Supporting Information (SI)

A visible light excitable "on-off" and "green-red" fluorescent chemosensor for Ni^{2+}/Pb^{2+} with different reaction speed

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Figures and Tables

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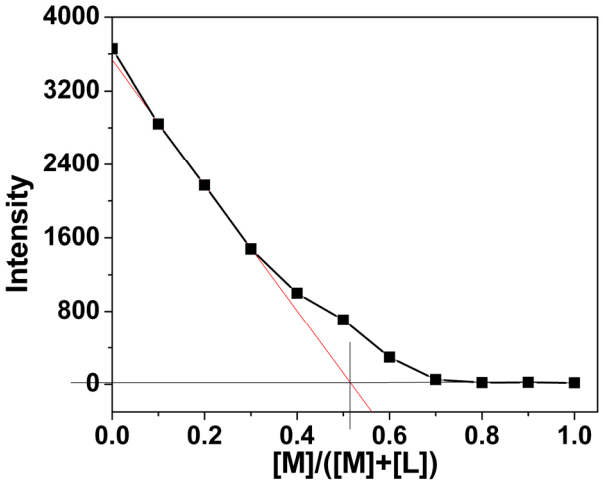


Fig. S1 Job's plot of compound **L** with Ni^{2+} obtained by emission measurements.

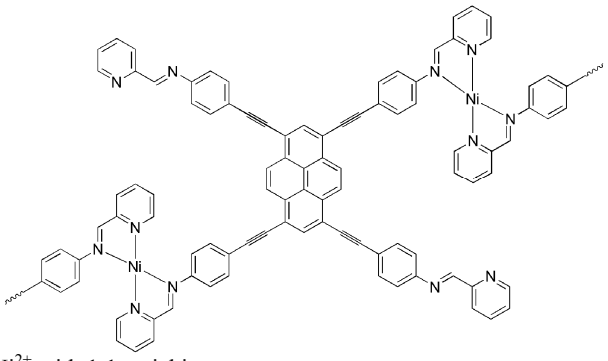


Fig. S2 Possible mode of **L** chelated Ni^{2+} with 1:1 stoichiometry.

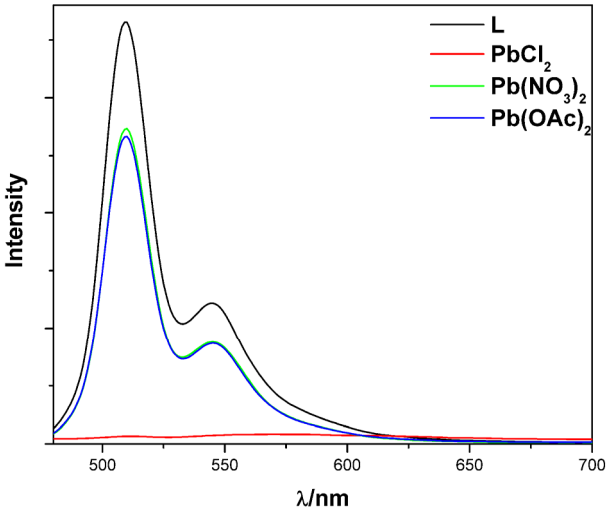


Fig. S3 Fluorescence emission spectra of **L** (5.0×10^{-6} M, DMF/H_2O = 50, v/v) upon addition of different lead salts (2.0×10^{-5} M) with excitation at 460 nm.

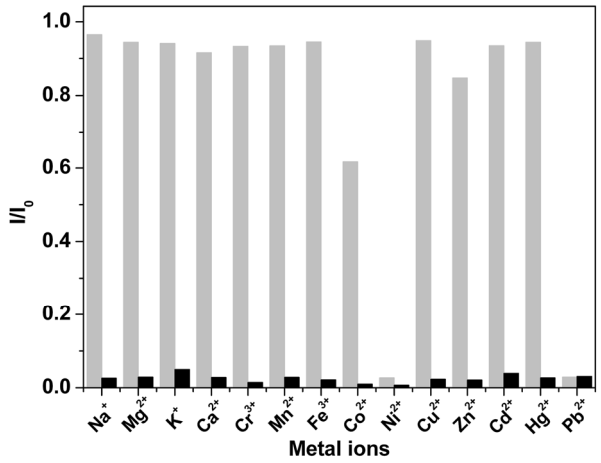


Fig. S4 The light gray bars represent fluorescence responses of **L** (5.0×10^{-6} M, DMF/H_2O = 50, v/v) upon addition of different metal salts (4 equiv); the dark bars show the fluorescence change that occurs upon addition of Pb^{2+} to the solution containing **L** and other cation (the ratio of background cation to Pb^{2+} is 4, λ_{ex} = 460 nm). I and I_0 represent the emission intensity at 509 nm. The metal salts represent NaCl, $MgCl_2$, KCl, $CaCl_2$, $CrCl_3$, $MnCl_2$, $FeCl_3$, $CoCl_2$, $NiCl_2$, $CuCl_2$, $ZnCl_2$, $CdCl_2$, $HgCl_2$, and $PbCl_2$. The reaction time of **L** and metal ions is longer than 60 min.

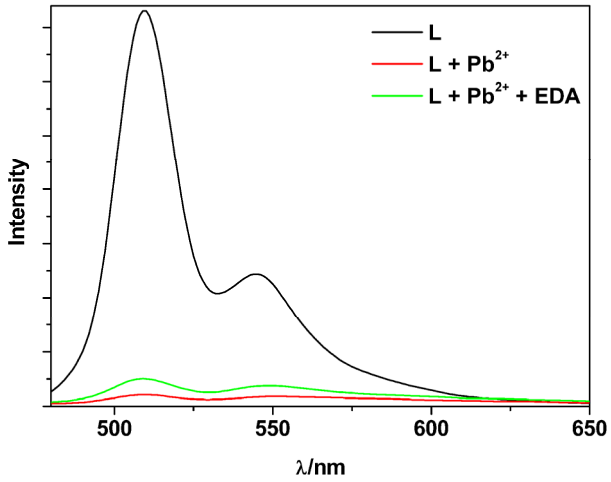


Fig. S5 Fluorescence emission spectra of **L** (5.0×10^{-6} M, DMF/H_2O = 50, v/v) in different conditions with excitation at 460 nm. The amount of Pb^{2+} is 18 equiv and that of EDA is 10 equiv to Pb^{2+}.

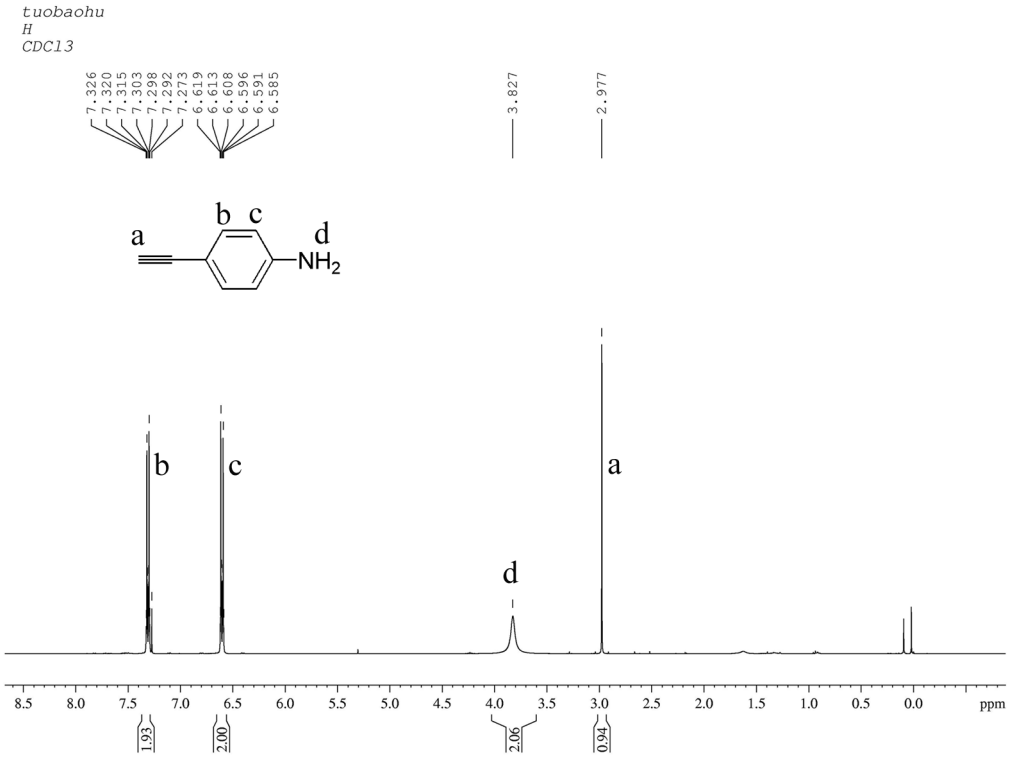


Fig. S6 ^{1}H NMR spectrum of 4-ethynyl-phenylamine.

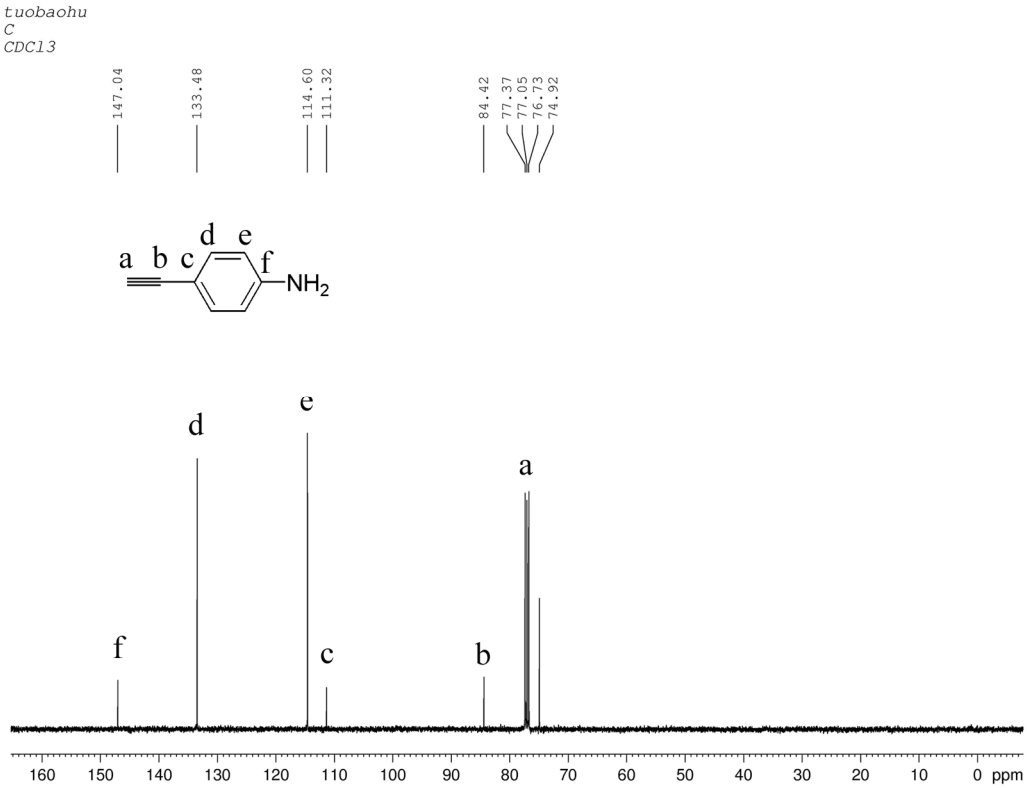


Fig. S7 ^{13}C NMR spectrum of 4-ethynyl-phenylamine.

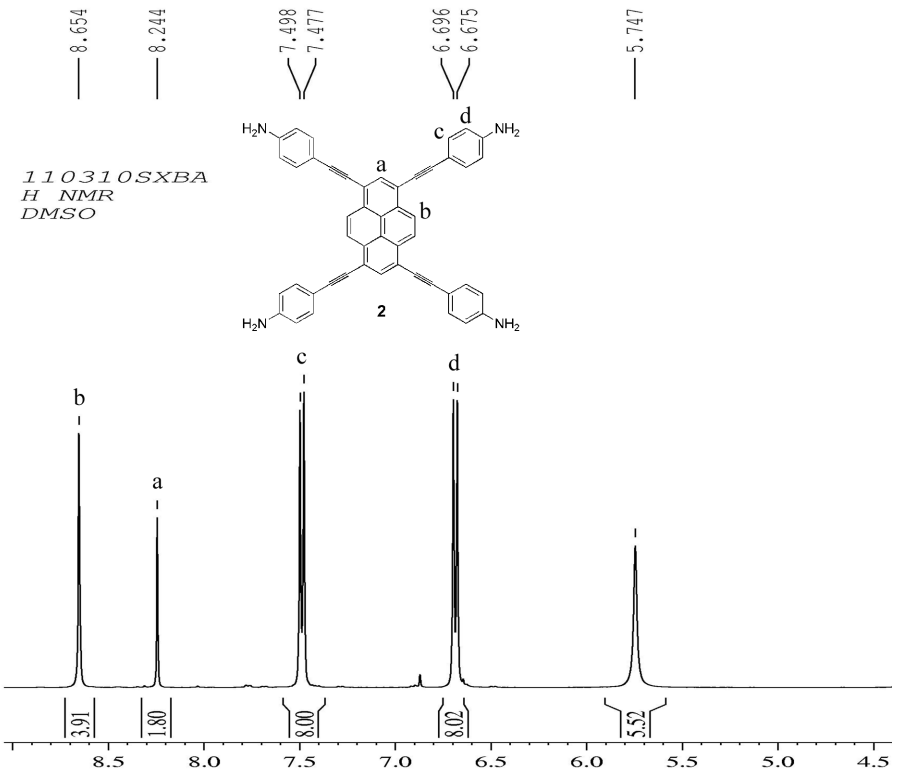


Fig. S8 ^{1}H NMR spectrum of 1,3,6,8-tetrakis(aminbenzoic)pyrene (**2**).

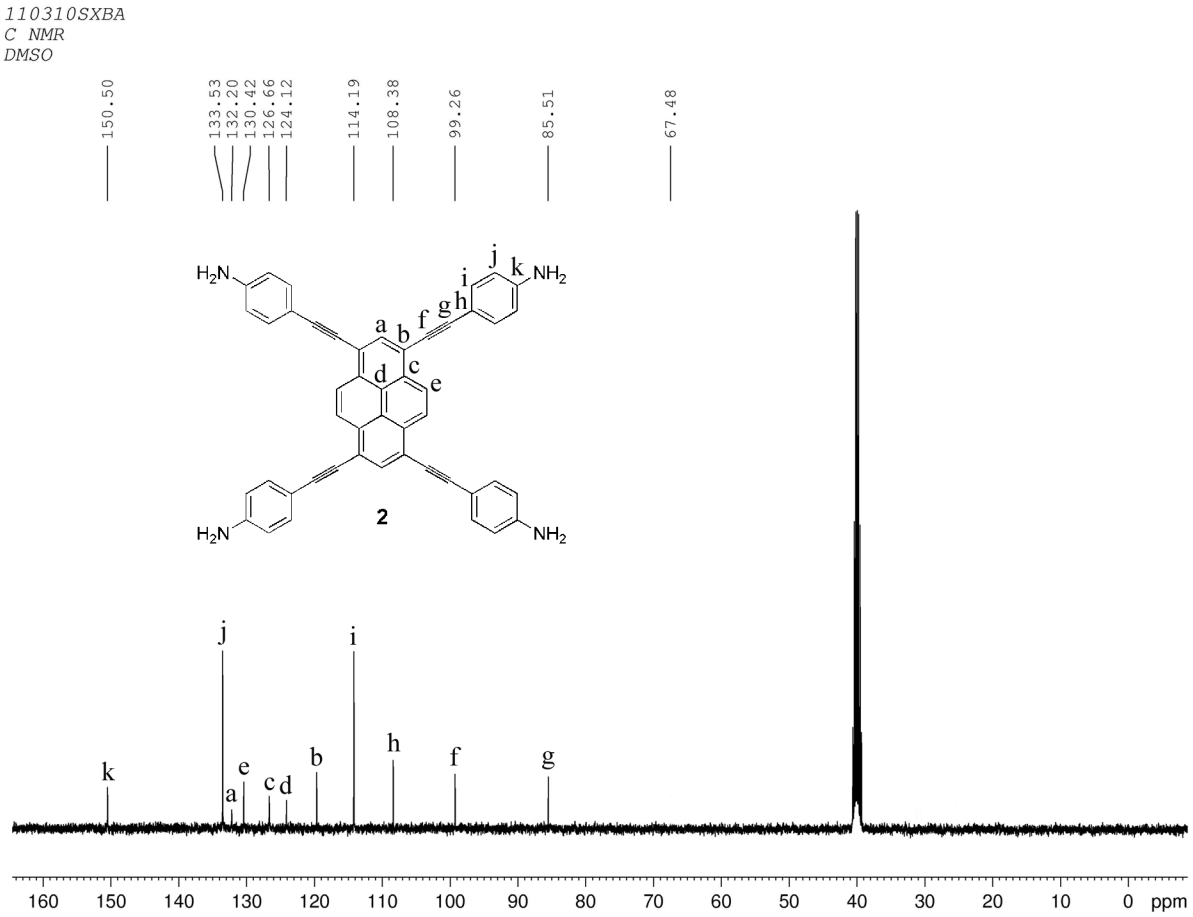


Fig. S9 ^{13}C NMR spectrum of 1,3,6,8-tetrakis(aminbenzoic)pyrene (**2**).

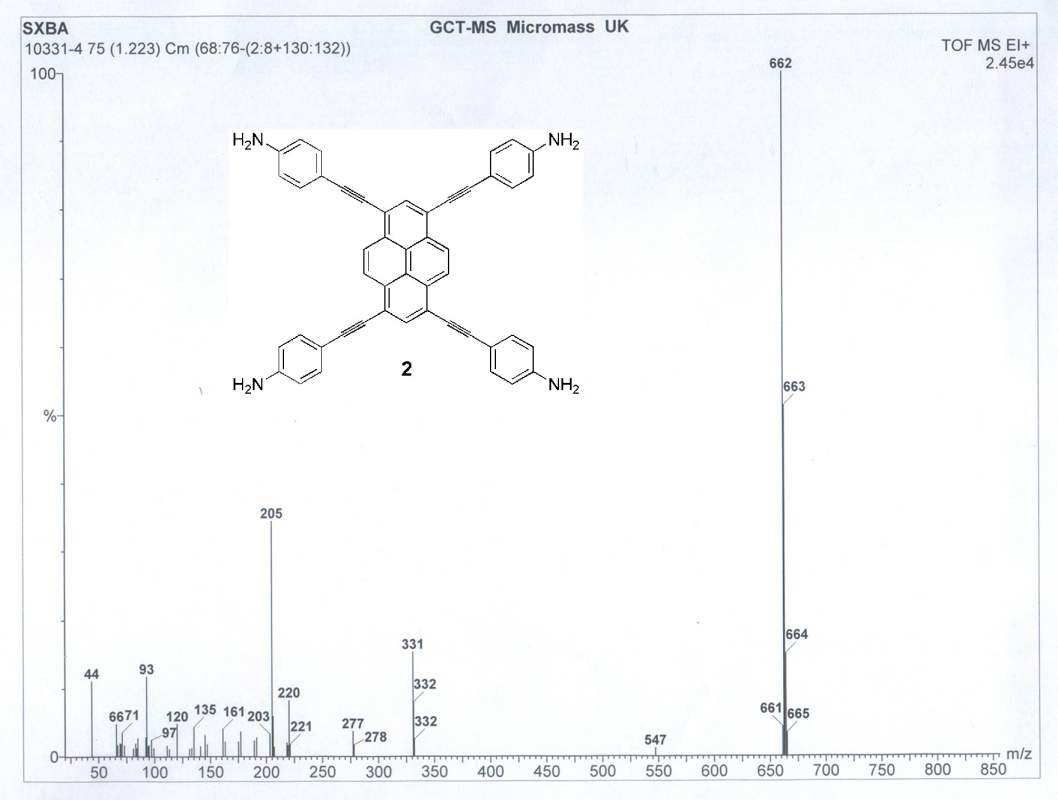
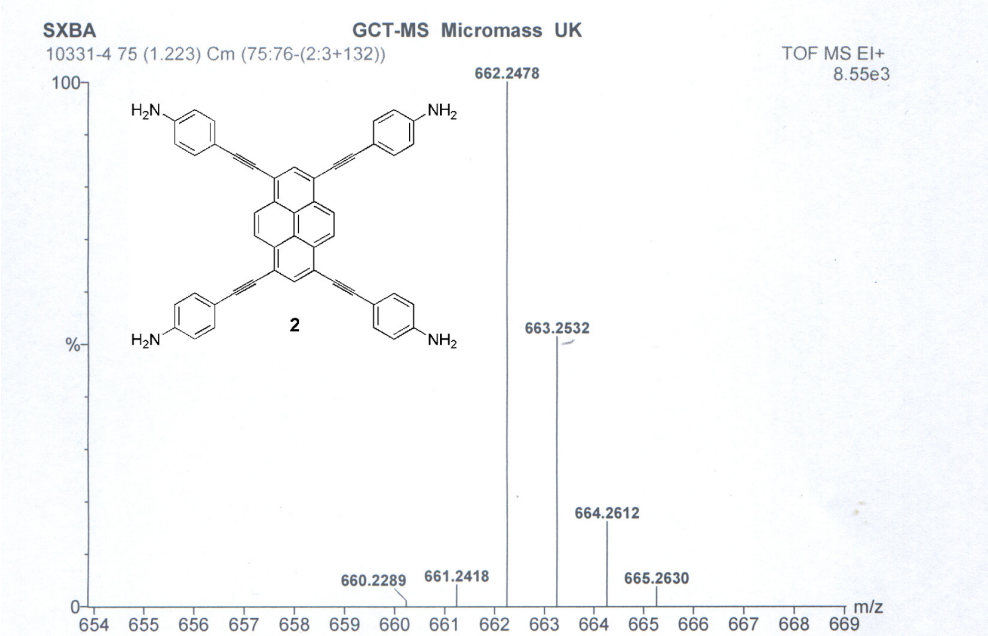


Fig. S10 MS spectrum of 1,3,6,8-tetrakis(aminbenzoic)pyrene (**2**).



Elemental Composition Report

Tolerance = 10.0 PPM / DBE: min = -1.5, max = 50.0
Isotope cluster parameters: Separation = 1.0 Abundance = 1.0%

Monoisotopic Mass, Odd and Even Electron Ions
53 formula(e) evaluated with 1 results within limits (up to 50 closest results for each mass)

Minimum:	80.00				-1.5		
Maximum:	100.00		200.0	10.0	50.0		
Mass	RA	Calc. Mass	mDa	PPM	DBE	Score	Formula
662.2478	100.00	662.2470	0.8	1.1	36.0	1	C48 H30 N4

Fig. S11 HRMS spectrum of 1,3,6,8-tetrakis(aminbenzoic)pyrene (**2**).

Fig. S12 ^{1}H NMR spectrum of compound **L**.

Shanghai Mass Spectrometry Center
Shanghai Institute of Organic Chemistry
Chinese Academic of Sciences
High Resolution MS DATA REPORT

Instrument: IonSpec 4.7 Tesla FTMS

Card Serial Number: WI11 1115A

Sample Serial Number: SXBA+BDQ

Operator : HuaQin Date: 2011/06/29

Operation Mode: MALDI/DHB

Elemental Composition Search Report:

Target Mass:
Target m/z = 1041.3446 ± 0.003
Charge = +1

Possible Elements:

Element:	Exact Mass:	Min:	Max:
C	12.000000	0	100
H	1.007825	0	100
N	14.003074	0	100
Na	22.989770	0	1

Additional Search Restrictions:
DBE Limit Mode = Both Integer and Half-Integer
Minimum DBE = 0

Search Results:
Number of Hits = 9

m/z	Delta m/z	DBE	Formula
1041.34487	-0.00027	58.5	$C_{74}H_{41}N_8^{+1}$
1041.34403	0.00057	52.0	$C_{57}H_{35}N_{23}^{+1}$
1041.34581	-0.00121	33.0	$C_{13}H_{22}N_{60}Na^{+1}$
1041.34319	0.00141	45.5	$C_{40}H_{29}N_{38}^{+1}$
1041.34665	-0.00205	39.5	$C_{30}H_{28}N_{45}Na^{+1}$
1041.34246	0.00214	56.0	$C_{72}H_{42}N_8Na^{+1}$
1041.34235	0.00225	39.0	$C_{23}H_{23}N_{53}^{+1}$
1041.34749	-0.00289	46.0	$C_{47}H_{34}N_{30}Na^{+1}$
1041.34162	0.00298	49.5	$C_{55}H_{36}N_{23}Na^{+1}$