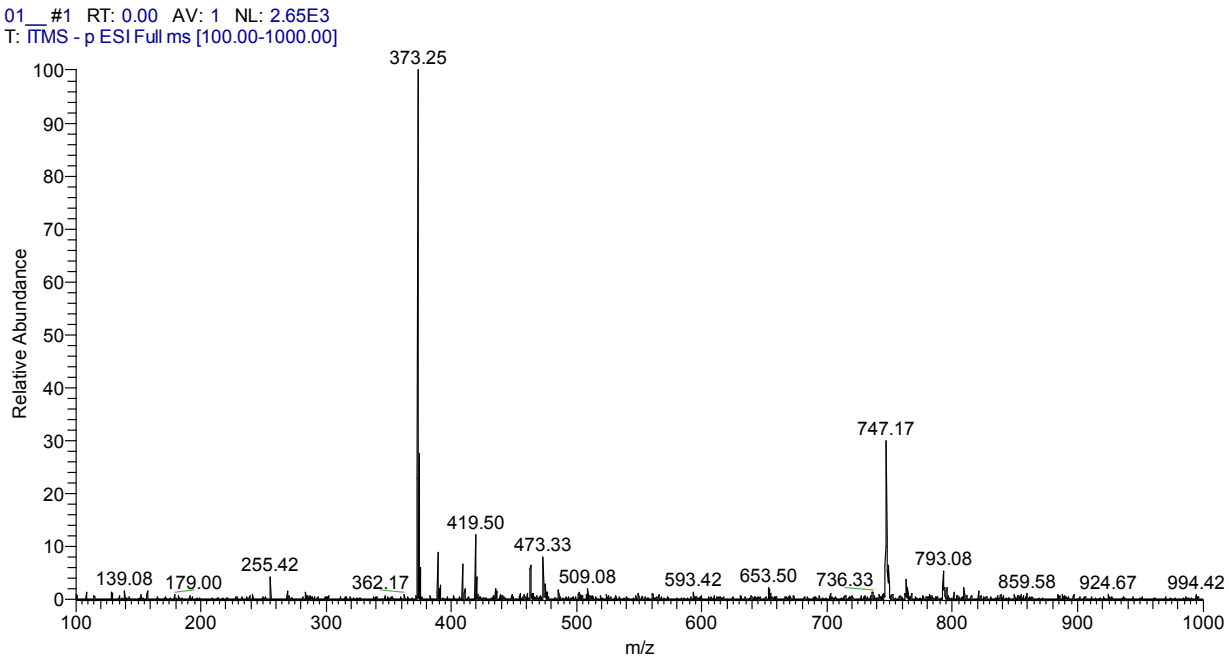
01__ #1 RT: 0.00 AV: 1 NL: 2.65E3
T: ITMS - p ESI Full ms [100.00-1000.00]
Relative Abundance
m/z
373.25
747.17
419.50
473.33
793.08
255.42
139.08
179.00
362.17
509.08
593.42
653.50
736.33
859.58
924.67
994.42

Figure S2: The emission spectra of probe when all kinds of analytes added

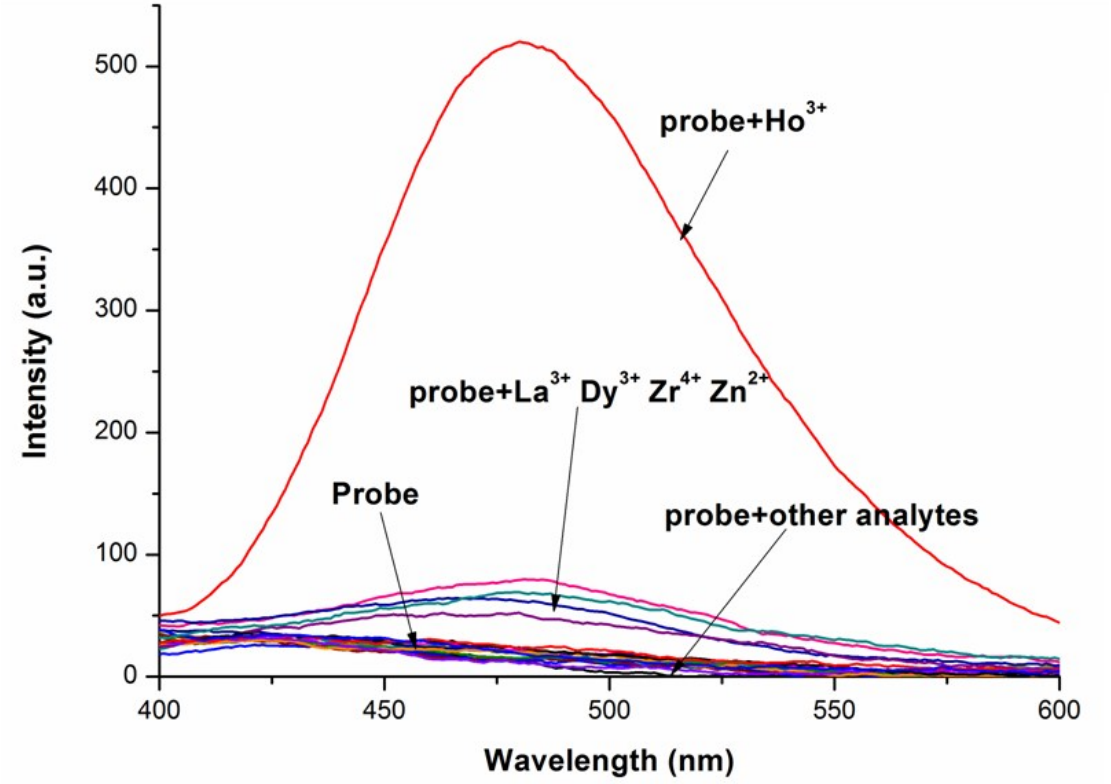

Figure S2: The emission spectra of probe when all kinds of analytes were added.

Figure S3: The absorption spectra changes of probe for Ho^{3+}

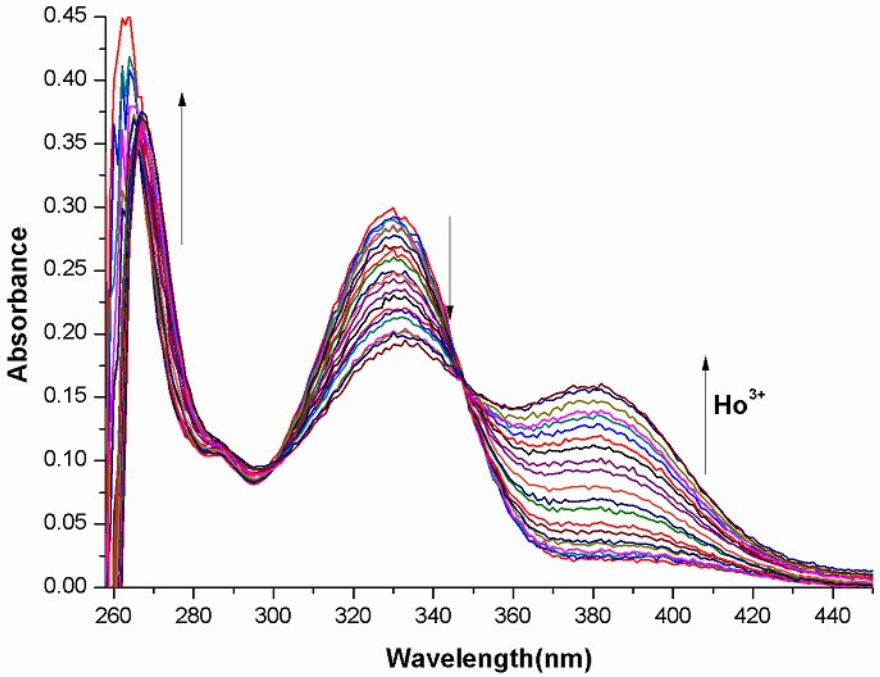

Figure S3: The absorption spectra changes of probe (50 μM) in 10 mmol/L HEPES buffer /DMF (v/v=1:1, pH 7.4) upon addition of Ho^{3+}; Ho^{3+} was added gradually with [Ho^{3+}] = 0–50 μM.

Figure S4: The determination of the stoichiometry between probe and Ho^{3+}, their association constant

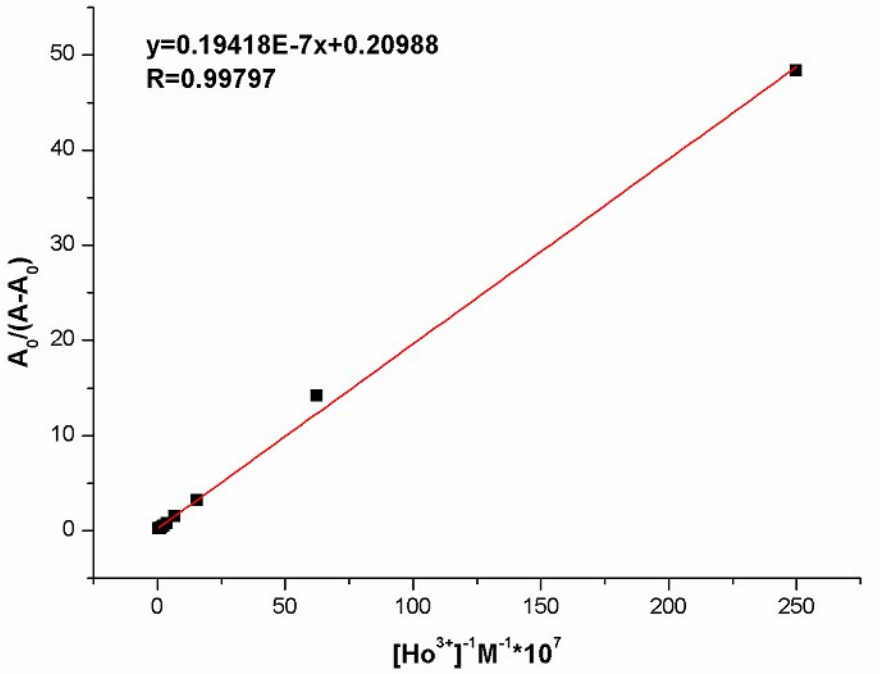

Figure S4: Benesi-Hildebrand plot based on the 1:1 for probe and Ho^{3+} with *K*a =1.08 × 10^7M^{-1}.

Figure S5: Plot of the fluorescence intensity (at 480 nm) as a function of the concentrations of Ho^{3+}

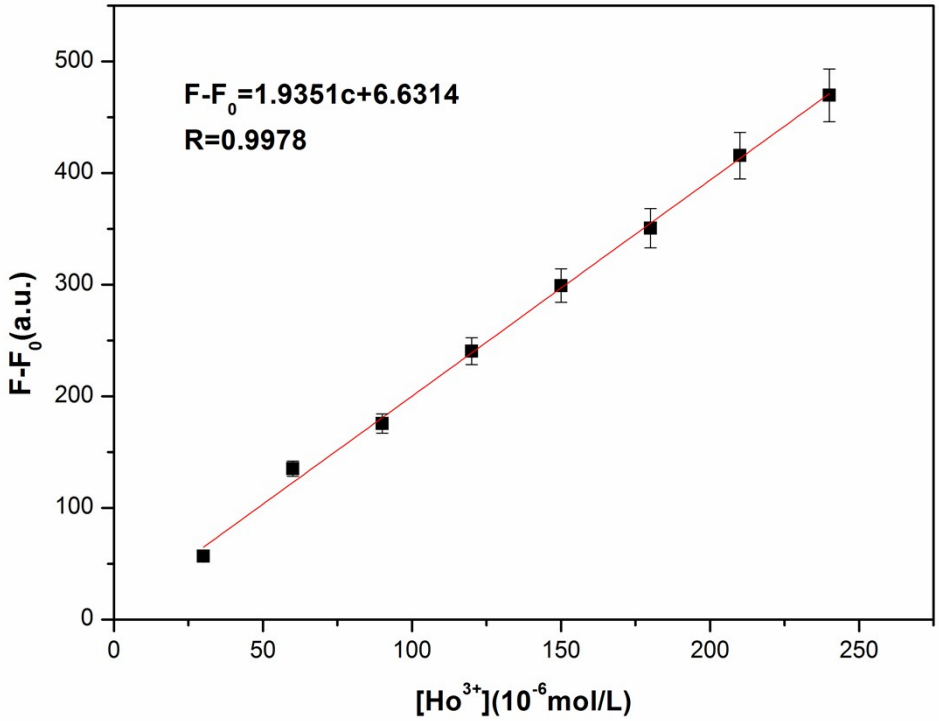

Figure S5: Plot of the fluorescence intensity (at 480 nm) as a function of the concentrations of Ho^{3+}

Figure S6: ESI-MS spectra of the probe-Ho^{3+}