

## Supporting Information

### A Mesoporous Two-Dimensional Cobalt-Phosphonocarboxylate Metal Organic Framework (MOF) as an Efficient and Recyclable Catalyst for Solvent-Free Multicomponent Reactions

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#### The experimental data of 3,4-Dihydropyrimidin-2(1H)-ones

*Methyl 4-(2-chlorophenyl)-6-methyl-2-oxo-1,2,3,4-tetrahydropyrimidine-5-carboxylate (1)*

<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>): δ (ppm) 9.33 (s, 1H), 7.74 (s, 1H), 7.43 (m, 4H), 5.62 (s, 1H), 3.47 (s, 3H), 2.31 (s, 3H).

*Methyl 4-(4-methoxyphenyl)-6-methyl-2-oxo-1,2,3,4-tetrahydropyrimidine-5-carboxylate (2)*

<sup>1</sup>H NMR (400 MHz, DMSO-d<sub>6</sub>): δ (ppm) 9.20 (s, 1H), 7.71 (s, 1H), 7.19 (d, J=8 Hz, 2H), 6.92 (d, J=8 Hz, 2H), 5.13 (s, 1H), 3.76 (s, 3H), 3.56 (s, 3H), 2.23 (s, 3H).

*Methyl 4-(4-chlorophenyl)-6-methyl-2-thioxo-1,2,3,4-tetrahydropyrimidine-5-carboxylate (3)*

<sup>1</sup>H NMR (400 MHz, DMSO-d<sub>6</sub>): δ (ppm): 9.45 (s, 1H), 7.97 (s, 1H), 7.59 (d, J=8 Hz, 2H), 7.44 (d, J=8 Hz, 2H), 5.33 (s, 1H), 3.72 (s, 3H), 2.44 (s, 3H).

*Ethyl 4-(2-chlorophenyl)-6-methyl-2-oxo-1,2,3,4-tetrahydropyrimidine-5-carboxylate (4)*

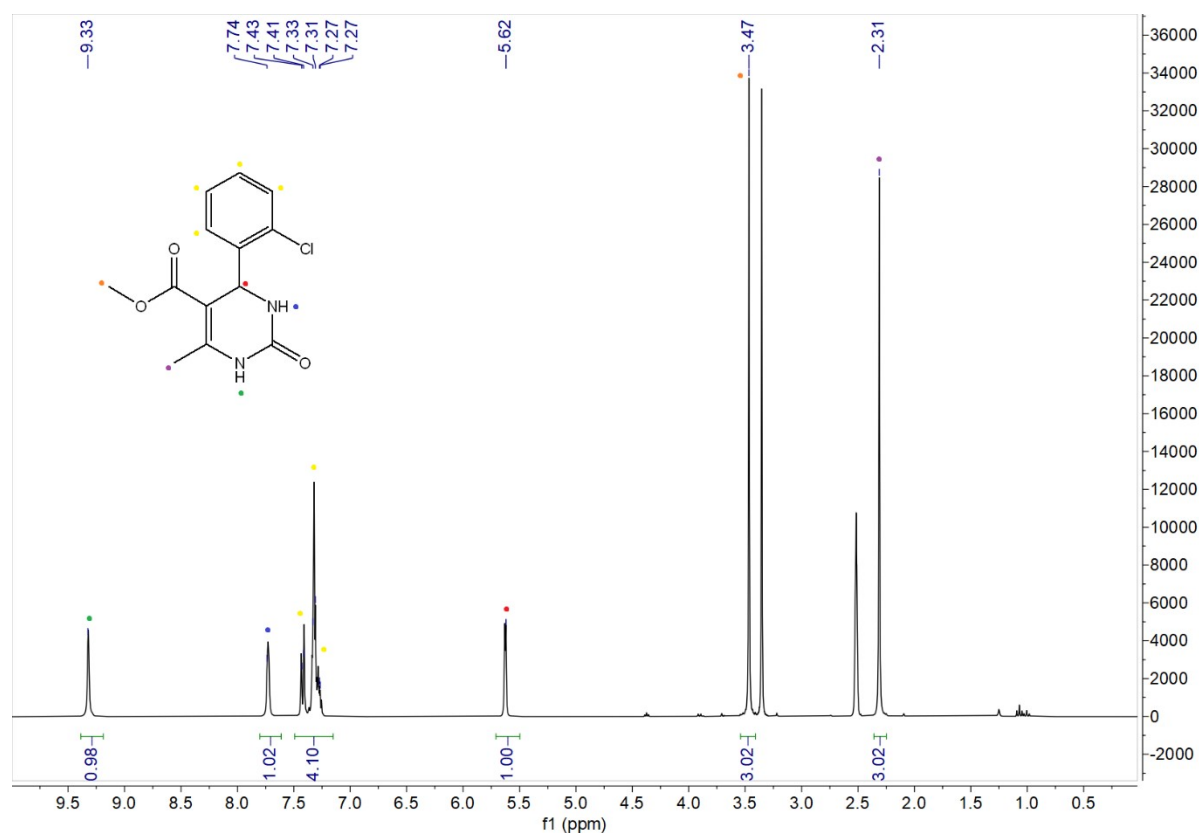
<sup>1</sup>H NMR (400 MHz, DMSO-d<sub>6</sub>): δ (ppm) 9.43 (s, 1H), 7.87 (s, 1H), 7.46 (m, 4H), 5.81 (s, 1H), 4.10 (q, J=8 Hz, 2H), 2.48 (s, 3H), 1.20 (t, J=8 Hz, 3H).

*Ethyl 4-(4-methoxyphenyl)-6-methyl-2-oxo-1,2,3,4-tetrahydropyrimidine-5-carboxylate (5)*

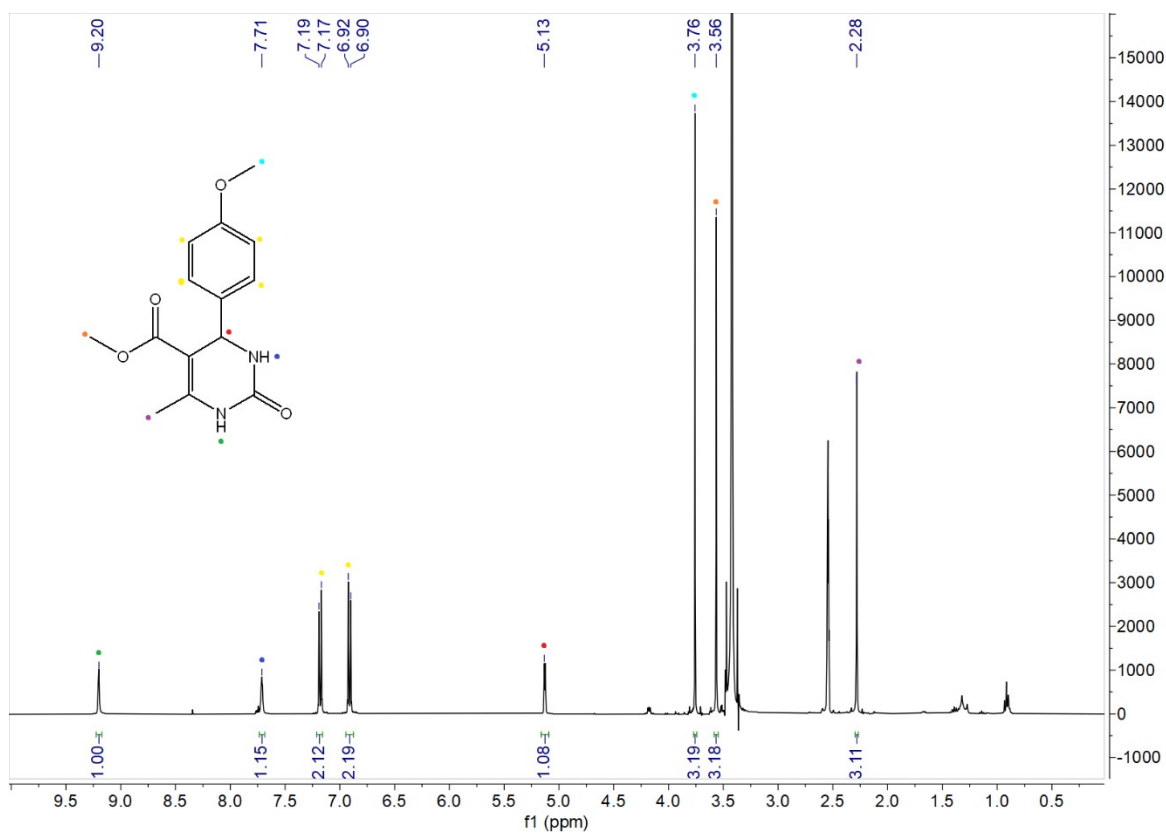
$^1\text{H}$  NMR (300 MHz, DMSO- $\text{d}_6$ ):  $\delta$  (ppm) 9.16 (s, 1H), 7.69 (s, 1H), 7.17 (d,  $J=9$  Hz, 2H), 6.90-6.87 (d,  $J=9$  Hz, 2H), 5.10 (s, 1H), 4.03 (q,  $J=9$  Hz, 2H), 3.73 (s, 3H), 2.25 (s, 3H), 1.14 (t,  $J=9$  Hz, 3H).

*Ethyl 4-(4-methoxyphenyl)-6-methyl-2-thioxo-1,2,3,4-tetrahydropyrimidine-5-carboxylate (6)*

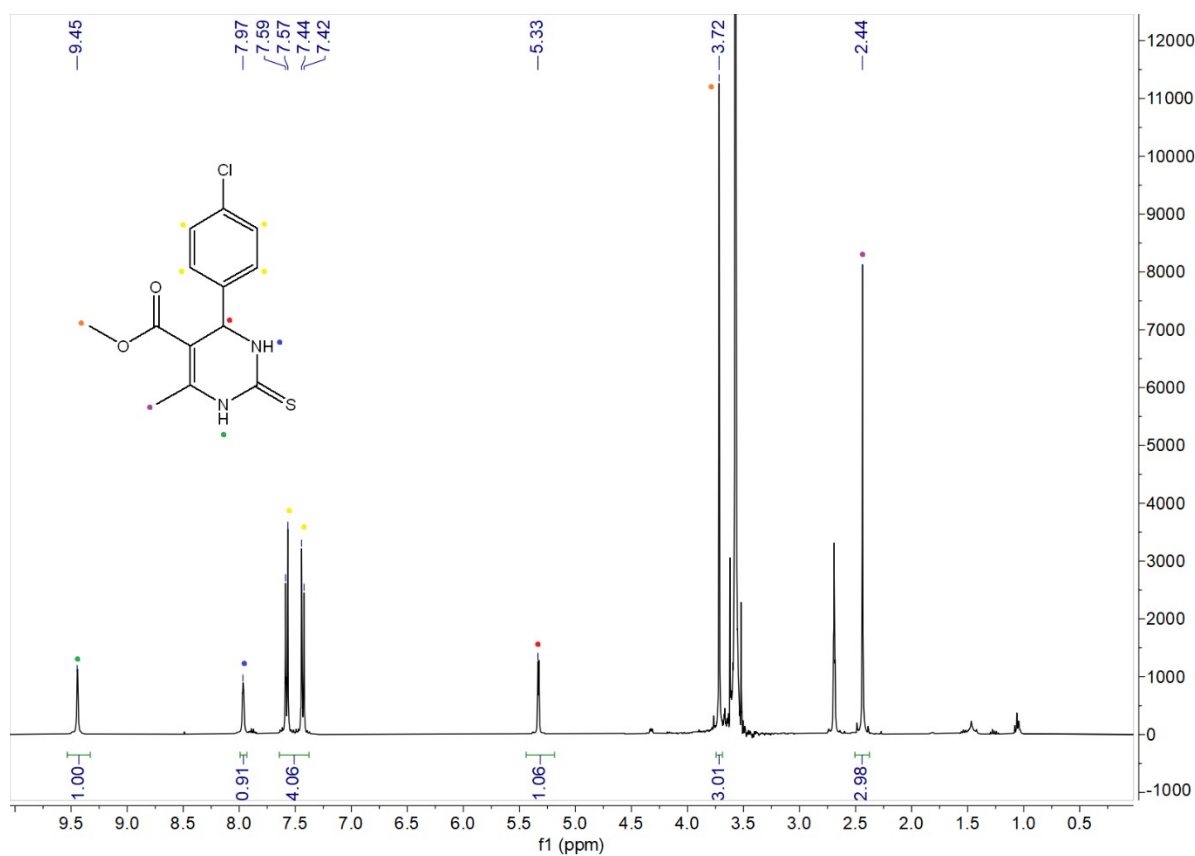
$^1\text{H}$  NMR (400 MHz, DMSO- $\text{d}_6$ ):  $\delta$  (ppm) 9.17 (s, 1H), 7.69 (s, 1H), 7.19 (d,  $J=8$  Hz, 2H), 6.92 (d,  $J=8$  Hz, 2H), 5.13 (s, 1H), 4.04 (q,  $J=8$  Hz, 2H), 3.76 (s, 3H), 2.28 (s, 3H), 1.16 (t,  $J=8$  Hz, 3H).



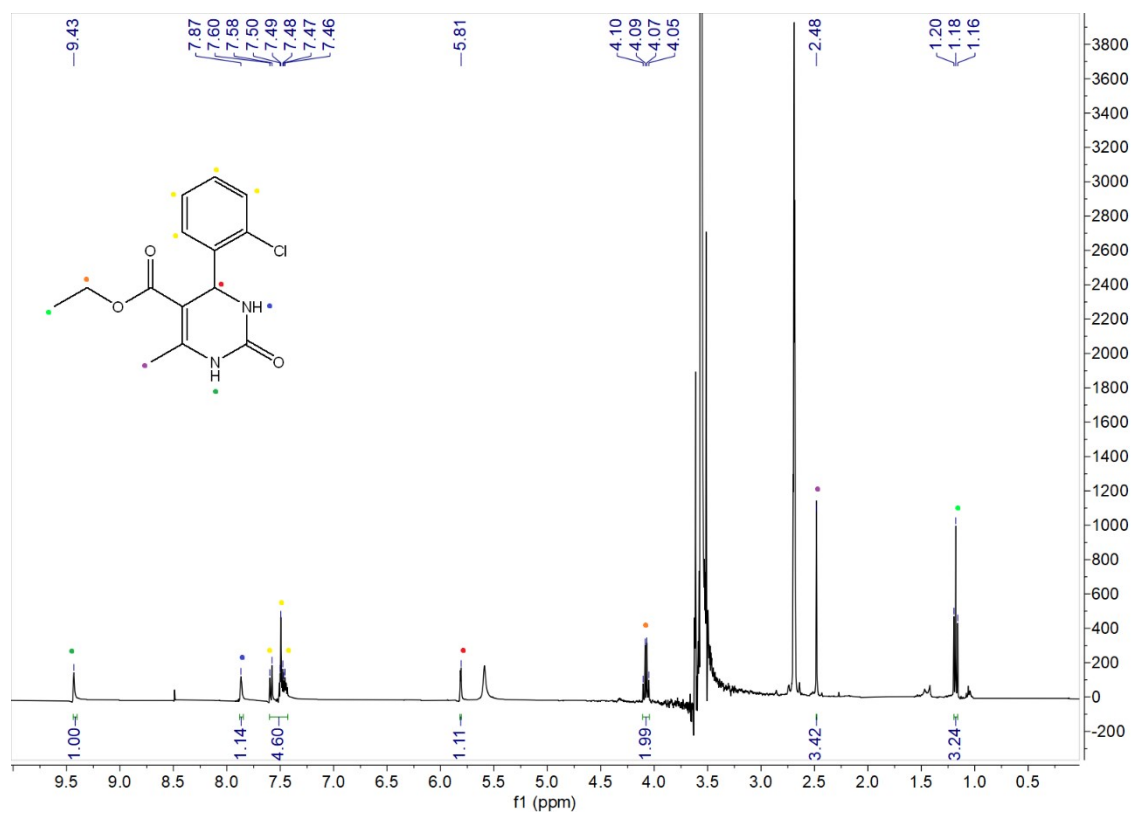
**Figure S1.**  $^1\text{H}$  NMR spectrum of compound **1** recorded in DMSO- $\text{d}_6$ .



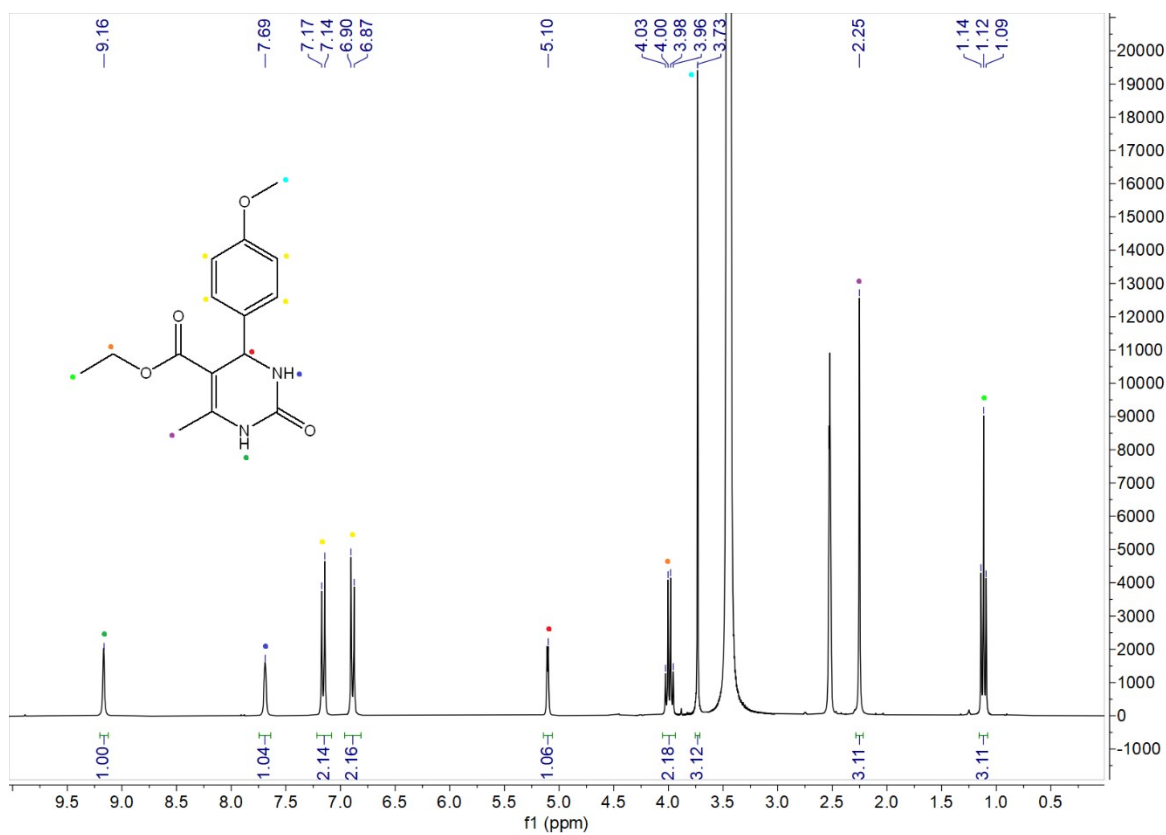
**Figure S2.** <sup>1</sup>H NMR spectrum of compound **2** recorded in DMSO-d<sub>6</sub>.



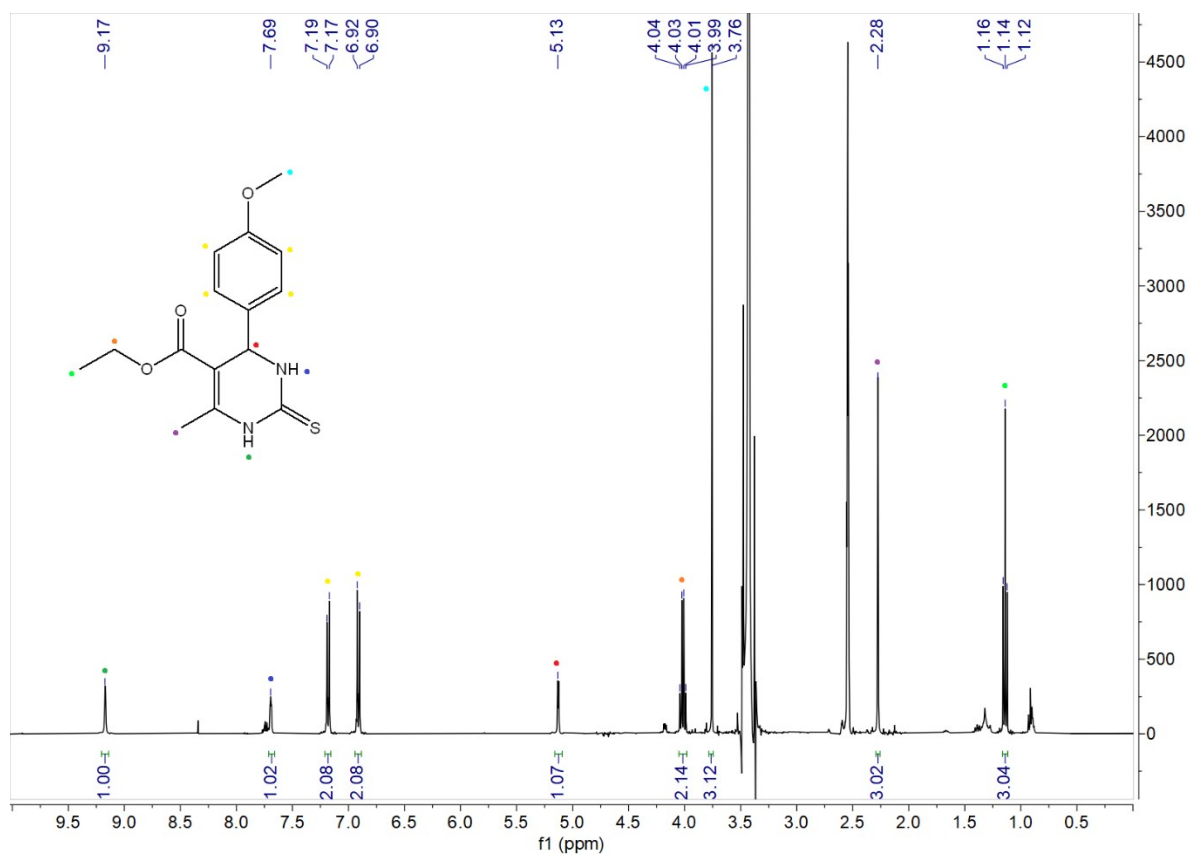
**Figure S3.** <sup>1</sup>H NMR spectrum of compound **3** recorded in DMSO-d<sub>6</sub>.



**Figure S4.**  $^1\text{H}$  NMR spectrum of compound **4** recorded in  $\text{DMSO-d}_6$ .



**Figure S5.**  $^1\text{H}$  NMR spectrum of compound **5** recorded in  $\text{DMSO-d}_6$ .



**Figure S6.**  $^1\text{H}$  NMR spectrum of compound **6** recorded in  $\text{DMSO-d}_6$ .