

Electronic Supplementary data For

**A cancer cell-specific two-photon fluorescent probe for imaging
hydrogen sulfide in living cells**

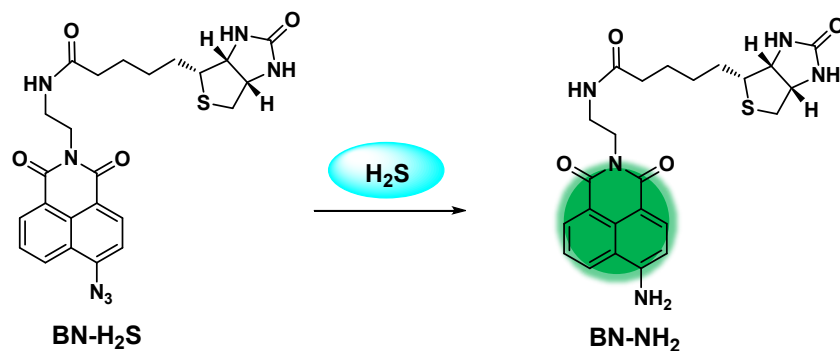
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Scheme S1. Proposed response mechanism of **BN-H₂S** to H₂S.

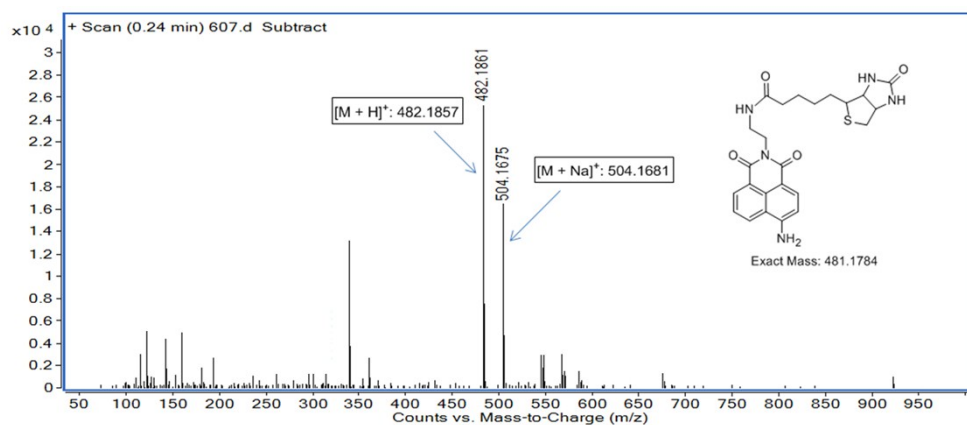


Fig. S1. HRMS study of the product of **BN-H₂S** with Na₂S (80 equiv) in PBS (pH 7.4, 20 mM, 5% MeOH) at room temperature.

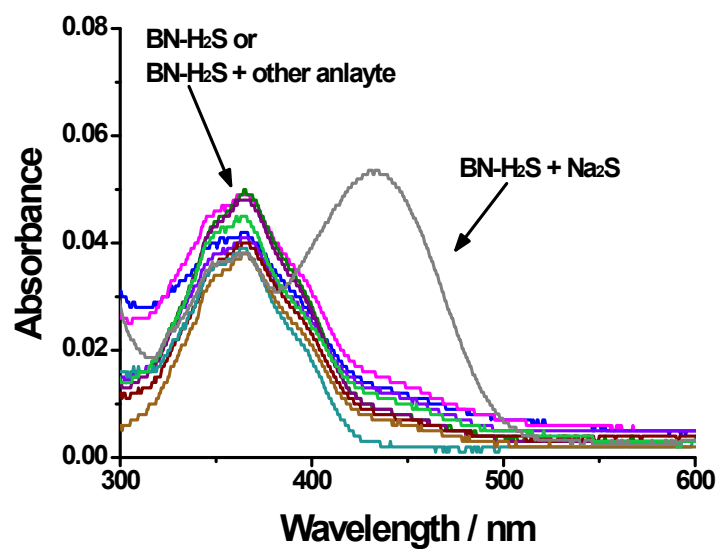


Fig. S2. Absorption spectra of 5 μM **BN-H₂S** to various species in PBS buffer (pH 7.4, 20 mM, 5% MeOH).

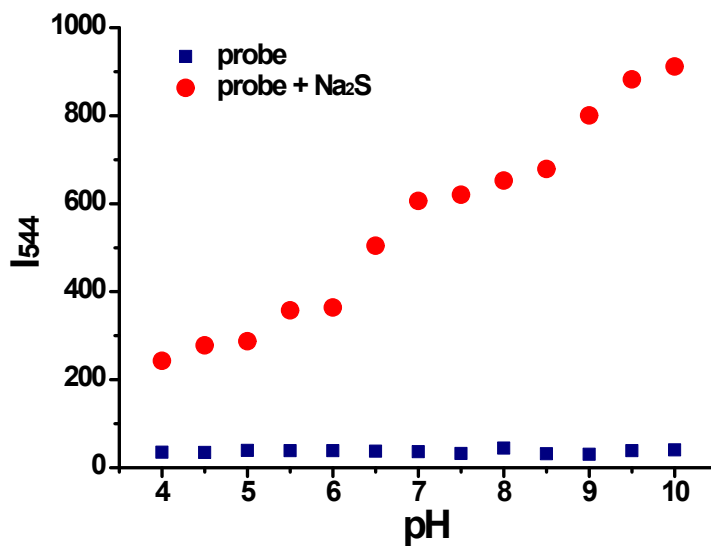


Fig. S3. Fluorescence intensity at 544 nm of 5 μM **BN-H₂S** in absence and presence of 100 μM **Na₂S** at different pH under excitation at 440 nm.

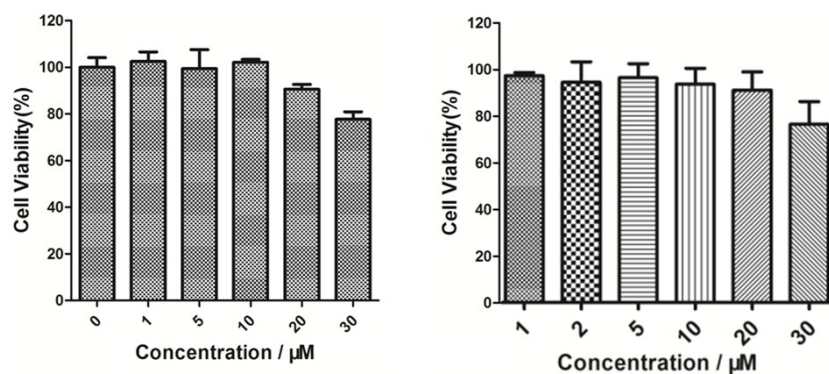


Fig. S4. Cytotoxicity of **BN-H₂S** in HeLa cells (left) and NIH 3T3 cells (right). The cell viability was measured by a standard MTT assay.

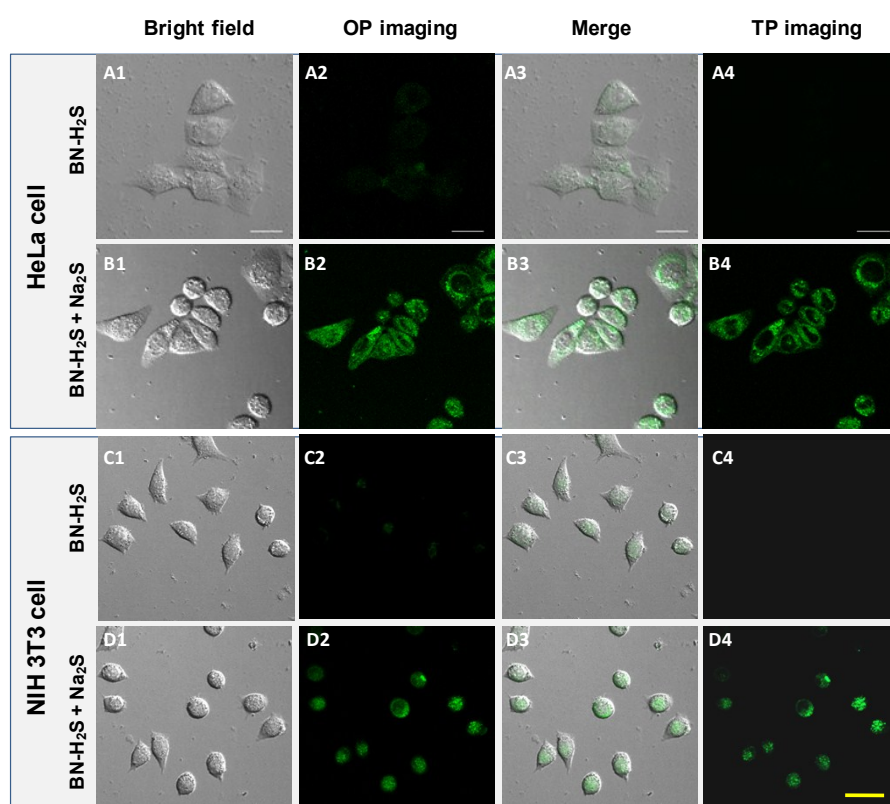
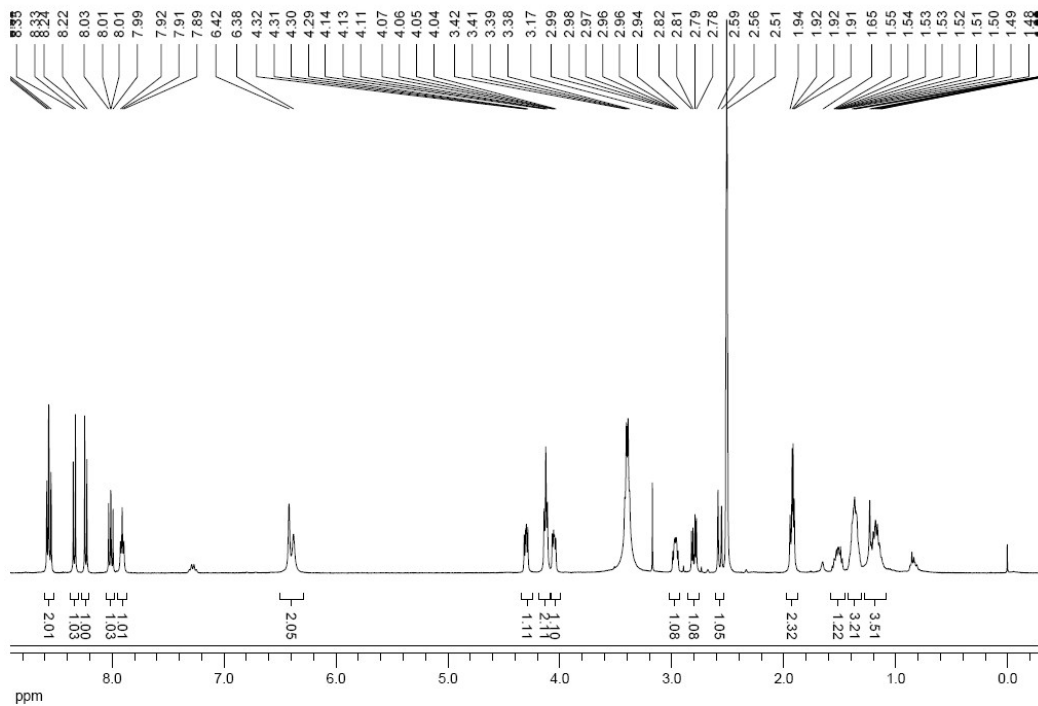
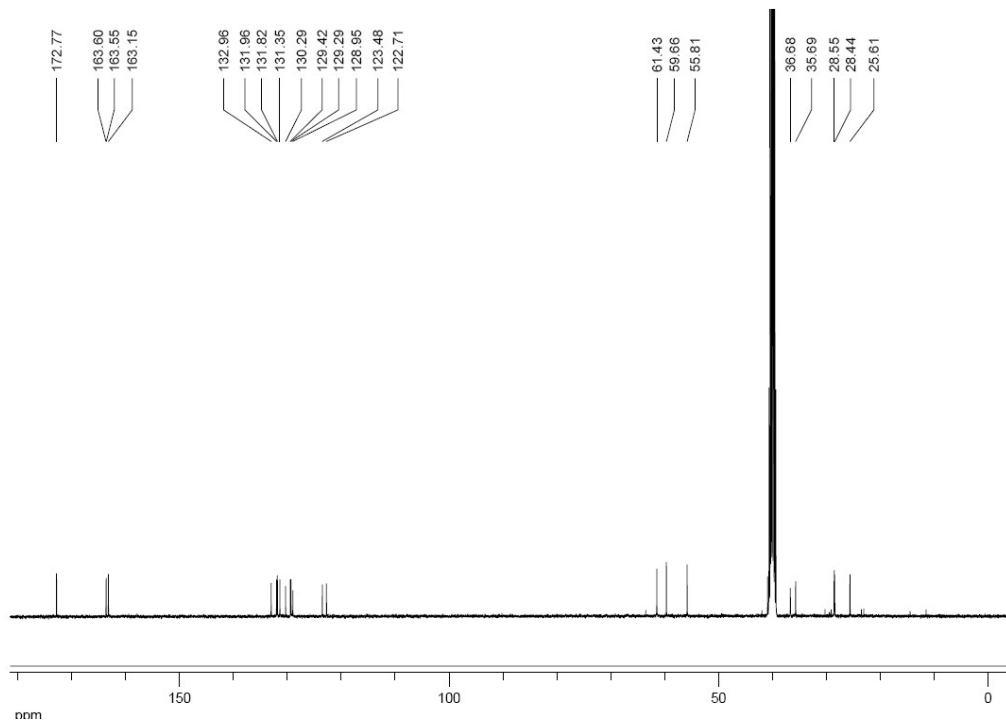


Fig. S5. (A) Fluorescence images of HeLa cells treated with 10 μM **BN-H₂S**. (B) Fluorescence images of HeLa cells treated with 10 μM **BN-H₂S** and 100 μM Na₂S. (C) Fluorescence images of NIH 3T3 cells treated with 10 μM **BN-H₂S**. (D) Fluorescence images of NIH 3T3 cells treated with 10 μM **BN-H₂S** and 100 μM Na₂S. One-photon (OP) imaging: emission at 500-550 nm with excitation at 488 nm; Two-photon (TP) imaging: emission at 500-550 nm with excitation at 760 nm. Scale bar = 20 μm.



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ig. S6. ^1H NMR spectrum ($\text{DMSO-}d_6$) of compound **2**.



Fi

g. S7. ^{13}C NMR spectrum ($\text{DMSO-}d_6$) of compound **2**.

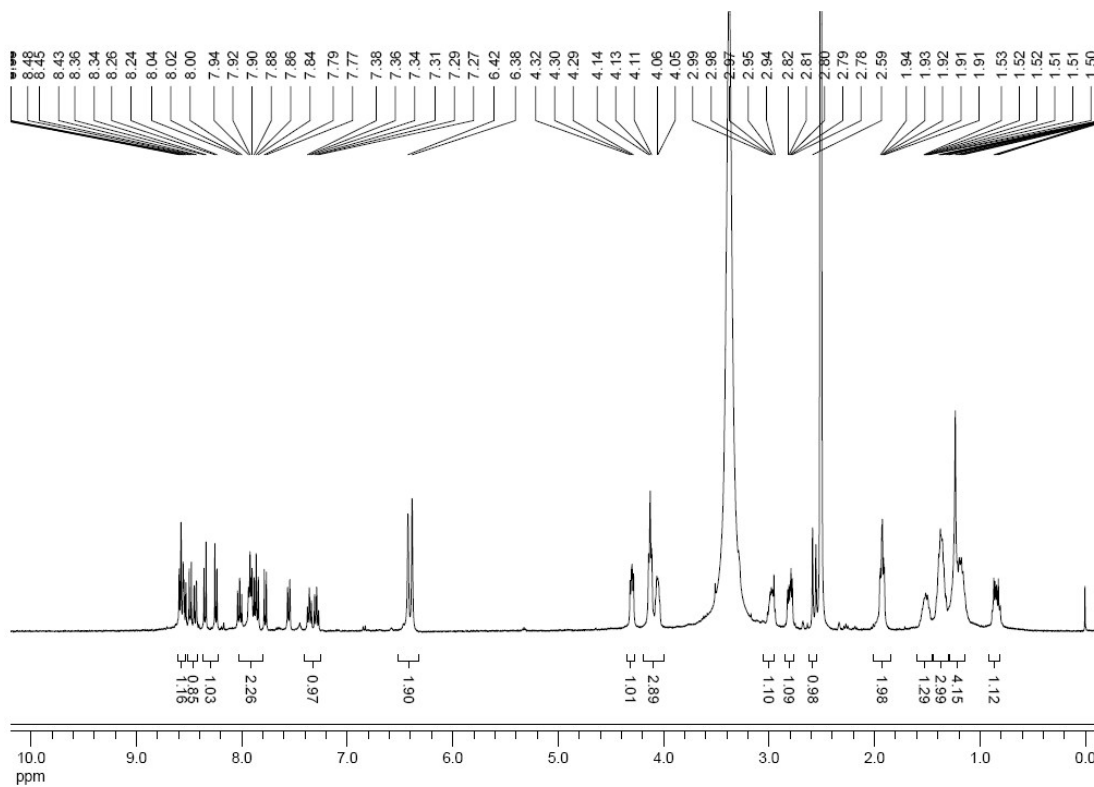


Fig. S8. ^1H NMR spectrum ($\text{DMSO-}d_6$) of compound **BN- H_2S**

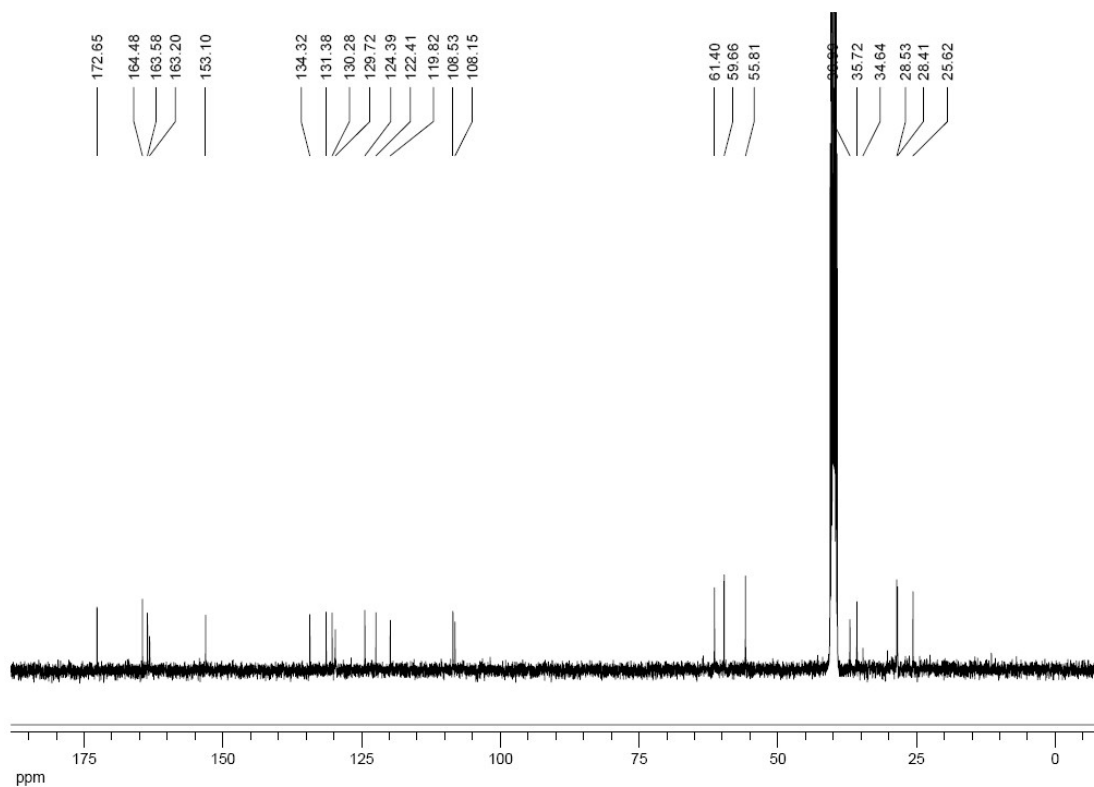


Fig. S9. ^{13}C NMR spectrum ($\text{DMSO-}d_6$) of compound **BN- H_2S**

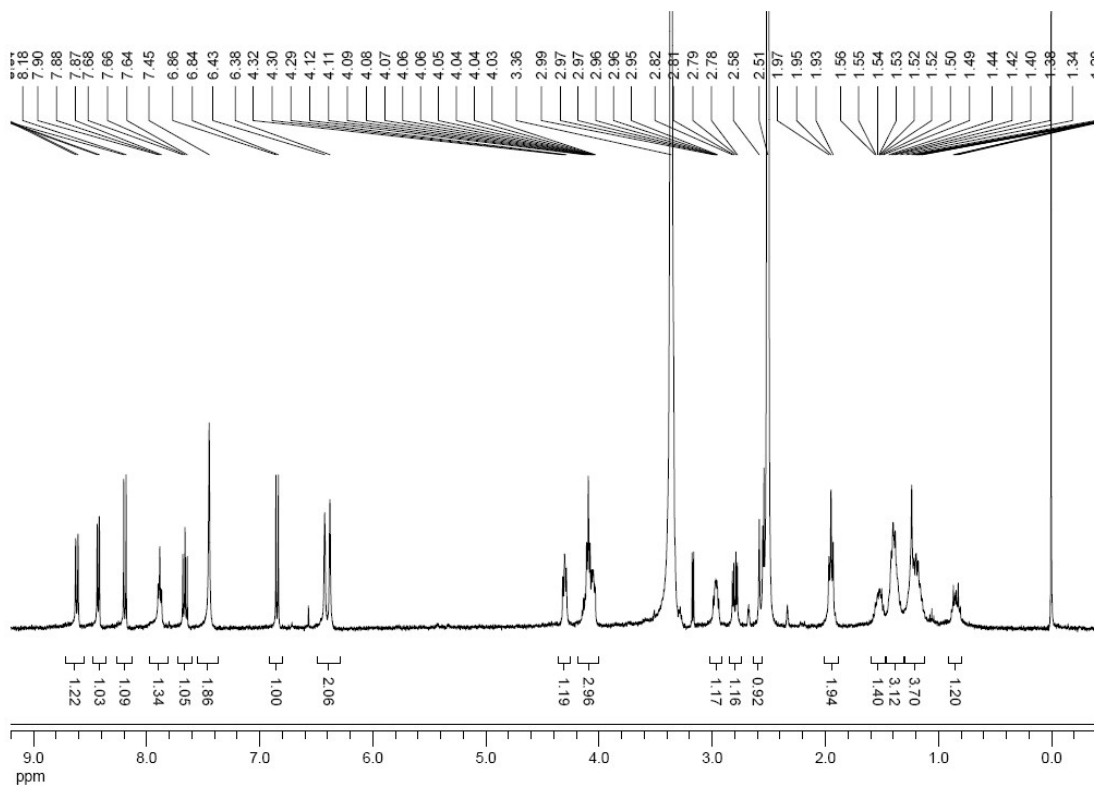


Fig. S10. ^1H NMR spectrum ($\text{DMSO-}d_6$) of compound **BN-NH₂**

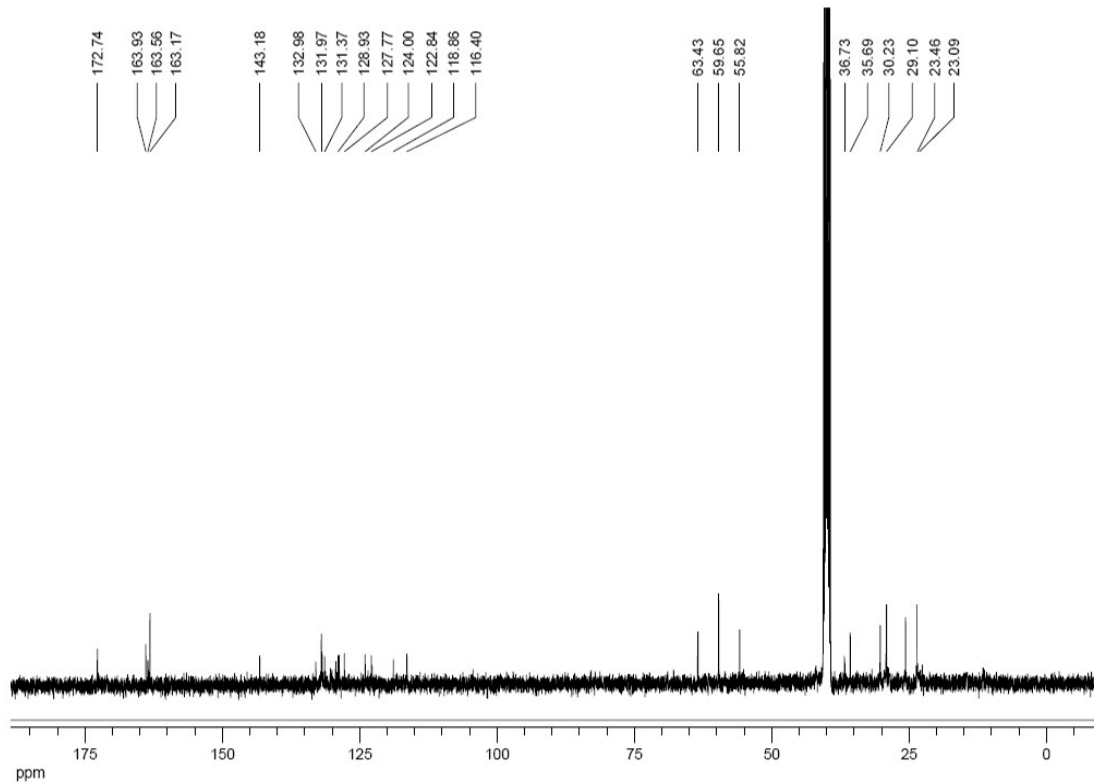


Fig. S11. ^{13}C NMR spectrum ($\text{DMSO-}d_6$) of compound **BN-NH₂**