Electronic Supplementary Material (ESI) for Polymer Chemistry

Hybrid Organic/Inorganic Nanomaterial Sensors for Selective Detection of Au^{3+} Using Rhodamine-Based Modified PolyacrylicAcid (PAA)-Coated FeNPs

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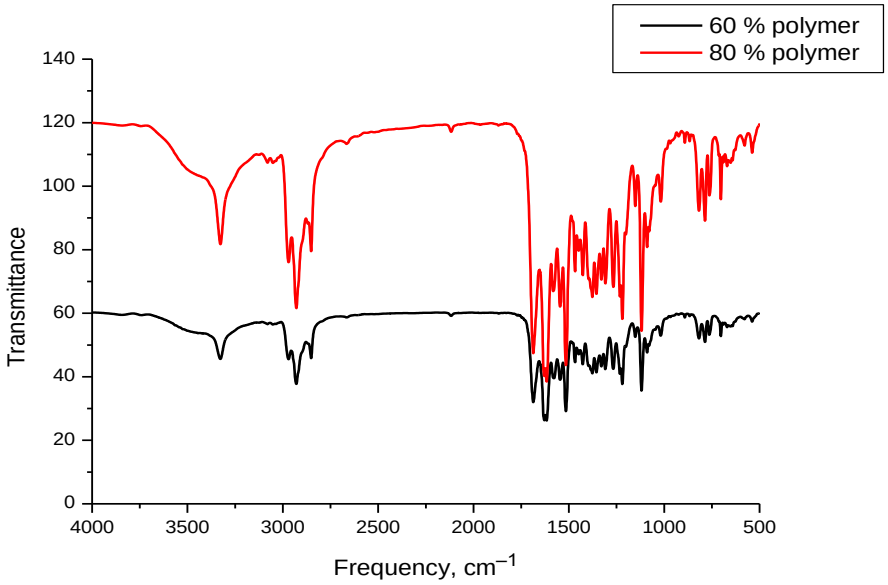


Figure S1. FTIR spectrum of **PAA-Rho3** and**PAA-Rho4**.

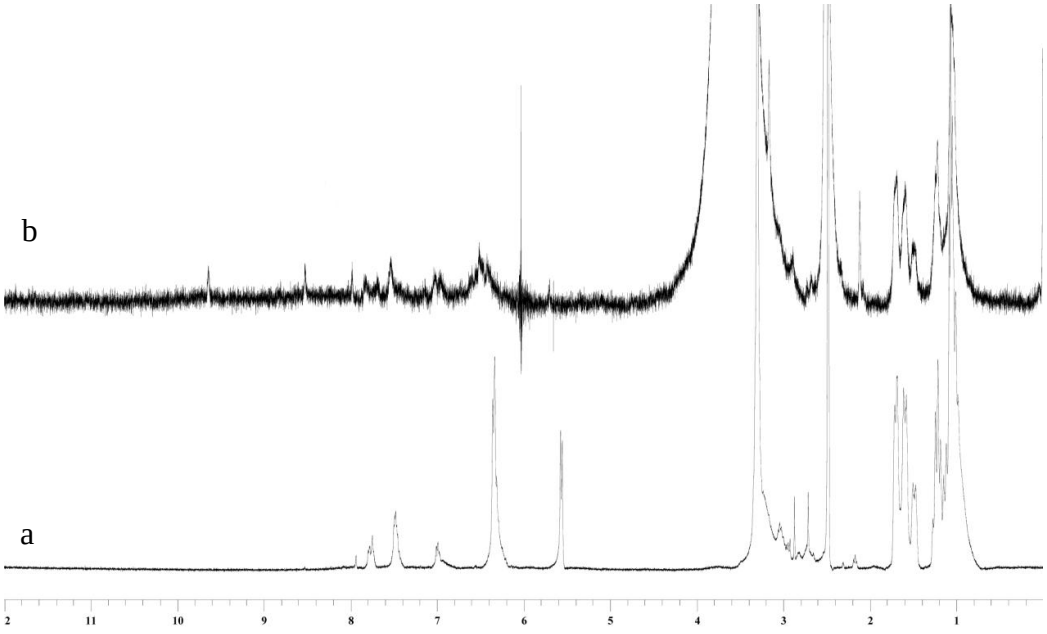


Figure S2. ^{1}H NMR spectra of **PAA-Rho2** in DMSO-d_6 in the presence (a) and absence (b) of Au^{3+}.

Figure S3. Color change and fluorescence changes of **PAA-Rho2** (0.1 g/L) in the presence of various cations.

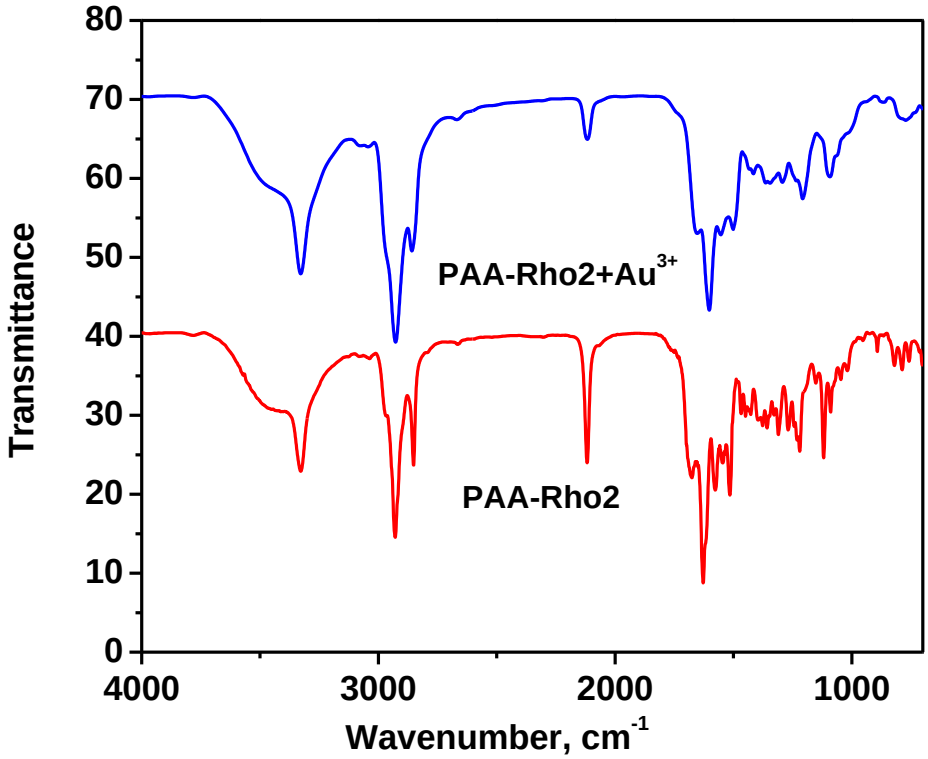
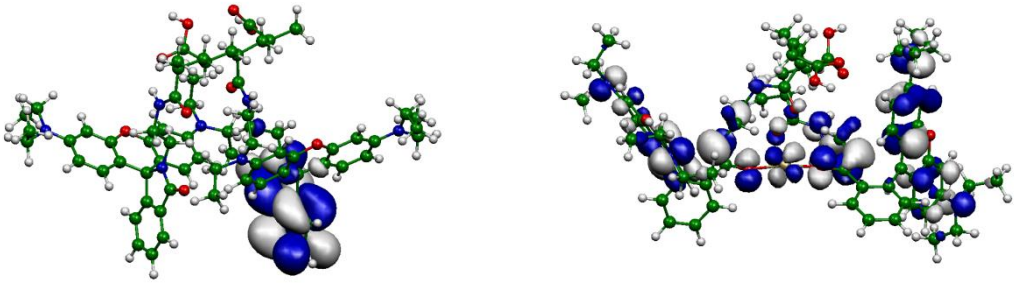
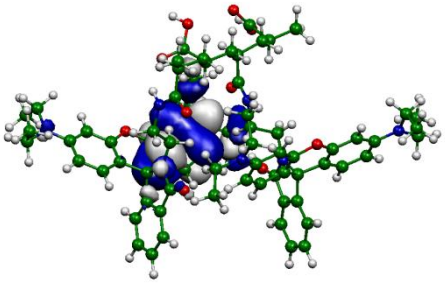


Figure S4. FT-IR spectra of **PAA-Rho2** and **PAA-Rho2**•Au^{3+}.

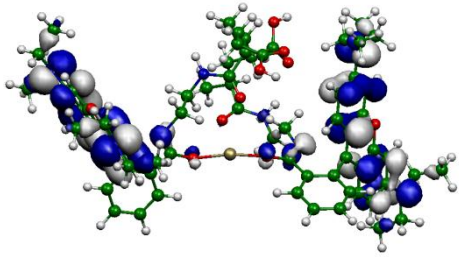


PAA-Rho2 (LUMO)

PAA-Rho2•Au^{3+} (LUMO)

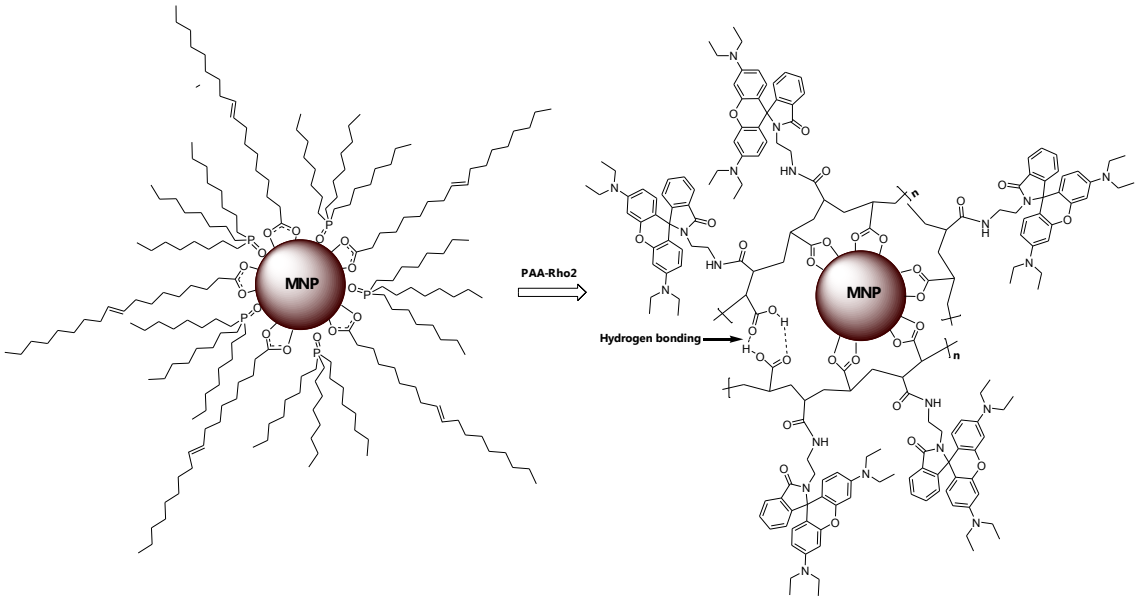


PAA-Rho2 (HOMO)



PAA-Rho2•Au^{3+} (HOMO)

Figure S5. The B3LYP/LanL2DZ level-computed molecular orbitals contoured, HOMOs (Down) and LUMOs (Up) at an iso-surface value of 0.05 a.u. for **PAA-Rho2** and **PAA-Rho2**•Au^{3+}.



Scheme S2. The exchange process of hybrid organic/inorganic material (**PAA-Rho2-FeNPs**)

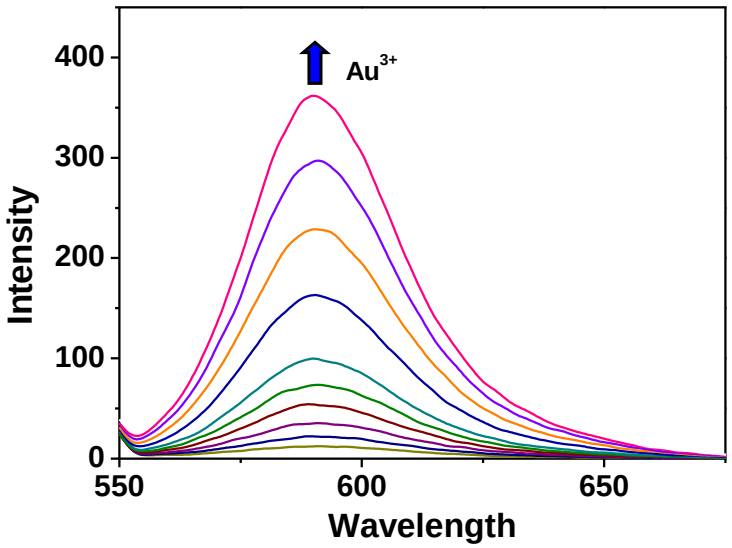


Figure S6. Fluorescent emission changes of **PAA-Rho2-FeNPs** (0.1g/L) in the presence of different amounts of Au^{3+}.

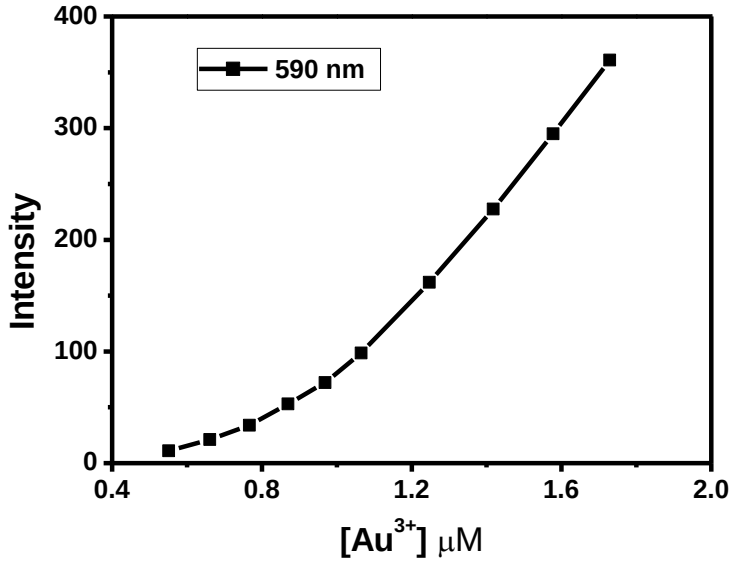


Figure S7. The fluorescent intensities of **PAA-Rho2-FeNPs** (0.1g/L) in the presence of different amounts of Au^{3+} at 590 nm.

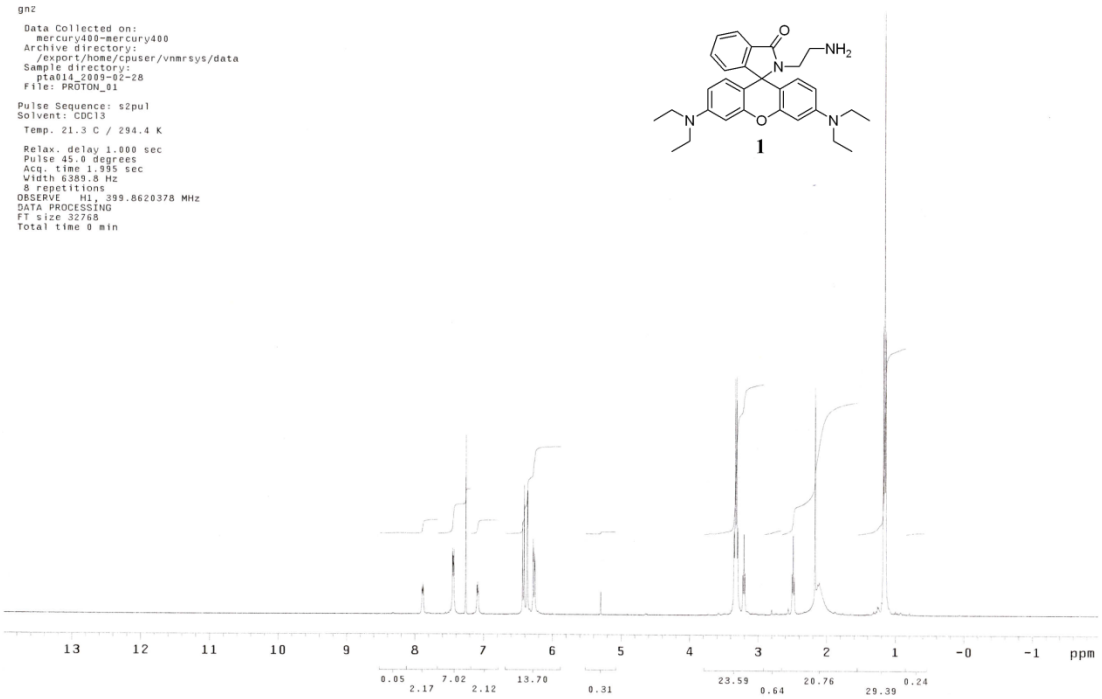


Figure S8. ^{1}H NMR spectrum of N-(rhodamine B)lactam-ethylenediamine (**Rho**).

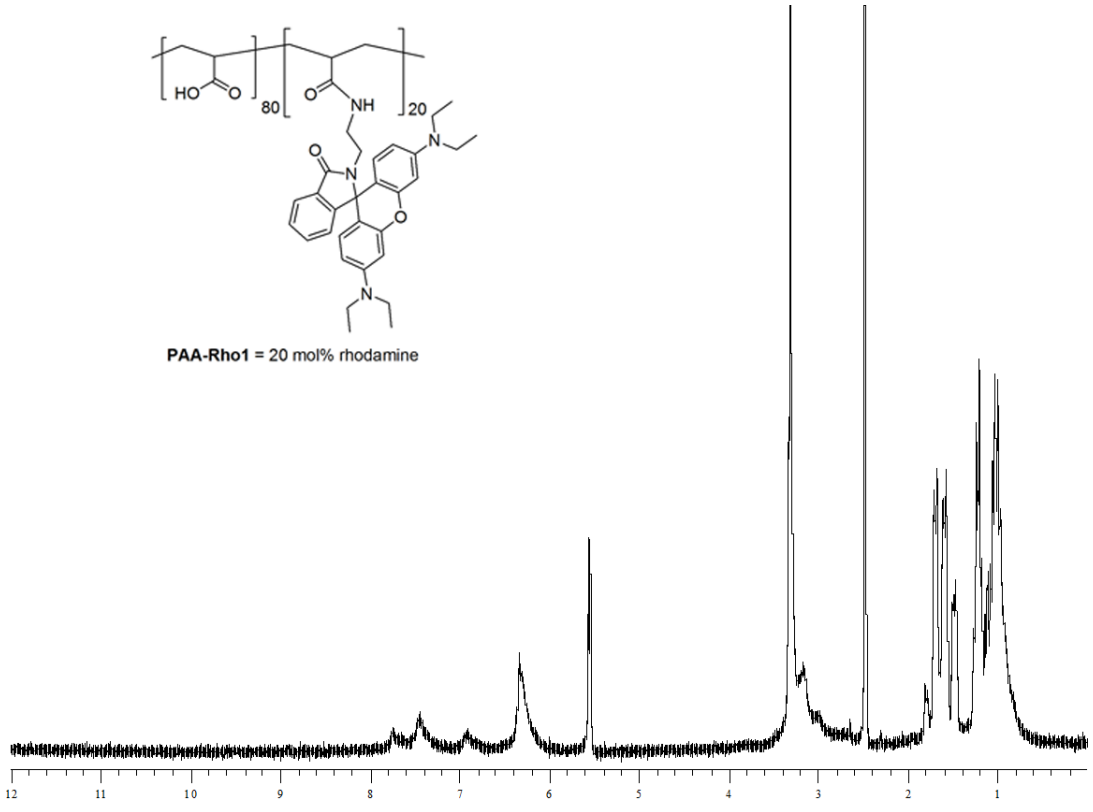


Figure S9. ^{1}H NMR spectrum of polymeric sensor (**PAA-Rho1**).

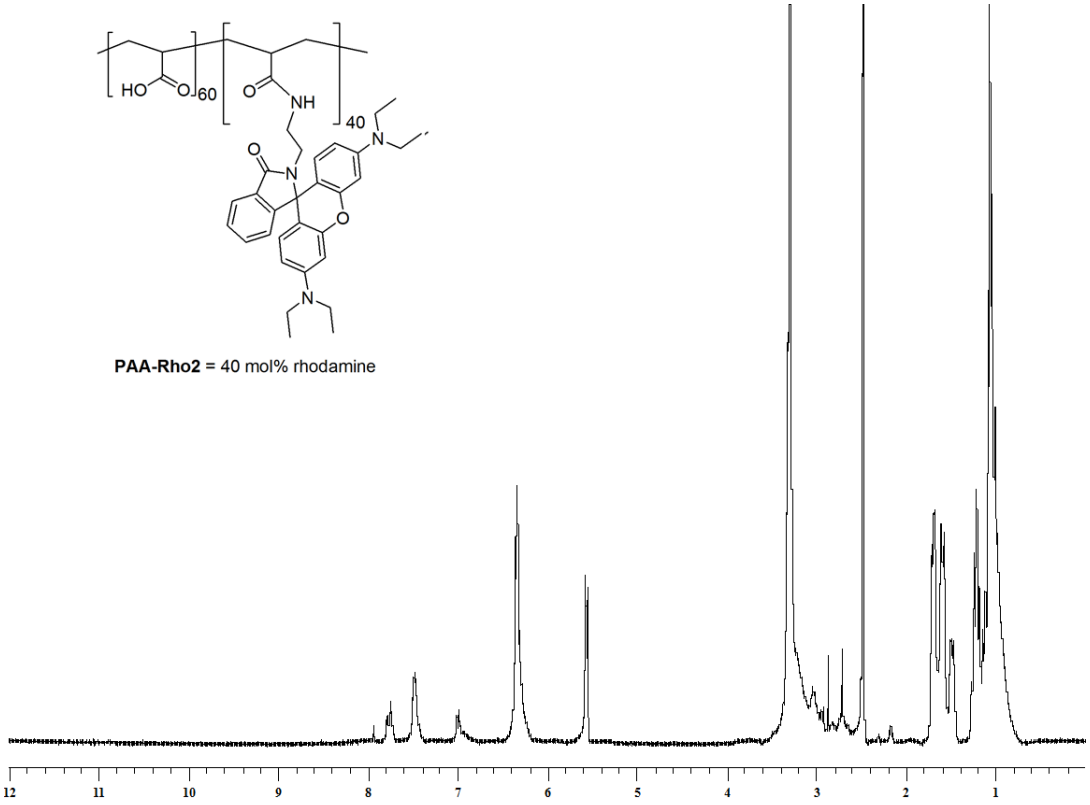


Figure S10. ^{1}H NMR spectrum of polymeric sensor (**PAA-Rho2**).

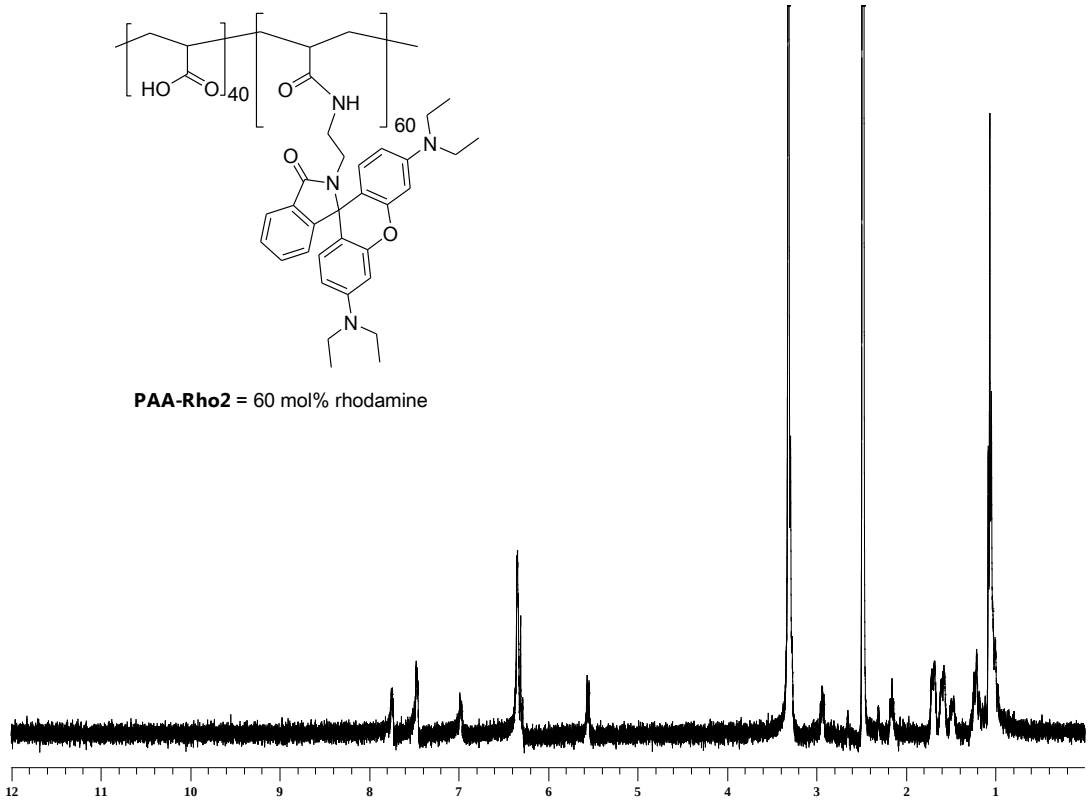


Figure S11. ^{1}H NMR spectrum of polymeric sensor (**PAA-Rho3**).

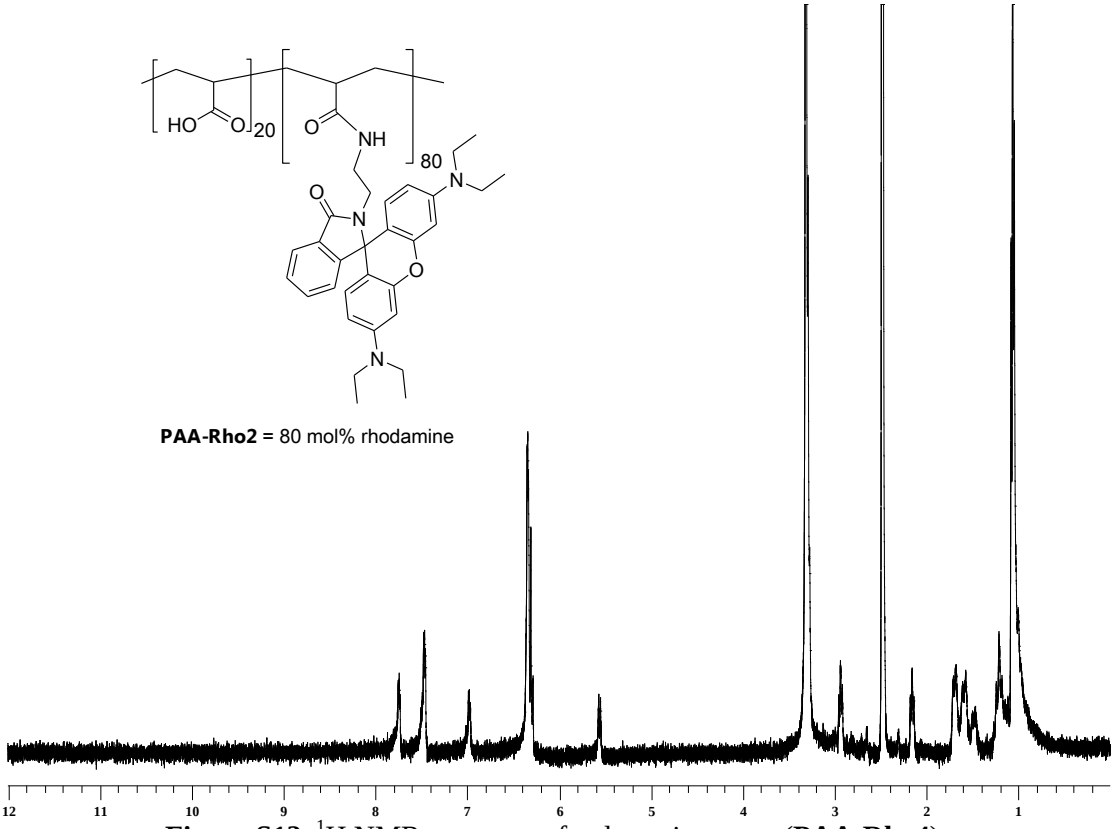


Figure S12. ^{1}H NMR spectrum of polymeric sensor (**PAA-Rho4**).