

*Electronic Supporting Information for*

**Turn-On Coumarin Precursor: From Hydrazine Sensor to Covalent  
Inhibition and Fluorescence Detection of Rabbit Muscle Aldolase**

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## NMR experiments

Ethyl 2-(benzo[d]oxazol-2-yl)acetate:

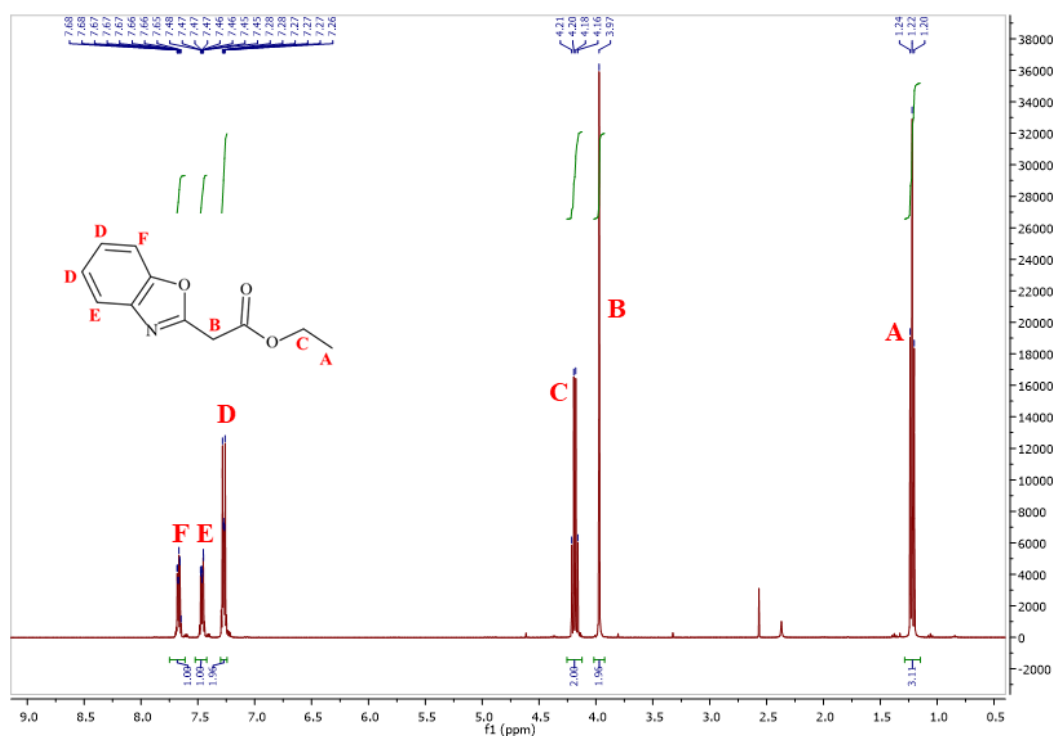


Figure S1:  $^1\text{H}$  NMR (CDCl<sub>3</sub>, 300 K) for compound 6.

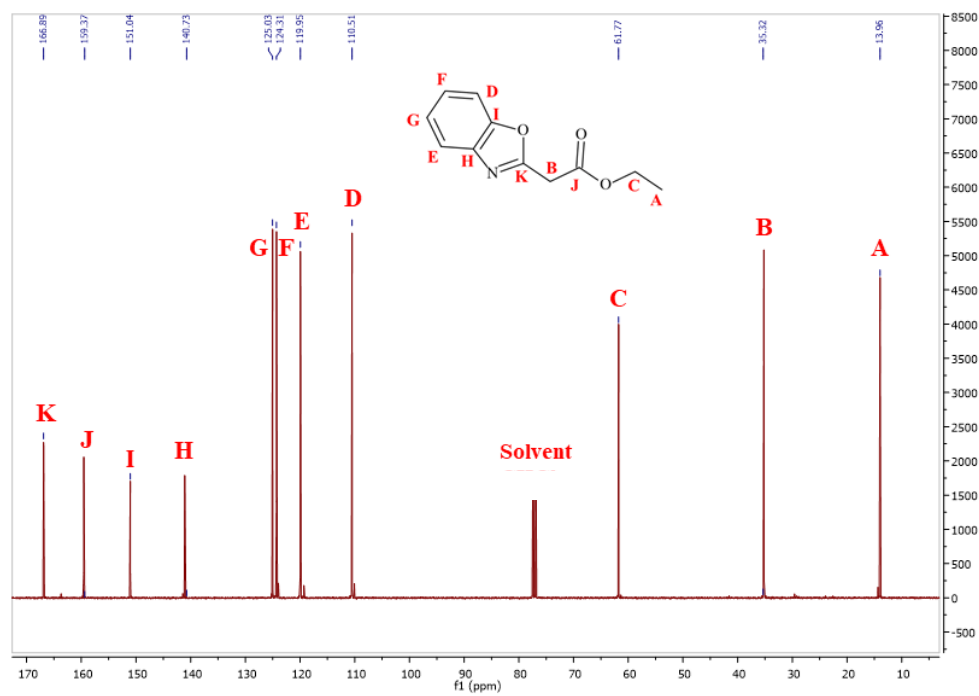


Figure S2:  $^{13}\text{C}$  NMR (CDCl<sub>3</sub>, 300 K) for compound 6.

**3-(Benzo[d]oxazol-2-yl)-7-(diethylamino)-2H-chromen-2-one:**

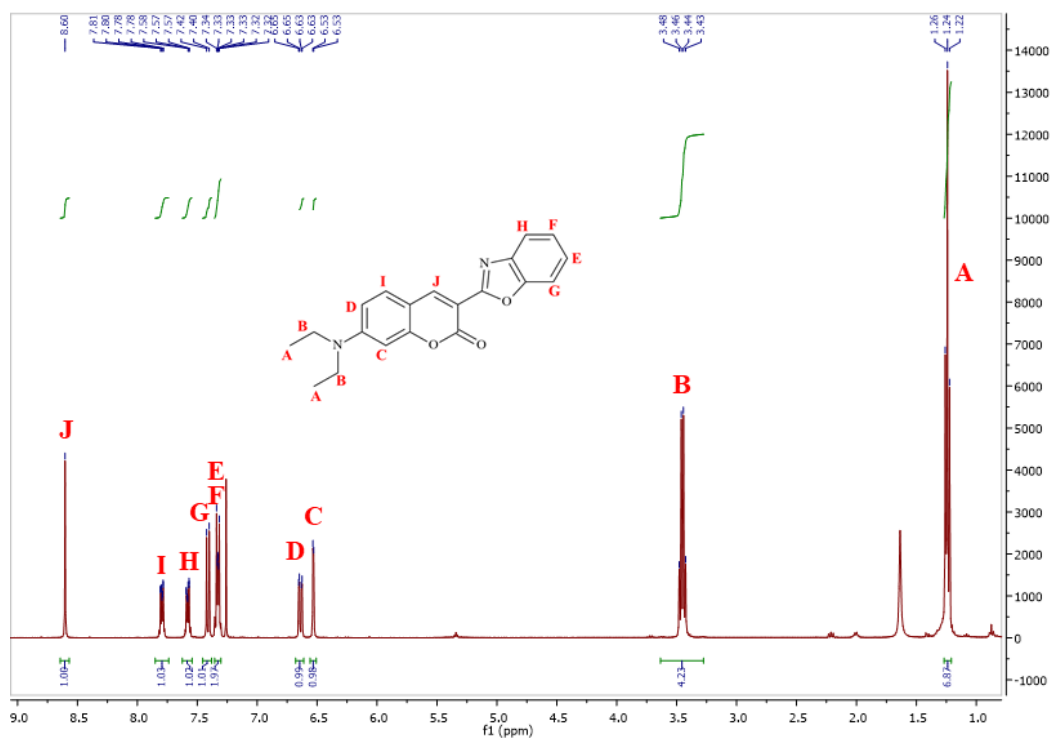


Figure S3: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 K) for compound **4**.

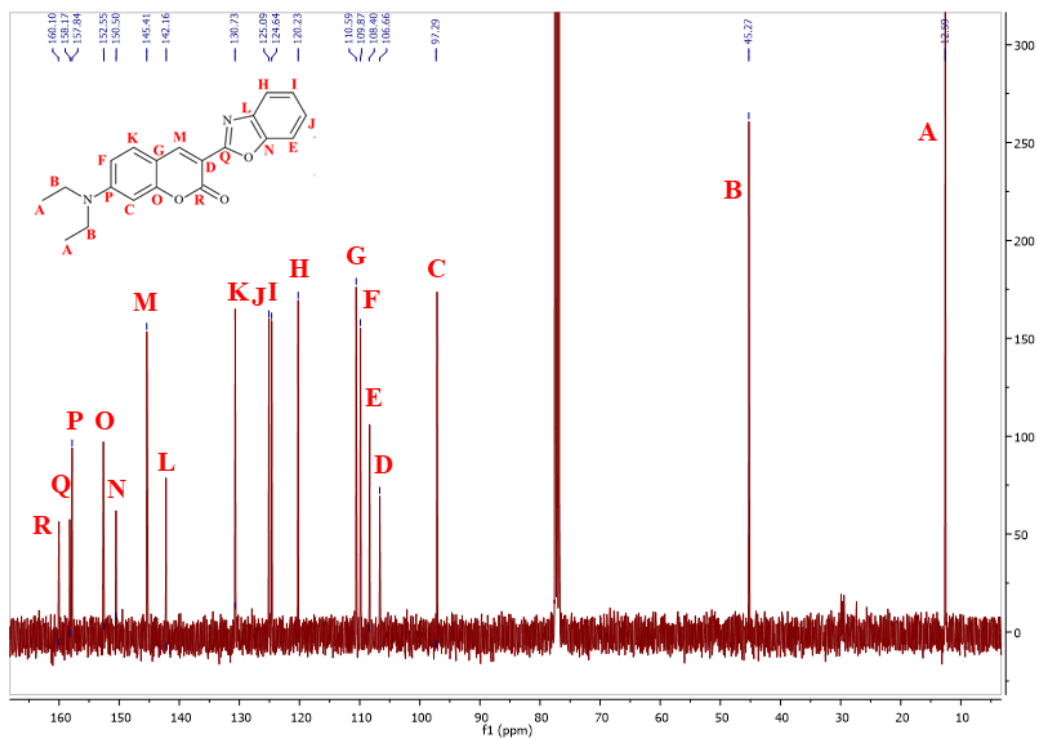


Figure S4: <sup>13</sup>C NMR (CDCl<sub>3</sub>, 300 K) for compound **4**.

**5-(Diethylamino)-2-formylphenyl propionate:**

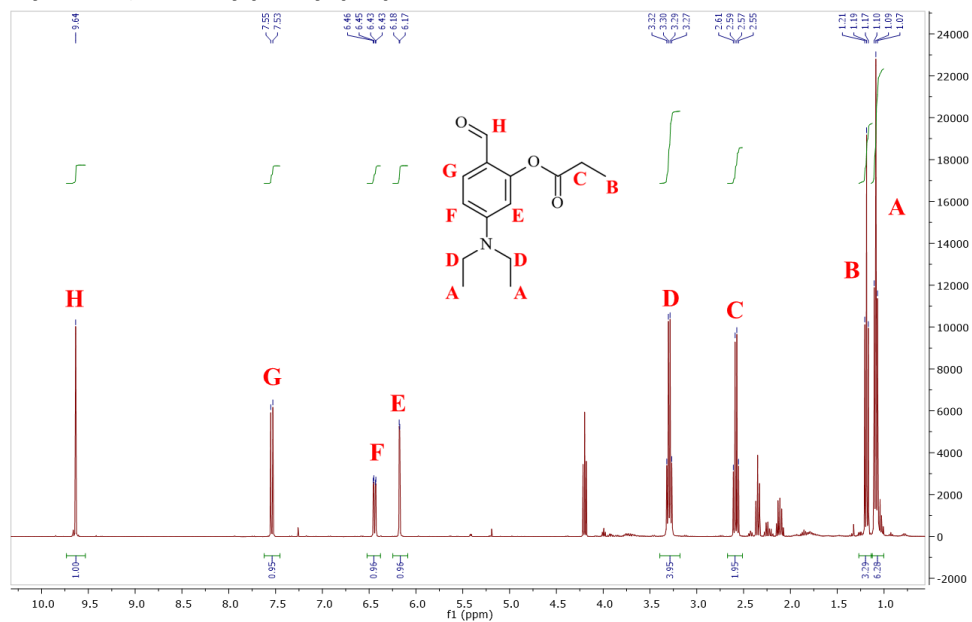


Figure S5: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 K) for compound **5**.

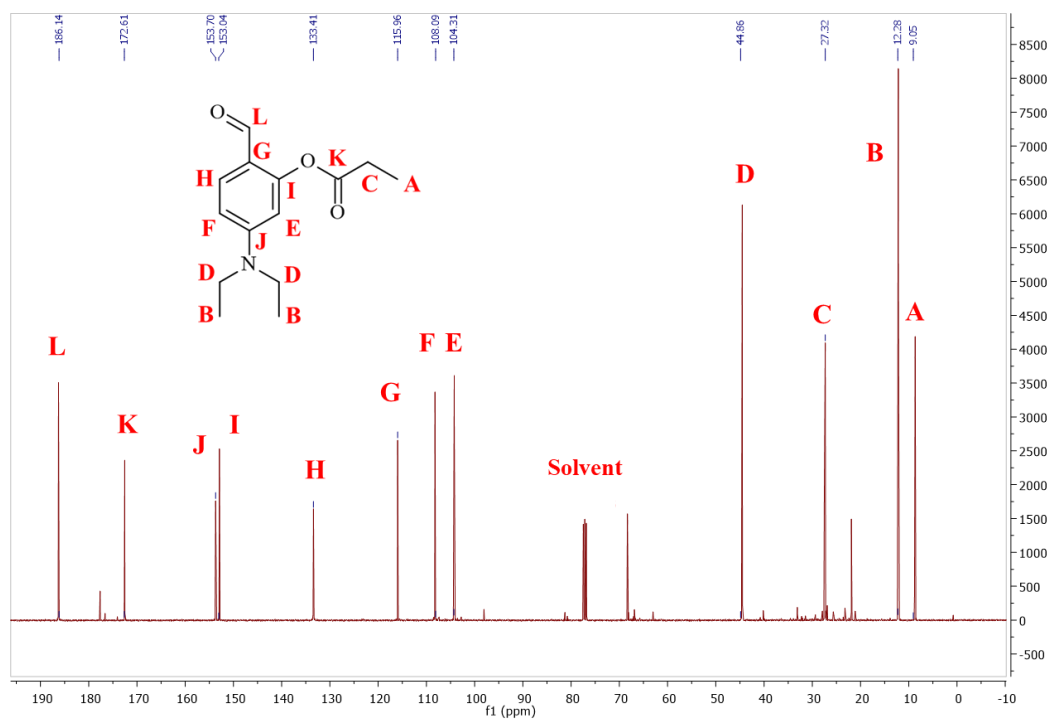


Figure S6: <sup>13</sup>C NMR (CDCl<sub>3</sub>, 300 K) for compound **5**.

**Chemical Structure 1 (Left):** A benzimidazole derivative. Protons are labeled: N (imidazole NH), M, L, K, J (aromatic), I, H, G (aromatic), F (OCH<sub>3</sub>), E (N-CH<sub>2</sub>), A (N-CH<sub>2</sub>), and D (CH<sub>3</sub>).

**Chemical Structure 2 (Right):** A benzoxazole derivative. Protons are labeled: i, j, m, l (aromatic), n, k, h, g (aromatic), a, e, d, b (OCH<sub>2</sub>CH<sub>3</sub>), c (N-CH<sub>2</sub>), and A (N-CH<sub>2</sub>).

**<sup>1</sup>H NMR Spectrum (CDCl<sub>3</sub>):**

- 8.05 ppm:** Peak N
- 7.69 ppm:** Peak M
- 7.65 ppm:** Peak L
- 7.46 ppm:** Peak K
- 7.43 ppm:** Peak J
- 7.37 ppm:** Peak I
- 6.63 ppm:** Peak H
- 6.62 ppm:** Peak G
- 6.45 ppm:** Peak F
- 6.28 ppm:** Peak E
- 6.27 ppm:** Peak A
- 6.25 ppm:** Peak D
- 4.41 ppm:** Peak f
- 4.39 ppm:** Peak F
- 4.21 ppm:** Peak e
- 4.19 ppm:** Peak E
- 3.42 ppm:** Peak D
- 3.40 ppm:** Peak d
- 3.32 ppm:** Peak b
- 3.30 ppm:** Peak c
- 2.66 ppm:** Peak A
- 2.64 ppm:** Peak A
- 1.34 ppm:** Peak c
- 1.32 ppm:** Peak b
- 1.31 ppm:** Peak b
- 1.29 ppm:** Peak b
- 1.28 ppm:** Peak b
- 1.24 ppm:** Peak b
- 1.22 ppm:** Peak b
- 1.20 ppm:** Peak b
- 1.15 ppm:** Peak A
- 1.14 ppm:** Peak A
- 1.08 ppm:** Peak A
- 1.05 ppm:** Peak A

The <sup>13</sup>C NMR spectrum of compound 10 is shown, with the chemical structure and corresponding peak assignments. The x-axis represents the chemical shift in ppm (f1), ranging from 180 to 10. The spectrum displays several peaks, with assignments provided for both the chemical structure and the spectrum. The assignments for the chemical structure are: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.

S6

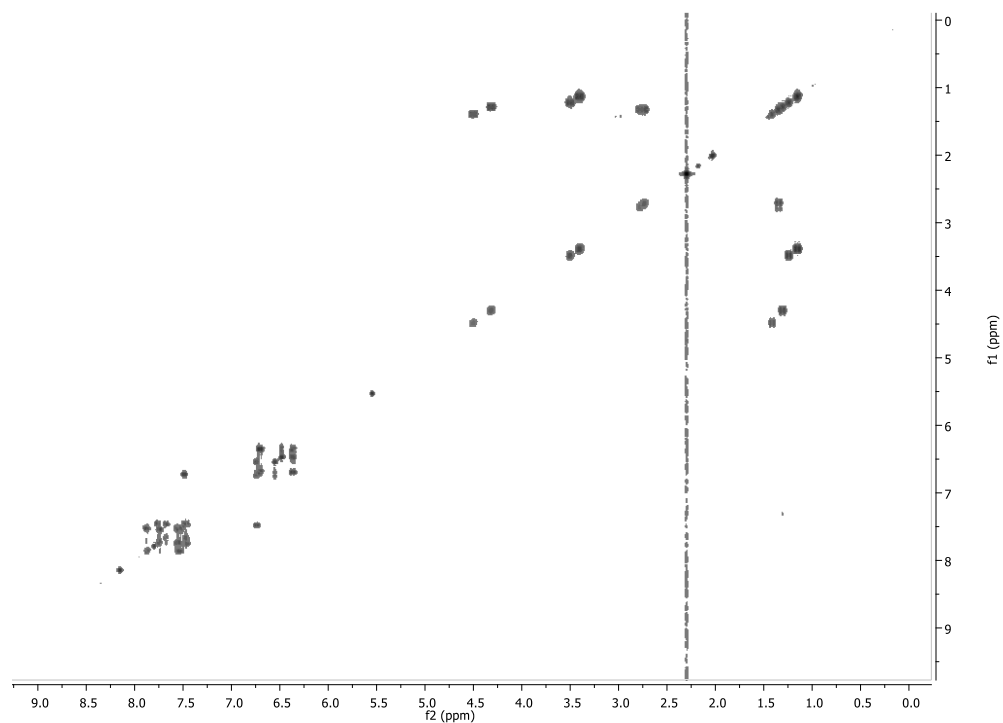


Figure S9: COSY NMR ( $\text{CD}_3\text{CN}$ , 300 K) for compound **1**.

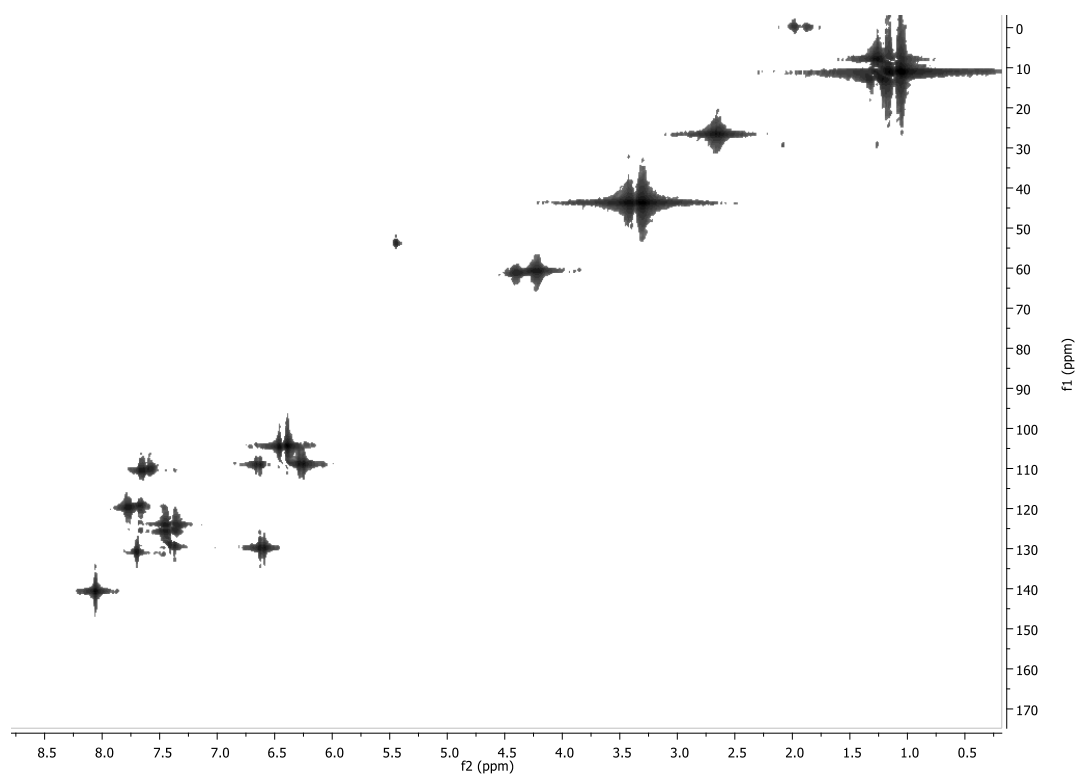


Figure S10: HMQC NMR ( $\text{CD}_3\text{CN}$ , 300 K) for compound **1**.

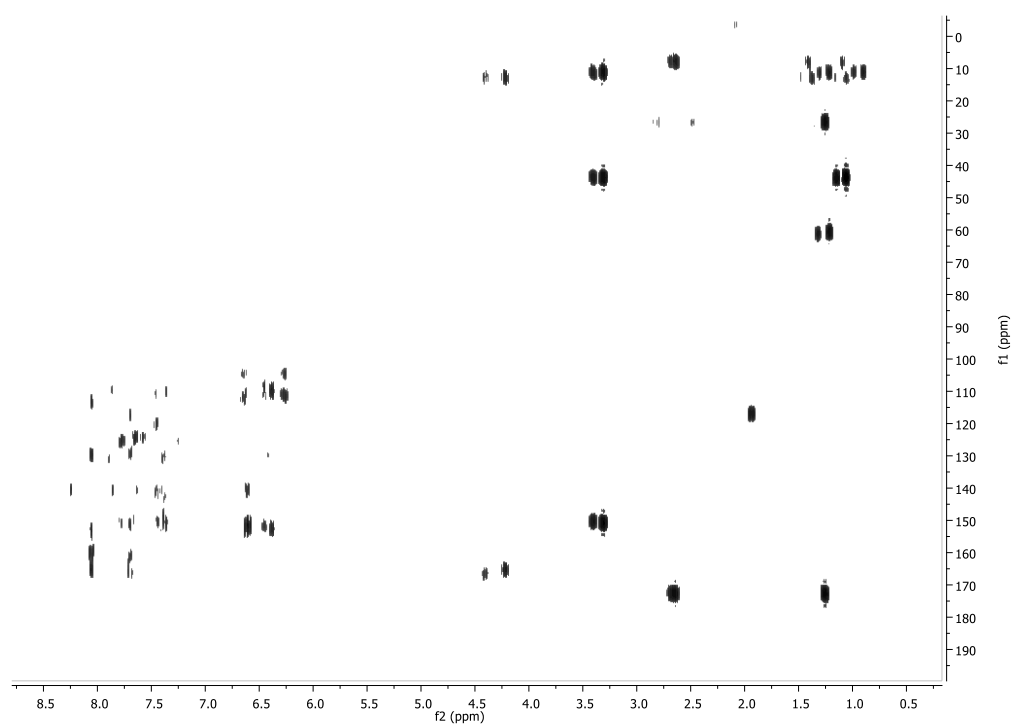


Figure S11: HMBC NMR ( $\text{CD}_3\text{CN}$ , 300 K) for compound **1**.

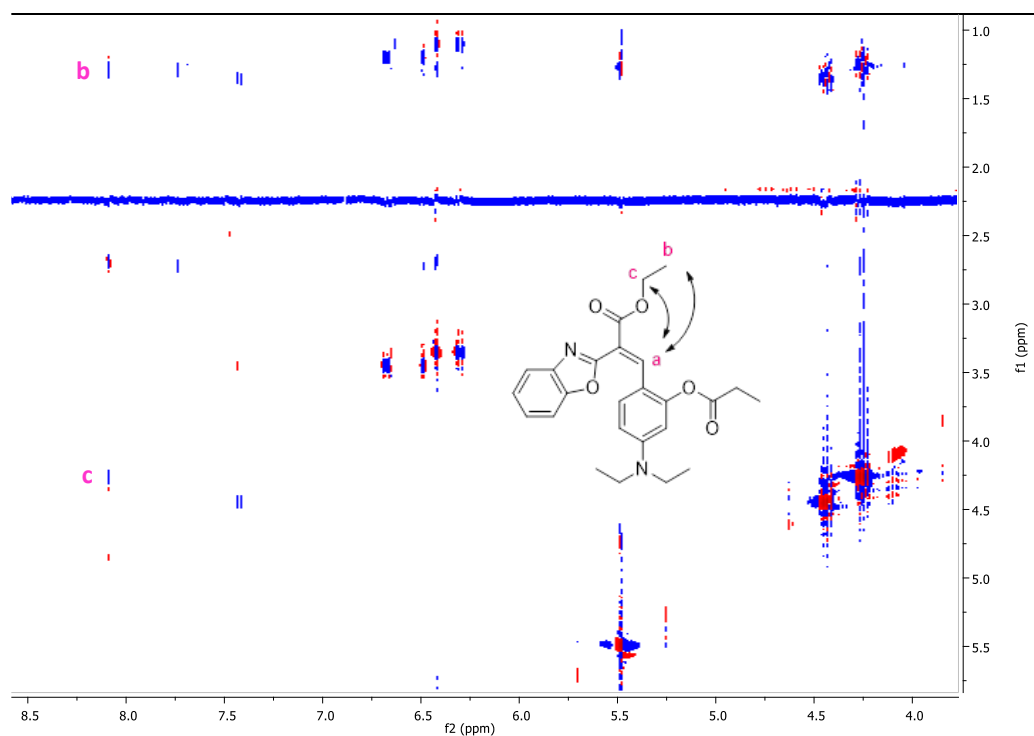


Figure S12: Zoomed in NOESY NMR ( $\text{CD}_3\text{CN}$ , 300 K) for compound **1**.



5-(Diethylamino)-2-formylphenyl 4-oxopentanoate:

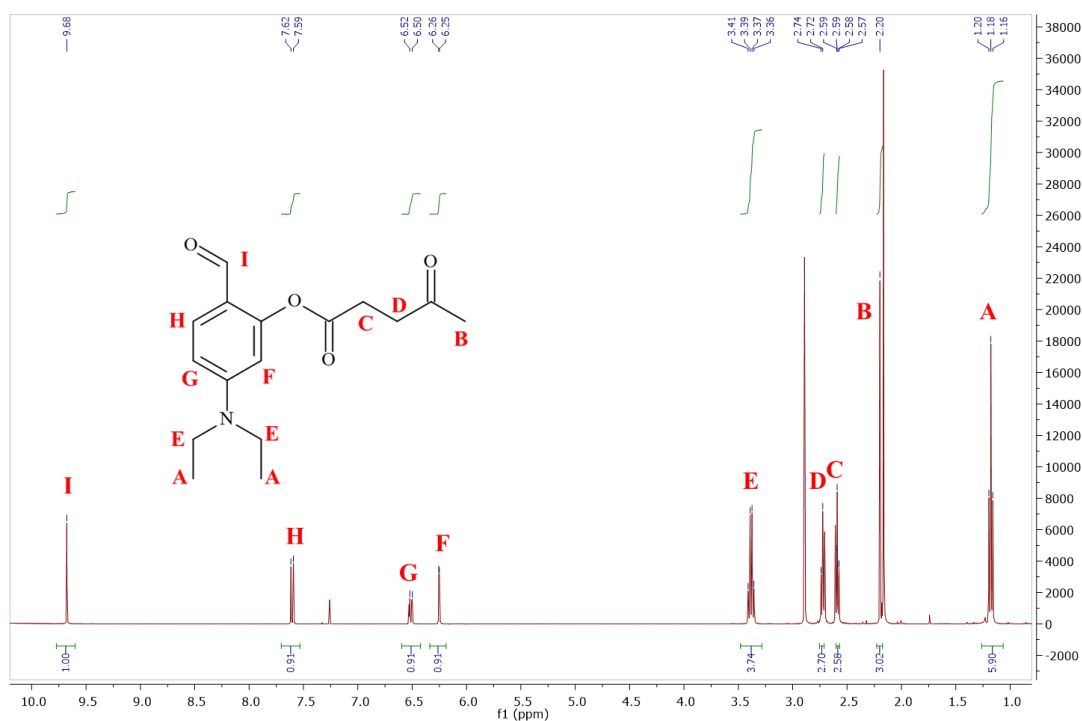


Figure S13:  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 K) for 5-(Diethylamino)-2-formylphenyl 4-oxopentanoate.

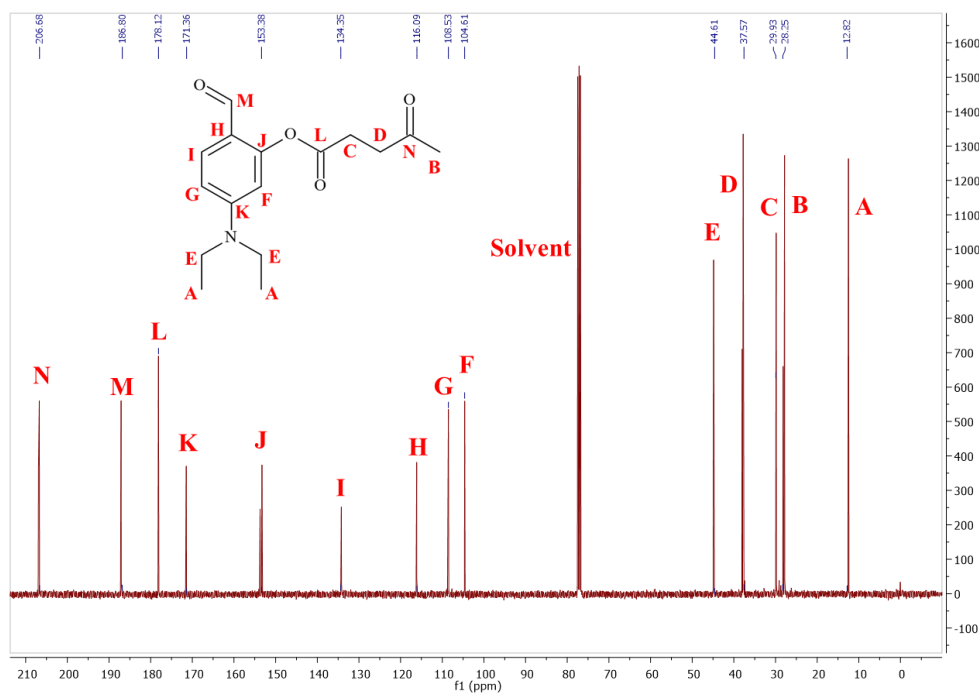
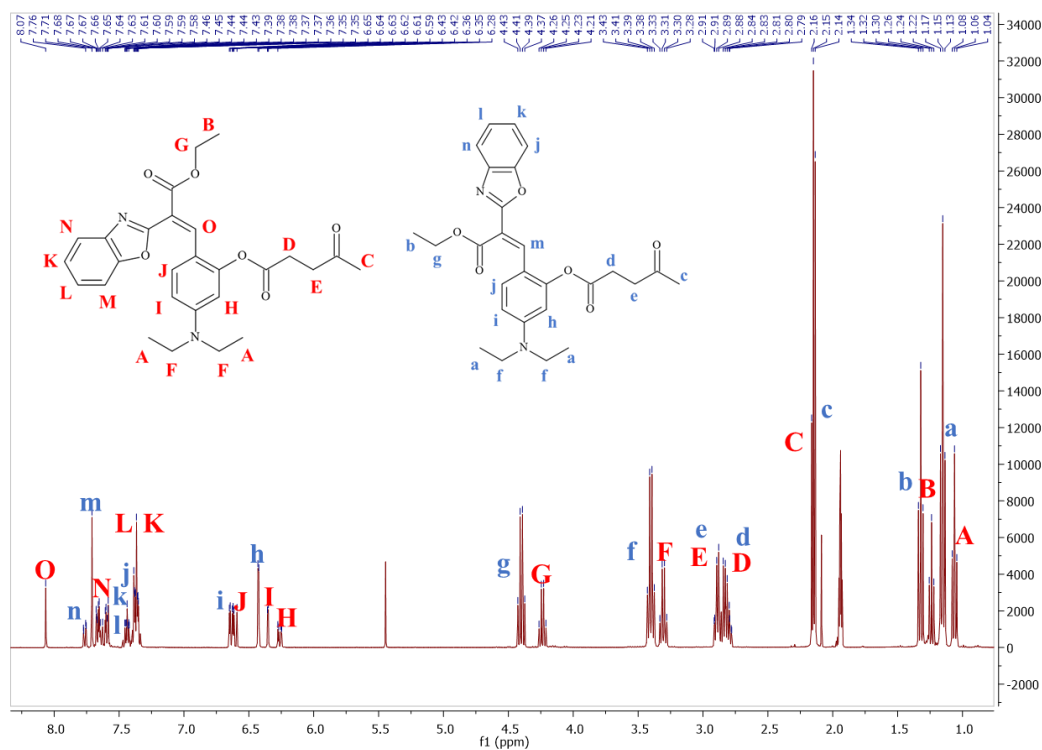


Figure S14:  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 300 K) for 5-(Diethylamino)-2-formylphenyl 4-oxopentanoate.

**2-(2-(Benzo[d]oxazol-2-yl)-3-ethoxy-3-oxoprop-1-en-1-yl)-5-(diethylamino)phenyl 4-oxopentanoate, Compound 2:**



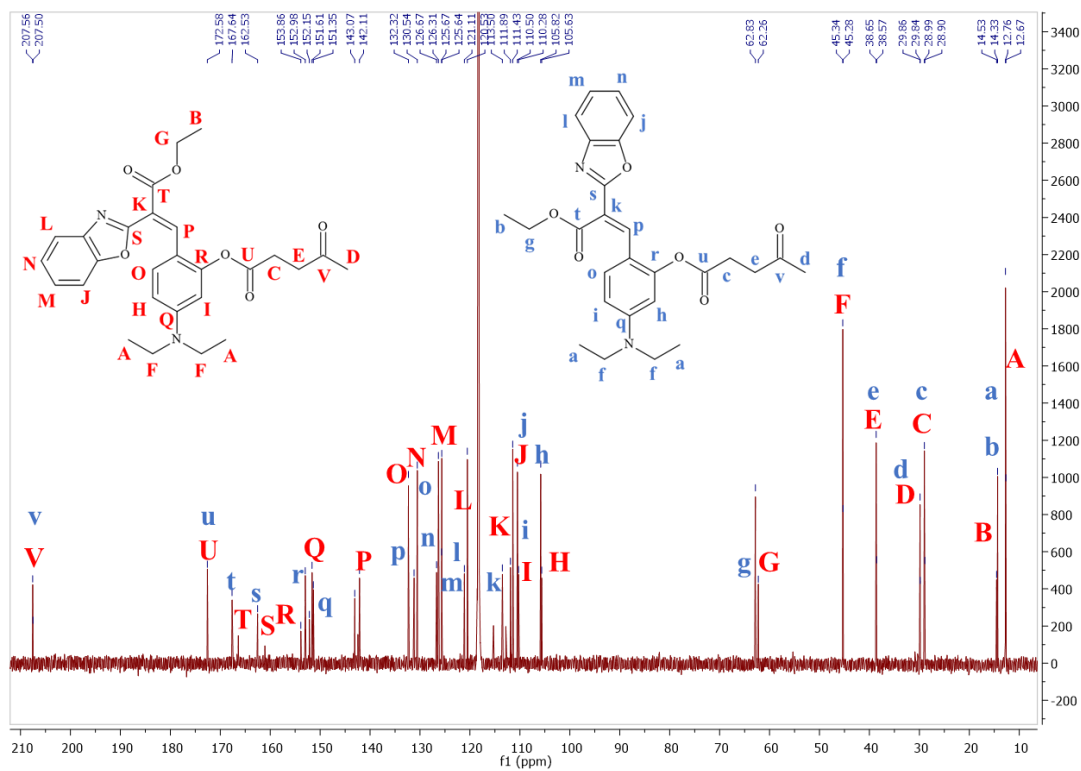


Figure S16:  $^{13}\text{C}$  NMR (CD $_3$ CN, 300 K) for compound **2**.

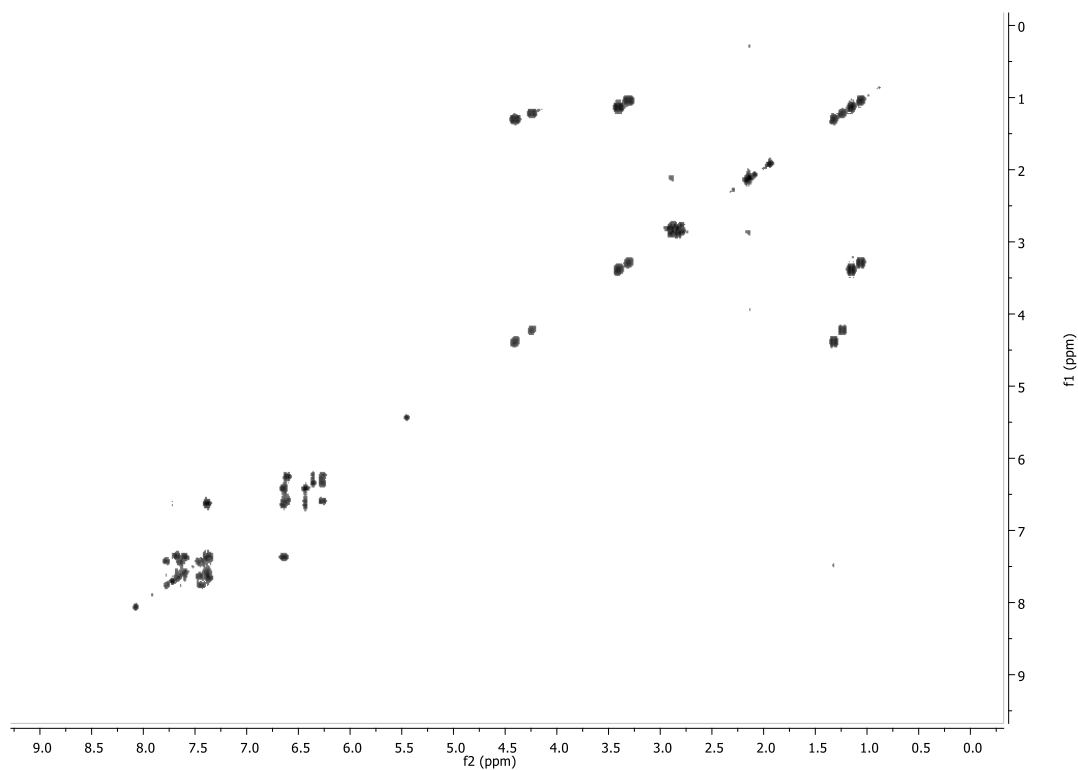


Figure S17: COSY NMR (CD $_3$ CN, 300 K) for compound **2**.

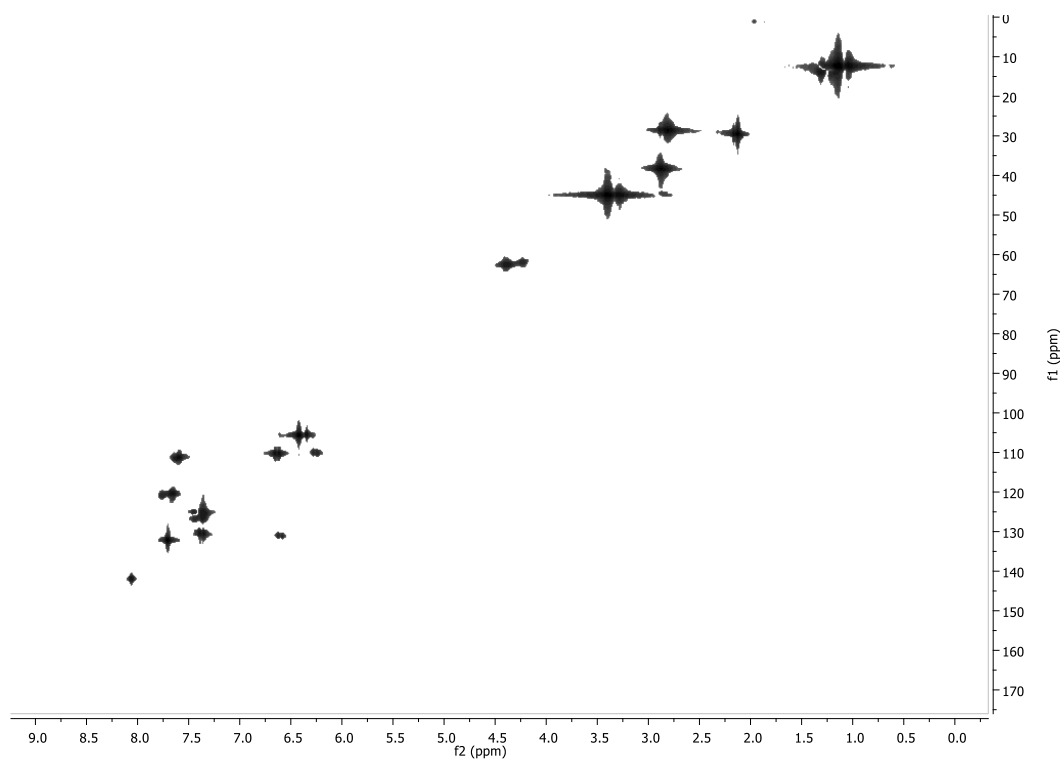


Figure S18: HMQC NMR ( $\text{CD}_3\text{CN}$ , 300 K) for compound **2**.

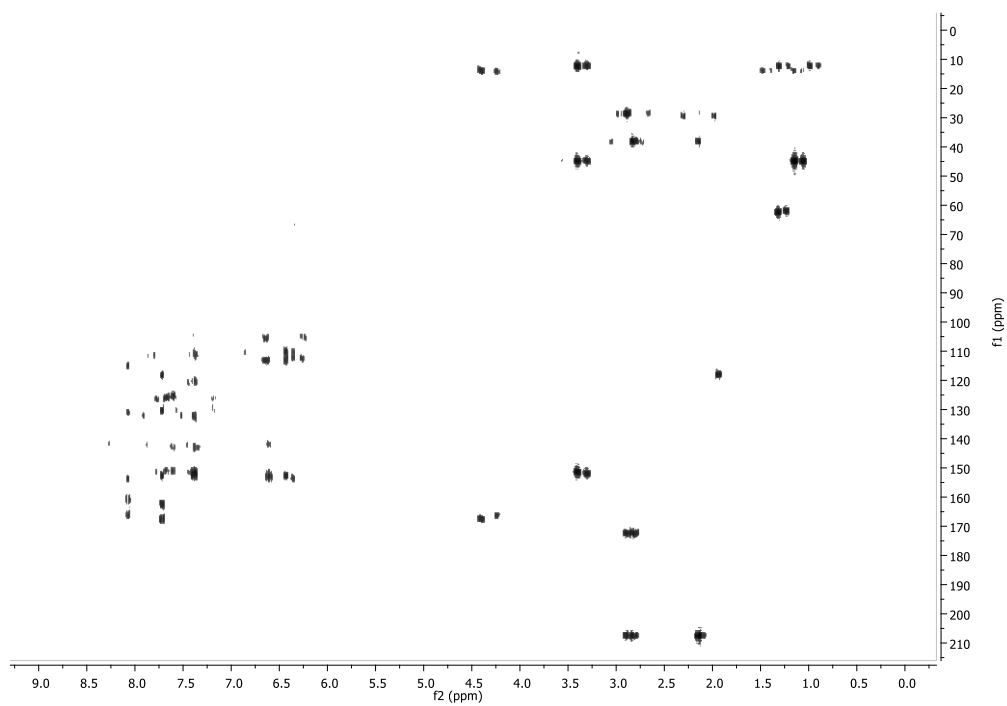


Figure S19: HMBC NMR ( $\text{CD}_3\text{CN}$ , 300 K) for compound **2**.

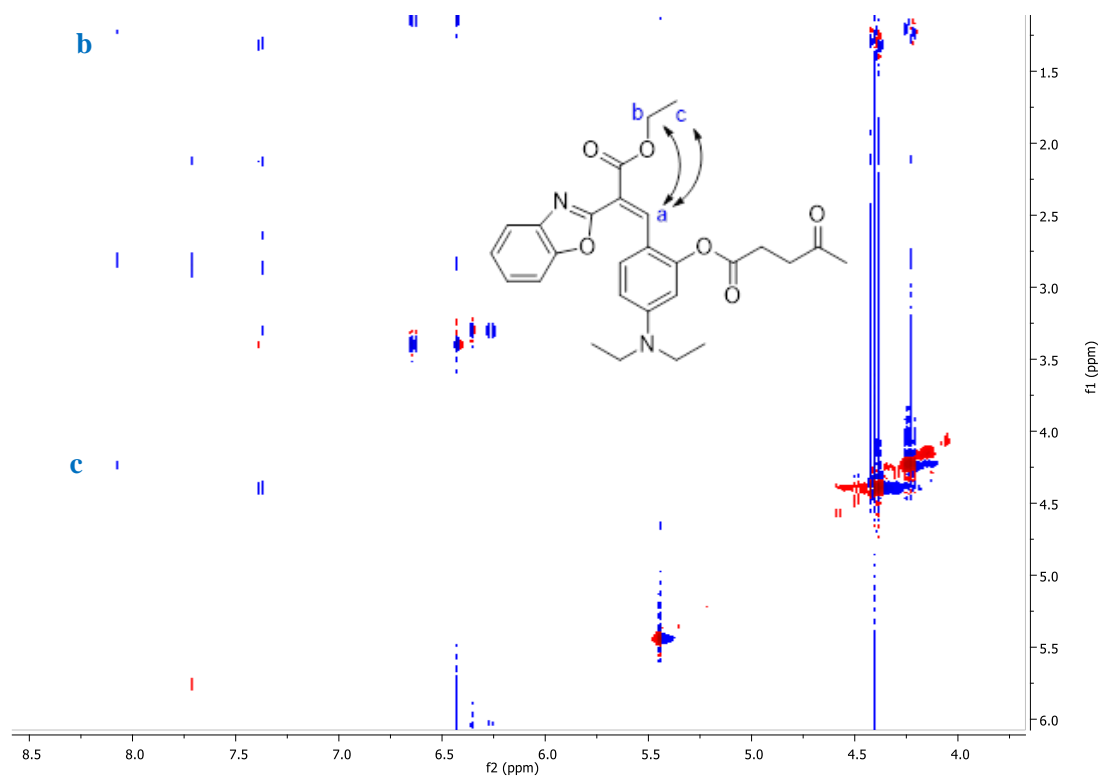


Figure S20: Zoomed in NOESY NMR (CD<sub>3</sub>CN, 300 K) for compound **2**.

**5-(Diethylamino)-2-formylphenyl 4-bromobutanoate:**

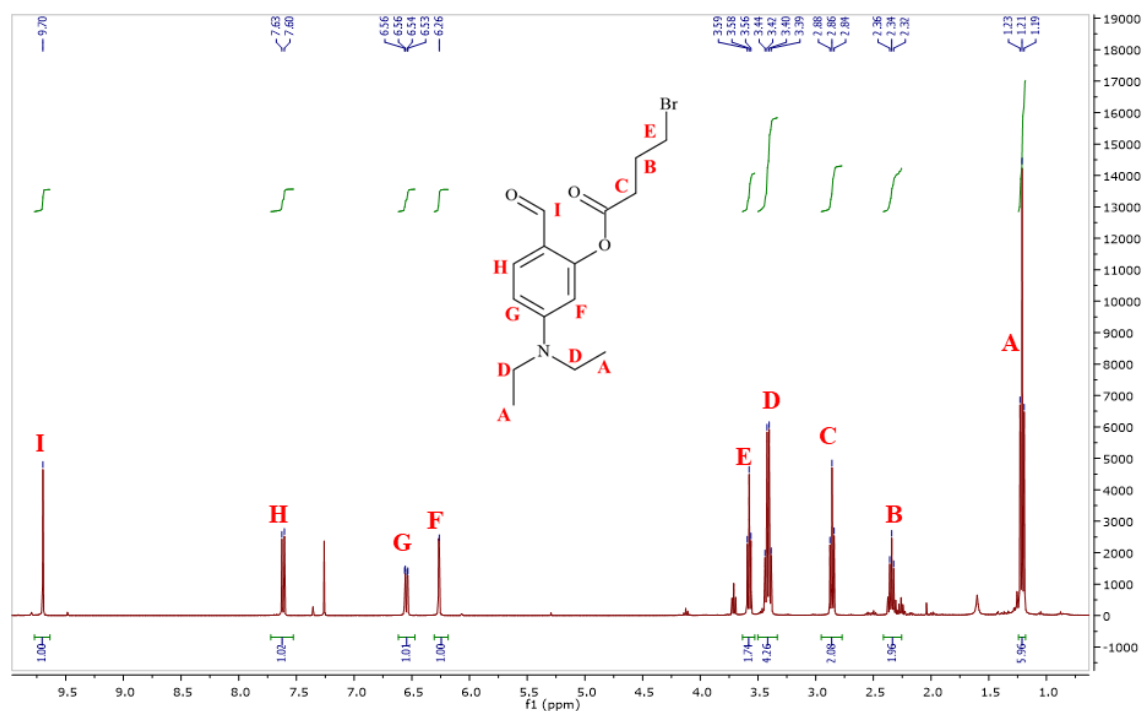


Figure S21: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 K) for compound **3**.

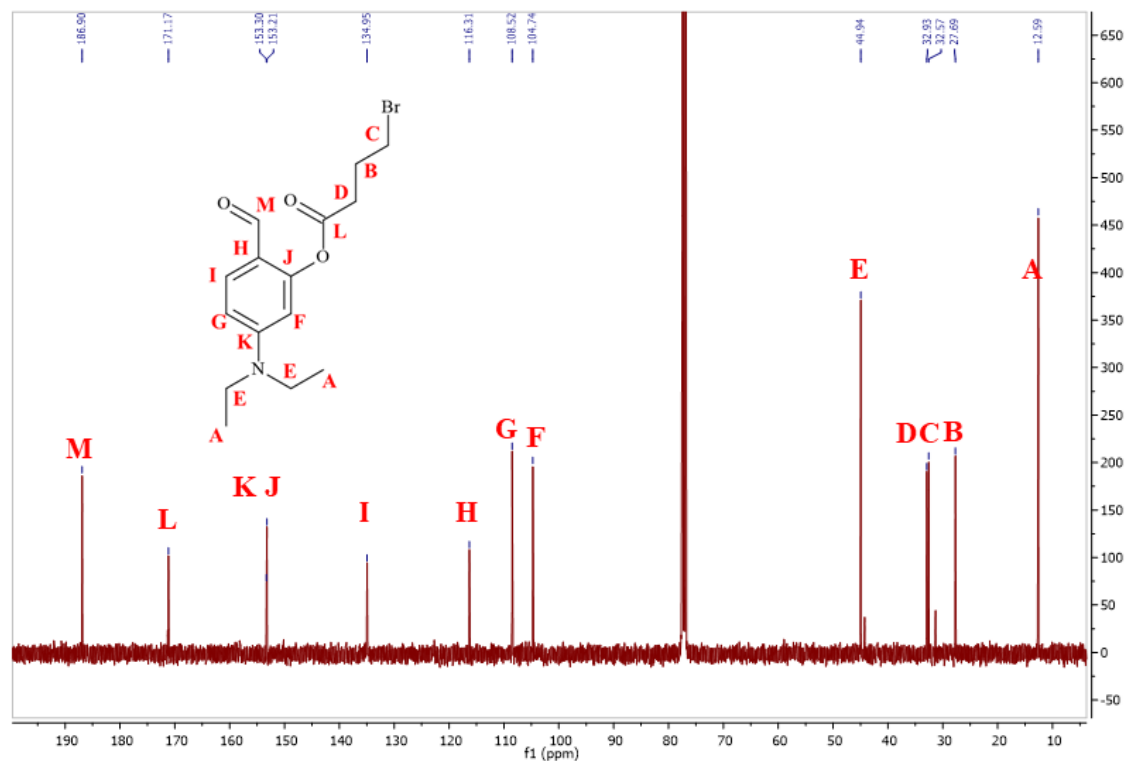


Figure S22: <sup>13</sup>C NMR (CDCl<sub>3</sub>, 300 K) for compound 3.

**2-(2-(Benzo[d]oxazol-2-yl)-3-ethoxy-3-oxoprop-1-en-1-yl)-5-(diethylamino)phenyl 4-bromobutanoate, Compound 3:**

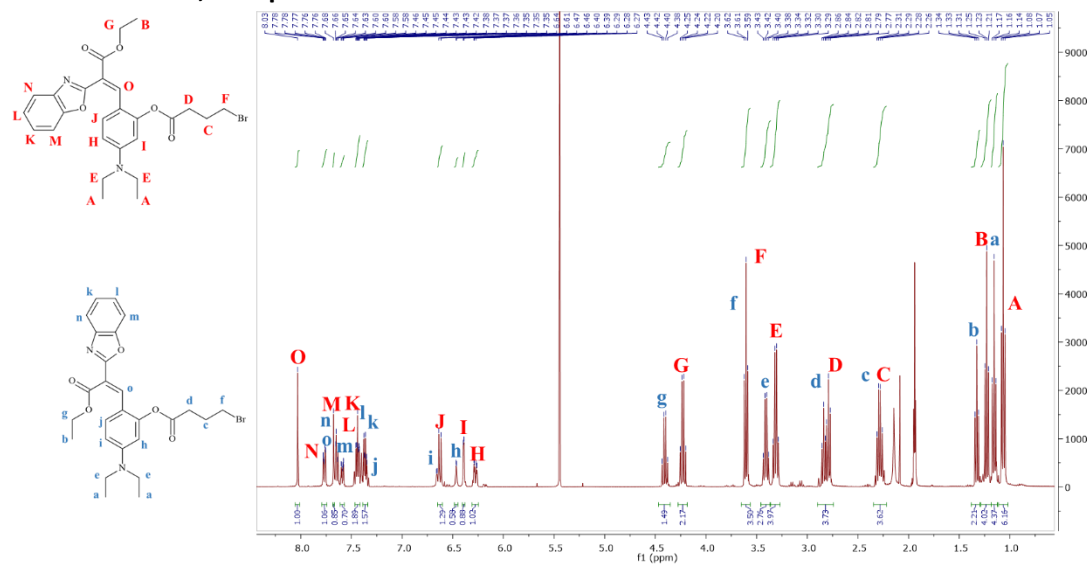


Figure S22: <sup>1</sup>H NMR (CD<sub>3</sub>CN, 300K) for compound 3 (mixture of *E*:*Z* isomers).

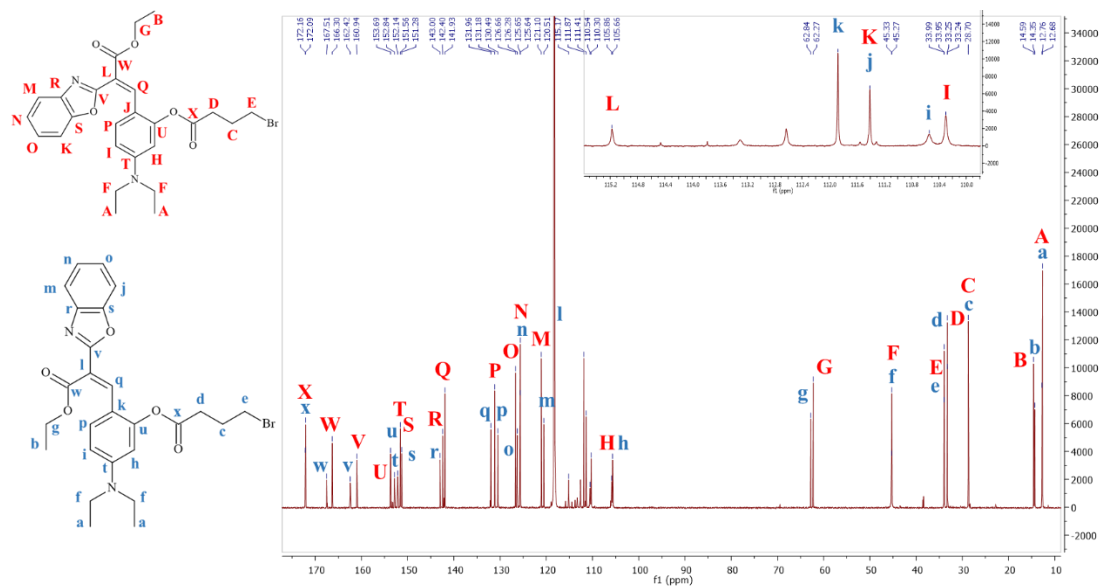


Figure S23:  $^{13}\text{C}$  NMR (CD $_3$ CN, 300K) for compound **3** (mixture of *E*:*Z* isomers).

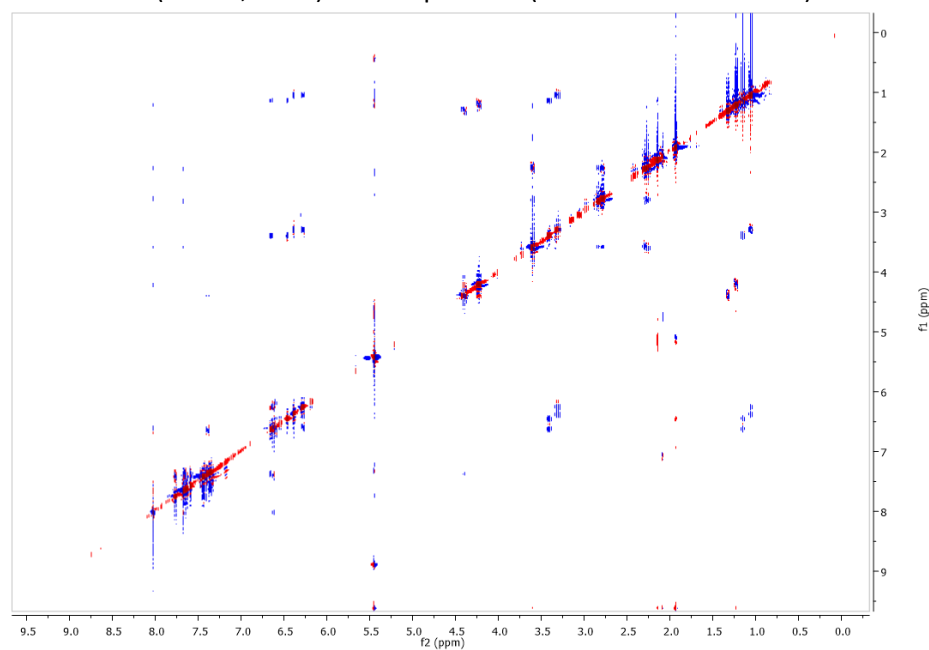


Figure S24: NOESY NMR (CD $_3$ CN, 300 K) for compound **3** (mixture of *Z* and *E* isomers).

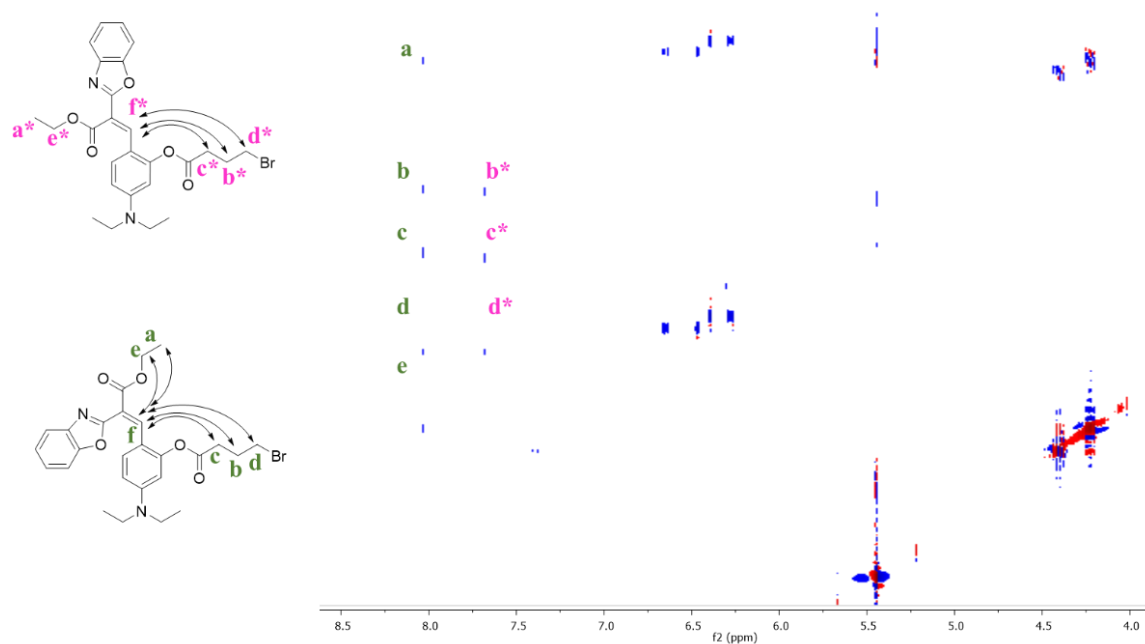


Figure S25: Zoomed-in NOESY NMR (CD<sub>3</sub>CN, 300 K) for compound **3** (mixture of *Z* and *E* isomers).

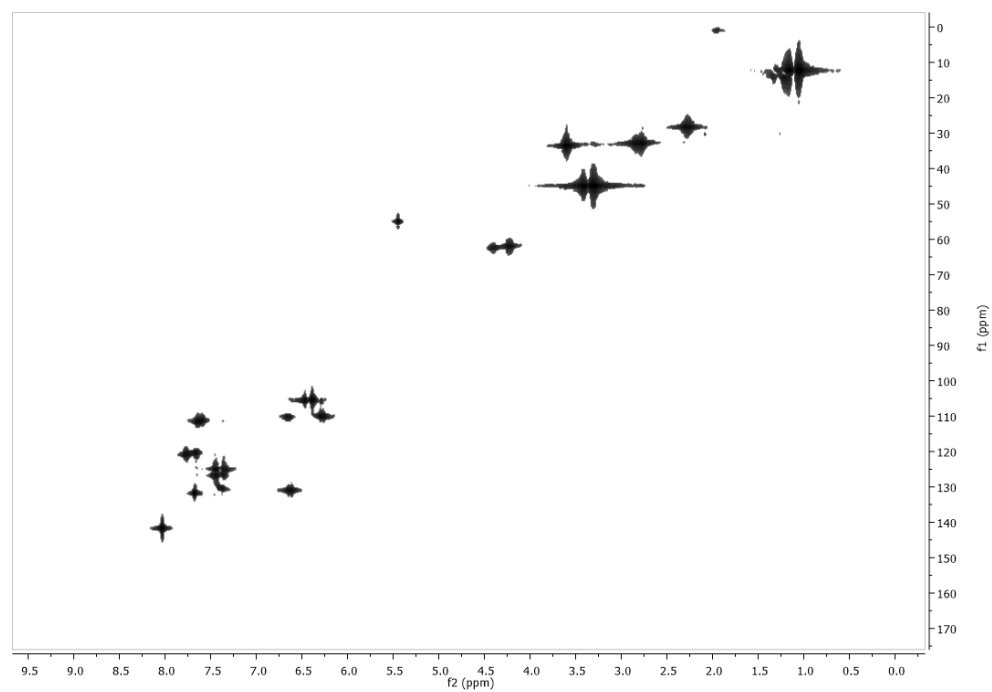


Figure S26: HMQC NMR (CD<sub>3</sub>CN, 300 K) for compound **3** (mixture of *Z* and *E* isomers).



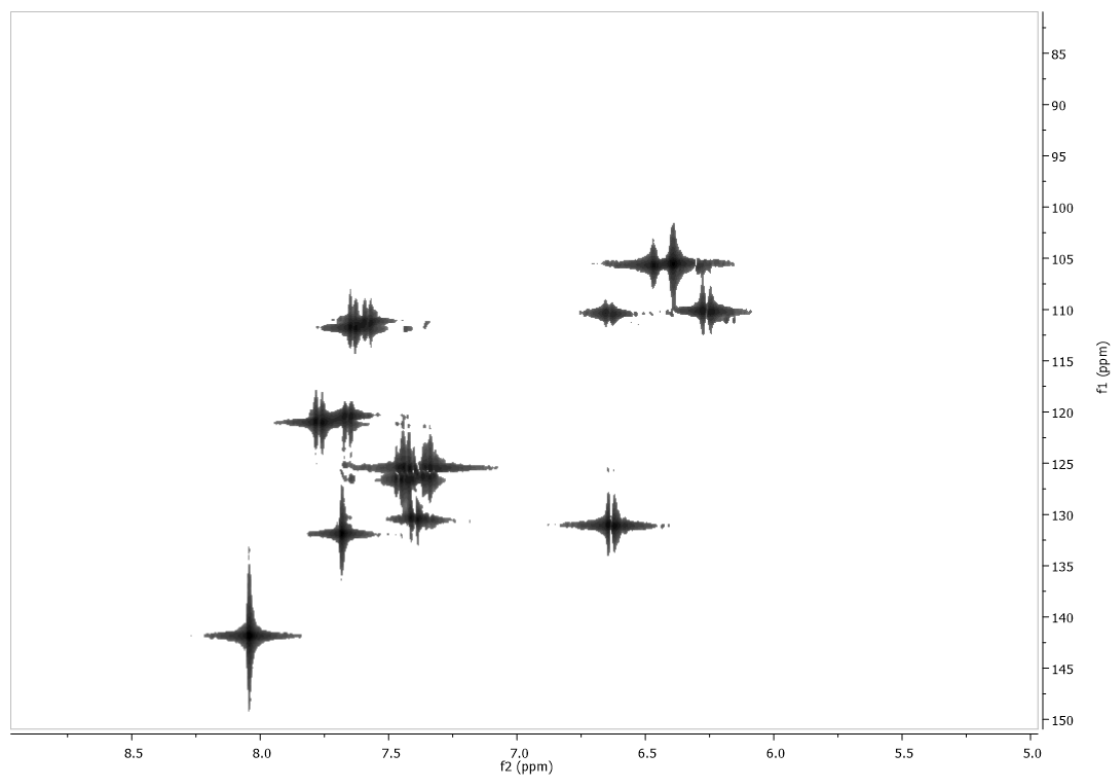


Figure S27: Short-range HMQC NMR ( $\text{CD}_3\text{CN}$ , 300 K) of compound **3** (mixture of *Z* and *E* isomers).

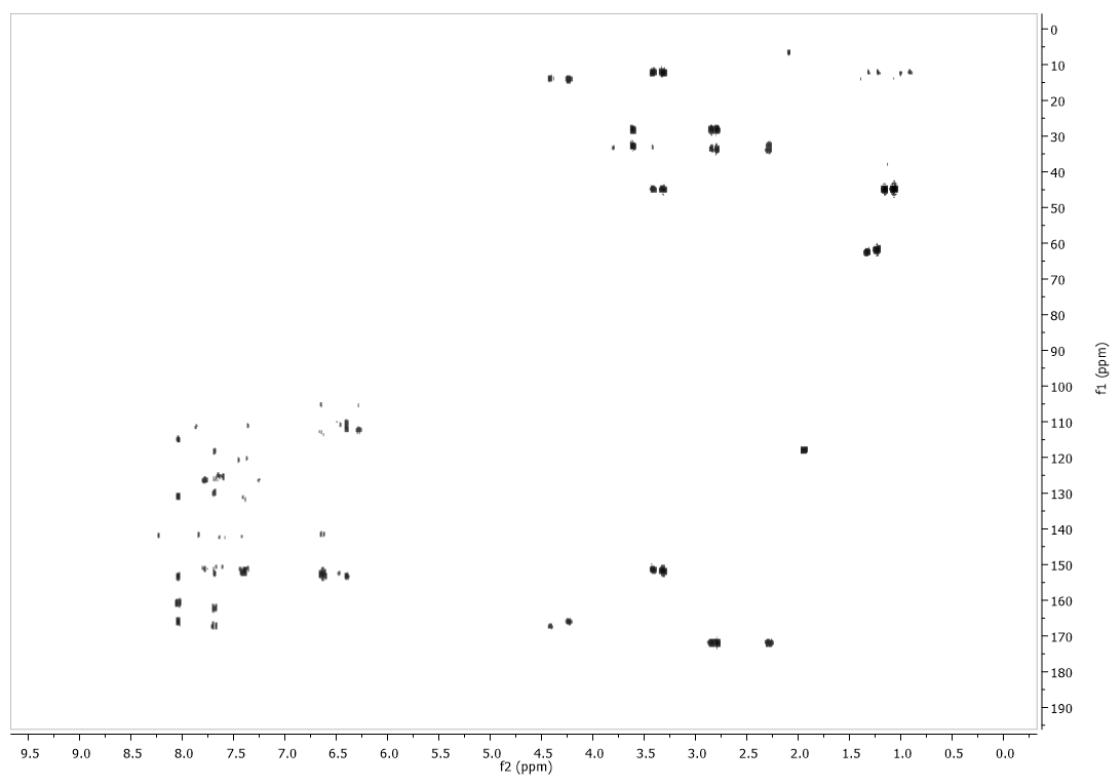


Figure S28: HMBC NMR ( $\text{CD}_3\text{CN}$ , 300 K) for compound **3** (mixture of *Z* and *E* isomers).

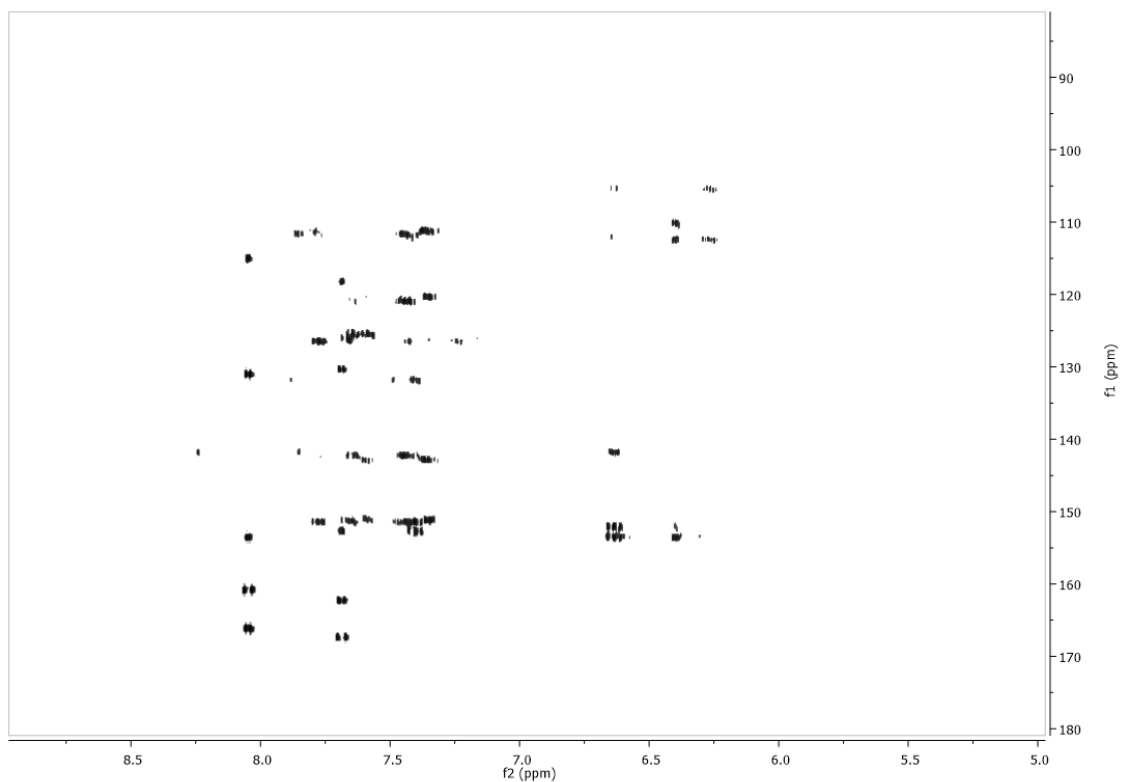


Figure S29: Short-range HMBC NMR ( $\text{CD}_3\text{CN}$ , 300 K) for compound **3** (mixture of *Z* and *E* isomers).

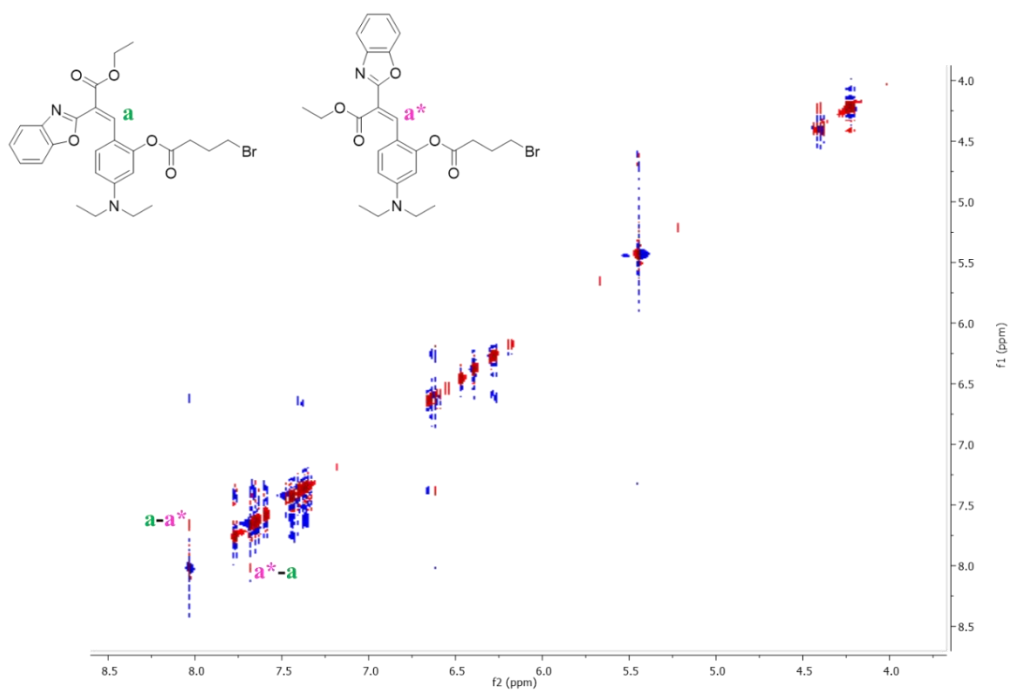


Figure S30: Zoomed-in EXSY experiment ( $\text{CD}_3\text{CN}$ , 300 K) for compound **3** (mixture of *Z* and *E* isomers).

**6,6'-((1*E*,1'*E*)-hydrazine-1,2diylidenebis(methaneylylidene))bis(3(diethylamino)phenol),  
Compound 7:**

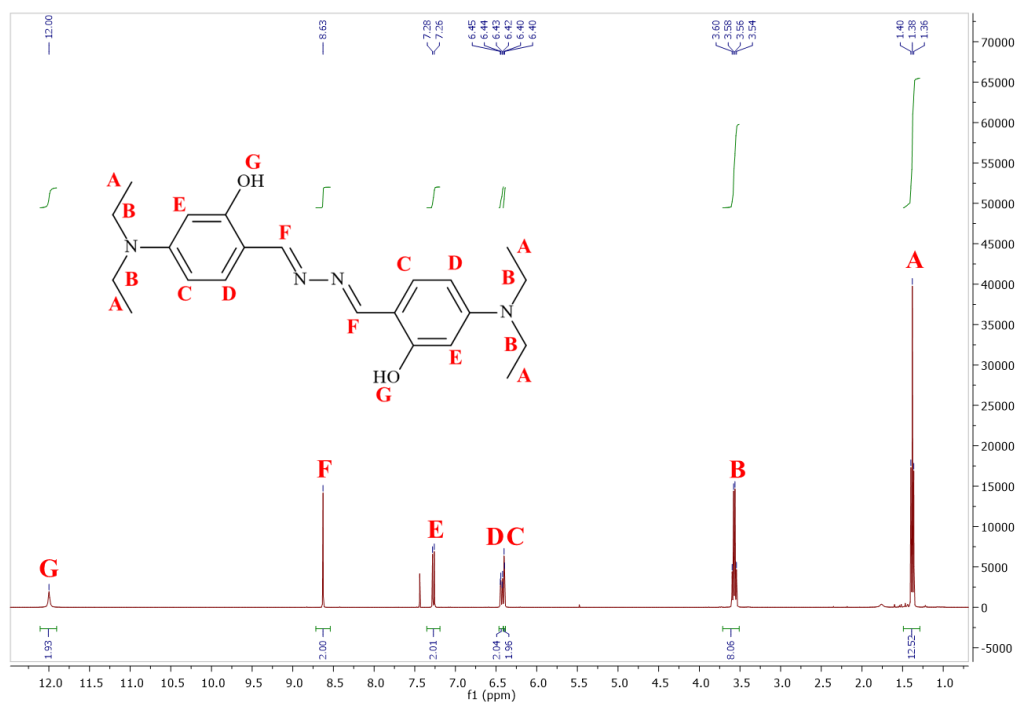


Figure S31: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 K) for compound 7.

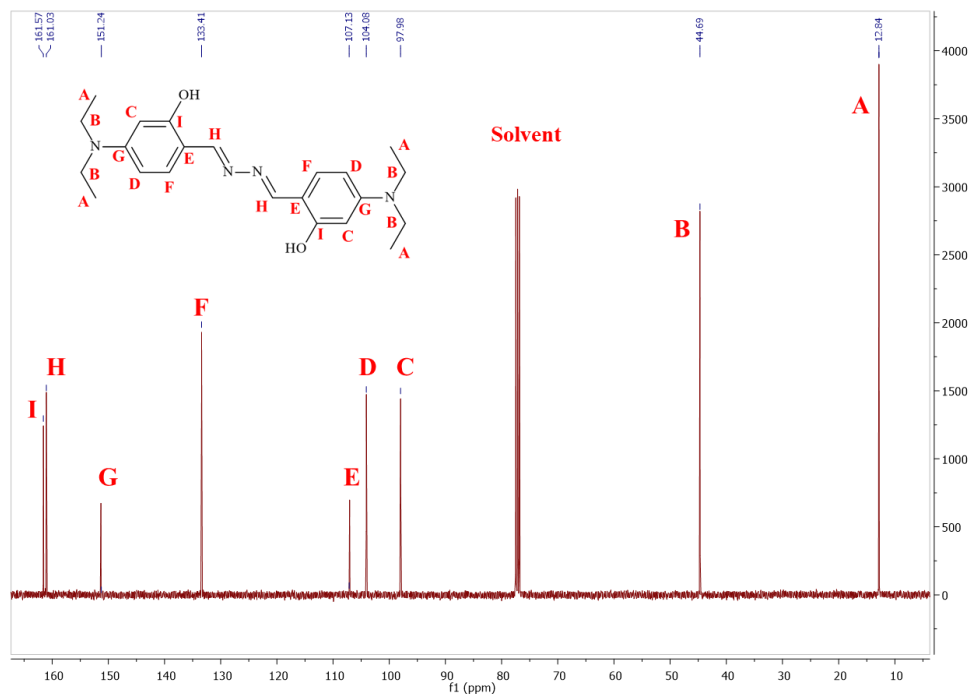


Figure S32: <sup>13</sup>C NMR (CDCl<sub>3</sub>, 300 K) for compound 7.

**Diethyl 2-(4-(diethylamino)-2-(propionyloxy)benzylidene)malonate, Compound 8:**

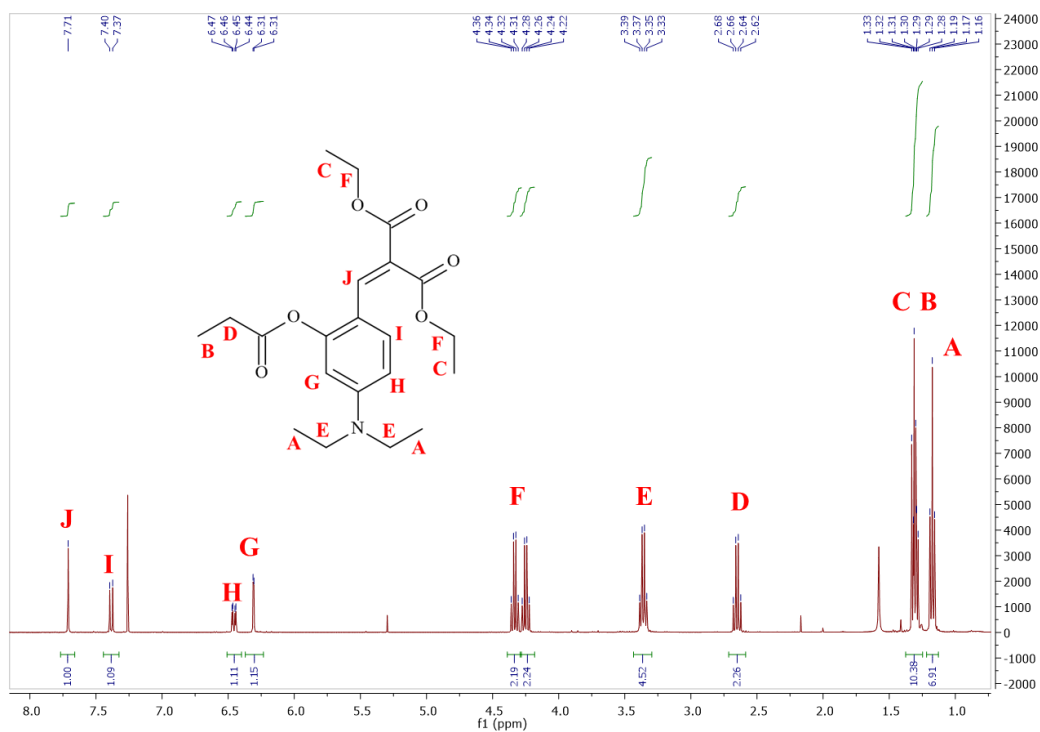


Figure S33: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 K) for compound **8**.

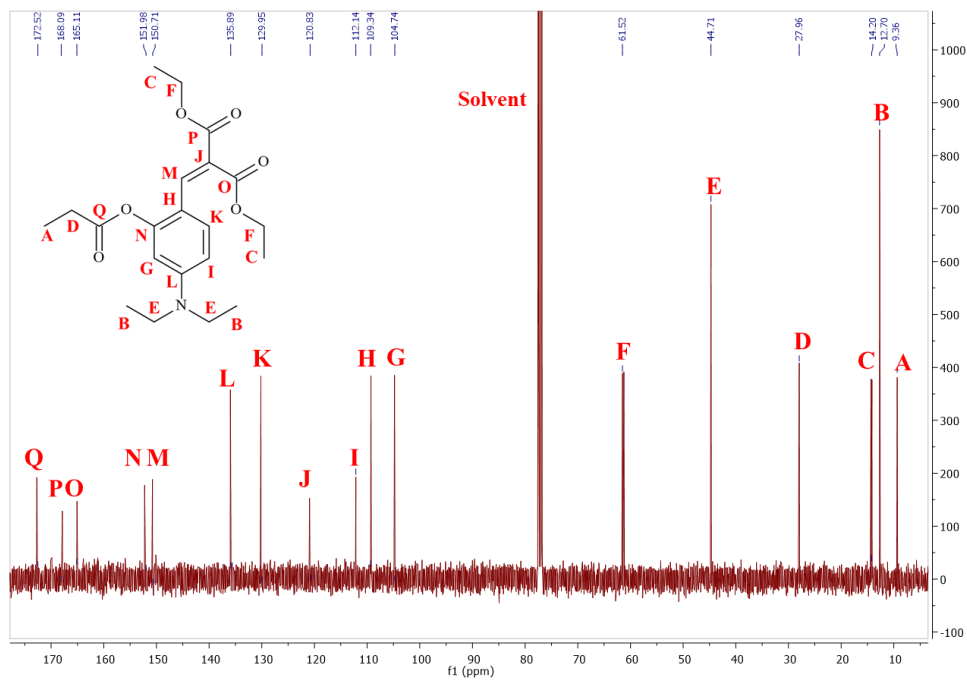


Figure S34: <sup>13</sup>C NMR (CDCl<sub>3</sub>, 300 K) for compound **8**.

**Ethyl 7-(diethylamino)-2-oxo-2H-chromene-3-carboxylate, Compound 11:**

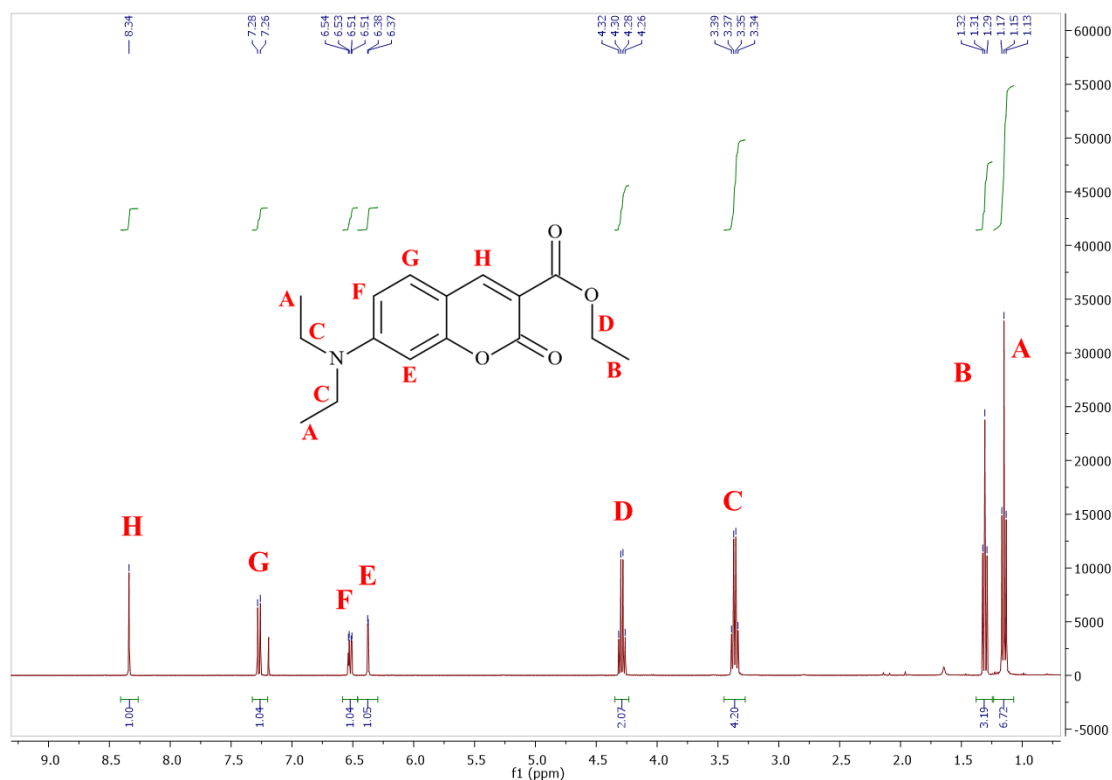


Figure S35: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 K) for compound 11.

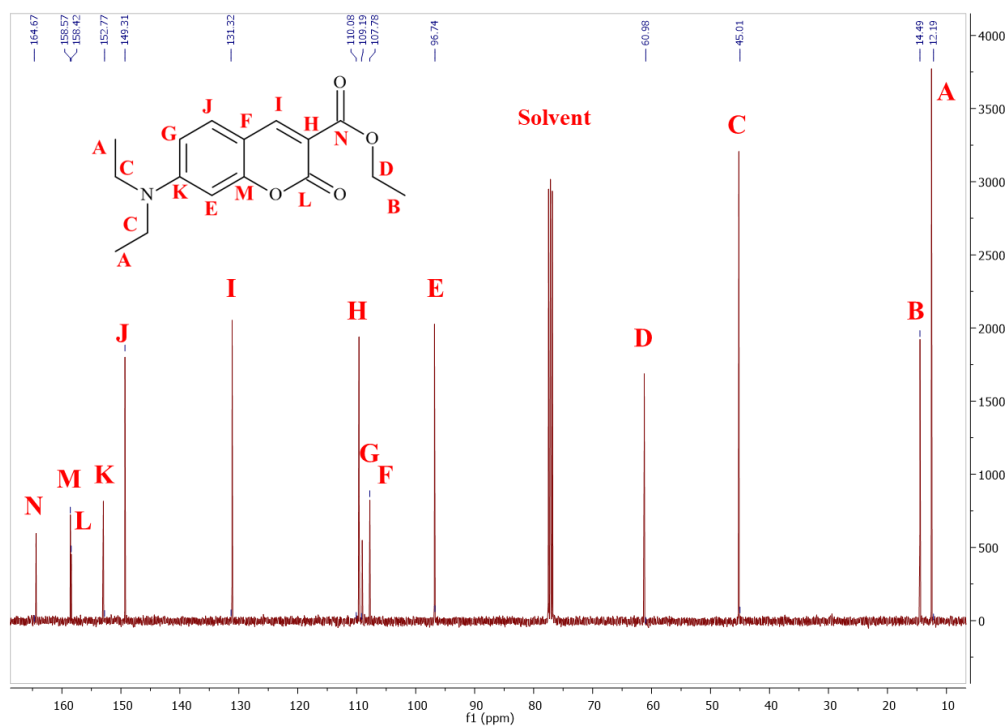


Figure S36: <sup>13</sup>C NMR (CDCl<sub>3</sub>, 300 K) for compound 11.

**Diethyl 2-(4-(diethylamino)-2-((4-oxopentanoil)oxy)benzylidene)malonate, Compound 9:**

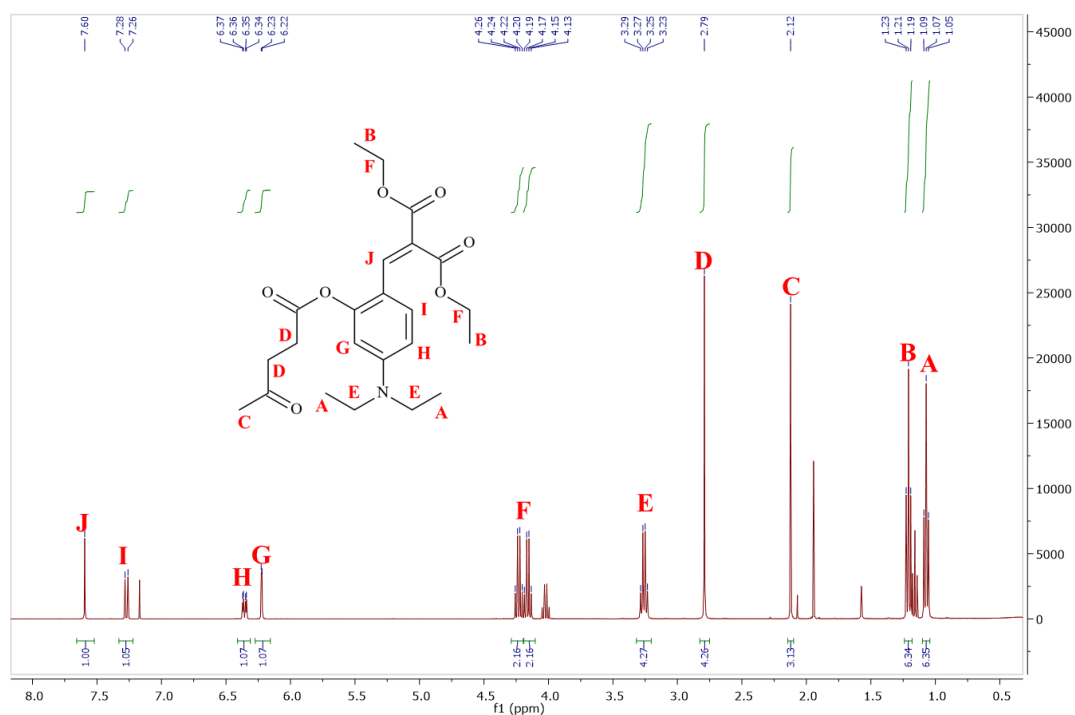


Figure S37: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 K) for compound 9.

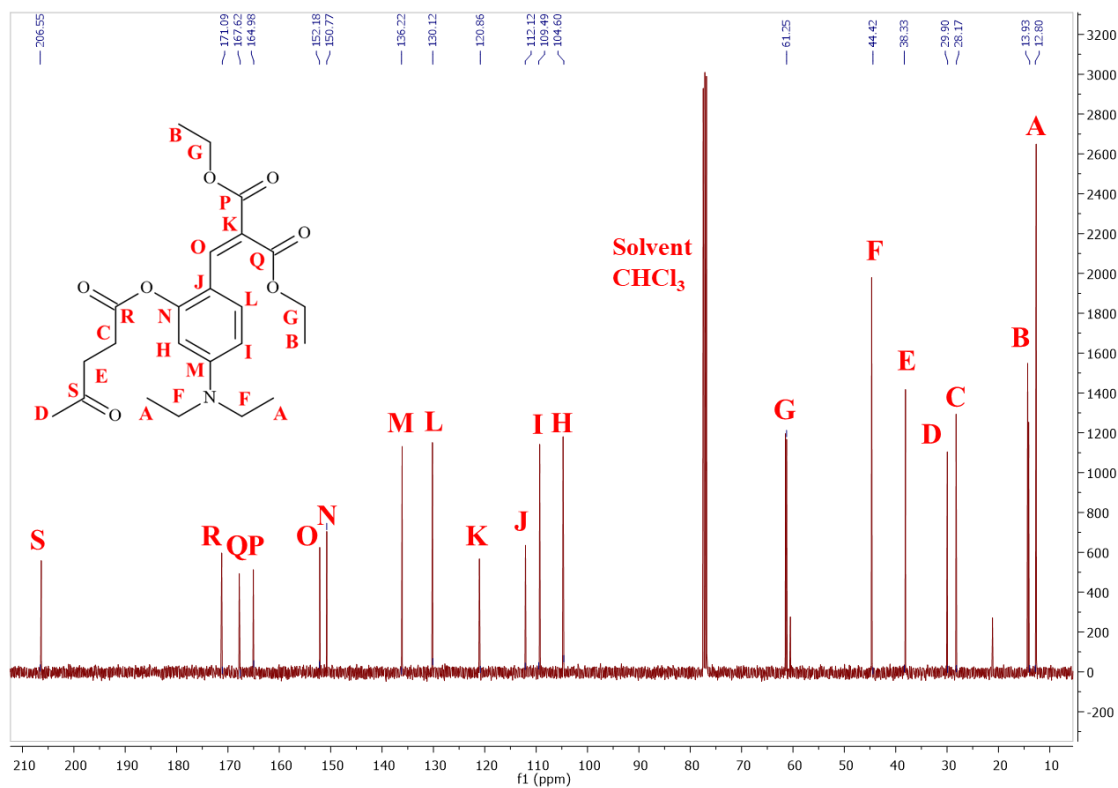


Figure S38: <sup>13</sup>C NMR (CDCl<sub>3</sub>, 300 K) for compound 9.

**Diethyl 2-(2-((4-bromobutanoyl)oxy)-4-(diethylamino)benzylidene)malonate, Compound 10:**

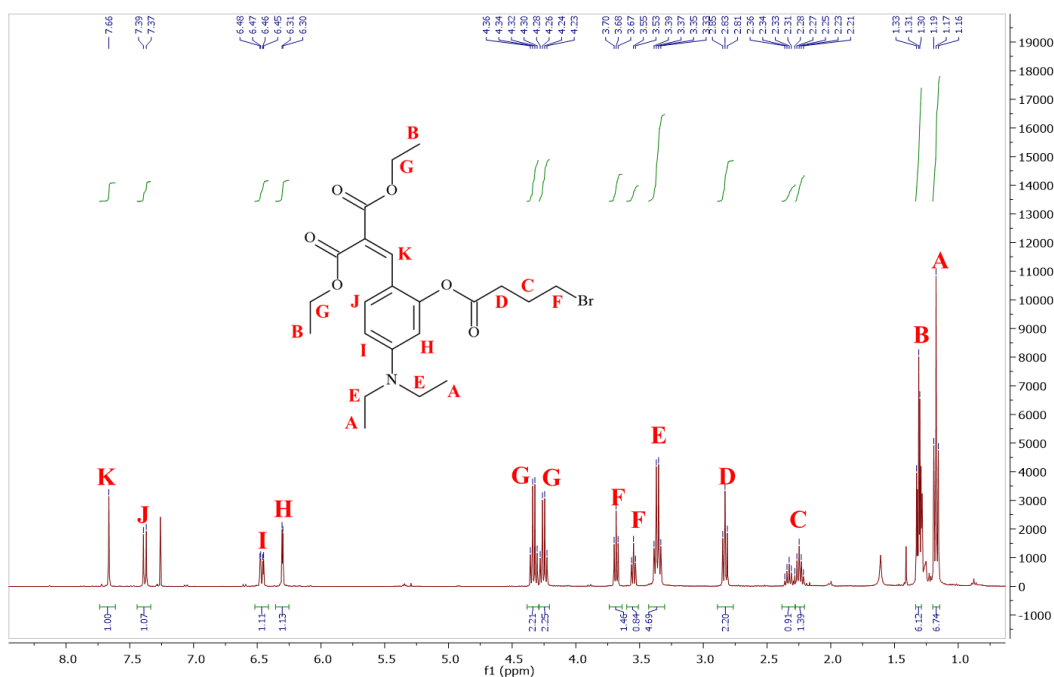


Figure S39:  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 K) for compound **10**.

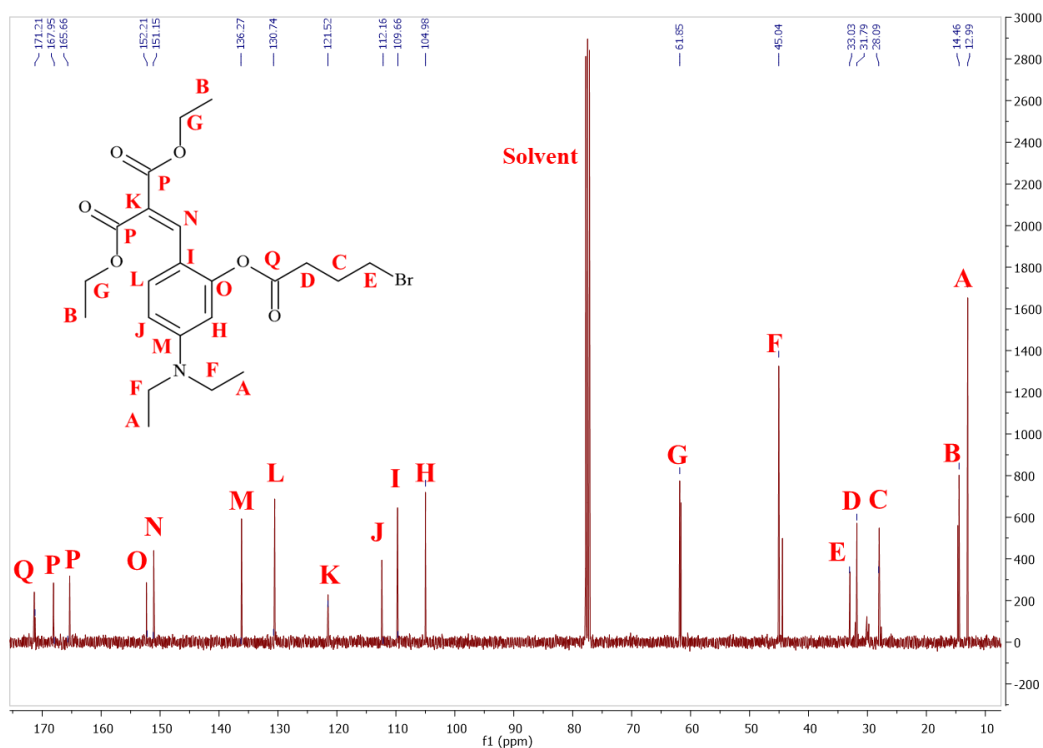


Figure S40:  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 300 K) for compound **10**.

## Reaction Mechanisms

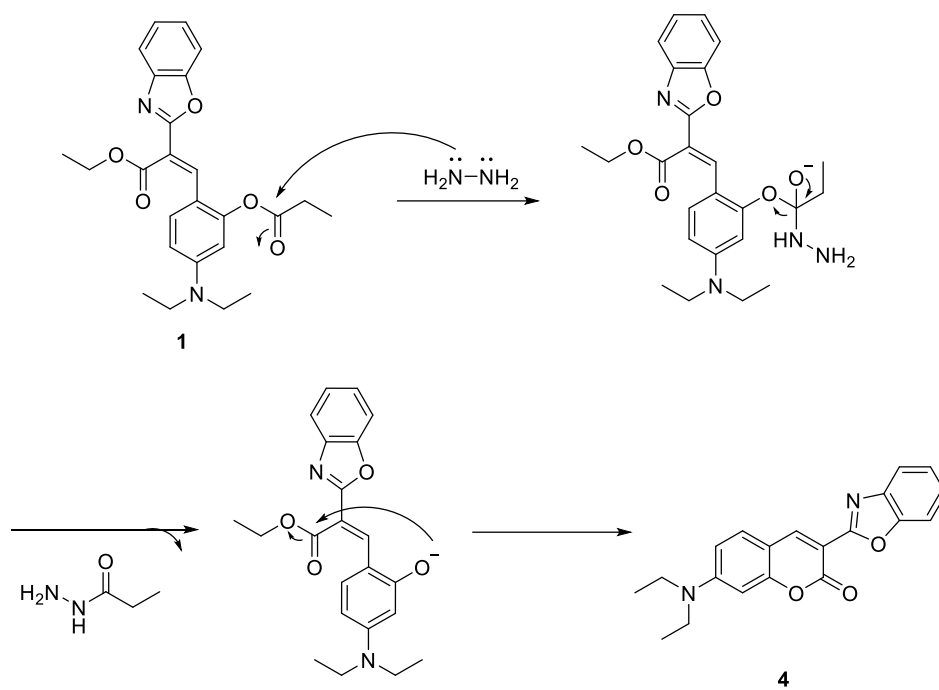


Figure S41: Proposed mechanism path for compound **4** from **1**.

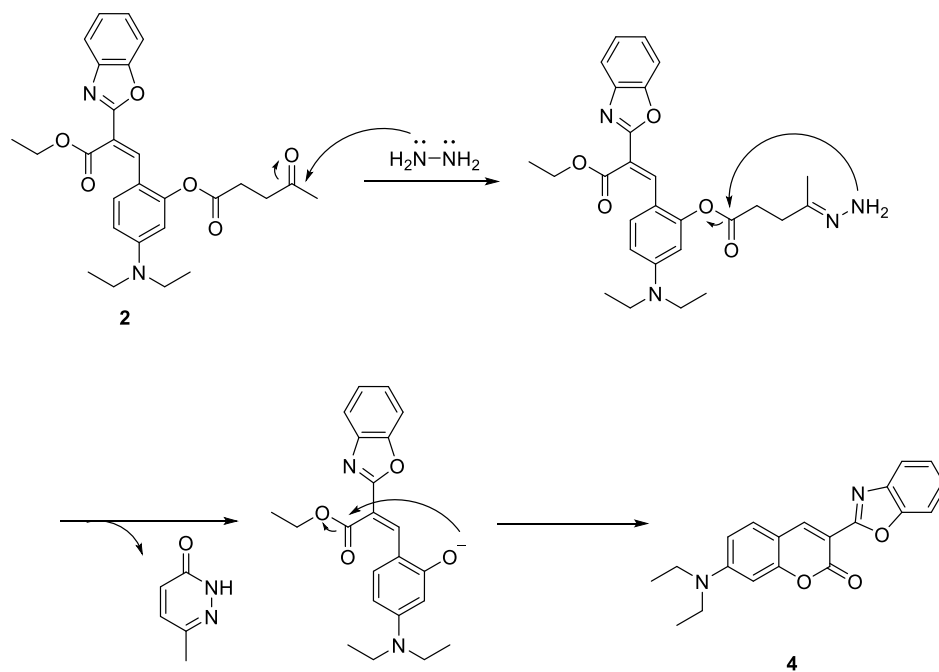


Figure S42: Proposed mechanism for compound **4** from **2**.



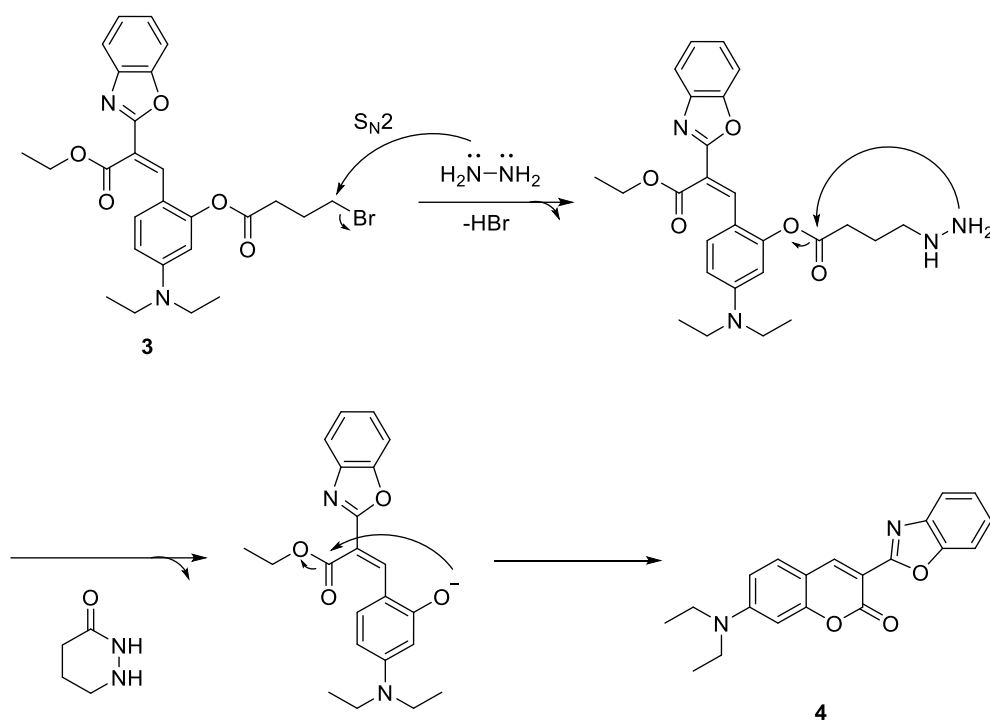


Figure S43: Proposed mechanism for compound **4** from **3**.

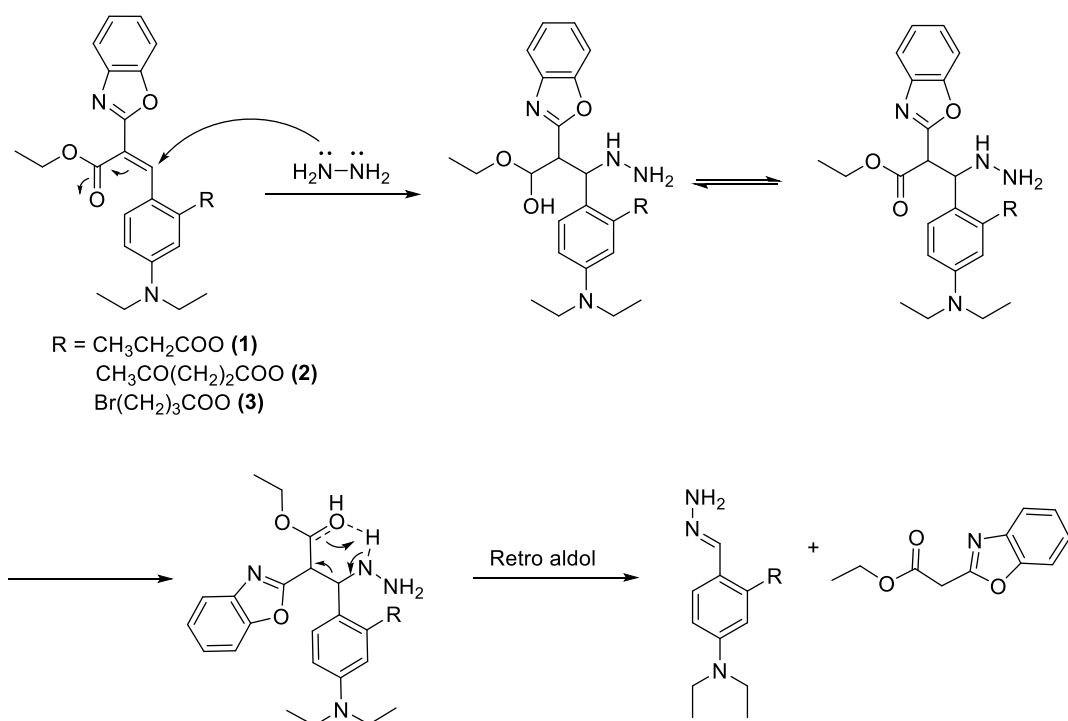


Figure S44: Proposed mechanism for the retro-Knoevenagel reaction.

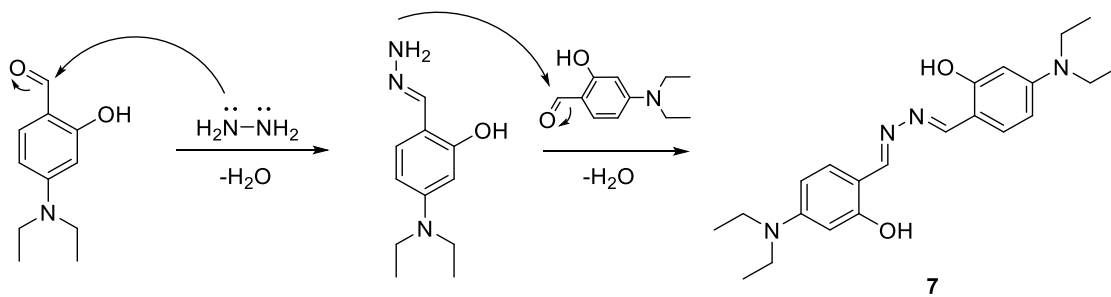


Figure S45: Proposed mechanism path for the formation of 7.

## UV-vis and Fluorescence Results

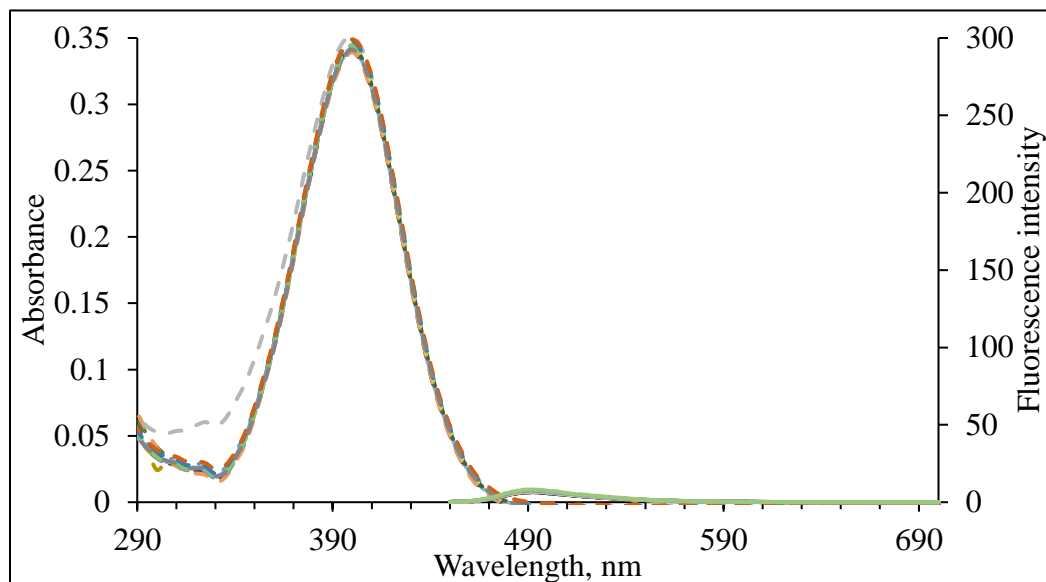


Figure S46: Absorbance (dashed lines) and fluorescence (solid lines) of 10  $\mu\text{M}$  **1** in water-acetonitrile ( $v/v = 1:9$ ) upon addition of 1.0 equiv different analytes: TBACl, TBABr, TBAI, TBAF, TBANO<sub>3</sub>, TBAClO<sub>4</sub>, NaCl, KCl, MgCl<sub>2</sub>, NiCl<sub>2</sub>, CoCl<sub>2</sub>, CuCl<sub>2</sub>, Alanine, Cysteine, Lysine, ethylamine, 2-aminothiophenol, Thiourea, N<sub>2</sub>H<sub>4</sub> ( $\lambda_{\text{ex}} = 443 \text{ nm}$ ).

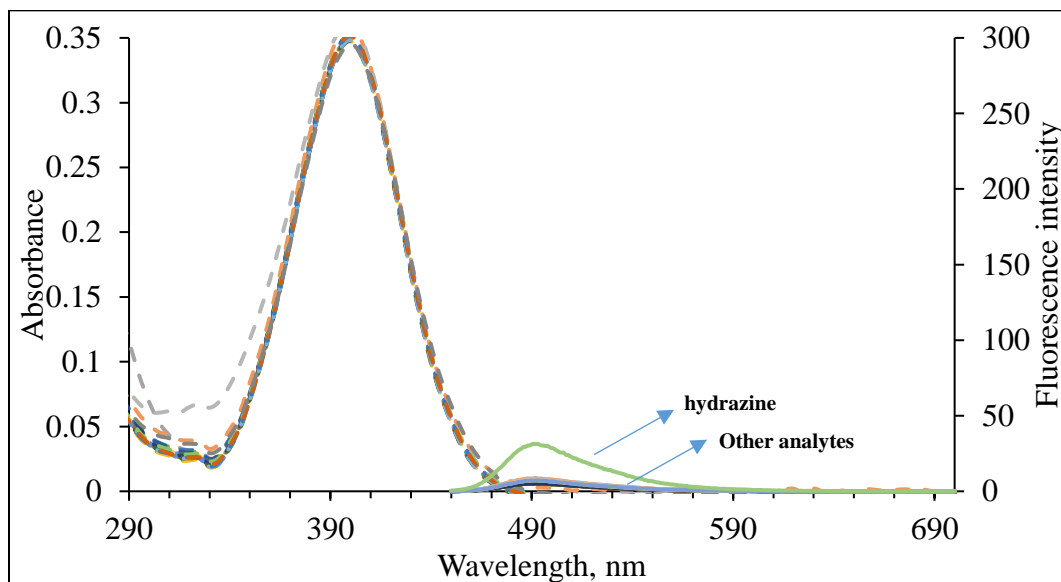


Figure S47: Absorbance (dashed lines) and fluorescence (solid lines) of 10  $\mu\text{M}$  **2** in water-acetonitrile ( $v/v = 1:9$ ) upon addition of 1.0 equiv different analytes: TBACl, TBABr, TBAI, TBAF, TBANO<sub>3</sub>, TBAClO<sub>4</sub>, NaCl, KCl, MgCl<sub>2</sub>, NiCl<sub>2</sub>, CoCl<sub>2</sub>, CuCl<sub>2</sub>, Alanine, Cysteine, Lysine, ethylamine, 2-aminothiophenol, Thiourea, N<sub>2</sub>H<sub>4</sub> ( $\lambda_{\text{ex}} = 443 \text{ nm}$ ).

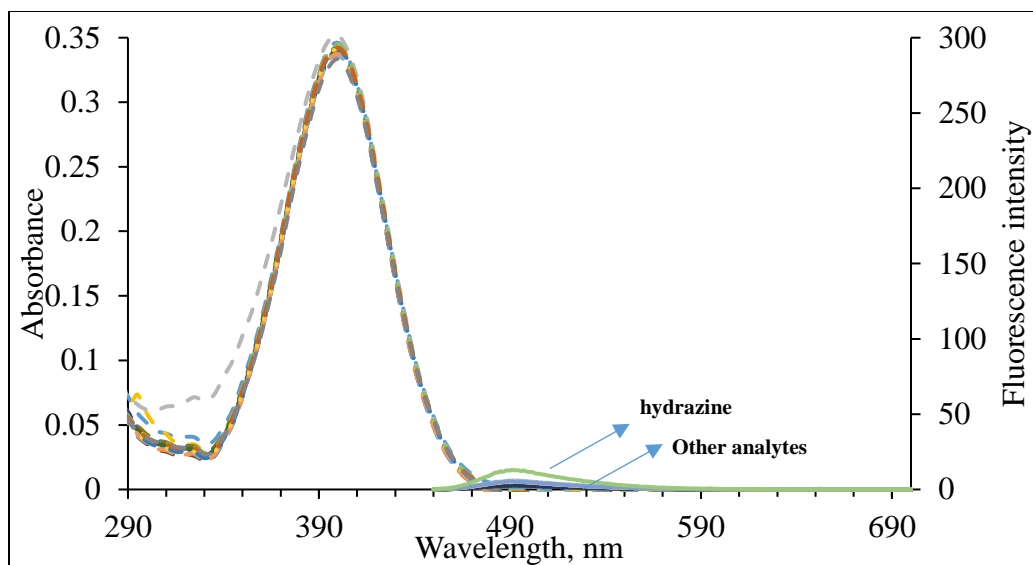


Figure S48: Absorbance (dashed lines) and fluorescence (solid lines) of 10  $\mu\text{M}$  **3** in water-acetonitrile (v/v = 1:9) upon addition of 1.0 equiv different analytes: TBACl, TBABr, TBAI, TBAF, TBANO<sub>3</sub>, TBAClO<sub>4</sub>, NaCl, KCl, MgCl<sub>2</sub>, NiCl<sub>2</sub>, CoCl<sub>2</sub>, CuCl<sub>2</sub>, Alanine, Cysteine, Lysine, ethylamine, 2-aminothiophenol, Thiourea, N<sub>2</sub>H<sub>4</sub> ( $\lambda_{\text{ex}}$  = 443 nm).

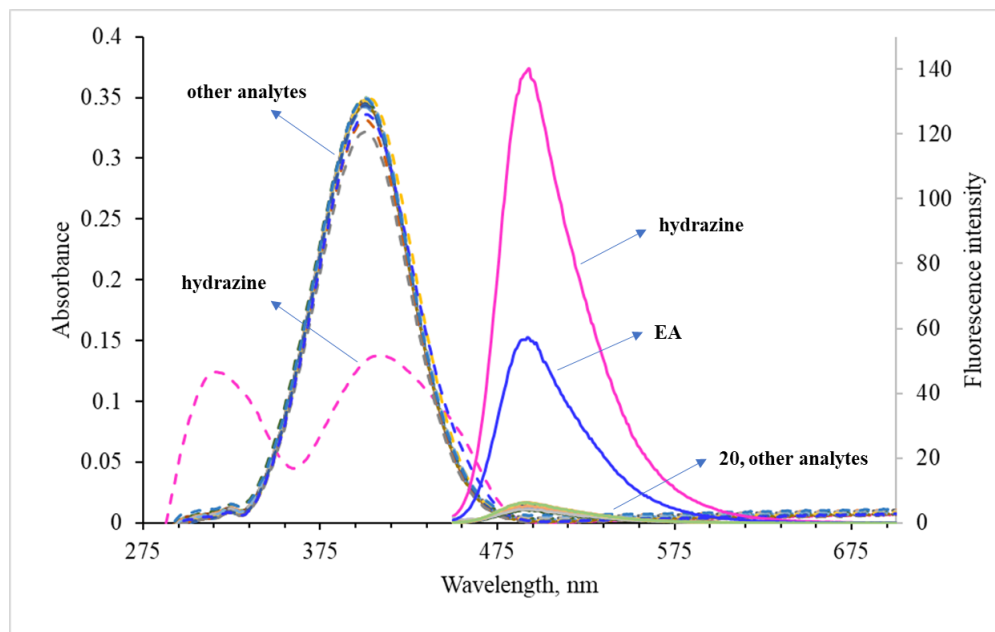


Figure S49: Absorbance (dashed lines) and fluorescence (solid lines) of 10  $\mu\text{M}$  **1** in water-acetonitrile (v/v = 1:9) upon addition of 30.0 equiv different analytes: TBACl, TBABr, TBAI, TBAF, TBANO<sub>3</sub>, TBAClO<sub>4</sub>, NaCl, KCl, MgCl<sub>2</sub>, NiCl<sub>2</sub>, CoCl<sub>2</sub>, CuCl<sub>2</sub>, Alanine, Cysteine, Lysine, ethylamine, 2-aminothiophenol, Thiourea, N<sub>2</sub>H<sub>4</sub> ( $\lambda_{\text{ex}}$  = 443 nm).

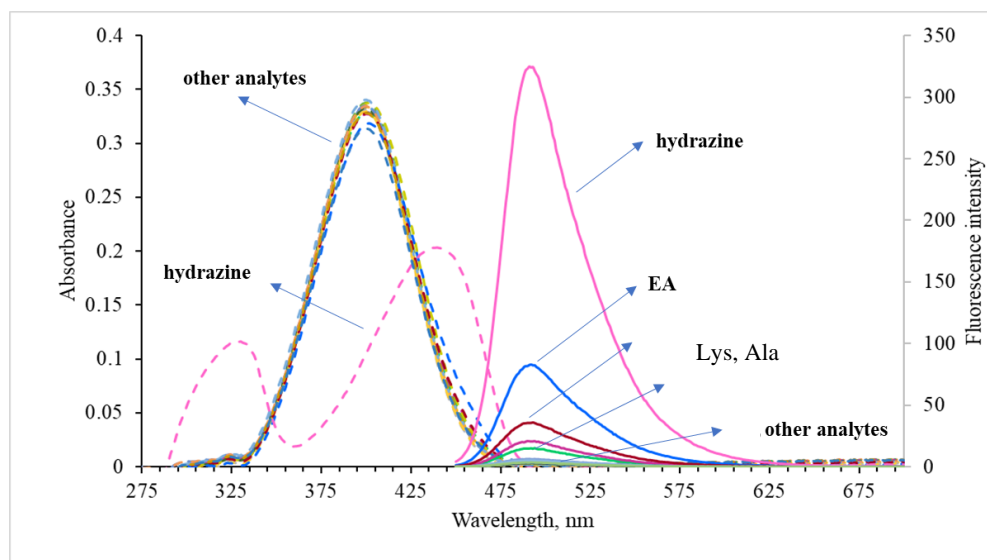


Figure S50: Absorbance (dashed lines) and fluorescence (solid lines) of 10  $\mu$ M **2** in water-acetonitrile (v/v = 1:9) upon addition of 30.0 equiv different analytes: TBACl, TBABr, TBAI, TBAF, TBANO<sub>3</sub>, TBAClO<sub>4</sub>, NaCl, KCl, MgCl<sub>2</sub>, NiCl<sub>2</sub>, CoCl<sub>2</sub>, CuCl<sub>2</sub>, Alanine, Cysteine, Lysine, ethylamine, 2-aminothiophenol, Thiourea, N<sub>2</sub>H<sub>4</sub> ( $\lambda_{\text{ex}}$  = 443 nm).

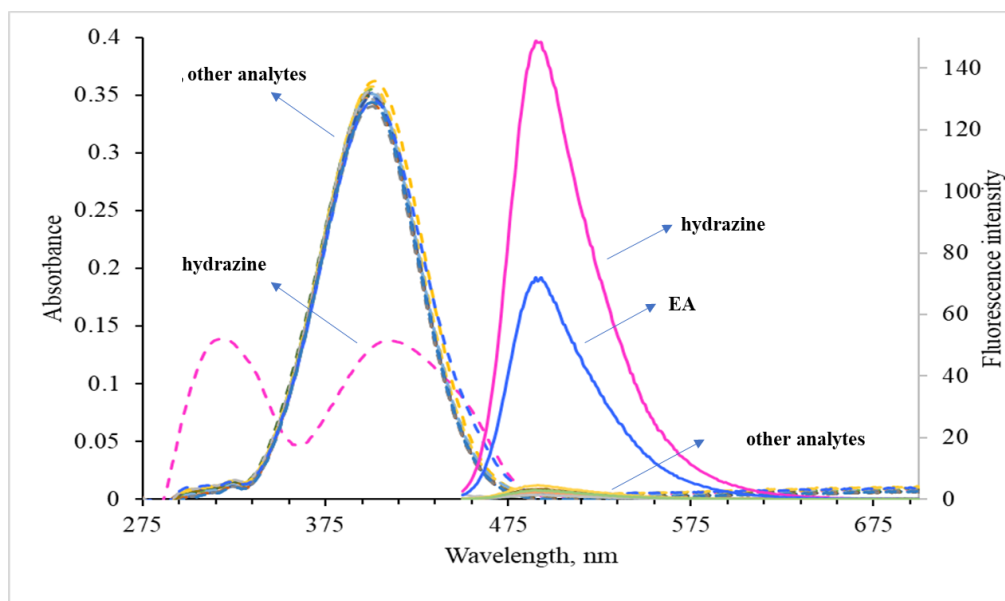


Figure S51: Absorbance (dashed lines) and fluorescence (solid lines) of 10  $\mu$ M **3** in water-acetonitrile (v/v = 1:9) upon addition of 30.0 equiv different analytes: TBACl, TBABr, TBAI, TBAF, TBANO<sub>3</sub>, TBAClO<sub>4</sub>, NaCl, KCl, MgCl<sub>2</sub>, NiCl<sub>2</sub>, CoCl<sub>2</sub>, CuCl<sub>2</sub>, Alanine, Cysteine, Lysine, ethylamine, 2-aminothiophenol, Thiourea, N<sub>2</sub>H<sub>4</sub> ( $\lambda_{\text{ex}}$  = 443 nm).

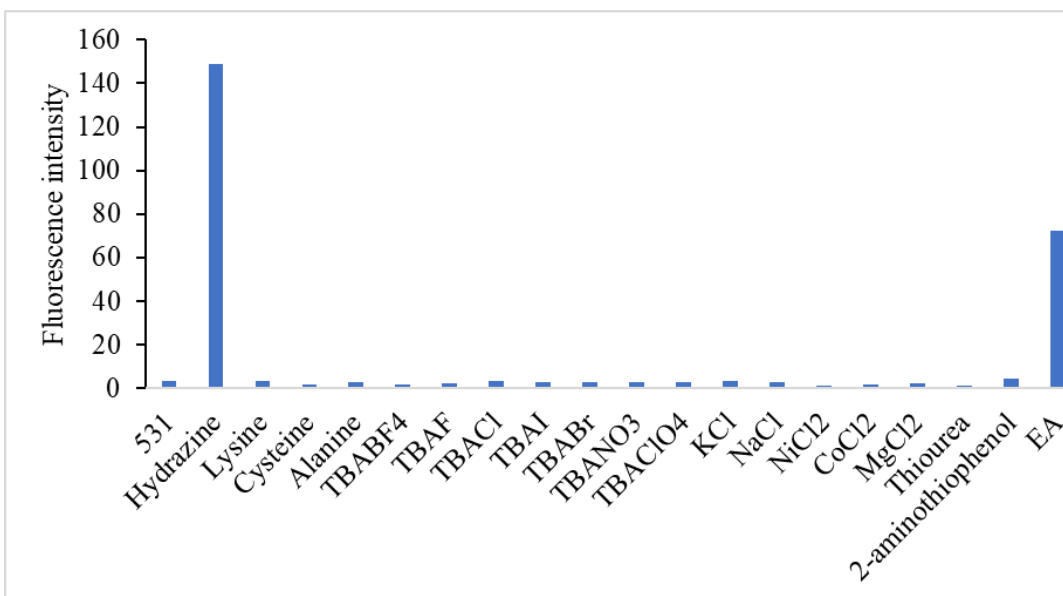


Figure S52. Bar graph of fluorescence intensity for 10  $\mu\text{M}$  **3** in water-acetonitrile (v/v = 1:9) upon addition of 30.0 equiv different analytes: TBACl, TBABr, TBAI, TBAF, TBANO<sub>3</sub>, TBAClO<sub>4</sub>, NaCl, KCl, MgCl<sub>2</sub>, NiCl<sub>2</sub>, CoCl<sub>2</sub>, CuCl<sub>2</sub>, Alanine, Cysteine, Lysine, ethylamine, 2-aminothiophenol, Thiourea, N<sub>2</sub>H<sub>4</sub> ( $\lambda_{\text{ex}}$  = 443 nm).

### LOD studies

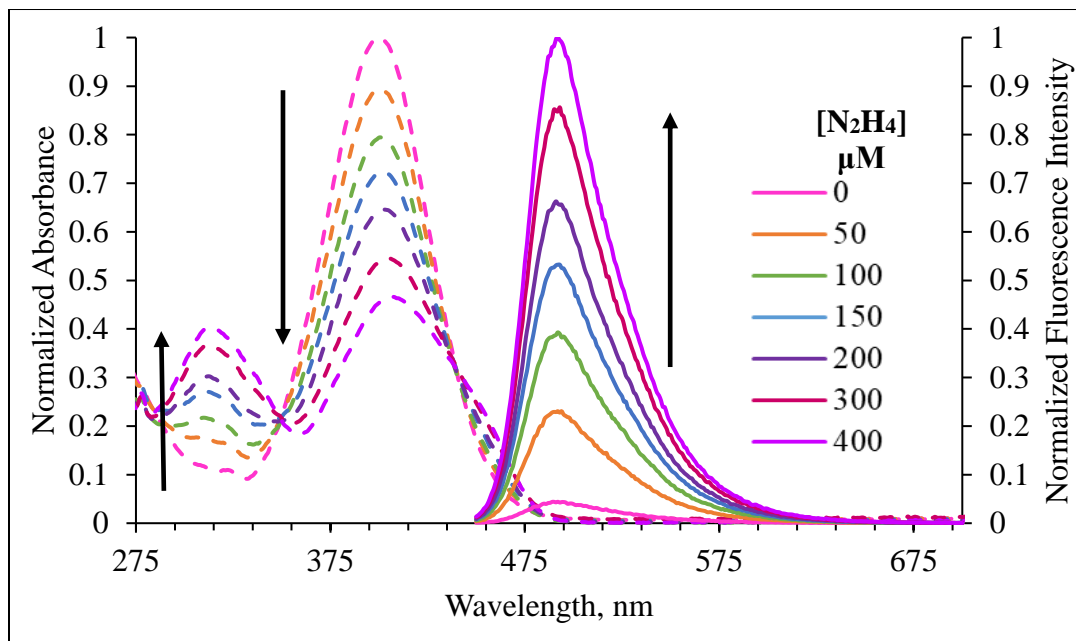


Figure S53: Absorbance (dashed lines) and fluorescence (solid lines) of 10  $\mu\text{M}$  **1** in water-acetonitrile (v/v = 1:9) upon addition of 0-30.0 equiv N<sub>2</sub>H<sub>4</sub> ( $\lambda_{\text{ex}}$  = 443 nm).

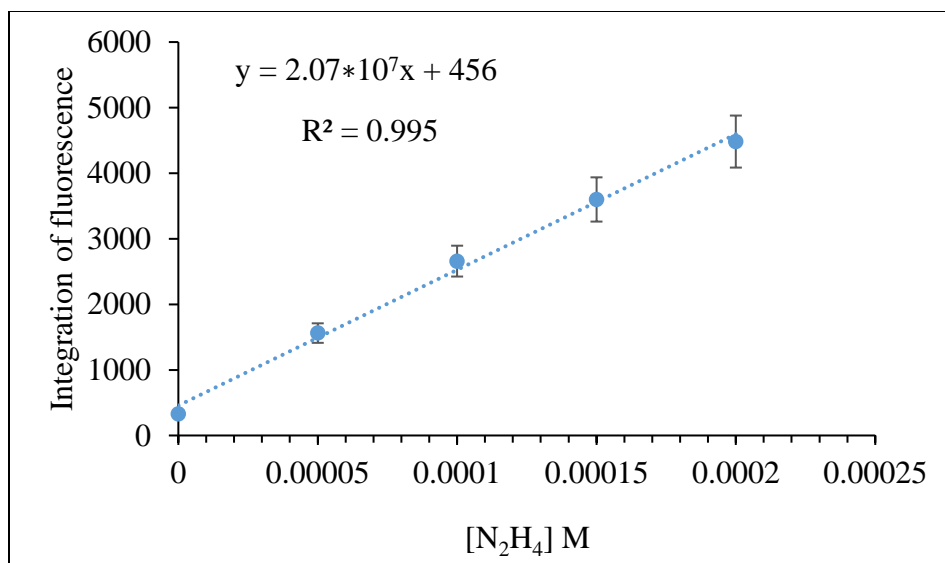


Figure S54: Fluorescence integration of 10  $\mu\text{M}$  **1** in water-acetonitrile ( $v/v = 1:9$ ) as function of  $\text{N}_2\text{H}_4$  concentration ( $\lambda_{\text{ex}} = 443 \text{ nm}$ ).

The linear equation was found to be  $y = 2.07 \cdot 10^7 x + 456$  ( $R^2 = 0.995$ ) and the detection limit was calculated,  $\text{LOD} = 2.7$  (2)  $\mu\text{M}$ .

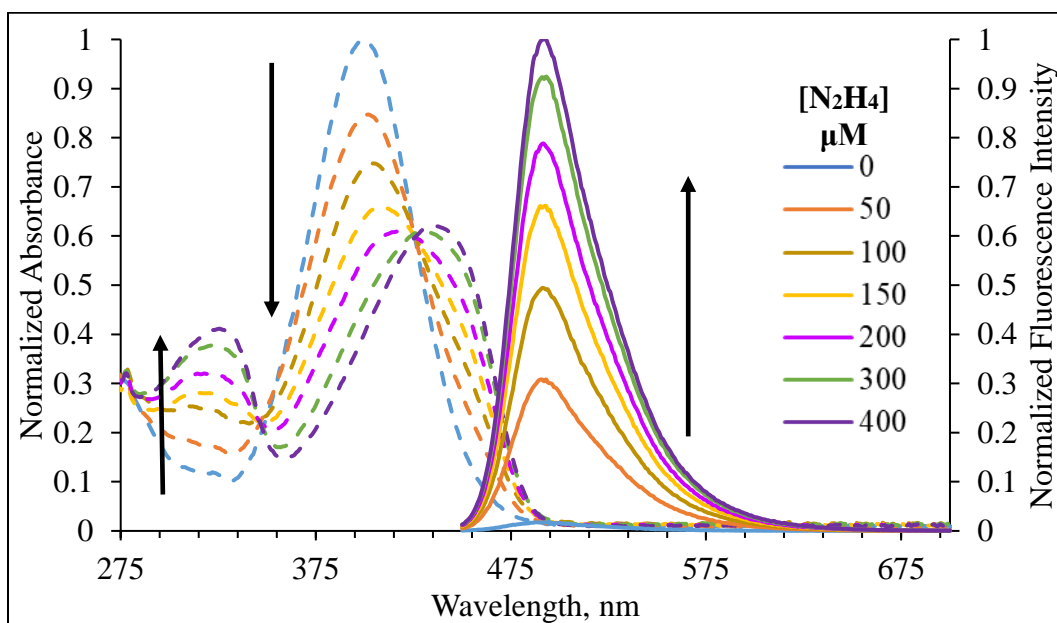


Figure S55: Absorbance (dashed lines) and fluorescence (solid lines) of 10  $\mu\text{M}$  **2** in water-acetonitrile ( $v/v = 1:9$ ) upon addition of 0-30.0 equiv  $\text{N}_2\text{H}_4$  ( $\lambda_{\text{ex}} = 443 \text{ nm}$ ).

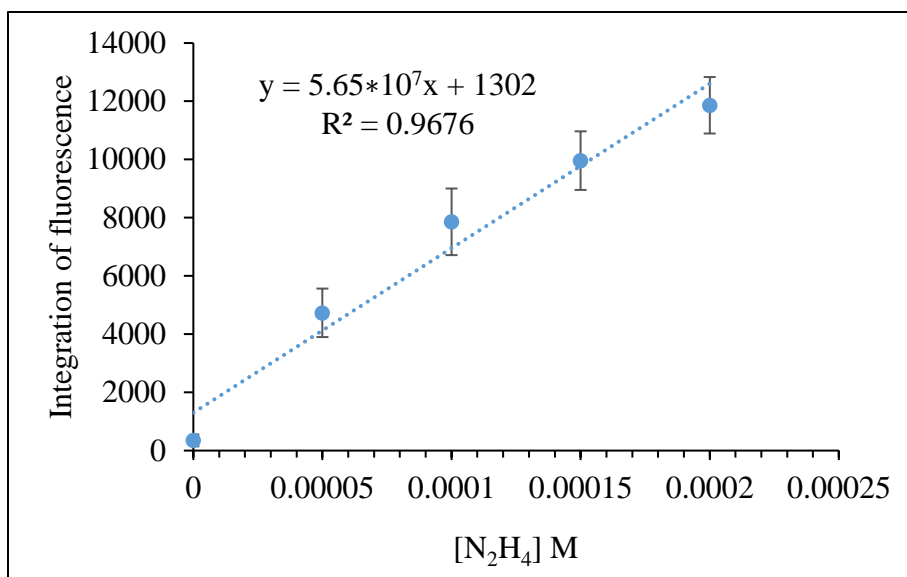


Figure S56: Fluorescence integration of 10  $\mu\text{M}$  **2** in water-acetonitrile (v/v = 1:9) as function of  $\text{N}_2\text{H}_4$  concentration ( $\lambda_{\text{ex}} = 443 \text{ nm}$ ).

The linear equation was found to be  $y = 5.65 \times 10^7 x + 1302$  ( $R^2 = 0.9676$ ) and the limit of detection was calculated, LOD = 0.84 (1)  $\mu\text{M}$ .

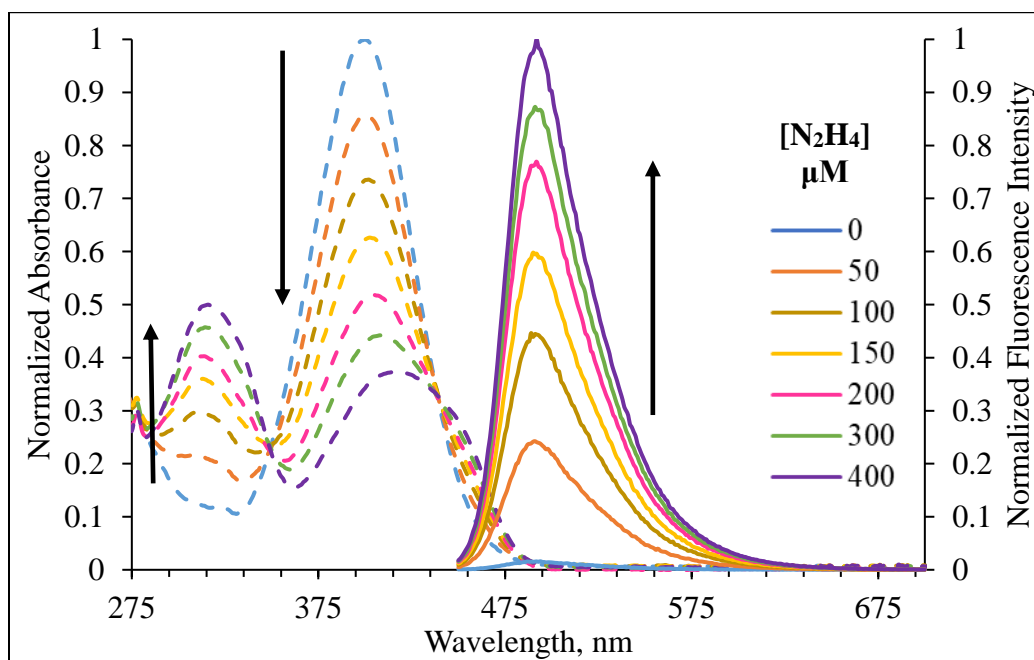


Figure S57: Absorbance (dashed lines) and fluorescence (solid lines) of 10  $\mu\text{M}$  **3** in water-acetonitrile (v/v = 1:9) upon addition of 0-30.0 equiv  $\text{N}_2\text{H}_4$  ( $\lambda_{\text{ex}} = 443 \text{ nm}$ ).



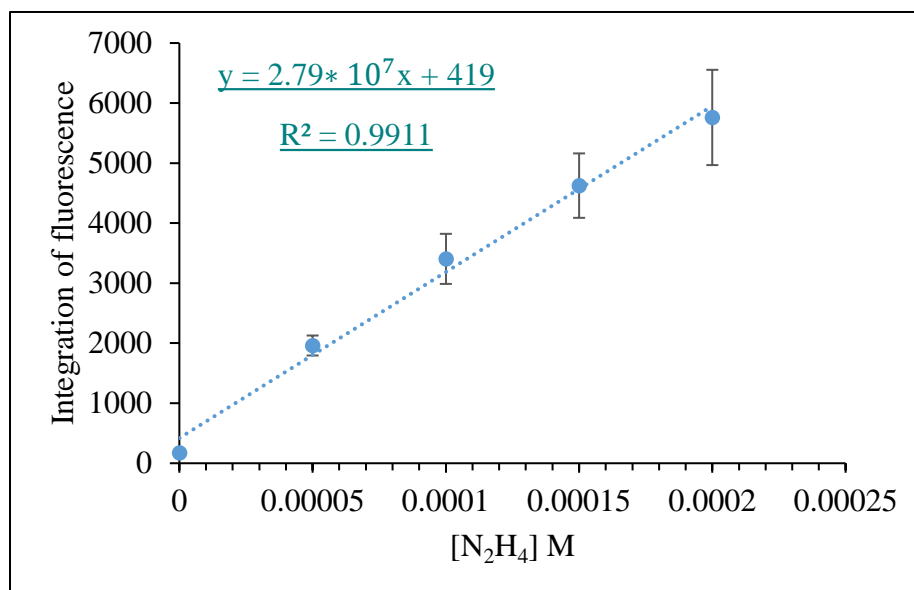


Figure S58: Fluorescence integration of 10  $\mu\text{M}$  **3** in water-acetonitrile (v/v = 1:9) as function of  $\text{N}_2\text{H}_4$  concentration ( $\lambda_{\text{ex}} = 443 \text{ nm}$ ).

The linear equation was identified as  $y = 2.79 \times 10^7 x + 419$  ( $R^2 = 0.9911$ ) and the LOD was determined to be 1.8 (3)  $\mu\text{M}$ .

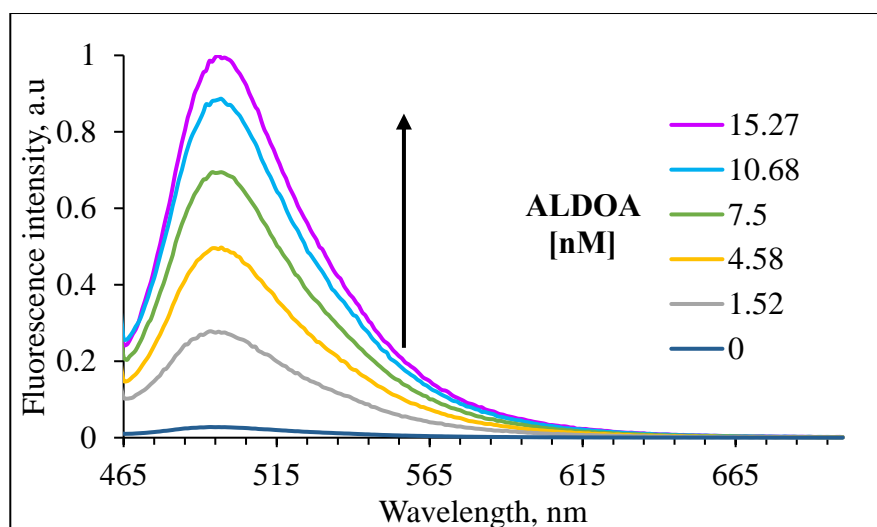


Figure 159: Normalized fluorescence of 5.0  $\mu\text{M}$  **3** in 1% MeCN – 99% PBS buffer pH 7.4 upon addition of 0- 15.27 nM ALDOA ( $\lambda_{\text{ex}} = 455 \text{ nm}$ ).

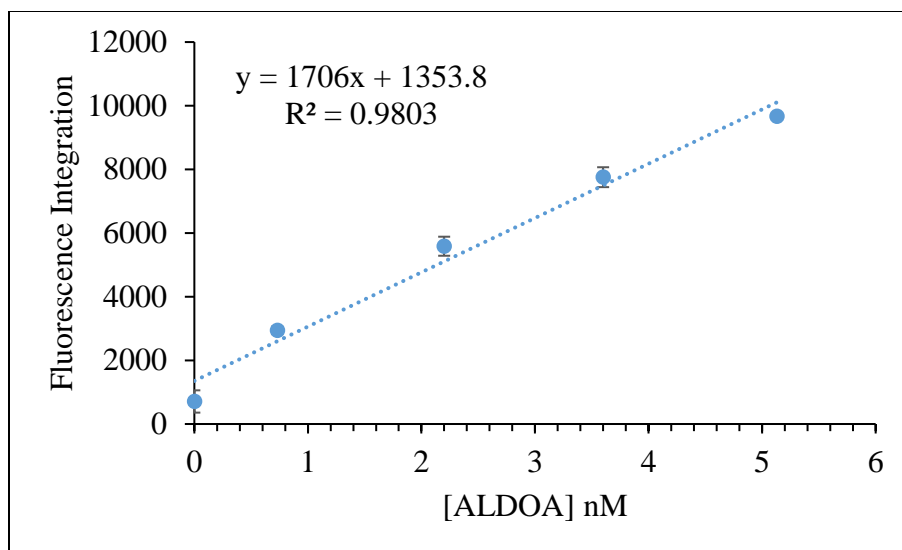


Figure S60: Fluorescence integration of 5  $\mu\text{M}$  **3** in in 1% MeCN – 99% PBS buffer pH 7.4 as function of ALDOA concentration 0- 15.27 nM ( $\lambda_{\text{ex}}$  = 455 nm).

The linear equation was found to be  $y = 1706x + 1353.8$  ( $R^2 = 0.9803$ ) and the limit of detection was calculated to be 0.063 (6) nM.

*Comparison of a real sample of **4** to the product of the reaction between **2** and hydrazine, an NMR study.*

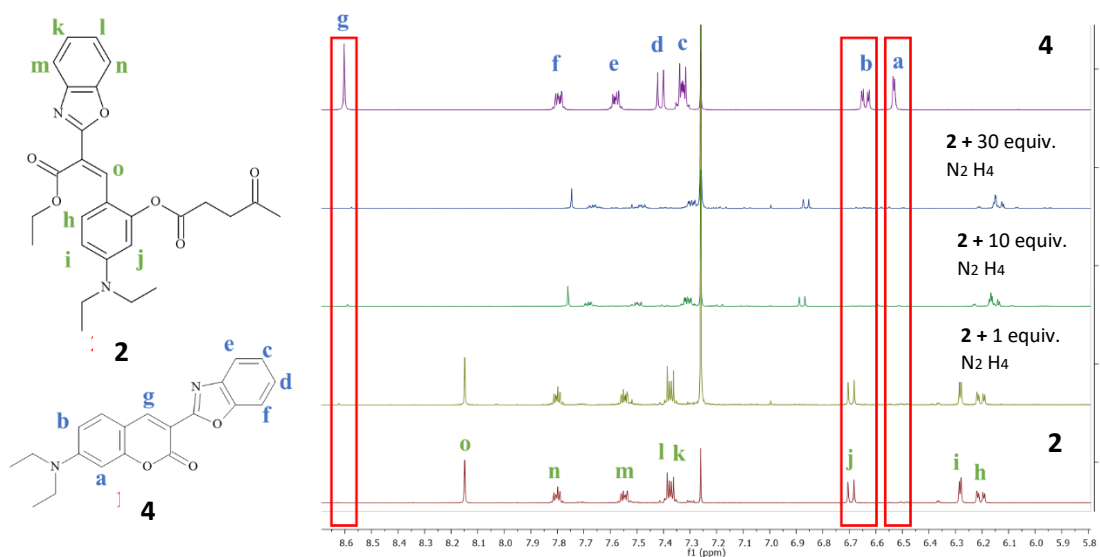


Figure S61: Stacked and zoomed in,  $^1\text{H}$  NMR spectra of **4**, and **2** upon addition of 0, 1.0, 15.0 and 30.0 equiv.  $\text{N}_2\text{H}_4$ .