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Supporting Information

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# Supporting Information

Elisabete P. Carreiro[*a], Ana M. Sena[b], Adrián Puerta[c], José M. Padrón[c], Anthony J. Burke[a,b]

[a]*Centro de Química de Évora & LAQV-Requimte, University of Évora, Institute for Research and Advanced Training (IIFA), Rua Romão Ramalho, 59, 7000-671 Évora, Portugal.*
[b]*Department of Chemistry, University of Évora, School of Science and Technology, Rua Romão Ramalho, 59, 7000-671 Évora, Portugal*
[c] *BioLab, Instituto Universitario de Bio-Orgánica 'Antonio González', Universidad de La Laguna, PO Box 456, 38200 La Laguna, Islas Canarias, Spain*

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## 1. *Experimental Procedure:*

### *1.1. General Remarks:*

All reagents and solvents used in this work were purchase from Sigma-Aldrich, Alfa Aesar and Acrós and were used as received. Column chromatography was carried out on silica gel (sds, 70-200μm). Thin layer chromatography (TLC) was carried out on aluminium backed Kiselgel 60 F254 plates (Merck). Plates were visualized either by UV light or with phosphomolybdic acid in ethanol. $^{1}$H and $^{13}$C

APT NMR spectra was recorded on a Bruker Avance III at 400 and 100 MHz, respectively, and the chemical shifts were quoted in parts per million (ppm) referenced to the appropriate non-deuterated solvent peak relative to 0.0 ppm for tetramethylsilane. Mass spectra (MS) ESI-TOF by the mass spectrometry service of the University of Salamanca, Spain. All microwave irradiation experiments were performed using the *Biotage* reactor in the sealed-vessel. The 1-azidopropan-2-one **1** was synthesized following the procedure in the reference 13.[1] 1-(prop-2-yn-1-yl)isatine **11** were prepared by described method in the literature.[2]

### 1.2. Synthesis of 1-(4-phenyl-1*H*-1,2,3-triazol-1-yl)propan-2-one 3:

#### *1.2.1. Procedure for the reaction carried out with CuI catalyst:*

***Microwave conditions:***

The reaction was carried out in the *Biotage* microwave reactor in a 20 mL vial equipped with a magnetic stirrer. The reagents were added in the following order: CuI (16 mg, 0,08 mmol, 5 mol%), acetonitrile (ACN) (3 mL), DIPEA (6μL, 0.033 mmol, 4%), acetic acid (6μL, 0.033 mmol, 4%), phenylacetylene **2** (0.091 mL, 0.829 mmol, 1.0 eq), 1-azidopropan-2-one **1** (98 mg, 0.99 mmol, 1.2 eq) dissolved in 2 mL of ACN. The sealed-vial was placed in the reactor, with the following conditions: 10 min, 90 °C, pre-stirring 60 s, normal adsorption. When the reaction was complete, the reaction mixture was poured onto 100 mL of ice water, and after 2 h, the precipitate was filtered off. The desired product **3** was obtained as a beige solid. Results are shown in Table 1.

**$^1$H NMR (400 MHz, DMSO-*d6*):** 2.25 (s, 3H); 5.54 (s, 2H, CH); 7.34 (t, *J*=7 Hz, 1H, Har); 7.45 (t, *J*=7.7 Hz, 2H, Har); 7.85 (d, *J*=7.6 Hz, 2H, Har); 8.42 (s, 1H, Htrzl). The $^1$H NMR data are in agreement with that in the literature 3.[3]

***Batch conditions:***

Using the same procedure described above, but reaction was carried out in a round bottom flask, using the conditions described in the Table 1.

#### *1.2.2. Procedure for the reaction carried out with $CuSO_4.5H_2O$ catalyst:*

The reaction was carried out in the *Biotage* microwave reactor in a 3 mL vial equipped with a magnetic stirrer. To the vial was added $CuSO_4.5H_2O$ (21 mg, 0.083 mmol, 5 mol%), L-ascorbic acid (29 mg, 0.166 mmol, 20 mol%), 3 mL of DMF, 1-azidopropan-2-one **1** (98 mg, 0.99 mmol, 1.2 eq) and phenylacetylene **2** (0.091 mL, 0.829 mmol, 1.0 eq). The sealed-vial was placed in the reactor, with the following conditions: 25min, 90°C, pre-stirring 60s, normal adsorption. When the reaction was complete, the reaction mixture was poured onto 100 mL of ice water, and after 2h, the precipitate product **3** was filtered off and dried under vacuum.

### 1.3. General procedure for synthesis of hybrids A1-5 by Biginelli reaction:

***Microwave conditions:***

The reaction was carried out in the *Biotage* microwave reactor in a 20 mL vial equipped with a magnetic stirrer. The reagents were added in the following order: CuI (16 mg, 8.29 mmol, 10 mol%), acetonitrile (ACN) (3 mL), 1-(4-phenyl-1*H*-1,2,3-triazol-1-yl)propan-2-one **3** (500 mg, 5 mmol, 1 eq) dissolved in 2 mL of ACN. The benzaldehyde derivative **4a-e** (5 mmol, 1eq) and the urea **5** (363 mg, 6 mmol, 1.2 eq) were added immediately. The sealed-vial was placed in the reactor, with the following conditions: 24 h, 90 °C, pre-stirring 60s, normal adsorption. When the reaction was complete, the reaction mixture was poured onto 100 mL of ice water, and after 2 h, the precipitate product was filtered off. Results are in the Table 1.

***Batch conditions:***

Using the same procedure described above, but reaction was carried out in a round bottom flask using the conditions described in Table 1.

### 1.4. General procedure for one-pot syntheses of hybrids A1-5:

***Microwave conditions:***

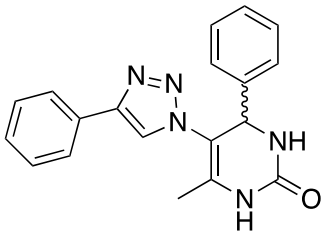
The reaction was carried out in the *Biotage* microwave reactor in a 20 mL vial equipped with a magnetic stirrer. The reagents were added in the following order: CuI (45 mg, 0.24 mmol, 5 mol%), acetonitrile (ACN) (3 mL) , DIPEA (34μL, 0.2 mmol, 4%), acetic acid (11μL, 0.2 mmol, 4%), phenylacetylene **2** (0.55 mL, 5

mmol, 1 eq), 1-azidopropan-2-one **1** (500 mg, 5 mmol, 1 eq) dissolved in 2 mL of ACN. The benzaldehyde derivative **4a-e** (5 mmol, 1eq) and the urea **5** (363 mg, 6 mmol, 1.2 eq) were added immediately. The sealed-vial was placed in the reactor, with the following conditions: 24 h, 90 °C, pre-stirring 60 s, normal adsorption. When the reaction was complete, the reaction mixture was poured onto 100 mL of ice water, and after 2 h, the precipitate product was filtered off. Purification was achieved through crystallization or column chromatography.

***Batch conditions:***

Using the same procedure described above, but reaction was carried out in a round bottom flask using the conditions described in Table 2.

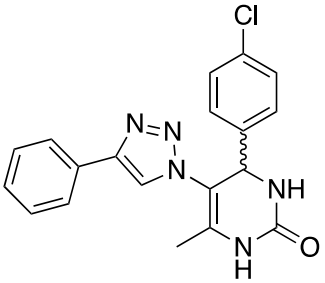
**6-Methyl-4-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one A1:**



Compound **A1** was obtained as a beige solid (949 mg, yield: 57 %).

**$^{1}$H NMR (400 MHz, DMSO-*d6*):** 1.69 (s, 3H); 5.36 (s, 1H, CH); 7.15 (d, *J*=7 Hz, 2H, Har); 7.24-7.34 (m, 4H, Har); 7.42 (t, *J*=8 Hz, 2H, Har); 7.69 (s, 1H, CHtrzl); 7.767 (d, *J*=7.2 Hz, 2H, Har); 8.46 (s, 1H, NH); 8.89 (S, 1H, NH) ppm. **$^{13}$C-APT-NMR (100 MHz, DMSO-*d6*):** 14.6; 58.7; 108.0; 123.9; 125.6; 127.1; 128.4; 128.4; 129.0; 129.4; 130.8; 133.3; 142.6; 146.2 e 152.4ppm. **HRMS (ESI-TOF):** calcd. for $C_{19}H_{17}N_5ONa$ $[M+Na]^+$ 354.1325; found 354.1335.

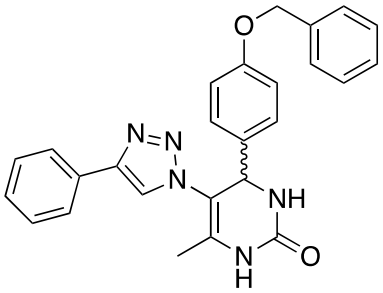
**4-(4-Chlorophenyl)-6-methyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one A2:**



Following the general procedure described above, 4-chlorobenzaldehyde (710 mg) was used as substrate. Compound **A2** was precipitated with $CHCl_3$ and (1:1) AcOEt:n-hexane, and was obtained as a white solid (701 mg, yield: 39%). **$^{1}$H NMR (400 MHz, DMSO-*d6*):** 1.68 (s, 3H); 5.38 (s, 1H, CH); 7.16 (d, *J*=8Hz, 2H, Har); 7.34-7.43 (m, 5H, Har);

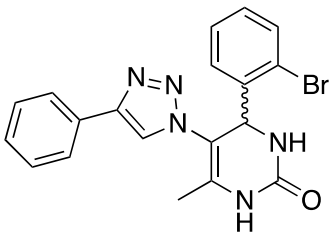
7.74 – 7.78 (mbroad, 3H, 2Har and CHtrzl); 8.52 (s, 1H, NH); 8.96 (s, 1H, NH) ppm. **$^{13}$C APT-NMR (100 MHz, DMSO-*d6*):** 14.16; 57.54; 107.12; 123.42; 125.12; 128.02; 128.52; 128.58; 128.92; 130.21; 132.46; 133.21; 141.14; 145.88; 151.82 ppm. **MS (ESI):** $m/z$ = 366.12 $[M + H]^+$.

**4-(4-(Benzyloxy)phenyl)-6-methyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one A3:**



Following the general synthetic procedure described above for compound **A3,** 4-(benzyloxy)benzaldehyde (1.07 g) was used as substrate. Compound **A3** precipitated in water and was filtered, furnishing a beige solid (906 mg, yield: 41%). **$^{1}$H NMR (400 MHz, DMSO-*d6*):** 1.69(s, 3H, $CH_3$); 5.03 (s, 2H, $CH_2$); 5.31 (s, 1H, CH); 6.92(d, *J*=8 Hz, 2H, Har); 7.08 (d, *J*=8 Hz, 2H, Har); 7.30 - 7.44 (m, 8H, Har); 7.63 (s, 1H, Htrzl); 7.77 (d, *J*=7,5 Hz, 2H, Har); 8.48 (s, 1H, NH); 8.87 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C-APT-NMR (100 MHz, DMSO-*d6*):** 14.2; 57.6; 69.2; 107.8; 114.7; 123.4; 125.1; 127.7; 127.8; 127.9; 128.0; 128.4; 128.9; 130.4; 132.5; 134.5; 137.0; 145.7; 151.9; 158.0 ppm. **MS (ESI):** $m/z$ = 460.15 $[M + Na]^+$.

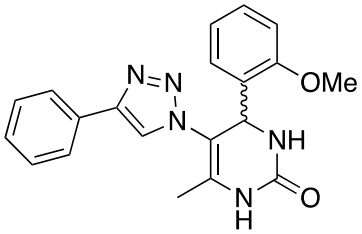
**4-(2-Bromophenyl)-6-methyl-5-(4-phenyl-1*H*-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2(1*H*)-one A4:**



For this synthesis of compound **A4**, 2-bromobenzadehyde (0.589 mL) was used as substrate. Compound **A4** was purified by column chromatography with $SiO_2$ gel using (1:1); (2:1) AcOEt:n-Hexane; AcOEt as an eluent, furnishing a beige solid (930 mg, yield: 45%). **$^{1}$H NMR (400 MHz, DMSO-*d6*):** 1.63(s, 3H, $CH_3$); 5.75 (s, 1H, CH); 7.20 (t, *J*=7.6 Hz, 1H, Har); 7.33 (t, *J*=7.4 Hz, 1H, Har); 7.40 - 7.47 (m, 4H, Har); 7.56 (d, *J*=7.7 Hz, 1H, Har); 7.75 (s, 2H, Har); 7.77 (s, 1H, Htrzl); 8.40 (s, 1H, NH); 9.03 (S, 1H, NH) ppm. **$^{13}$C-APT-NMR (100 MHz, DMSO-*d6*):** 13.97; 57.68; 106.46; 121.76; 123.68; 125.10; 127.95; 128.58; 128.90; 129.82; 129.98; 130.40; 132.56;

134.13; 141.03; 145.82; 151.73 ppm. **MS (ESI):** *m/z* = 410.05 [M($^{79}$Br) + H]$^+$; 412.07 [M($^{81}$Br)+H]$^+$.

**4-(2-Methoxyphenyl)-6-methyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one A5:**

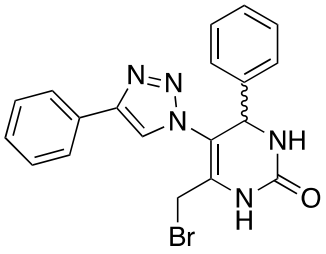



For the synthesis of compound **A5** 2-methoxybenzaldehyde (687 mg) was used as substrate. Compound **A5** was precipitated in ice water and filtered furnishing a brown solid (967 g, yield: 53 %). **$^1$H NMR (400 MHz, DMSO-*d6*):** 1.64(s, 3H, $CH_3$); 3.45 (s, 3H, OMe); 5.63 (s, 1H, CH); 6.85 (d, *J*=8 Hz, 1H, Har); 6.95 (t, *J*=7 Hz, 1H, Har); 7.20 – 7.22 (m, 1H, Har); 7.24 - 7.31 (m, 2H, Har); 7.44 (t, *J*=8 Hz, 3H, Har); 7.77 (s, 1H, Har); 7.79 (s, 1H, Htrzl); 8.41 (s, 1H, NH); 8.84 (d, *J* = 2Hz, 1H, NH) ppm. **$^{13}$C-APT-NMR (100 MHz, DMSO-*d6*):** 13.96; 52.23; 55.17; 107.03; 110.93; 120.54; 123.51; 125.02; 127.39; 127.81; 128.85; 129.09; 129.85; 130.48; 133.11; 145.59; 152.62; 156.21 ppm. **MS (ESI):** *m/z* = 360.22 [M-H]$^-$.

***1.5. General procedure for synthesis of* brominated intermediates 7a-e *intermediates 7a – 7e:***

To a 50 mL round flask with a magnetic stirring bar, hybrids **A1-5** (1eq), 15 mL of $CH_2Cl_2$ and $TBABr_3$ (1.5 eq) were added. The mixture was stirred for 2h. For the work up, a small amount of $Na_2SO_3$ was added to the reaction mixture and it was extracted with a solution of sat. aqueous $NaHCO_3$. The organic layer was dried with $MgSO_4$, filtered and concentrated under vacuum. The mixture was purified by column chromatography and characterized.

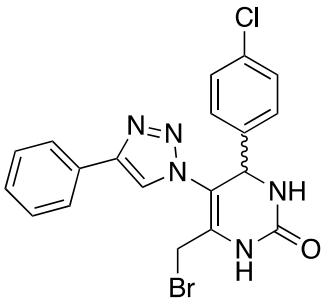
***6-(Bromomethyl)-4-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 7a:***




Following the general procedure described above, the precursor **A1** (200 mg, 0.6 mmol) and $TBABr_3$ (200

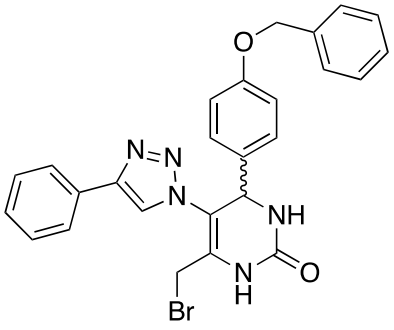
mg, 0.6 mmol) were used as the main reagents. The crude product was purified by column chromatography with $SiO_2$ gel using (2:1) AcOEt:n-hexane as an eluent, giving the *title compound* **7a** as a white solid (121 mg, yield: 49 %).
**$^1$H NMR (400 MHz, DMSO-*d6*):** 3.91 and 4.02 (2d, *J*=11 Hz, 2H, $BrCH_2$); 5.40 (d, *J*=2 Hz, 1H, CH-DHPM); 7.17 (d, *J*=7 Hz, 2H, Har); 7.25 – 7.35 (m, 4H, Har); 7.44 (d, *J*=7.5 Hz, 2H, Har); 7.78 (d, *J*=7 Hz, 2H, Har); 7.86 (s, 1H, Htrzl); 8.61 (s, 1H, NH); 9.16 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 24.54; 58.02; 110.11; 122.81; 125.20; 126.63; 128.20; 128.23; 128.72; 128.98; 130.04; 132.83; 141.31; 146.14; 151.82 ppm. **HRMS (ESI-TOF):** calcd. for $C_{19}H_{16}BrN_5O$ $[M+H]^+$ 410.0610; found 410.0619.

***6-(Bromomethyl)-4-(4-chlorophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 7b:***




Following the general procedure described above, the precursor **A2** (221 mg, 0.6 mmol) was used along with $TBABr_3$ (291 mg, 0.6 mmol) and $CH_2Cl_2$ 15 mL. The crude product was purified by column chromatography with $SiO_2$ gel using (2:1) AcOEt:n-hexane as eluent, giving the *title compound* **7b** as a white solid (145 mg, yield: 54 %). **$^1$H NMR (400 MHz, DMSO-*d6*):** 3.89 and 3.99 (2 d, *J*=11 Hz, 2H, $CH_2$); 5.42 (d, *J*=2 Hz, 1H, CH-DHPM); 7.18 (d, *J*=8 Hz, 2H, Har); 7.32 – 7.39 (m, 3H, Har); 7.44 (t, *J*=7.5 Hz, 2H, Har); 7.80 (d, *J*=7 Hz, 2H, Har); 7.89 (s, 1H, Htrzl); 8.65 (s, 1H, NH); 9.21 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 24.39; 57.35; 109.63; 122.90; 125.24; 128.23; 128.55; 128.76; 128.99; 130.02; 132.79; 133.25, 140.30; 146.24; 151.69 ppm. MS (ESI): *m*/*z* = 444.00 $[M(^{79}Br) + H]^+$; 446.02 $[M(^{81}Br)+H]^+$.

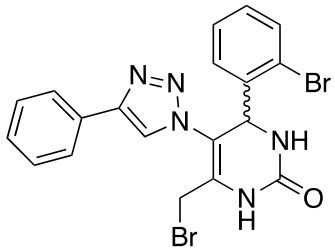
***4-(4-(Benzyloxy)phenyl)-6-(bromomethyl)-5-(4-phenyl-1H-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2(1H)-one 7c:***




Following the general procedure described above, the precursor **A3** (948 mg, 2.17 mmol) was used

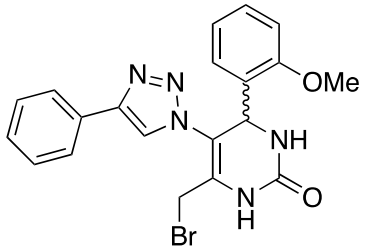
along with $TBABr_3$ (1.04 g, 2.17 mmol) and $CH_2Cl_2$ 50 mL. The crude product was purified by column chromatography with $SiO_2$ gel using (2:1) AcOEt:n-hexane as eluent, giving the *title compound* **7c** as a white solid (596 mg, yield: 53 %). **$^1$H NMR (400,13 MHz, DMSO-*d6*):** 3.91 and 4.02 (2 d, *J*=11 Hz, 2H, $CH_2$); 5.03 (s, 2H, $CH_2$); 5.34 (d, *J*=2 Hz, 1H, CH-DHPM); 6.94 (d, *J*=8 Hz, 2H, Har); 7.11 (d, *J*=8 Hz 2H, Har); 7.28-7.46 (m, 8H, Har); 7.79 (d, *J*=7 Hz, 2H, Har); 7.81 (s, 1H, Htrzl); 8.61 (s, 1H, NH); 9.11 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 24.64; 57.44; 69.18; 110.35; 114.89; 122.74; 125.21; 127.71; 127.84; 127.95; 128.19; 128.42; 128.98; 130.06; 132.56, 133.62; 136.91; 146.12; 151.76; 158.19 ppm. **MS (ESI):** *m/z* = 516.11 $[M(^{79}Br) + H]^+$; 518.09 $[M(^{81}Br)+H]^+$.

***6-(Bromomethyl)-4-(2-bromophenyl)-5-(4-phenyl-1H-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2(1H)-one 7d:***




Following the general procedure described above, the precursor **A4** (700 mg, 1.71 mmol) was used along with $TBABr_3$ (822 mg, 1.71 mmol) and $CH_2Cl_2$ 30 mL. The crude product was purified by column chromatography with $SiO_2$ gel using (2:1) AcOEt:n-hexane as eluent, giving the *title compound* **7d** as a white solid (236 mg, yield: 28 %). **$^1$H NMR (400 MHz, DMSO-*d6*):** 3.81 and 3.86 (2 d, *J*=11 Hz, 2H, $CH_2$); 5.76 (d, *J*=2 Hz, 1H, CH-DHPM); 7.21 (t, *J*=7 Hz, 1H, Har); 7.34 (t, *J*= 7 Hz 1H, Har); 7.41-7.47 (m, 4H, Har); 7.52 (d, *J*=8 Hz, 1H, Har); 7.77 (d, *J*=8 Hz, 1H, Har); 7.87 (s, 1H, Htrzl); 8.53 (s, 1H, NH); 9.28 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 24.03; 57.83; 108.93; 121.76; 123.34; 125.21; 128.17; 128.66; 128.99; 129.86; 130.11; 130.30; 132.76; 134.07, 140.19; 146.11; 151.54 ppm. **MS (ESI):** *m/z* = 487.97$[M\ (2x\ ^{79}Br) + H]^+$; 489.96 $[M(^{79}Br + ^{81}Br)+H]^+$; 491.97 $[M(2\ x\ ^{81}Br)+H]^+$.

***6-(Bromomethyl)-4-(2-methoxyphenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 7e:***

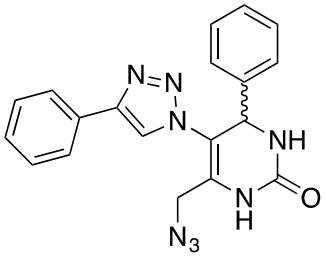



Following the general procedure described above, the precursor **A5** (1 g, 2.77 mmol) was used along with $TBABr_3$ (1.33 g, 2.77 mmol) and $CH_2Cl_2$ 50 mL. The crude product was purified by column chromatography with $SiO_2$ gel using (2:1) AcOEt:n-hexane as an eluent, giving the *title compound* **7e** as a white solid (512 mg, yield: 42 %). **$^1$H NMR (400 MHz, DMSO-*d6*):** 3.48 (s, 3H, OMe); 3.84 and 3.94 (2 d, *J*=11 Hz, 2H, $CH_2$); 5.62 (d, *J*=2 Hz, 1H, CH-DHPM); 6.88 (d, *J*=8 Hz, 1H, Har); 6.94 (t, *J*= 7 Hz 1H, Har); 7.22-7.27 (m, 2H, Har); 7.32 – 7.37 (m, 1H, Har); 7.44 (t, *J*=8 Hz, 2H, Har); 7.57 (sbroad, 1H, Htrzl); 7.79 – 7.81 (m, 2H, Har); 8.54 (s, 1H, NH); 9.08 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-d6):** 24.42; 52.91; 55.26; 109.70; 111.09; 120.59; 123.13; 125.15; 127.61; 128.08; 128.93; 128.98; 129.50; 130.22; 133.04; 145.94; 152.46; 156.38 ppm. **MS (ESI):** $m/z$ = 462.03 $[M(^{79}Br)+Na]^+$; 464.12$[M(^{81}Br)+Na]^+$.

***1.6. General procedure for synthesis of azide intermediates 8a – 8e:***

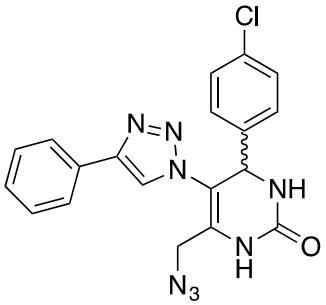
The reaction was carried out in a Biotage microwave reactor in a 5 mL vial equipped with a magnetic stirrer. Added to the vial were the 1,2,3-trzl-DHPM-Br (**7a – 7e**), DMF (3 mL) and $NaN_3$ (1.5 eq). The sealed-vial was placed in the reactor, under the following conditions: 30 min, 60°C, pre-stirring 60s, normal adsorption. When the reaction was complete, $H_2O$ (5 mL) was added to the reaction mixture and it was extracted with AcOEt. The organic layer was dried with MgSO4, filtered and concentrated under vacuum. The crude product was purified by column chromatography and characterized.

***6-(Azidomethyl)-4-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 8a:***



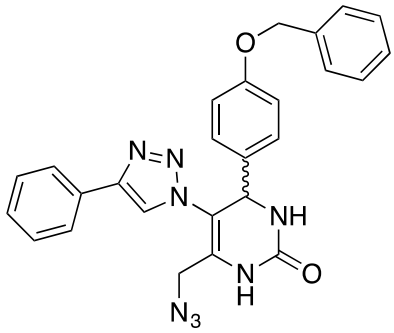
Following the general procedure described above, the precursor **7a** (168 mg, 0.41 mmol) and $NaN_3$ (40 mg, 0.62 mmol) were used as the principle reagents. The crude product was purified by colunm chromatography with $SiO_2$ gel using (2:1) AcOEt:n-hexane as an eluent, giving the *title compound* **8a** as a white solid (135 mg, yield: 88 %). **$^1$H NMR (400 MHz, DMSO-*d6*):** 3.82 and 3.91 (2 d, *J*=14 Hz, 2H, $CH_2$); 5.47 (d, *J*=2 Hz, 1H, CH-DHPM); 7.9 (d, *J*=7 Hz, 2H, Har); 7.25 – 7.37 (m, 4H, Har); 7.43 (t, *J*=7.6 Hz, 2H, Har); 7.79 (d, *J*=9 Hz, 2H, Har); 7.88 (sbroad, 1H, Htrzl); 8.63 (s, 1H, NH); 9.24 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.52; 58.02; 110.61; 123.10; 125.18; 126.66; 128.16; 128.22; 128.68; 128.96; 130.12; 130.96; 141.41; 146.27; 151.79 ppm. **HRMS (ESI-TOF):** calcd. for $C_{19}H_{16}N_8ONa$ $[M+Na]^+$ 395.1339; found 395.1347.

***6-(Azidomethyl)-4-(4-chlorophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 8b:***



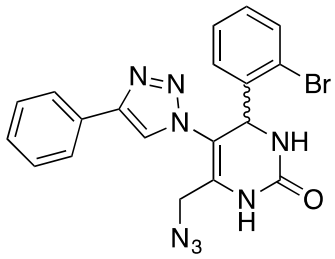
Following the general procedure described above, the precursor **7b** (300 mg, 0.67 mmol) and $NaN_3$ (65 mg, 1.01 mmol) were used as the principle reagents. The crude product was purified by column chromatography with $SiO_2$ gel using (2:1) AcOEt:n-hexane as eluent, giving the *title compound* **8b** as a white solid (203 mg, yield: 74 %). **$^1$H NMR (400 MHz, DMSO-*d6*):** 3.80 and 3.88 (2 d, *J*=14Hz, 2H, $CH_2$); 5.48 (d, *J*=2 Hz, 1H, CH-DHPM); 7.19 (d, *J*=8 Hz, 2H, Har); 7.32 – 7.40 (m, 3H, Har); 7.44 (t, *J*=7,6 Hz, 2H, Har); 7.80 (d, *J*=7 Hz, 2H, Har); 7.89 (s, 1H, Htrzl); 8.65 (s, 1H, NH); 9.21 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.48; 57.33; 110.14; 123.18; 125.22; 128.20; 128.55; 128.71; 128.97; 130.09; 131.37; 132.76, 140.42; 146.36; 151.65 ppm. **MS (ESI):** $m/z$ = 407.13 $[M+H]^+$.

***6-(Azidomethyl)-4-(4-(benzyloxy)phenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 8c:***



Following the general procedure described above, the precursor **7c** (595 mg, 1.15 mmol) and $NaN_3$ (112 mg, 1.73 mmol) were used as the principle reagents. The crude product was purified by column chromatography with $SiO_2$ gel using (2:1) AcOEt:n-hexane as an eluent, giving the *title compound* **8c** as a white solid (294 mg, yield: 53 %). **$^1$H NMR (400 MHz, DMSO-*d6*):** 3.82 and 3.90 (2 d, *J*=14 Hz, 2H, $CH_2$); 5.03 (s, 2H, $CH_2$); 5.41 (d, *J*=2 Hz, 1H, CH-DHPM); 6.93 (d, *J*=8 Hz, 2H, Har); 7.12 (d, *J*=8 Hz 2H, Har); 7.32-7.46 (m, 8H, Har); 7.77- 7.80(m, 3H, Har and Htrzl); 8.60 (s, 1H, NH); 9.16 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.55; 57.43; 69.18; 110.84; 114.84; 123.02; 125.19; 127.71; 127.84; 127.97; 128.15; 128.41; 128.96; 130.14; 130.69; 133.69, 136.92; 146.25; 151.72; 158.18 ppm. **MS (ESI): *m*/*z*** = 479.20 $[M+H]^+$.

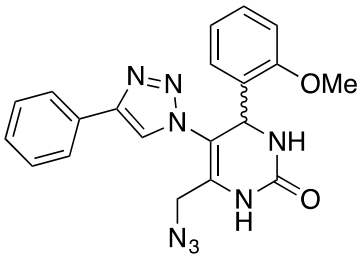
***6-(Azidomethyl)-4-(2-bromophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 8d:***



Following the general procedure described above, the precursor **7d** (200 mg, 0.41 mmol) and $NaN_3$ (40 mg, 0.61 mmol) were used as the principle reagents. The crude product was purified by colunm chromatography with $SiO_2$ gel using (2:1) AcOEt:n-hexane as an eluent, giving the *title compound* **8d** as a white slightly yellow solid (160 mg, yield: 87 %). **$^1$H NMR (400 MHz, MeOD):** 3.76 and 3.80 (2 d, *J*= 14 Hz, 2H, $CH_2$); 4.60 (sbroad, 2H, NH); 6.01 (s, 1H, CH-DHPM); 7.18 (t, *J*=8 Hz, 1H, Har); 7.32 (d, *J*=7 Hz, 1H, Har); 7.36-7.41 (m, 4H, Har); 7.46 (t, *J*=8 Hz 1H, Har); 7.59 (d, *J*=8 Hz, 1H, Har); 7.69 (d, *J*=7 Hz, 2H, Har); 8.04 (s, 1H, Htrzl) ppm. **$^{13}$C APT NMR (100 MHz, MeOD):** 47.75; 59.68; 111.26; 123.56; 124.67; 126.71; 129.60;

129.71; 129.99; 131.11; 131.26; 131.55; 134.14, 134.30; 140.91; 148.97; 154.44 ppm. **MS (ESI):** $m/z$ = 451.04 $[M(^{79}Br)]^+$; 453.04 $[M(^{81}Br)]^+$.

***6-(azidomethyl)-4-(2-methoxyphenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 8e:***

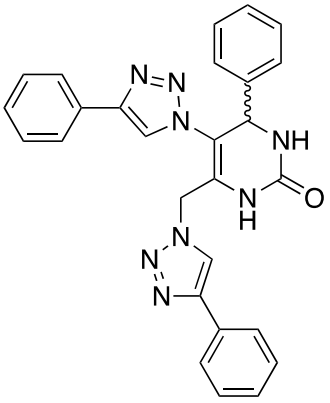



Following the general procedure described above, the precursor **7e** (500 mg, 1.14 mmol) and $NaN_3$ (111 mg, 1.7 mmol) were used as the principle reagents. The crude product was purified by column chromatography with $SiO_2$ gel using (2:1) AcOEt:n-hexane as eluent, giving the *title compound* **8e** as a white slightly yellow solid (426 mg, yield: 93 %). **$^1$H NMR (400 MHz, DMSO-*d6*):** 3.49 (s, 3H, OMe); 3.74 and 3.83 (2 d, *J*=14 Hz, 2H, $CH_2$); 5.68 (d, *J*=2 Hz, 1H, CH-DHPM); 6.88 (d, *J*=8 Hz, 1H, Har); 6.93 (t, *J*= 7 Hz 1H, Har); 7.29 – 7.21 (m, 2H, Har); 7.33 (t, *J*=7 Hz, 1H, Har); 7.43 (t, *J*=8 Hz, 2H, Har); 7.56 (s, 1H, Htrzl); 7.79 (d, *J*=7 Hz, 2H, Har); 8.53 (s, 1H, NH); 9.12 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100,13 MHz, DMSO-d6):** 46.38; 52.80; 55.35; 110,09; 111.09; 120.59; 123.44; 125.13; 127.67; 128.04; 128.96; 129.11; 129.48; 130.29; 131.29; 146.08; 152.45; 156.41 ppm. **MS (ESI):** $m/z$ = 403.20 $[M+H]^+$.

***1.7. General procedure for synthesis of Hybrids B1 – 16:***

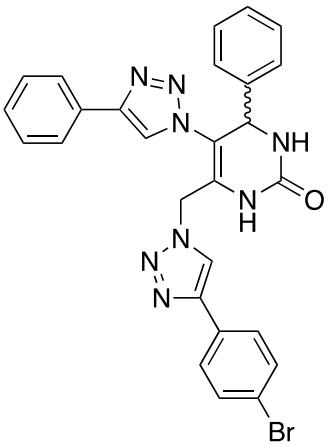
The reaction was carried out in a Biotage microwave reactor in a 3 mL vial equipped with a magnetic stirring bar. To the vial, $CuSO_4.5H_2O$ (5 mol%), L-ascorbic acid (20 mol%), 3 mL of DMF, 1,2,3-trzl-DHPM-$N_3$ (**8a – 8e**) (1eq) and alkyne **2**, **9**, **10** or **11** (1eq) were added. The sealed vial was placed in the reactor, with the following conditions: 10 min, 90°C, pre-stirring 60s, normal adsorption. When the reaction was complete, AcOEt (5mL) and $H_2O$ (5 mL) were added to the reaction mixture and this was extracted with AcOEt. The organic phase was collected and dried with $MgSO_4$, filtered and concentrated under vacuum. The crude product was purified by column chromatography or recrystalization.

***4-Phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-6-((4-phenyl-1,2,3-triazol-1-yl)methyl)-3,4-dihydropyrimidin-2-one B1:***



Following the general procedure described above, the precursor **8a** (150 mg, 0.4 mmol), $CuSO_4.5H_2O$ (5 mg, 0.02 mmol), L-ascorbic acid (14 mg, 0.08 mmol) and phenylacetylene **2** (44 uL, 0.4 mmol) were added to a vial and allowed to react. The crude product was purified by recrystalization with AcOEt and MeOH giving the *title compound* **B1** as a beige solid (179 mg, yield: 94 %). Overall yield for 3 steps reactions was 41%. **$^1$H NMR (400 MHz, DMSO-*d6*):** 5.01 and 5.14 (2 d, *J*=15 Hz, 2H, $CH_2$); 5.49 (d, *J*=2 Hz, 1H, CH-DHPM); 7.21 – 7.35 (m, 7H, Har); 7.40 – 7.45 (m, 4H, Har); 7.75 (d, *J*=7.6 Hz, 2H, Har); 7.80 (d, *J*=8 Hz, 2H, Har); 7.90 (s, 1H, Htrzl); 8.43 (s, 1H, Htrzl); 8.62 (s, 1H, NH); 9.22 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.30; 58.19; 111.36; 121.97; 123.18; 125.19; 126.74; 128.01; 128.16; 128.26; 128.70; 128.96; 130.06; 130.09; 130.44; 141.31; 146.06; 146.24; 151.65 ppm. **HRMS (ESI-TOF):** calcd. for $C_{27}H_{22}N_8ONa$ $[M+Na]^+$ 497.1809; found 497.1820.

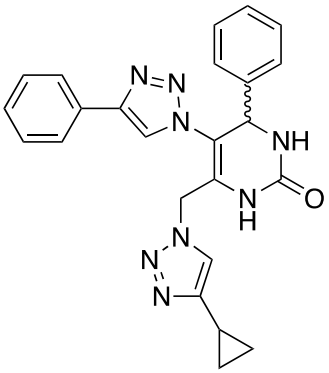
***6-((4-(4-Bromophenyl)-1,2,3-triazol-1-yl)methyl)-4-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B2:***



Following the general procedure described above, precursor **8a** (50 mg, 0.13 mmol), $CuSO_4.5H_2O$ (1.7 mg, 6,7 x $10^{-3}$ mmol), L-ascorbic acid (4.7 mg, 2.68 x $10^{-2}$ mmol) and 4-bromophenylacetylene **9** (24 mg, 0.13 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B2** as a white solid (70 mg, yield: 99 %). Overall yield for 3 steps reactions was 43%. **$^1$H NMR (400 MHz, DMSO-*d6*):** 5.02 and 5.14 (2 d, *J*= 15 Hz, 2H, $CH_2$); 5.48 (s, 1H, CH-DHPM); 7.22 – 7.42 (m, 8H, Har); 7.63 – 7.78 (m, 6H, Har); 7.90 (s, 1H, Htrzl); 8.48 (s, 1H, Htrzl); 8.60 (s, 1H, NH); 9.22 (s, 1H, NH) ppm. **$^{13}$C APT NMR**

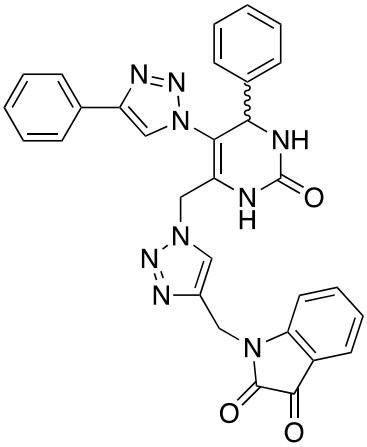
**(100 MHz, DMSO-*d6*):** 46.40; 58.19; 111.38; 120.97; 122.36; 123.14; 125.17; 126.75; 127.18; 128.14; 128.27; 128.70; 128.94; 129.70; 129.98; 130.07; 131.91; 141.30; 145.01; 146.23; 151.63 ppm. **MS (ESI):** *m*/*z* = 553.10 $[M(^{79}Br)+H]^+$; 555.12 $[M(^{81}Br)+H]^+$

**6-((4-Cyclopropyl-1*H*-1,2,3-triazol-1-yl)methyl)-4-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B3:**



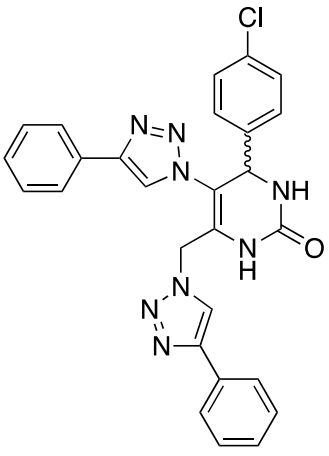
Following the general procedure described above, the precursor **4a** (50 mg, 0.13 mmol), $CuSO_4.5H_2O$ (1.7 mg, 6.7 x $10^{-3}$ mmol), L-ascorbic acid (4.7 mg, 2.68 x $10^{-2}$ mmol) and cyclopropylacetylene **10** (11 uL, 0.13 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B3** as a white solid (56 mg, yield: 95 %). Overall yield for 3 steps reactions was 41%. **$^1$H NMR (400 MHz, DMSO-*d6*):** 0.65 – 0.67 (m, 2H, $CH_2$); 0.85 – 0.87 (m, 2H, $CH_2$); 1.88 – 1.95 (m, 1H, CH); 4.86 and 5.01 (2 d, *J*=15 Hz, 2H, $CH_2$); 5.44 (s, 1H, CH-DHPM); 7.18 (d, *J*=7 Hz, 2H, Har); 7.27 – 7.33 (m, 4H, Har); 7.44 (t, *J*=8 Hz, 2H, Har); 7.72 – 7.76 (m, 3H, Har and Htrzl); 7.87 (s, 1H, Htrzl); 8.56 (s, 1H, NH); 9.14 (s, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 6.43, 7.61, 7.63, 45.97; 58.15; 111.09; 121.34; 123.15; 125.16; 126.68; 128.25; 128.69; 128.70; 128.97; 130.10; 130.29; 141.31; 146.18; 148.66; 151.63 ppm. **MS (ESI):** *m*/*z* = 439.22 $[M+H]^+$.

***1-((1-((2-Oxo-6-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-1,2,3,6-tetrahydropyrimidin-4-yl)methyl)-1,2,3-triazol-4-yl)methyl)indoline-2,3-dione B4:***



Following the general procedure described above, the precursor **4a** (50 mg, 0.13 mmol), $CuSO_4.5H_2O$ (1.7 mg, 6.7 x $10^{-3}$ mmol), L-ascorbic acid (4.7 mg, 2.68 x $10^{-2}$ mmol) and 1-(prop-2-yn-1-yl)isatine **11** (0.025 g, 0.134 mmol) were added to a vial. The crude product was purified by column chromatography with $SiO_2$ flash using AcOEt as eluent, giving the *title compound* **B4** as an orange solid (72 mg, yield: 97 %). Overall yield for 3 steps reactions was 42%. **$^1$H NMR (400 MHz, DMSO-*d6*):** 4.90 and 5.04 (2 d, *J*=15 Hz, 2H, $CH_2$); 4.95 (s, 2H, $CH_2$); 5.44 (s, 1H, CH-DHPM); 7.11 (t, *J*=7 Hz, 1H, Har); 7.17 (t, *J*=8 Hz, 3H, Har); 7.25 – 7.34 (m, 4H, Har); 7.42 (t, *J*=8 Hz, 2H, Har); 7.55 – 7.62 (m, 2H, Har); 7.72 (d, *J*=8 Hz, 2H, Har); 7.87 (s, 1H, Htrzl); 8.13 (s, 1H, Htrzl); 8.53 (s, 1H, NH); 9.17 (s, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 34.92; 46.18; 58.13; 111.21; 111.33; 117.56; 123.10; 123.42; 124.36; 124.51; 125.16; 126.71; 128.18; 128.27; 128.71, 128.99; 130.00; 130.07; 138.11; 141.26; 141.31; 146.18; 150.19; 151.63; 157.83, 183.06 ppm. **MS (ESI):** *m*/*z* = 558.22 $[M+H]^+$.

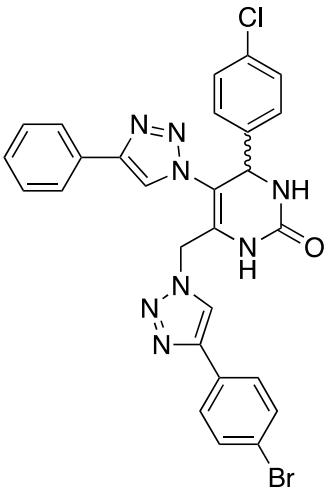
***4-(4-Chlorophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-6-((4-phenyl-1,2,3-triazol-1-yl)methyl)-3,4-dihydropyrimidin-2-one B5:***



Following the general procedure described above, the precursor **8b** (65 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9 x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and phenylacetylene (17 uL, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B5** as a white solid (75 mg, yield: 93%). Overall yield for 3 steps reactions was 37%. **$^1$H NMR**

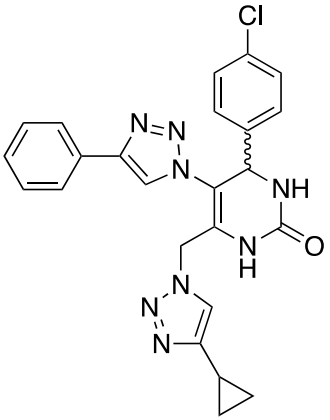
**(400 MHz, DMSO-*d6*):** 5.00 and 5.12 (2 d, *J*=15 Hz, 2H, $CH_2$); 5.51 (d, *J*=2 Hz, 1H, CH-DHPM); 7.24 (d, *J*=8 Hz, 2H, Har); 7.33 (t, *J*=7 Hz, 2H, Har); 7.38 – 7.46 (m, 6H, Har); 7.75 – 7.81 (m, 4H, Har); 7.92 (s, 1H, Htrzl); 8.42 (s, 1H, Htrzl); 8.65 (s, 1H, NH); 9.27 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.27; 57.50; 110.88; 121.95; 123.21; 125.19; 125.22; 127.99; 128.17; 128.66; 128.71; 128.94; 130.06; 130.42; 132.80; 140.29; 146.06; 146.32; 151.49 ppm. **MS (ESI):** *m*/*z* = 509.15 $[M+H]^+$.

***6-((4-(4-Bromophenyl)-1,2,3-triazol-1-yl)methyl)-4-(4-chlorophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B6:***



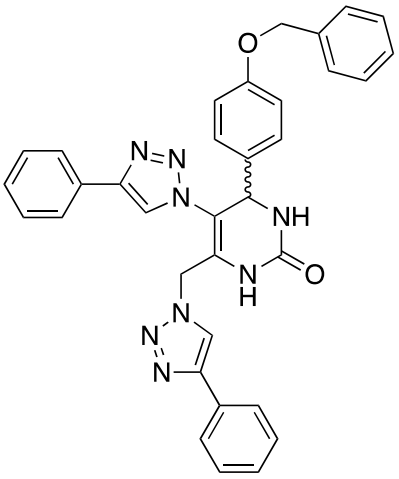

Following the general procedure described above, the precursor **8b** (65 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9 x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and 4-bromophenylacetylene **9** (28.7 mg, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B6** as a white solid (78 mg, yield: 84%). Overall yield for 3 steps reactions was 34%. **$^{1}$H NMR (400 MHz, DMSO-*d6*):** 5.01 and 5.12 (2 d, *J*= 15 Hz, 2H, $CH_2$); 5.51 (s, 1H, CH-DHPM); 7.24 (d, *J*=8 Hz, 2H, Har); 7.31 – 7.44 (m, 5H, Har); 7.63 (d, *J*=8 Hz, 2H, Har); 7.74 – 7.77 (m, 4H, H2r); 7.92 (s, 1H, Htrzl); 8.47 (s, 1H, Htrzl); 8.62 (s, 1H, NH); 9.27 (s, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.37; 57.50; 110.90; 120.95; 122.34; 123.17; 125.20; 127.17; 128.16; 128.68; 128.70; 128.93; 129.69; 130.04; 130.35; 131.89; 132.81; 140.27; 145.01; 146.32; 151.47 ppm. **MS (ESI):** *m*/*z* = 587.18$[M(^{79}Br)+H]^+$; 589.13$[M(^{81}Br)+H]^+$

***4-(4-Chlorophenyl)-6-((4-cyclopropyl-1,2,3-triazol-1-yl)methyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B7:***



Following the general procedure described above, the precursor **8b** (65 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9 x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and cyclopropylacetylene **10** (13uL, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B7** as a white solid (70 mg, yield: 93%). Overall yield for 3 steps reactions was 37%. **$^1$H NMR (400 MHz, DMSO-*d6*):** 0.65 – 0.66 (m, 2H, $CH_2$); 0.85 – 0.88 (m, 2H, $CH_2$); 1.89 – 1.93 (m, 1H, CH); 4.84 and 4.99 (2 d, *J*=15 Hz, 2H, $CH_2$); 5.47 (s, 1H, CH-DHPM); 7.20 (d, *J*=8 Hz, 2H, Har); 7.32 – 7.46 (m, 5H, Har); 7.71 – 7.77 (m, 3H, Har and Htrzl); 7.90 (s, 1H, Htrzl); 8.60 (s, 1H, NH); 9.20 (s, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 6.43, 7.60, 7.64, 45.94; 57.46; 110.62; 121.35; 123.20; 125.20; 128.19; 128.61; 128.71; 128.97; 130.08; 130.67; 132.79; 140.29; 146.27; 148.66; 151.49 ppm. **MS (ESI):** *m*/*z* = 473.18 $[M+H]^+$.

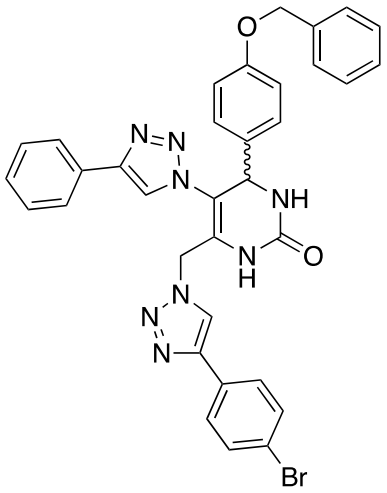
***4-(4-(Benzyloxy)phenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-6-((4-phenyl-1,2,3-triazol-1-yl)methyl)-3,4-dihydropyrimidin-2-one B8:***



Following the general procedure described above, the precursor **8c** (76 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9 x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and phenylacetylene **2** (17 uL, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B8** as a white solid (80 mg, yield: 87%). Overall yield for 3 steps reactions was 24%. **$^1$H NMR (400 MHz, DMSO-*d6*):** 5.04 (s, 2H, $CH_2$); 5.01 and 5.13 (2 d, *J*=15 Hz, 2H, $CH_2$); 5.42 (d, *J*=2 Hz, 1H, CH-DHPM); 6.94 (d, *J*=9 Hz, 2H, Har); 7.15

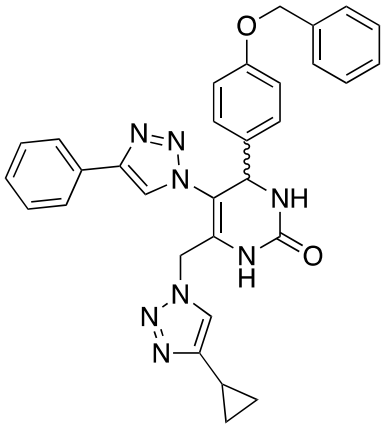
(d, *J*=9 Hz, 2H, Har); 7.30 – 7.38 (m, 5H, Har); 7.39 – 7.46 (m, 5H, Har); 7.75 (d, *J*=7 Hz, 2H, Har); 7.78 (s, 1H, Htrzl); 7.81 – 7.82 (m, 2H, Har); 8.42 (s, 1H, Htrzl); 8.61 (s, 1H, NH); 9.17 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.34; 57.61; 69.19; 111.59; 114.87; 121.97; 123.11; 125.20; 127.72; 127.85; 128.01; 128.07; 128.16; 128.42; 128.96; 129.80; 130.11; 130.45; 133.61; 136.92; 146.05; 146.22; 151.58; 158.22 ppm. **MS (ESI):** *m*/*z* = 581.29 $[M+H]^+$.

***4-(4-(Benzyloxy)phenyl)-6-((4-(4-bromophenyl)-1,2,3-triazol-1-yl)methyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B9:***



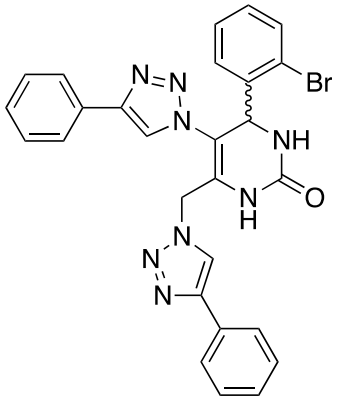
Following the general procedure described above, the precursor **8c** (76 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9 x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and 4-bromophenylacetylene **9** (28.7 mg, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B9** as a white solid (82 mg, yield: 78%). Overall yield for 3 steps reactions was 22%. **$^1$H NMR (400 MHz, DMSO-*d6*):** 5.04 (s, 2H, $CH_2$); 5.02 and 5.14 (2 d, *J*=15Hz, 2H, $CH_2$); 5.43 (d, *J*=2 Hz; 1H, CH-DHPM); 6.94 (d, *J*=8 Hz. 2H, Har); 7.16 (d, *J*=8 Hz, 2H, Har); 7.28 – 7.44 (m, 8H, Har); 7.63 (d, *J*=8 Hz, 2H, Har); 7.76 (t, *J*=8 Hz, 4H, H2r); 7.83 (s, 1H, Htrzl); 8.48 (s, 1H, Htrzl); 8.59 (s, 1H, NH); 9.18 (d, *J*=2 Hz; 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.43; 57.62; 69.19; 111.62; 114.86; 120.97; 122.35; 123.07; 125.19; 127.19; 127.72; 127.85; 128.09; 128.12; 128.15; 128.42; 128.96; 129.72; 130.10; 131.91; 133.61; 136.92; 145.02; 146.23; 151.58; 158.22 ppm. **MS (ESI):** *m*/*z* = 659.04 $[M(^{79}Br)+H]^+$; 661.04$[M(^{81}Br)+H]^+$

***4-(4-(Benzyloxy)phenyl)-6-((4-cyclopropyl-1,2,3-triazol-1-yl)methyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B10:***



Following the general procedure described above, the precursor **8c** (90 mg, 0.19 mmol), $CuSO_4.5H_2O$ (2.4 mg, 9.6 x $10^{-3}$ mmol), L-ascorbic acid (7 mg, 3.8 x $10^{-2}$ mmol) and cyclopropylacetylene **10** (16 uL, 0.19 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B10** as a white solid (91 mg, yield: 88%). Overall yield for 3 steps reactions was 25%. **$^1$H NMR (400 MHz, DMSO-*d6*):** 0.64 – 0.68 (m, 2H, $CH_2$); 0.84 – 0.89 (m, 2H, $CH_2$); 1.88 – 1.95 (m, 1H, CH); 4.85 and 5.01 (2 d, *J*=14 Hz, 2H, $CH_2$); 5.03 (s, 2H, $CH_2$); 5.39 (d, *J*=2 Hz; 1H, CH-DHPM); 6.93 (d, *J*=8 Hz, 2H, Har); 7.16 (d, *J*=8 Hz, 2H, Har); 7.28 – 7.46 (m, 8H, Har); 7.72 (s, 1H, Htrzl); 7.74 (d, *J*=8 Hz, 2H, Har); 7.79 (s, 1H, Htrzl); 8.56 (s, 1H, NH); 9.09 (d, *J*=2 Hz; 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 6.45, 7.64, 7.68, 46.01; 57.58; 69.20; 111.34; 114.87; 121.36; 123.10; 125.19; 127.73; 127.87; 128.03; 128.19; 128.44; 129.00; 130.06; 130.14; 133.62; 136.93; 146.19; 148.68; 151.49; 158.22 ppm. **MS (ESI):** *m/z* = 545.28 $[M+H]^+$.

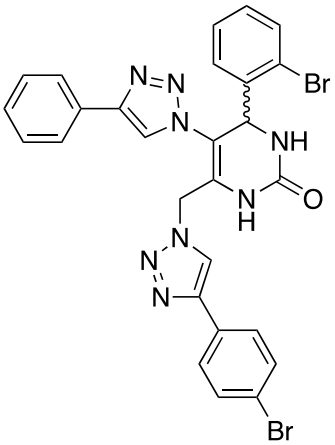
***4-(2-Bromophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-6-((4-phenyl-1,2,3-triazol-1-yl)methyl)-3,4-dihydropyrimidin-2-one B11:***



Following the general procedure described above, the precursor **8d** (72 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9 x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and phenylacetylene **2** (17 uL, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B11** as a slightly brown solid (61 mg, yield: 61%). Overall yield for 3 steps reactions was 15%. **$^1$H NMR (400,13 MHz, DMSO-*d6*):** 4.96 and 5.02 ( 2 d, *J*=15 Hz, 2H, $CH_2$); 5.88 (s,

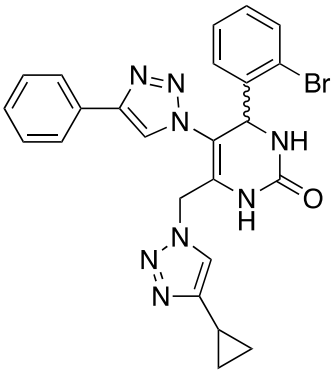
1H, CH-DHPM); 7.23 (t, *J*=8 Hz, 1H, Har); 7.31 – 7.37 (m, 2H, Har); 7.40 – 7,.9 (m, 6H, Har); 7.60 (d, *J*=8 Hz, 1H, Har); 7.74 (d, *J*=8 Hz, 2H, Har); 7.81 (d, *J*=8 Hz, 2H, Har); 7.94 (s, 1H, Htrzl); 8.45 (s, 1H, Htrzl); 8.53 (s, 1H, NH); 9.37 (s, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.18; 57.95; 110.18; 121.82; 121.89; 123.70; 125.20; 128.02; 128.13; 128.62; 128.97; 130.15; 130.33; 130.44; 131.30; 132.79; 140.11; 146.10; 146.20; 151.37 ppm. **MS (ESI):** *m*/*z* = 553.10 [M($^{79}$Br)+H]$^+$; 555.15 [M($^{81}$Br)+H]$^+$

***4-(2-Bromophenyl)-6-((4-(4-bromophenyl)-1,2,3-triazol-1-yl)methyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B12:***



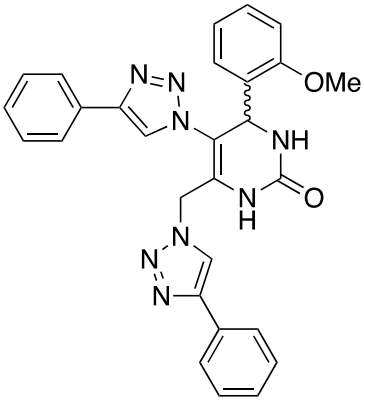

Following the general procedure described above, the precursor **8d** (72 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9 x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and 4-bromophenylacetylene **9** (28.7 mg, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B12** as a slightly brown solid (42 mg, yield: 48%). Overall yield for 3 steps reactions was 12%. **$^{1}$H NMR (400 MHz, DMSO-*d6*):** 4.96 and 5.01 (2 d, *J*=12 Hz, 2H, $CH_2$); 5.87 (s, 1H, CH-DHPM); 7.22 (d, *J*=8 Hz, 1H, Har); 7.32 (t, *J*=8 Hz, 1H, Har); 7.39 – 7.7 (m, 4H, Har); 7.59 – 7.77 (m, 7H, H2r); 7.93 (s, 1H, Htrzl); 8.49 (s, 2H, Htrzl and NH); 9.35 (s, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.28; 57.94; 110,19; 120.97; 121.82; 122.26; 123.65; 125.18; 127.17; 128.10; 128.61; 128.93; 129.69; 130.12; 130.33; 131.22; 131.91; 132.77; 140.10; 145.05; 146.19; 151.34 ppm. **MS (ESI):** *m*/*z* = 631.00 [M(2x$^{79}$Br)+H]$^+$; 632.97 [M($^{79}$Br +$^{81}$Br)+H]$^+$; 635.00 [M(2 x$^{81}$Br)+H]$^+$

***4-(2-Bromophenyl)-6-((4-cyclopropyl-1,2,3-triazol-1-yl)methyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B13:***



Following the general procedure described above, the precursor **8d** (72 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9 x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and cyclopropylacetylene **10** (13 uL, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B13** as a slightly brown solid (29 mg, yield: 35%). Overall yield for 3 steps reactions was 9%. **$^1$H NMR (400 MHz, DMSO-*d6*):** 0.65 (m, 2H, $CH_2$); 0.83 – 0.89 (m, 2H, $CH_2$), 1.88 – 1.95 (m, 1H, CH); 4.79 and 4.88 (2 d, *J*=15 Hz, 2H, $CH_2$); 5.82 (d, *J*=2 Hz, 1H, CH-DHPM); 7.19 – 7.24 (m, 1H, Har); 7.33 (t, *J*= 7 Hz, 1H, Har); 7.41 – 7.47 (m, 4H, Har); 7.54 (d, *J*=7,6 Hz, 1H, Har); 7.72 – 7.74 (m, 3H, Har and Htrzl); 7.79 (s, 1H, Htrzl); 8.46 (s, 1H, NH); 9.26 (d, *J*=2 Hz, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 6.42; 7.60; 7.62; 44.84; 57.89; 109.87; 113.86; 121.25; 121.77; 123.66; 125.16; 128.58; 128.95; 130.04; 130.16; 130.30; 131.50; 132.77; 140.09; 146.12; 148.70; 151.33 ppm. **MS (ESI):** *m/z* = 517.11$[M(^{79}Br)+H]^+$; 519.13 $[M(^{81}Br)+H]^+$.

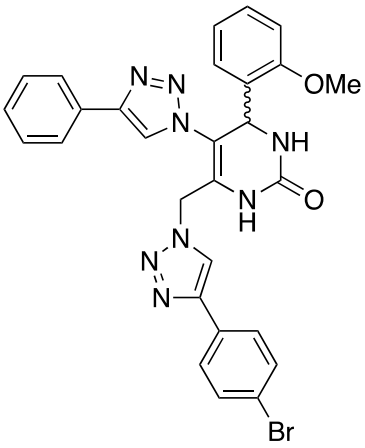
***4-(2-Methoxyphenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-6-((4-phenyl-1,2,3-triazol-1-yl)methyl)-3,4-dihydropyrimidin-2-one B14:***



Following the general procedure described above, the precursor **8e** (64 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9 x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and phenylacetylene **2** (17 uL, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B14** as a slightly brown solid (60 mg, yield: 75%). Overall yield for 3 steps reactions was 29%. **$^1$H NMR (400 MHz, DMSO-*d6*):** 3.47 (s, 3H, OMe); 4.95 and 5.05 (2 d, *J*=15 Hz, 2H,

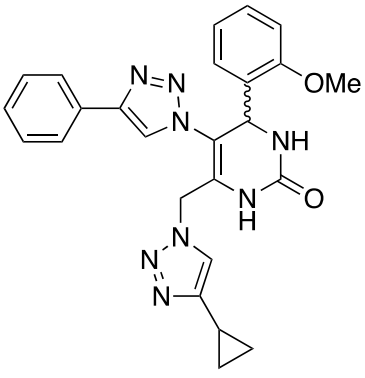
$CH_2$); 5.70 (d, *J*=2Hz, 1H, CH-DHPM); 6.88 – 6.96 (m, *2*H, Har); 7.23 – 7.36 (m, 4H, Har); 7.41 – 7.46 (m, 4H, Har); 7.62 (s, 1H, Htrzl); 7.76 – 7.81 (m, 4H, Har); 8.41 (s, 1H, Htrzl); 8.57 (s, 1H, NH); 9.15 (s, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.21; 53.24; 55.25; 110.84; 111.15; 120.59; 121.82; 121.82; 123.54; 125.17; 128.01; 128.07; 128.97; 129.58; 130.25; 130.44; 146.06; 152.30; 156.51 ppm. **MS (ESI):** *m*/*z* = 505.26 $[M+H]^+$;

***6-((4-(4-Bromophenyl)-1,2,3-triazol-1-yl)methyl)-4-(2-methoxyphenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B15:***




Following the general procedure described above, the precursor **8e** (64 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9 x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and 4-bromophenylacetylene **9** (28.7 mg, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B15** as a slightly brown solid (65 mg, yield: 70%). Overall yield for 3 steps reactions was 27%. **$^{1}$H NMR (400 MHz, DMSO-*d6*):** 3.46 (s, 3H, OMe); 4.95 and 5.05 (2 d, *J*=15 Hz, 2H, $CH_2$); 5.69 (d, *J*=2 Hz; 1H, CH-DHPM); 6.88 – 6.96 (m, 2H, Har); 7.23 – 7.34 (m, 3H, Har); 7.43 (t, *J*=8 Hz, 2H, Har); 7.63 – 7.65 (m, 3H, Har and Htrzl); 7.75 – 7.77 (m, 4H, Har); 8.46 (s, 1H, Htrzl); 8.54 (s, 1H, NH); 9.14 (s, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 46.31; 53.23; 55.26; 110.88; 111.16; 120.60; 120.98; 122.21; 123.50; 125.15; 127.17; 127.90; 128.06; 128.93; 128.97; 129.59; 129.71; 130.19; 130.26; 131.94; 145.02; 146.07; 152.29; 156.51 ppm. **MS (ESI):** *m*/*z* = 503.25 $[M-79Br]^-$.

***6-((4-Cyclopropyl-1,2,3-triazol-1-yl)methyl)-4-(2-methoxyphenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B16:***




Following the general procedure described above, the precursor **8e** (64 mg, 0.16 mmol), $CuSO_4.5H_2O$ (2 mg, 7.9x $10^{-3}$ mmol), L-ascorbic acid (5.6 mg, 3.18 x $10^{-2}$ mmol) and cyclopropylacetylene **10** (13

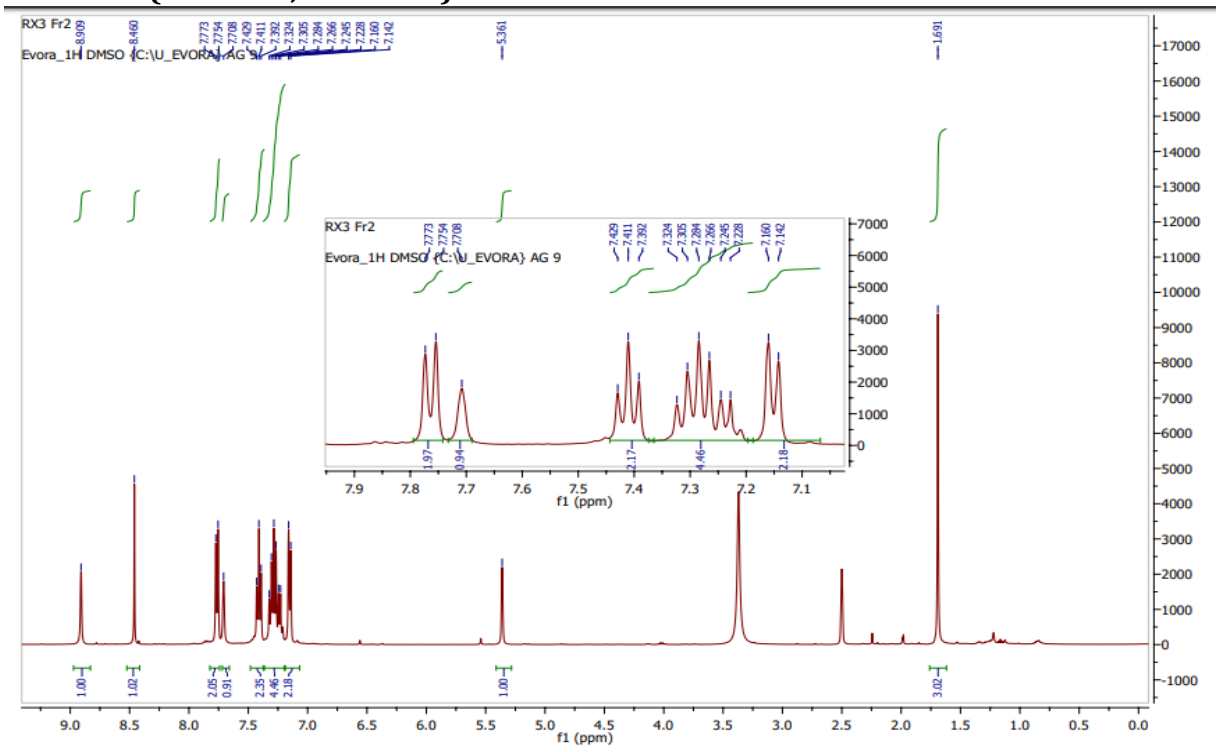
uL, 0.16 mmol) were added to a vial. The crude product was purified by crystalization with AcOEt and MeOH giving the *title compound* **B16** as a light brown solid (50 mg, yield: 67%). Overall yield for 3 steps reactions was 26%. **$^{1}$H NMR (400 MHz, DMSO-*d6*):** 0.65 – 0.67 (m, 2H, $CH_2$); 0.84 – 0.89 (m, 2H, $CH_2$); 1.90 – 1.94 (m, 1H, CH); 3.46 (s, 3H, OMe); 4.79 and 4.92 (2 d, *J*=15 Hz, 2H, $CH_2$); 5.66 (d, *J*=2 Hz; 1H, CH-DHPM); 6.88 – 6.94 (m, 2H, Har); 7.22 – 7.26 (m, 2H, Har); 7.33 (t, *J*=7Hz, 1H, Har); 7.44 (t, *J*=8Hz, 2H, Har); 7.59 (s, 1H, Htrzl); 7.72 (s, 1H, Htrzl); 7.77 (d, *J*=7Hz, 2H, Har); 8.51 (s, 1H, NH); 9.06 (s, 1H, NH) ppm. **$^{13}$C APT NMR (100 MHz, DMSO-*d6*):** 6.43, 7.59, 7.63, 45.89; 53.27; 55.22; 110.56; 111.14; 120.56; 121.25; 123.51; 125.13; 127.85; 128.07; 128.92; 128.98; 129.57; 130.28; 130.44; 146.00; 148.64; 152.28; 156.52 ppm. **MS (ESI):** *m/z* = 469.23 $[M+H]^+$.

## 2. $^{1}$H and $^{13}$C APT NMR spectra of the synthesized compounds:

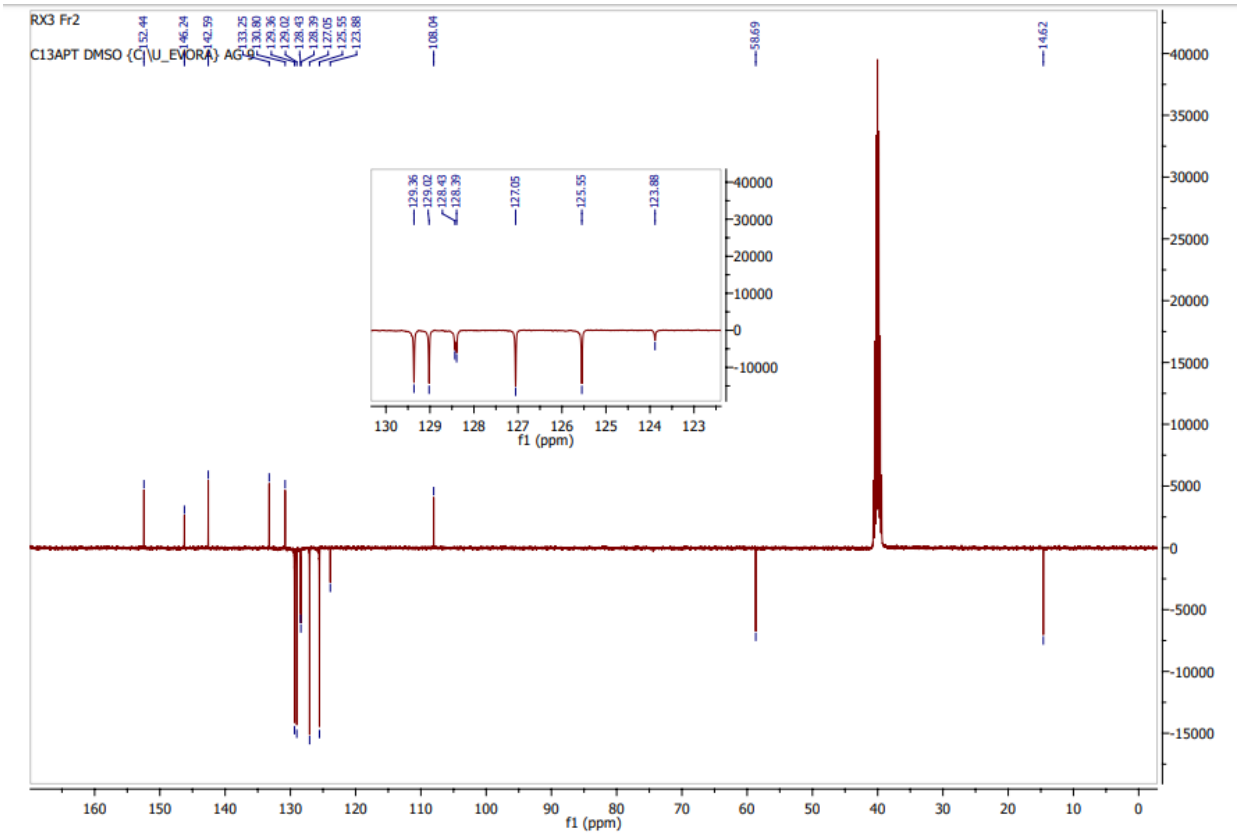
### 2.1. Hybrids A1-5

#### 2.1.1. 6-Methyl-4-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one A1:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

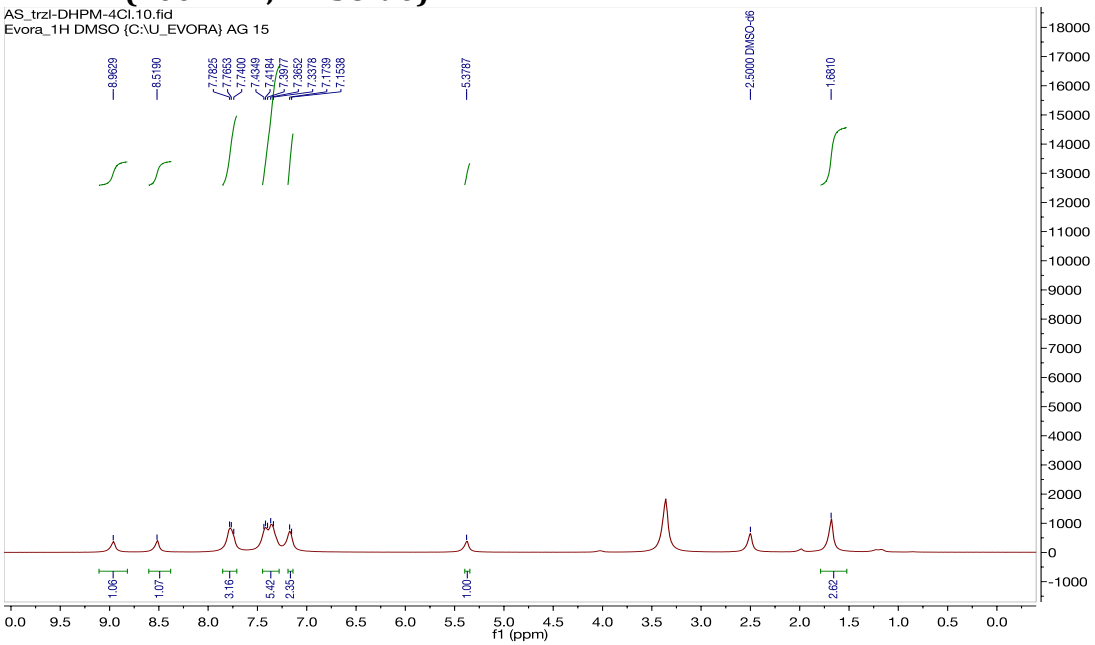


**$^{13}$C-APT-NMR (100 MHz, DMSO-*d6*):**

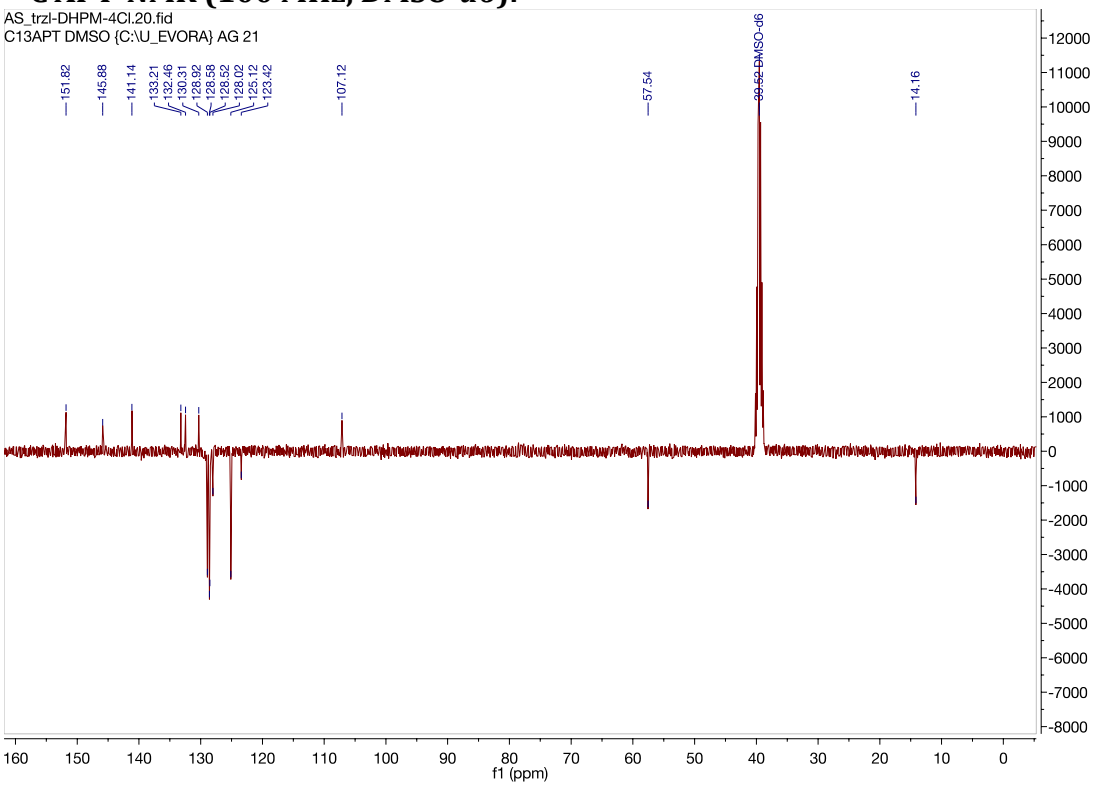



## 2.1.2. 4-(4-Chlorophenyl)-6-methyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one A2:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

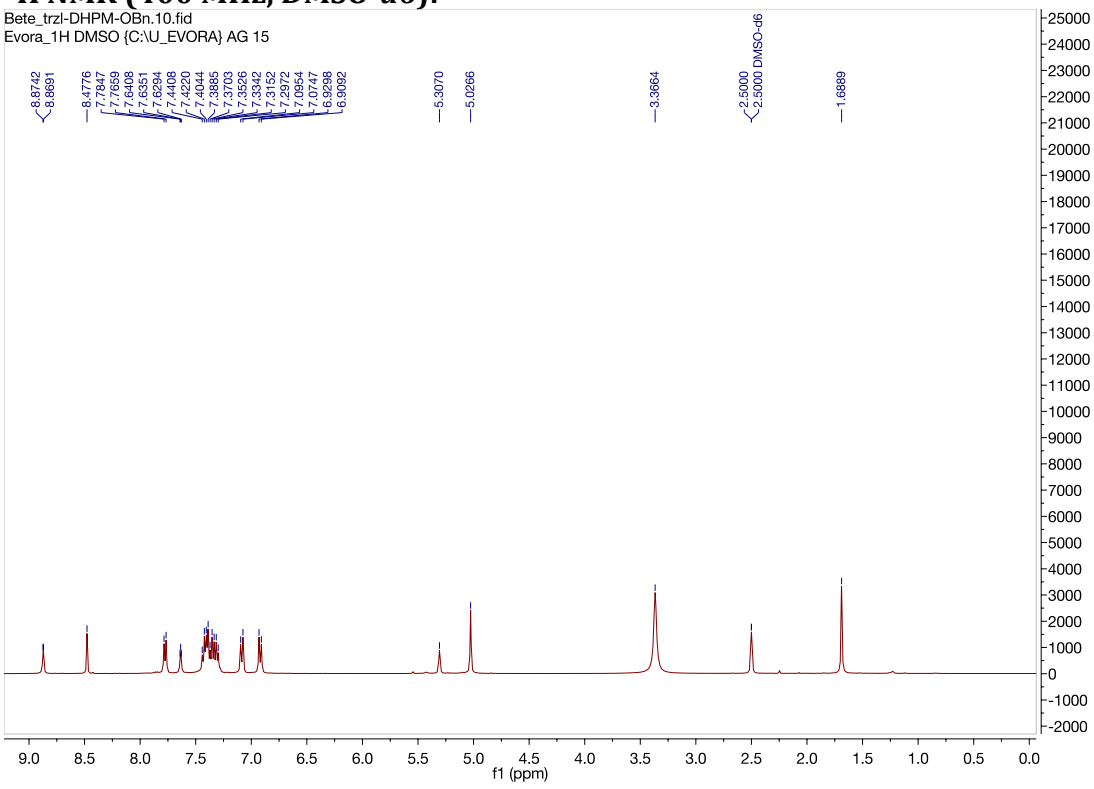


**$^{13}$C APT-NMR (100 MHz, DMSO-*d6*):**

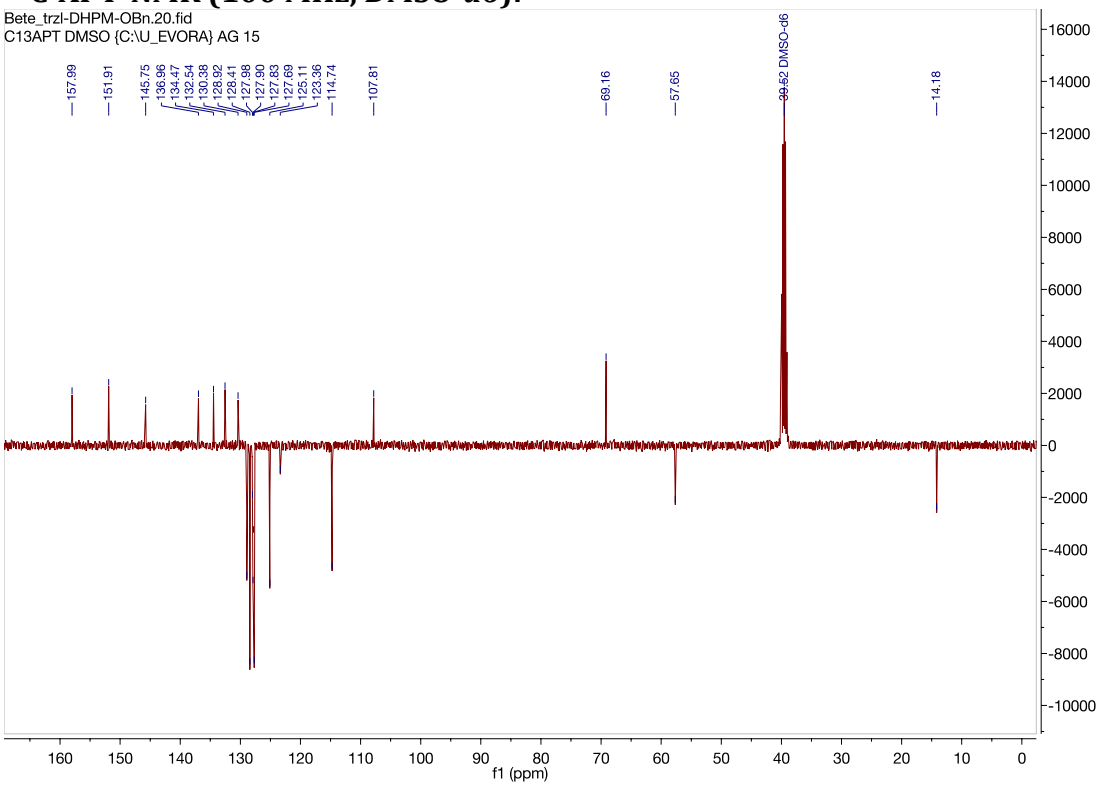



## 2.1.3. 4-(4-(Benzyloxy)phenyl)-6-methyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one A3:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

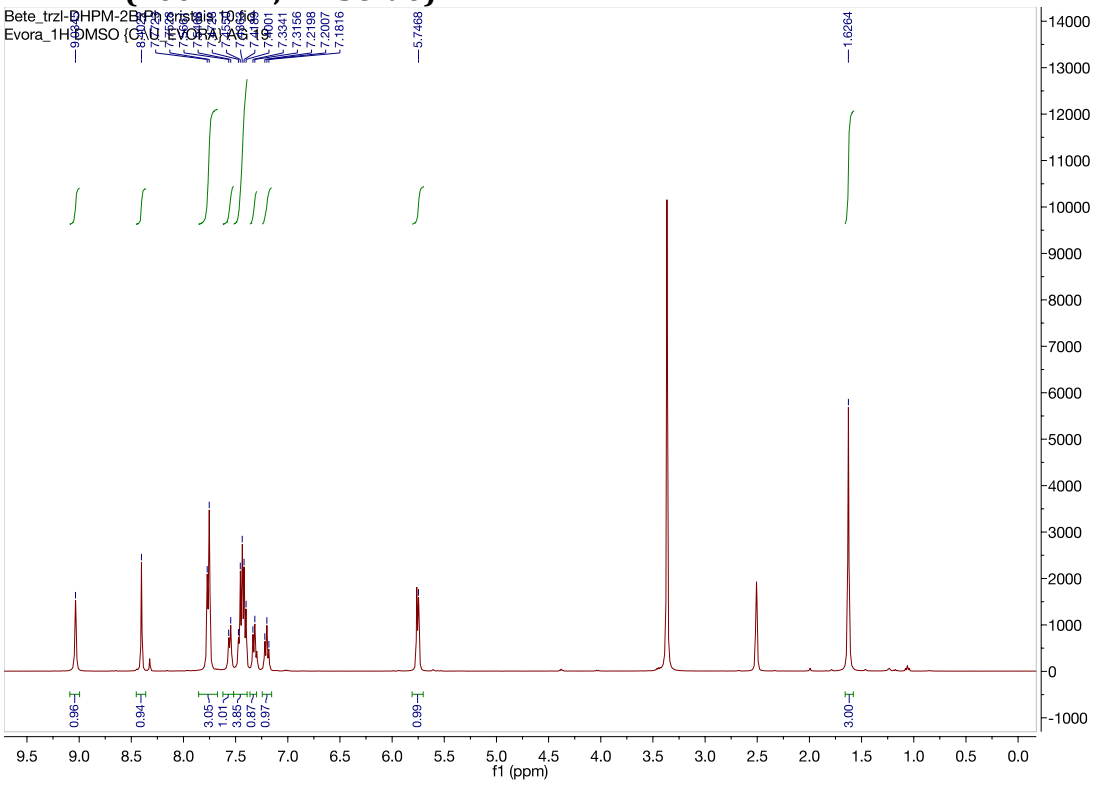


**$^{13}$C-APT-NMR (100 MHz, DMSO-*d6*):**

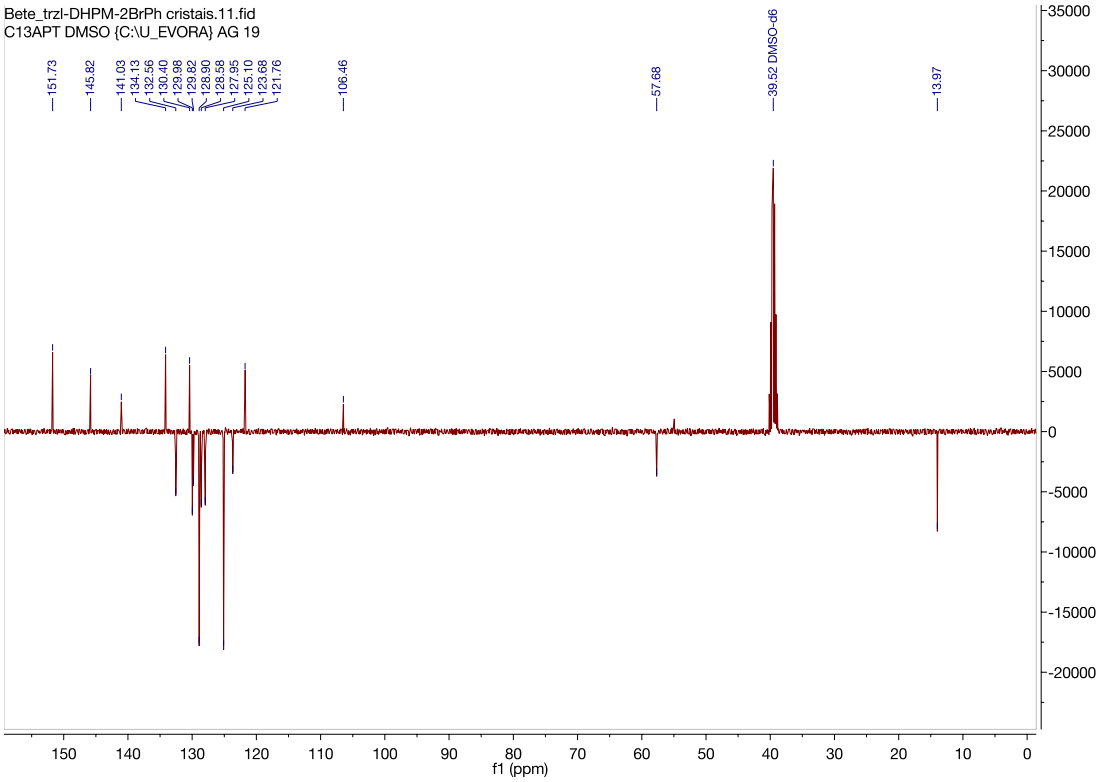



## 2.1.4. 4-(2-Bromophenyl)-6-methyl-5-(4-phenyl-1*H*-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2(1*H*)-one A4:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

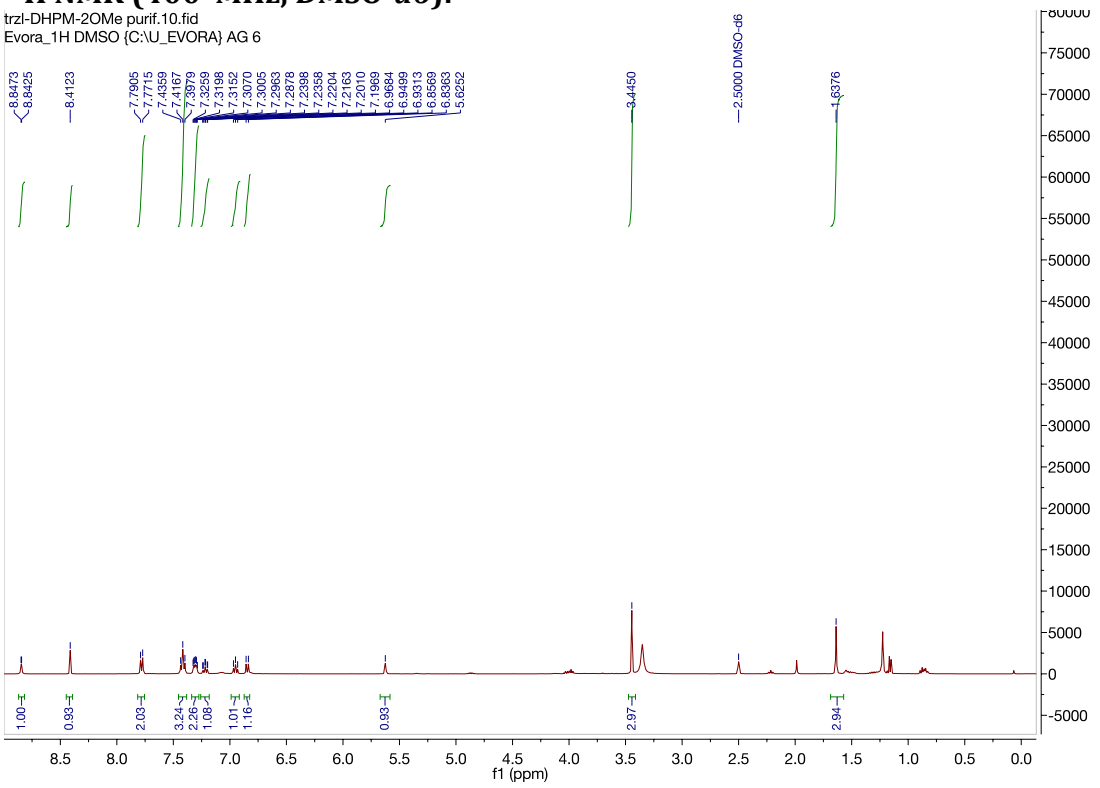


## $^{13}$C-APT-NMR (100 MHz, DMSO-*d6*):

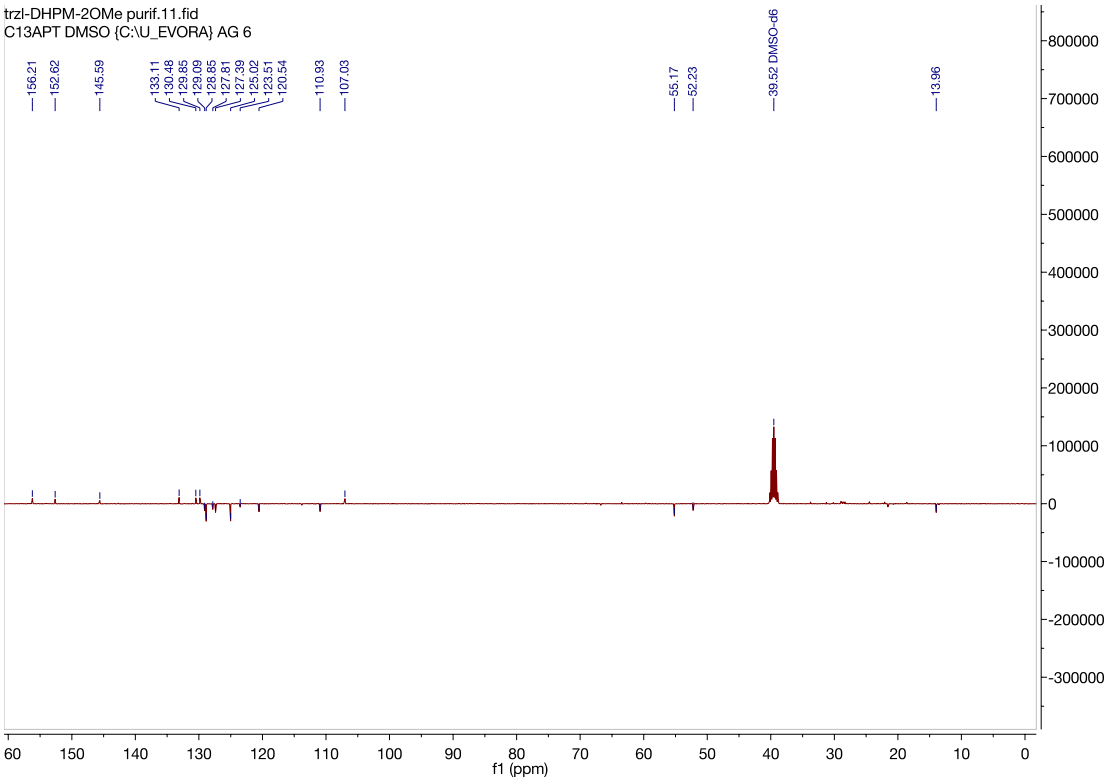



## 2.1.5. 4-(2-Methoxyphenyl)-6-methyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one A5:

## $^{1}$H NMR (400 MHz, DMSO-*d6*):



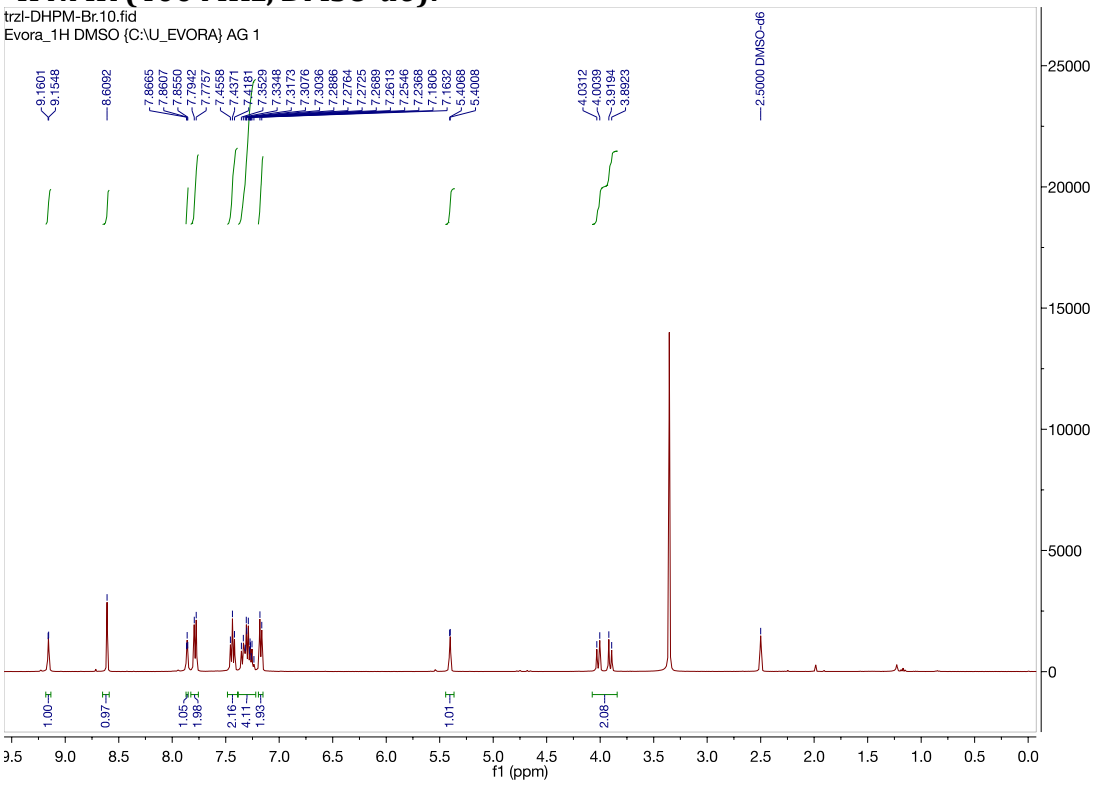
## $^{13}$C-APT-NMR (100 MHz, DMSO-*d6*):



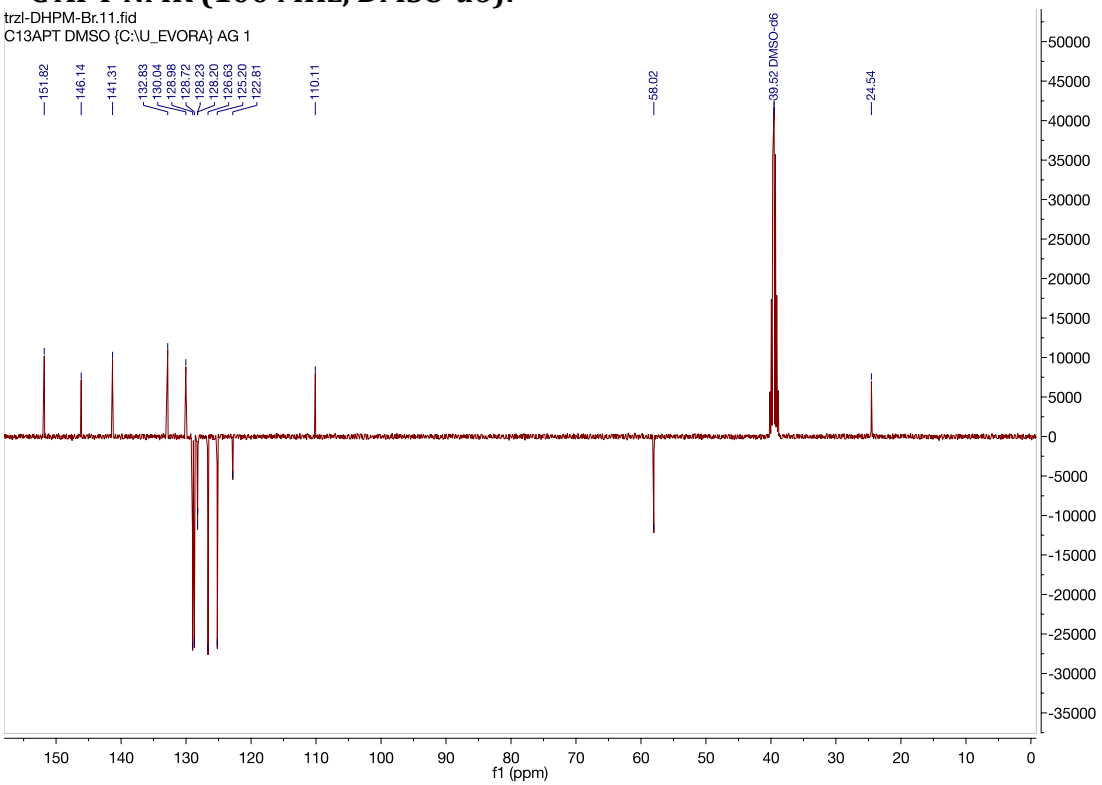

## 2.2. Brominated intermediates 7a-e:

### 2.2.1. 6-(Bromomethyl)-4-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 7a:

### $^{1}$H NMR (400 MHz, DMSO-*d6*):

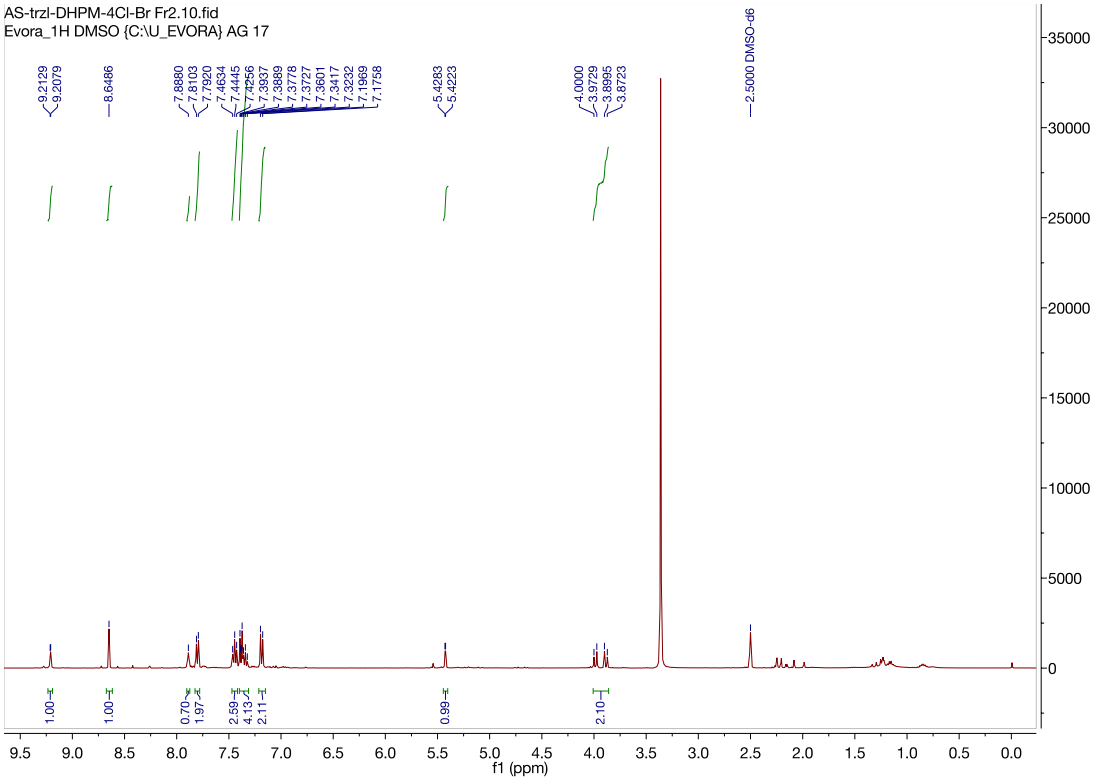


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

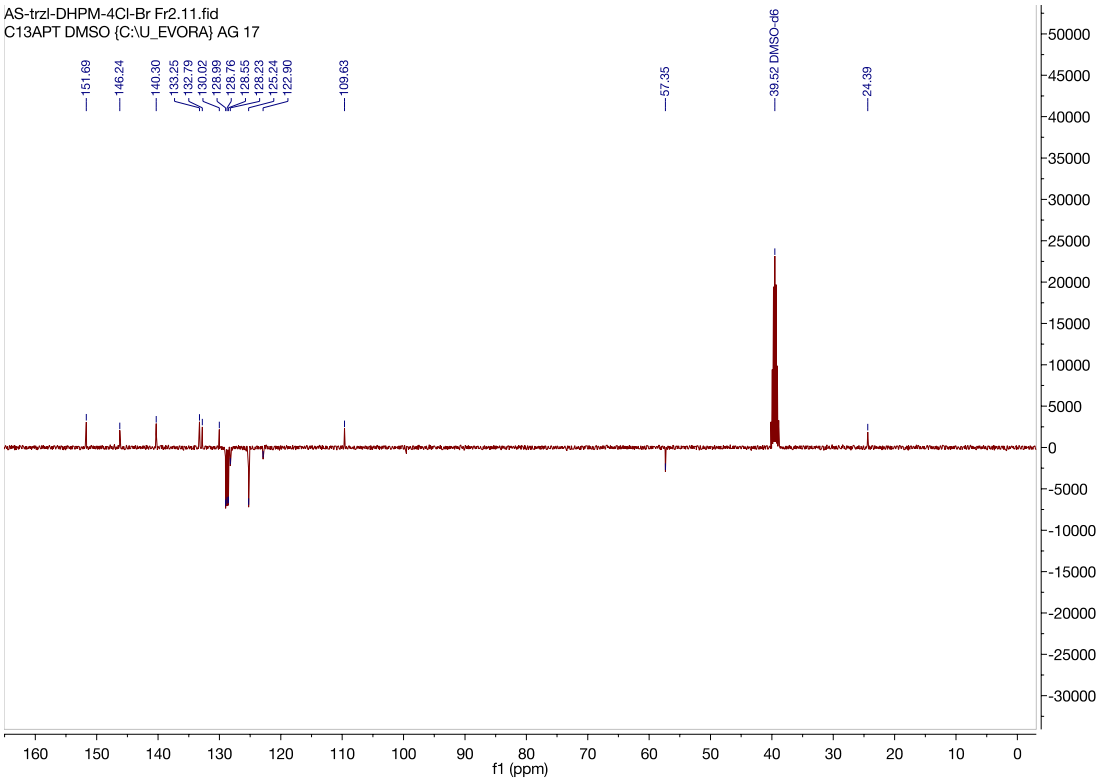



## 2.2.2 6-(Bromomethyl)-4-(4-chlorophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 7b:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

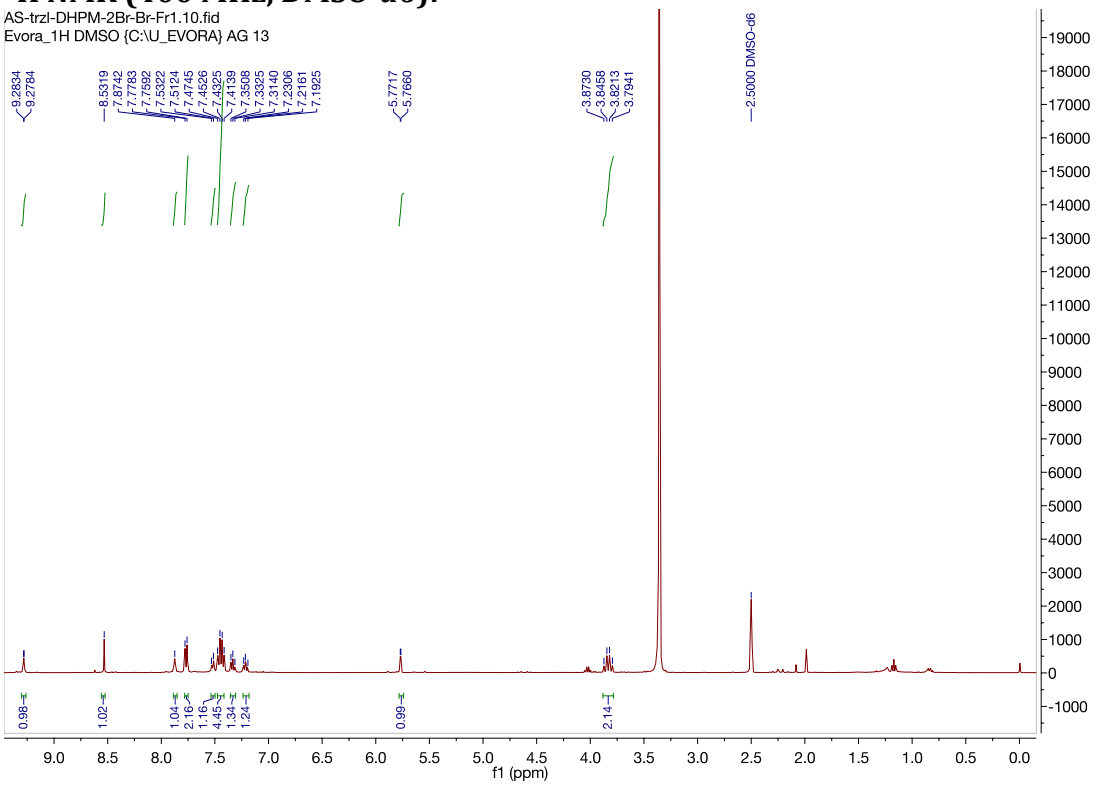


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

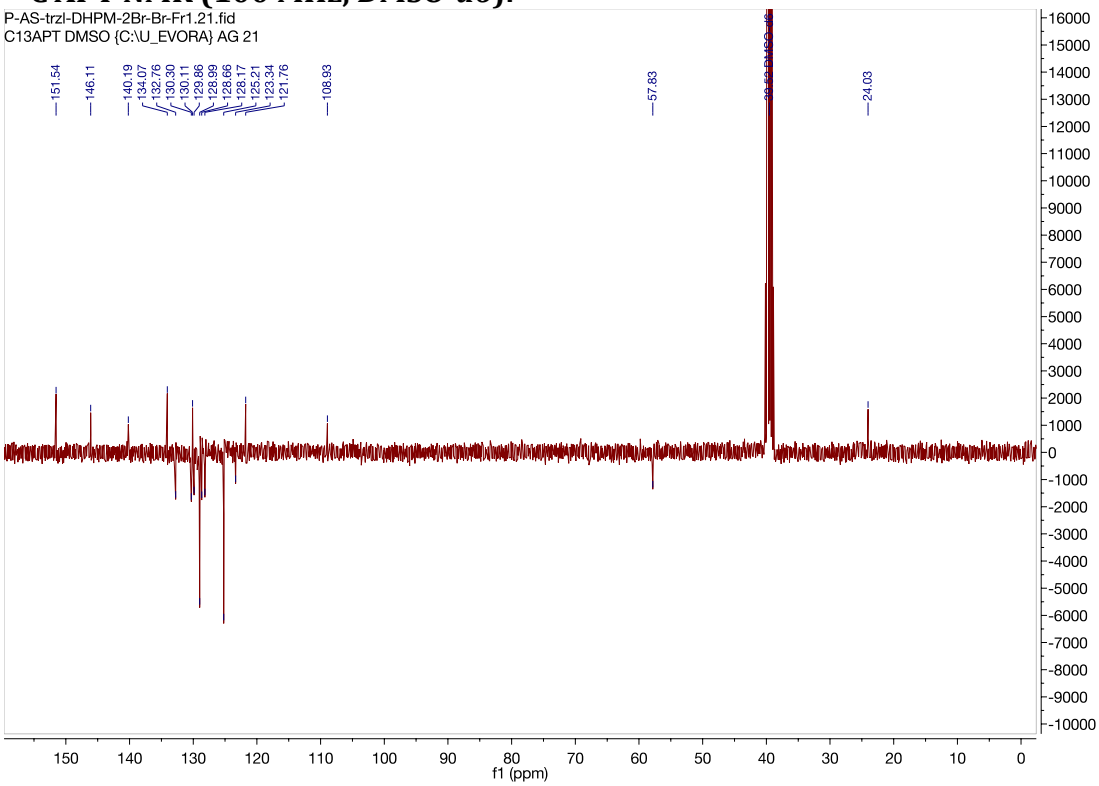



## 2.2.3. 4-(4-(Benzyloxy)phenyl)-6-(bromomethyl)-5-(4-phenyl-1*H*-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2(1*H*)-one 7c:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

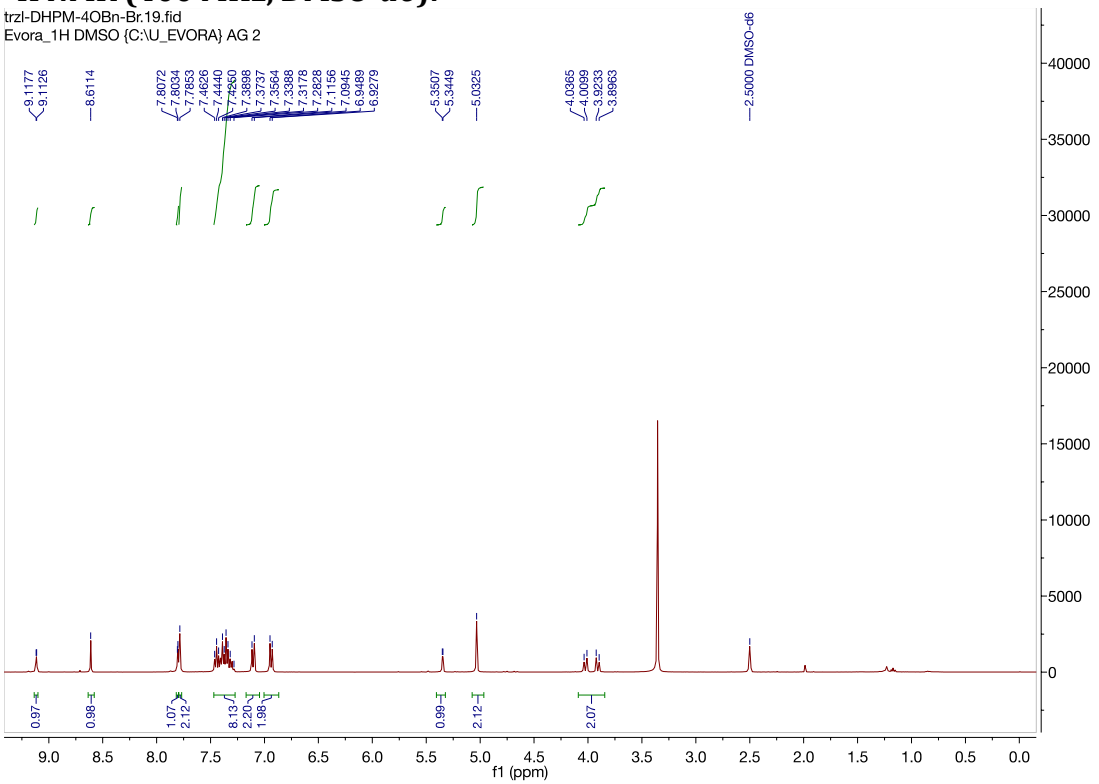


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

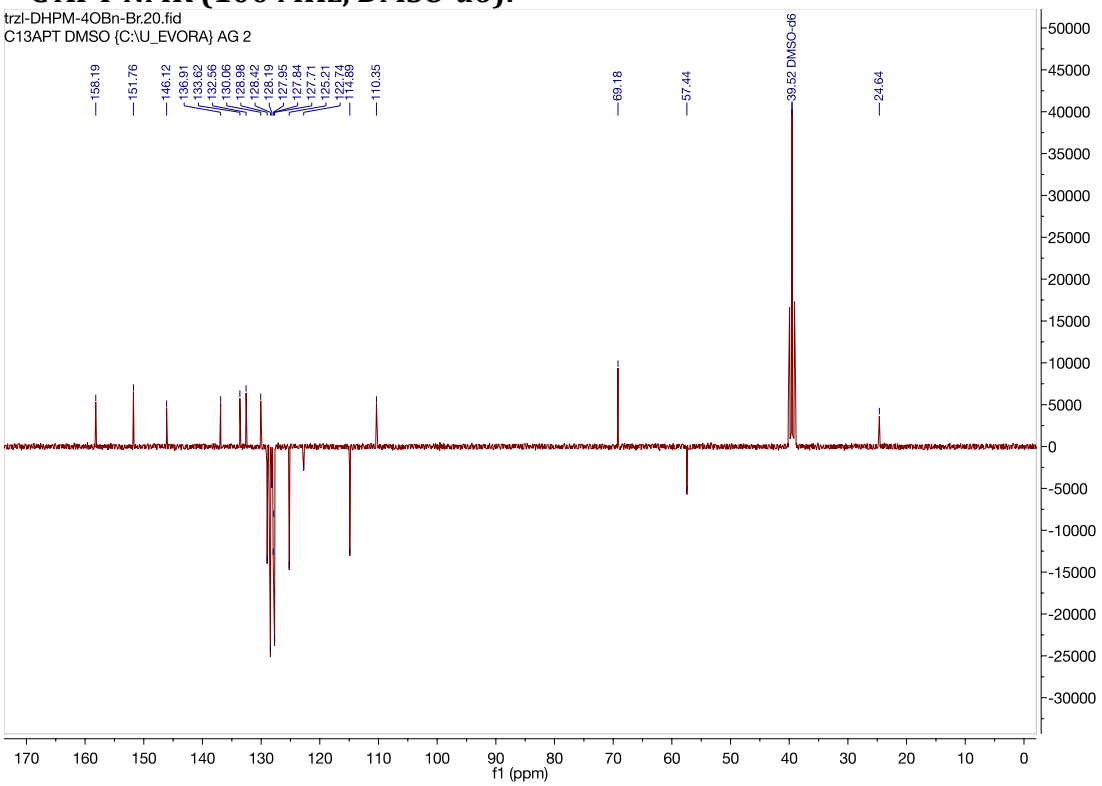



## 2.2.4. 6-(Bromomethyl)-4-(2-bromophenyl)-5-(4-phenyl-1*H*-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2(1*H*)-one 7d:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

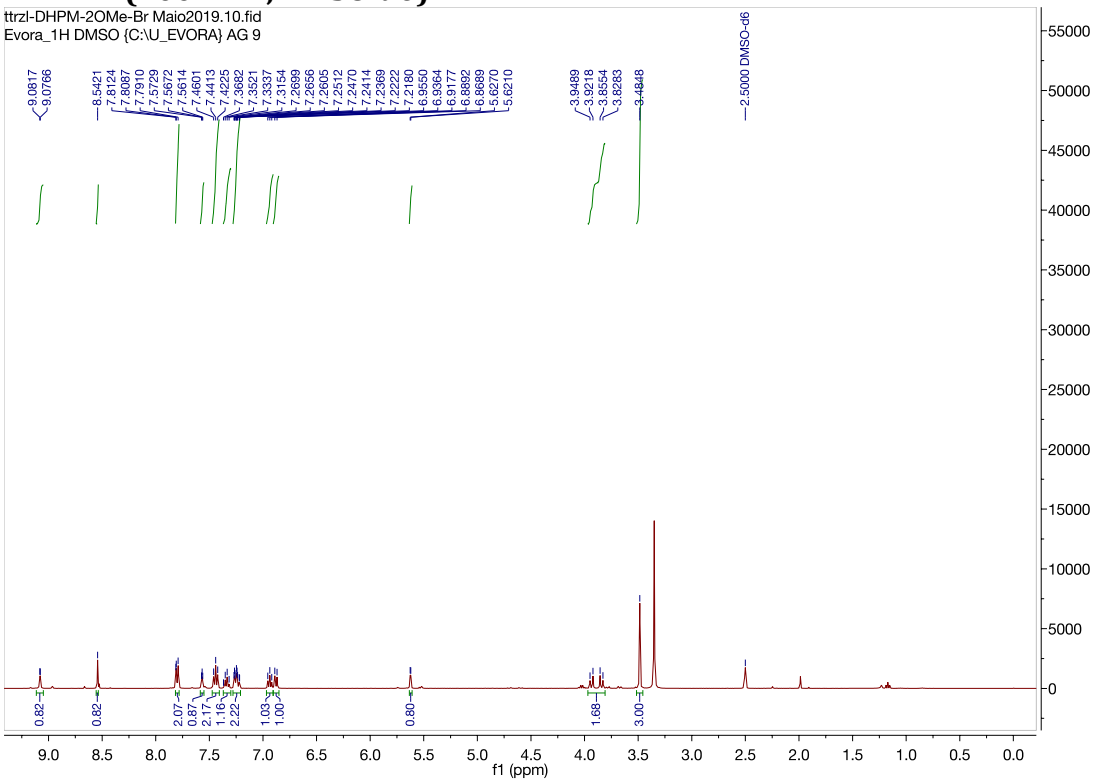


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

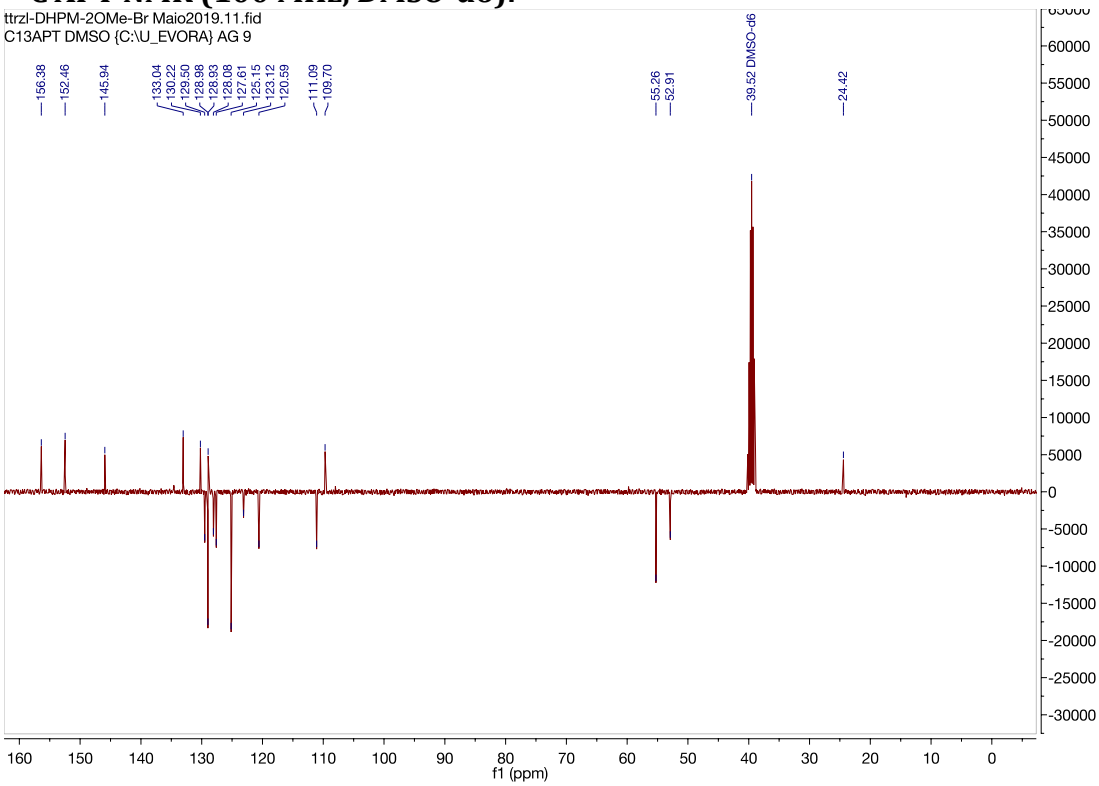



## 2.2.5. 6-(bromomethyl)-4-(2-methoxyphenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 7e:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**



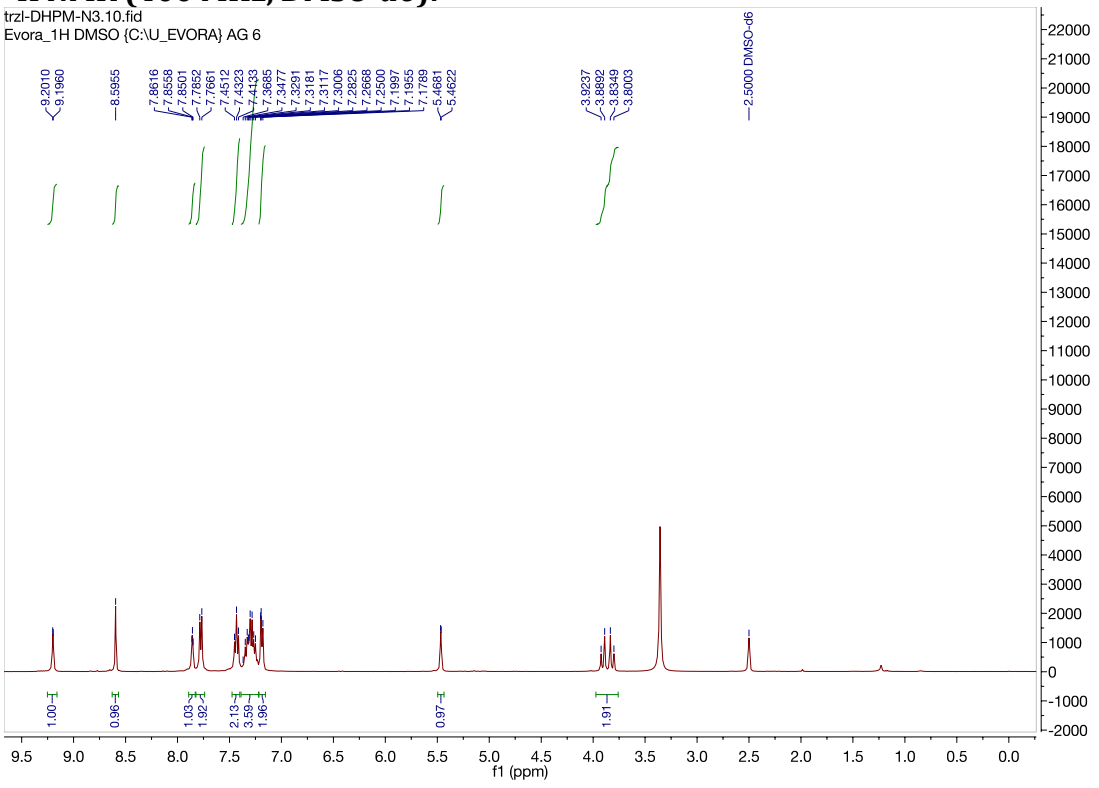
**$^{13}$C APT NMR (100 MHz, DMSO-d6):**



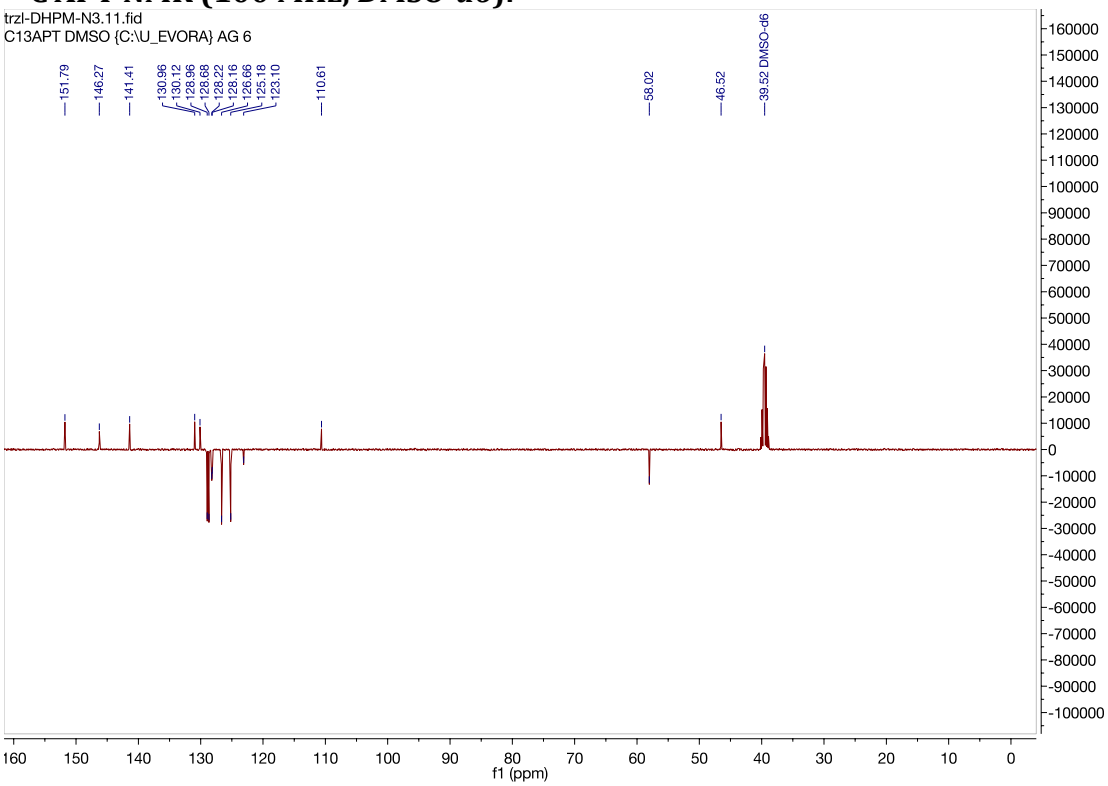

## 2.3. Azide intermediates 8a-e

### 2.3.1. 6-(Azidomethyl)-4-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 8a:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

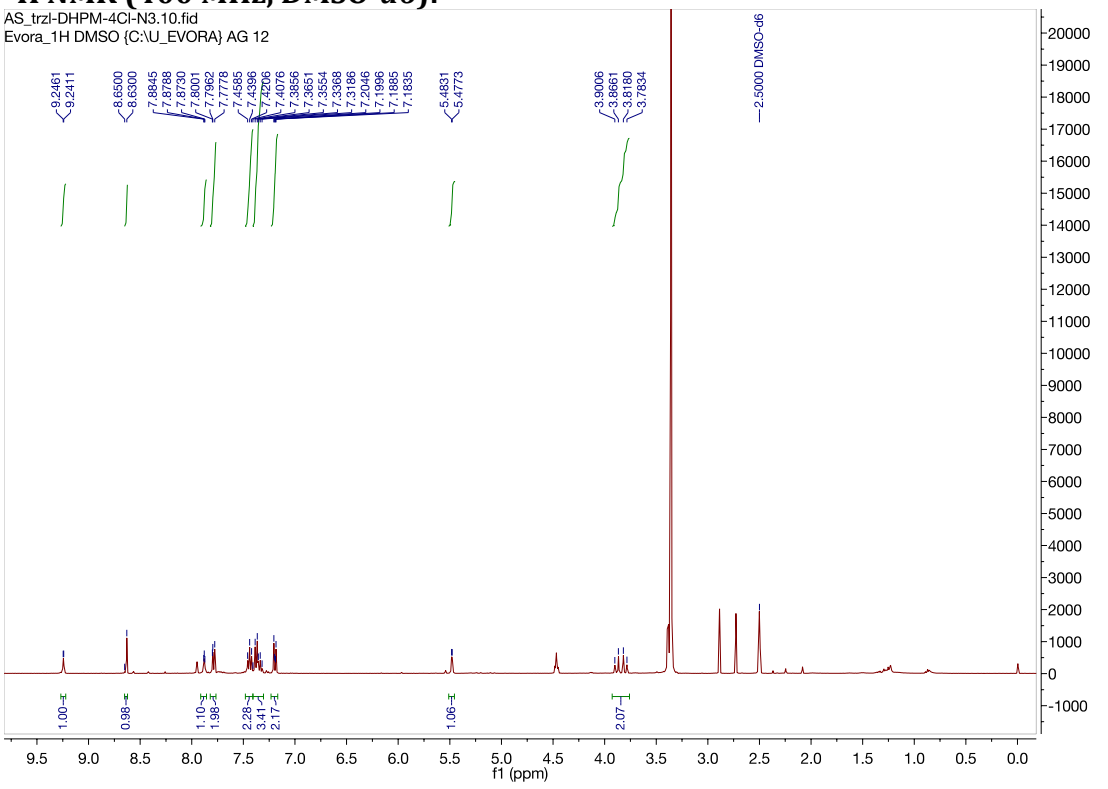


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

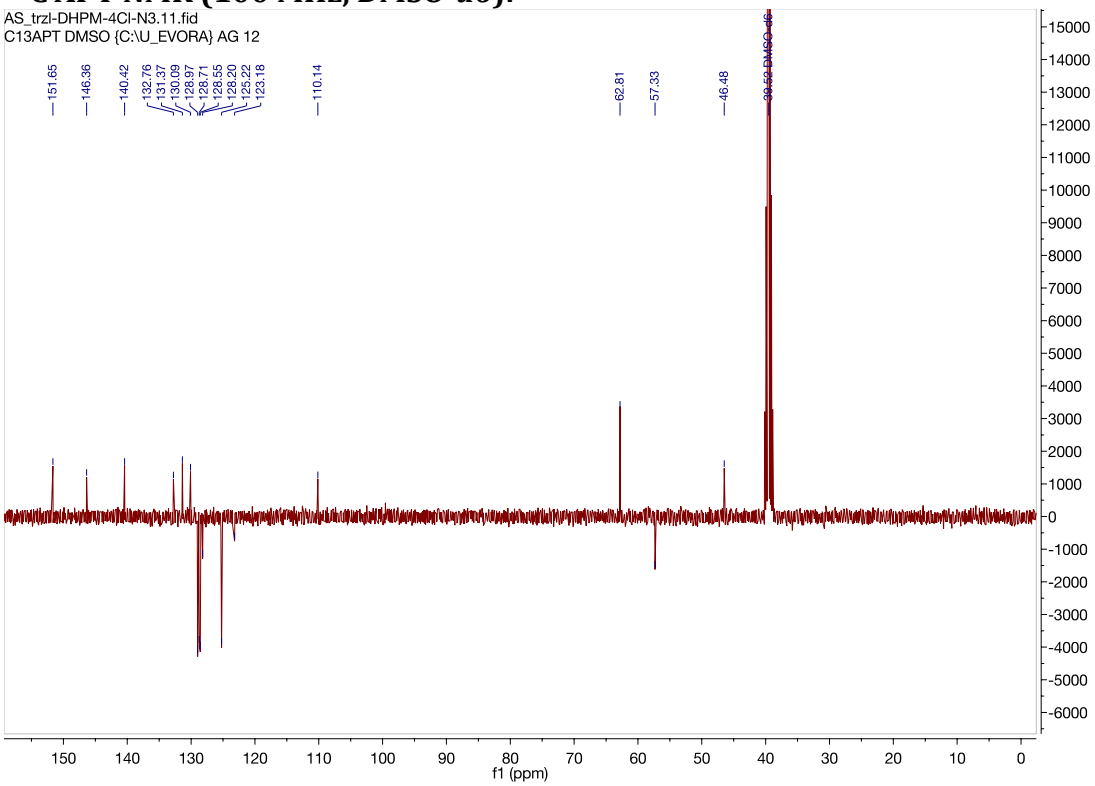



## 2.3.2. 6-(Azidomethyl)-4-(4-chlorophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 8b:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**



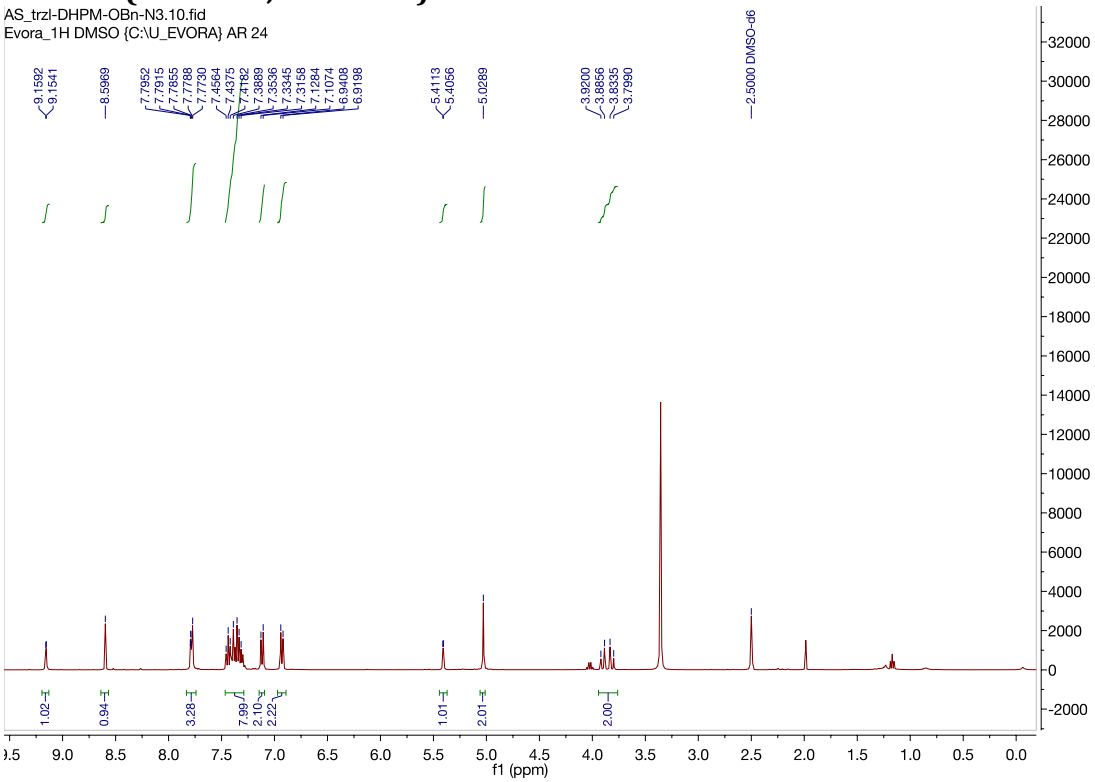
**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**



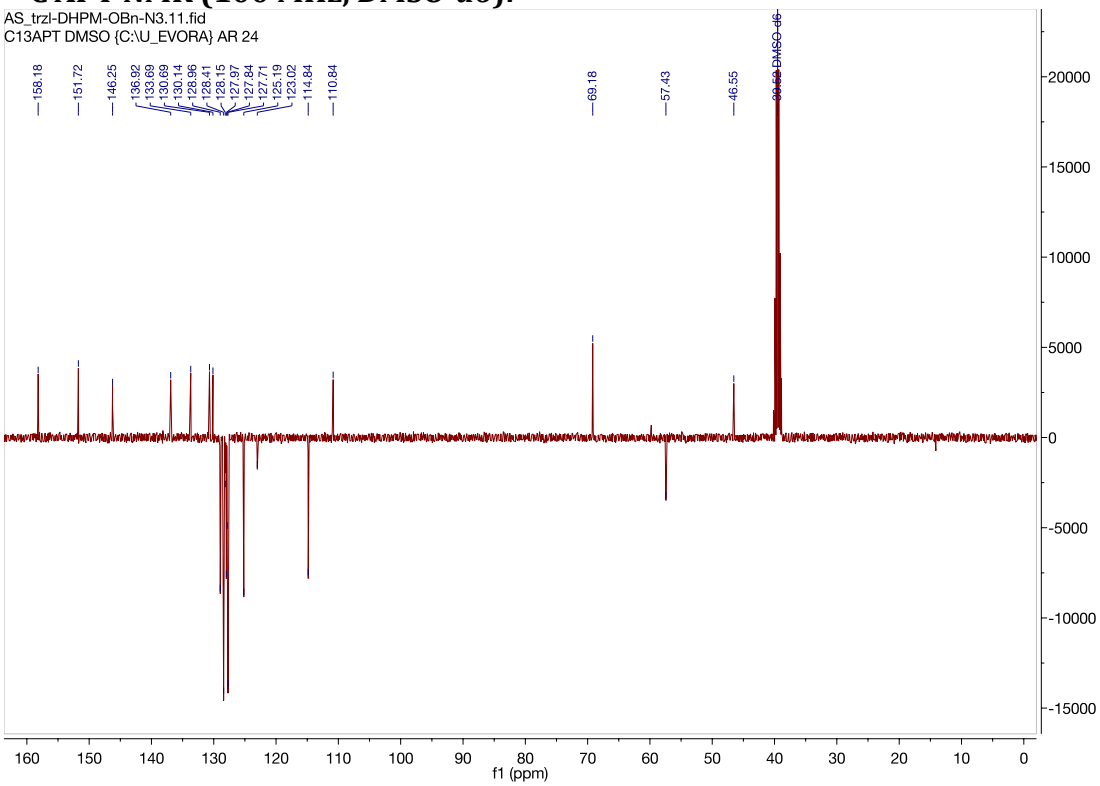

**Note:** δ 62,81 ppm contamination with ethylene Glycol.

### 2.3.3. 6-(Azidomethyl)-4-(4-(benzyloxy)phenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 8c:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

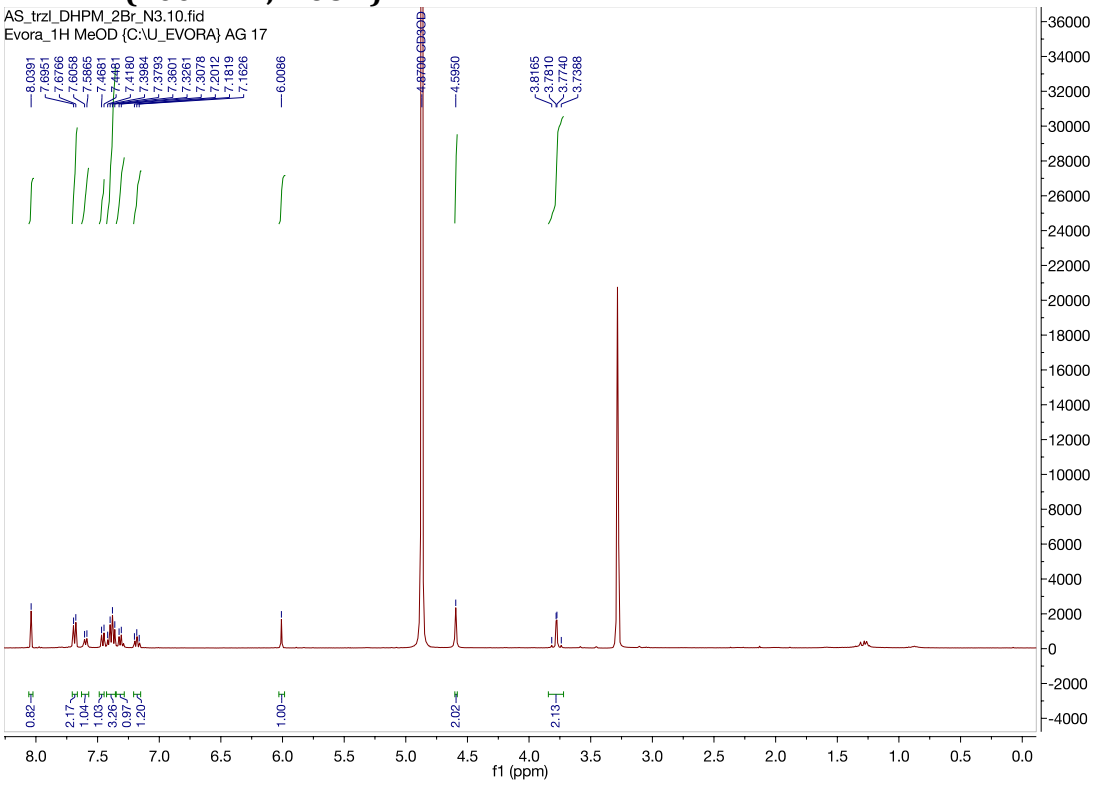


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

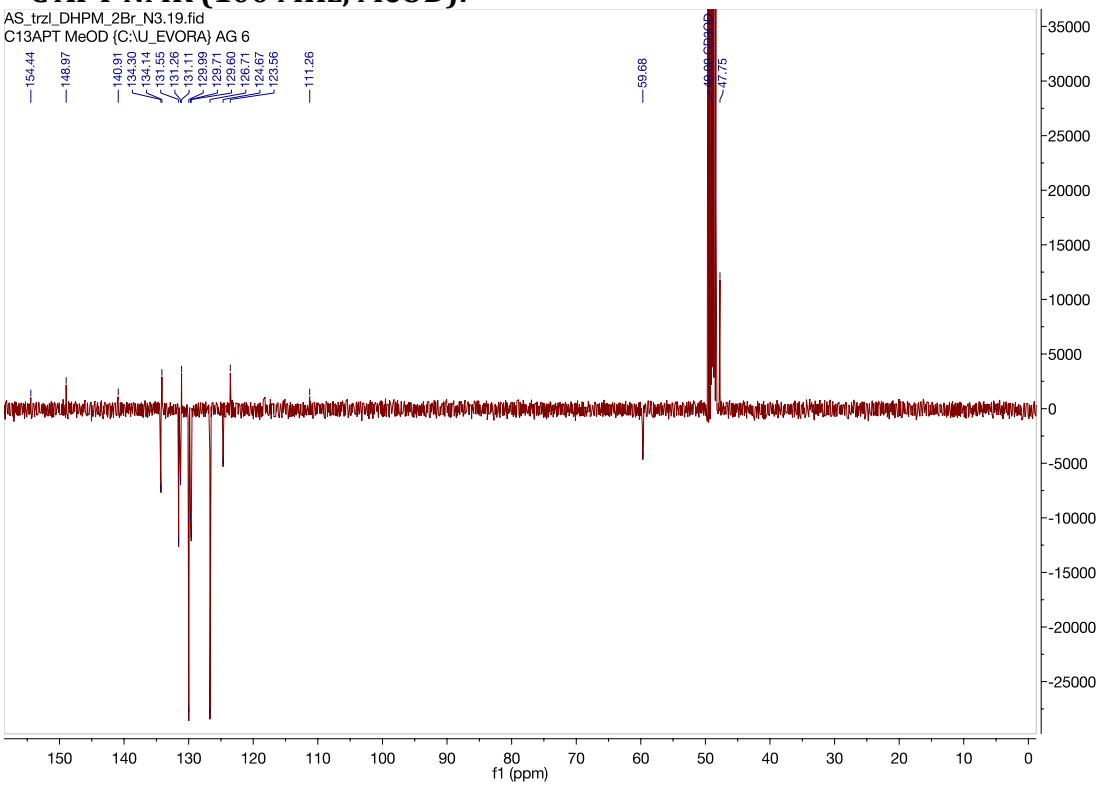



## 2.3.4. 6-(Azidomethyl)-4-(2-bromophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 8d:

**$^{1}$H NMR (400 MHz, MeOD):**

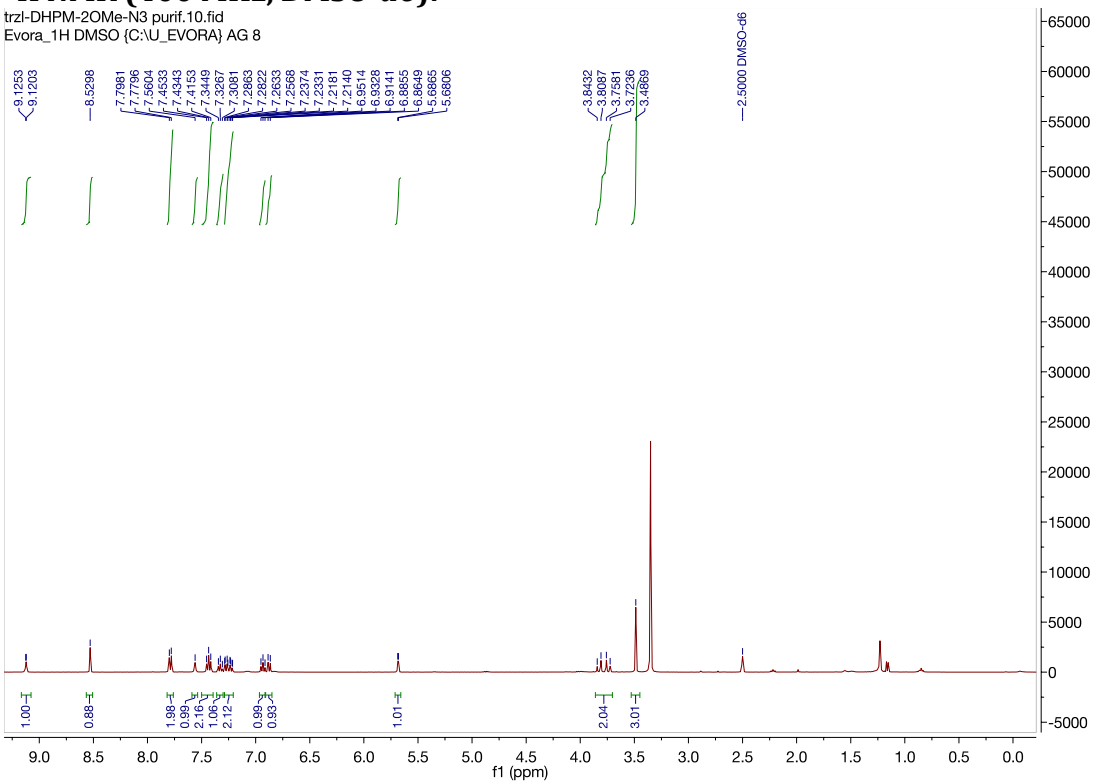


**$^{13}$C APT NMR (100 MHz, MeOD):**

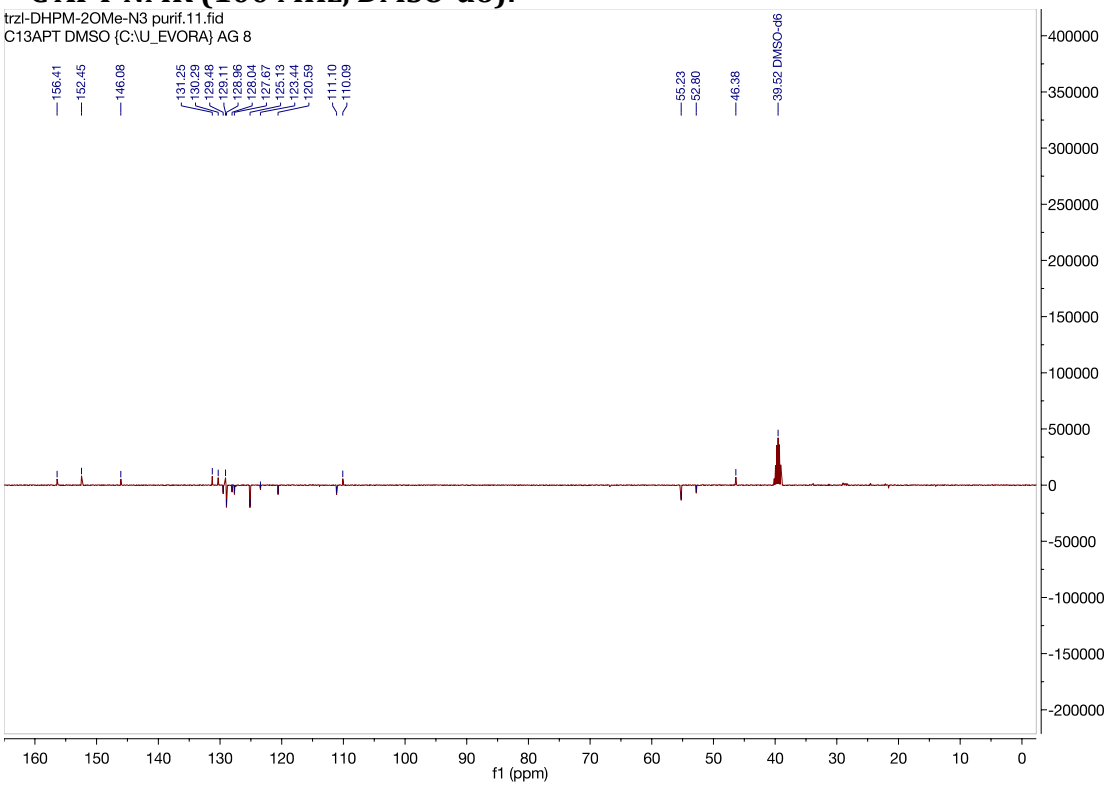



## 2.3.5. 6-(Azidomethyl)-4-(2-methoxyphenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one 8e:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**



**$^{13}$C APT NMR (100 MHz, DMSO-d6):**

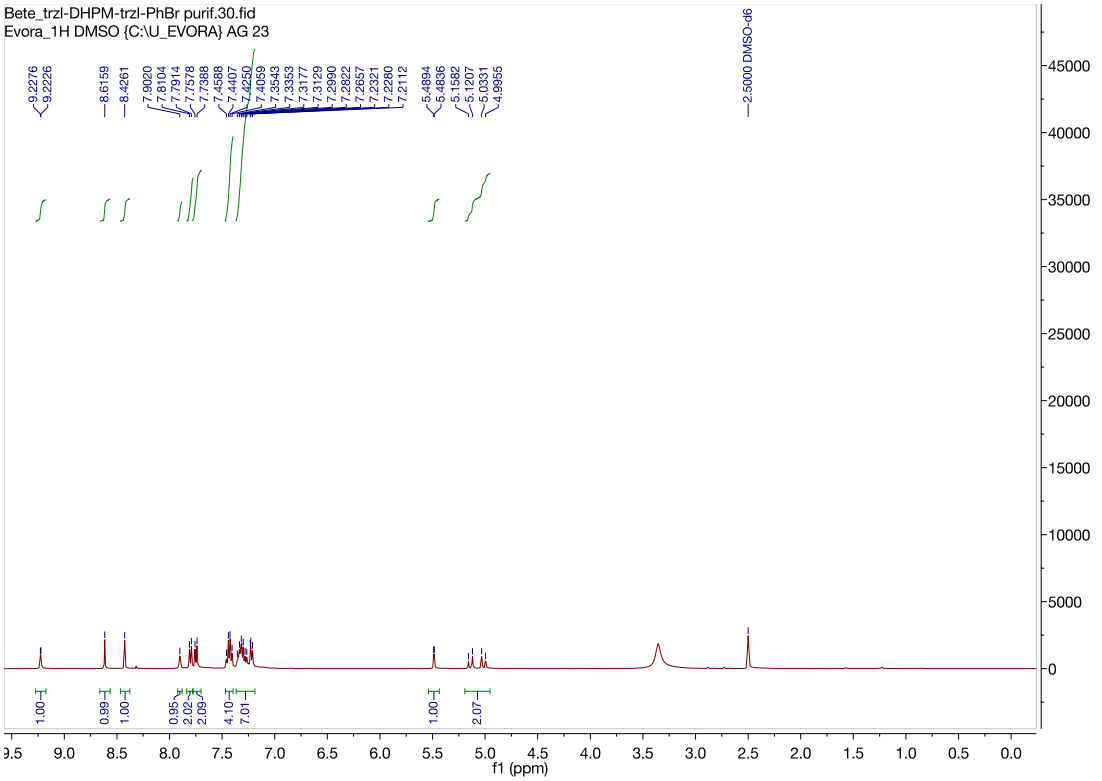



**NOTE:** There was some contamination with grease!

## 2.4. Hybrids B1-16

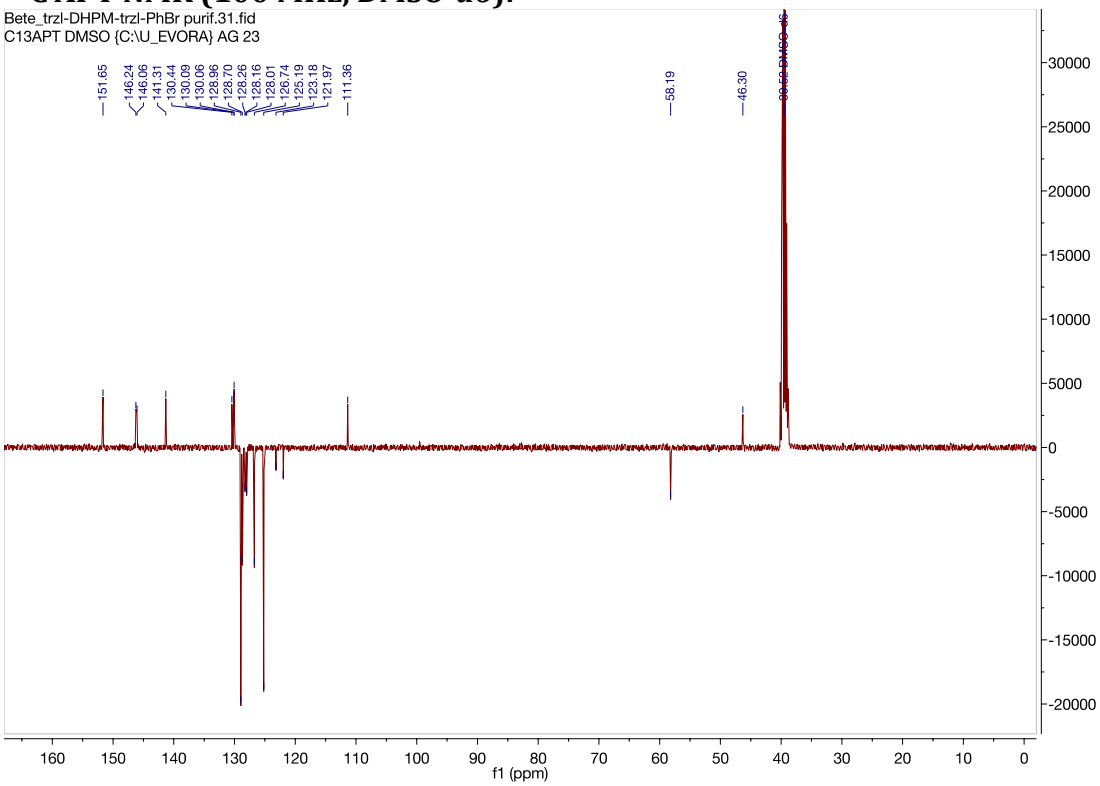
### 1.4.1. 4-Phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-6-((4-phenyl-1,2,3-triazol-1-yl)methyl)-3,4-dihydropyrimidin-2-one B1:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**



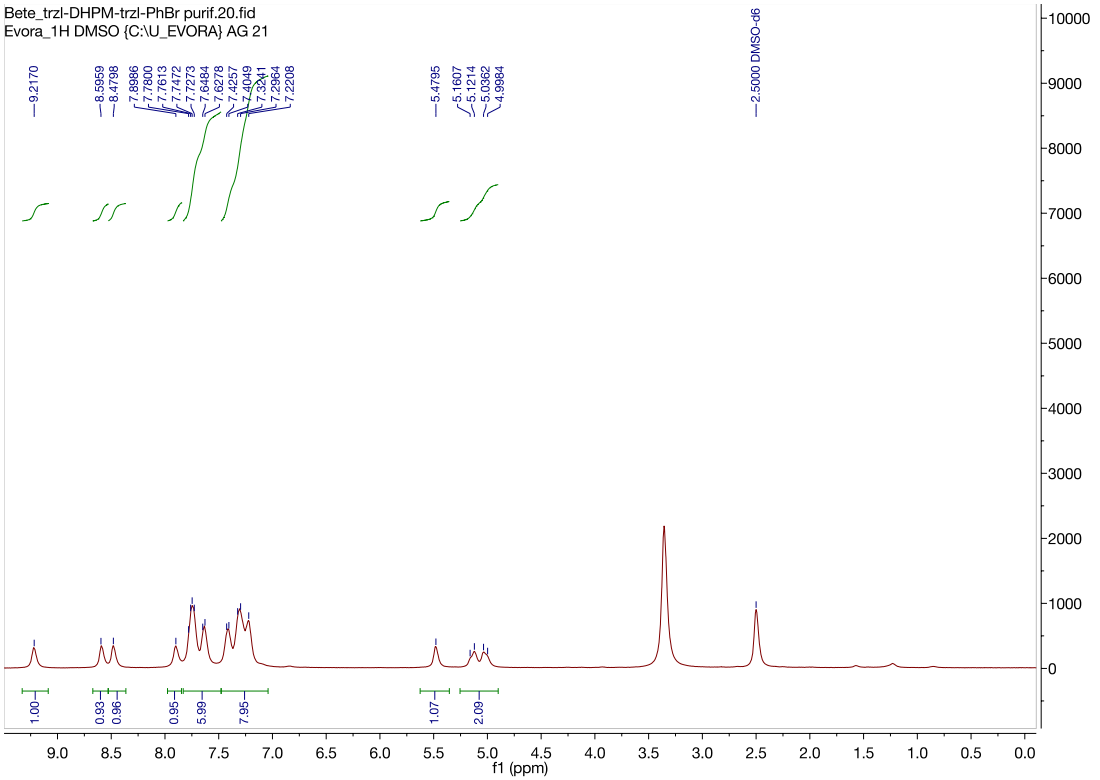

**NOTE:** The title of the spectrum is incorrect, but the spectrum is from the compound B1.

**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

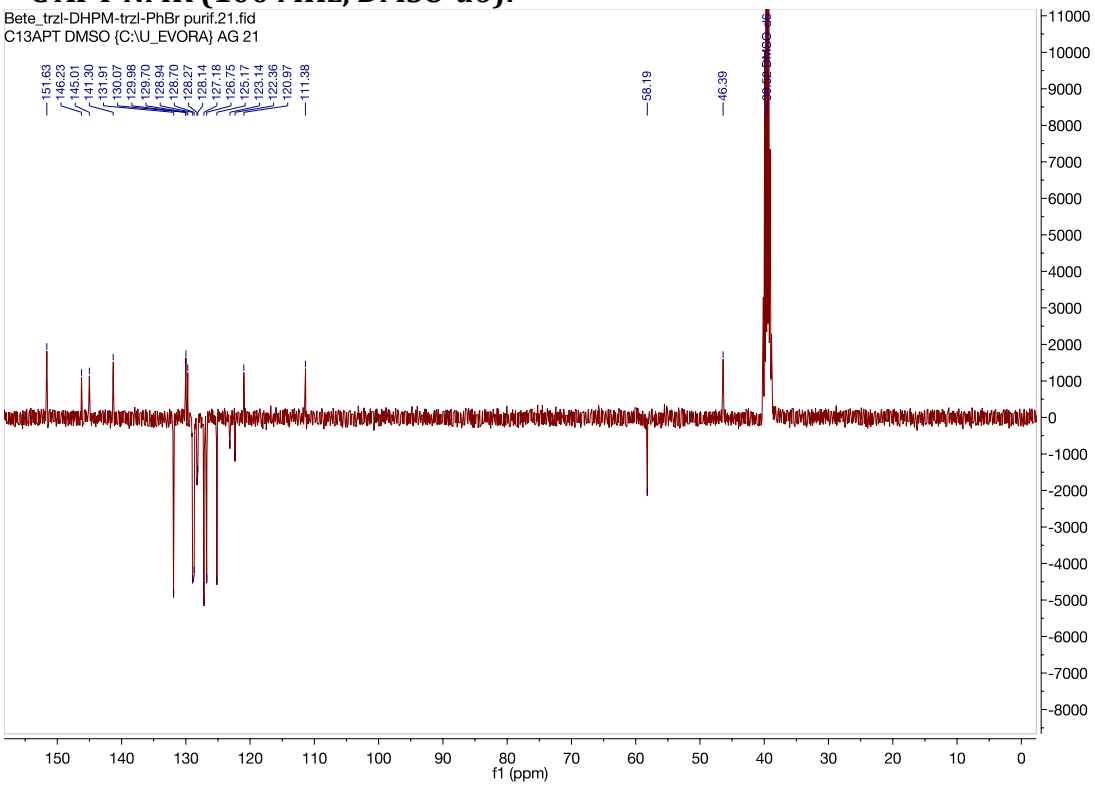



## 2.4.2. 6-((4-(4-Bromophenyl)-1,2,3-triazol-1-yl)methyl)-4-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B2:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

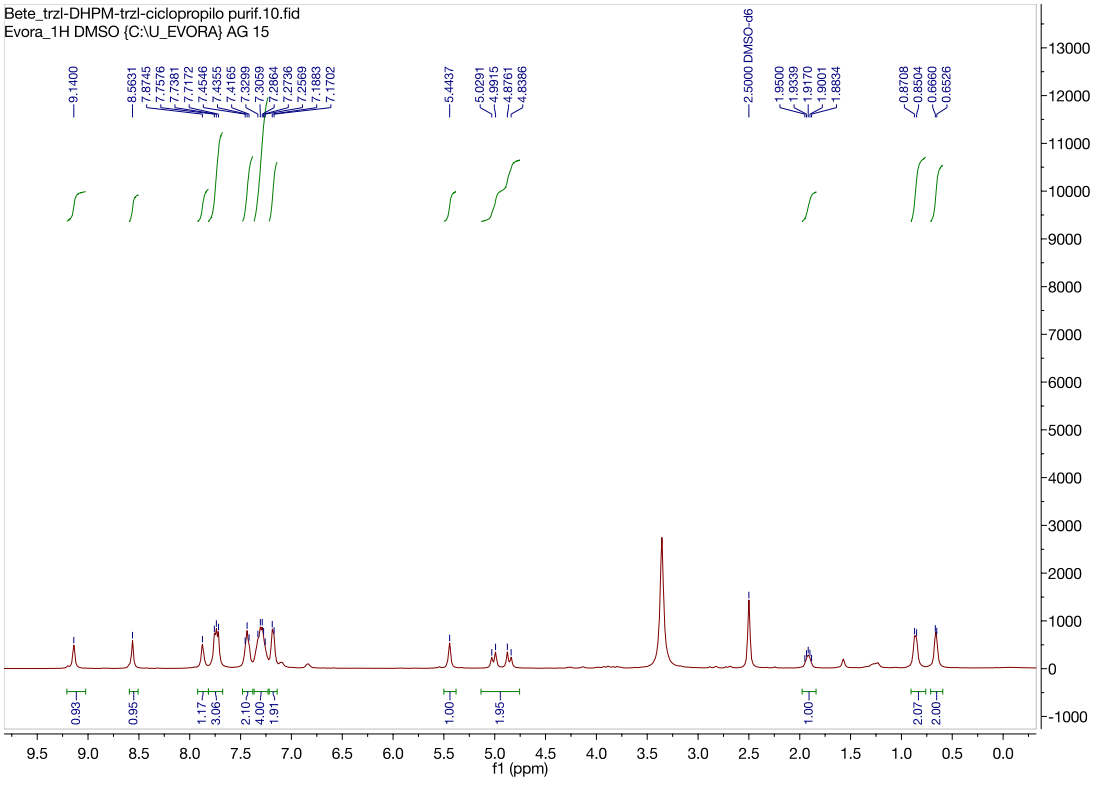


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

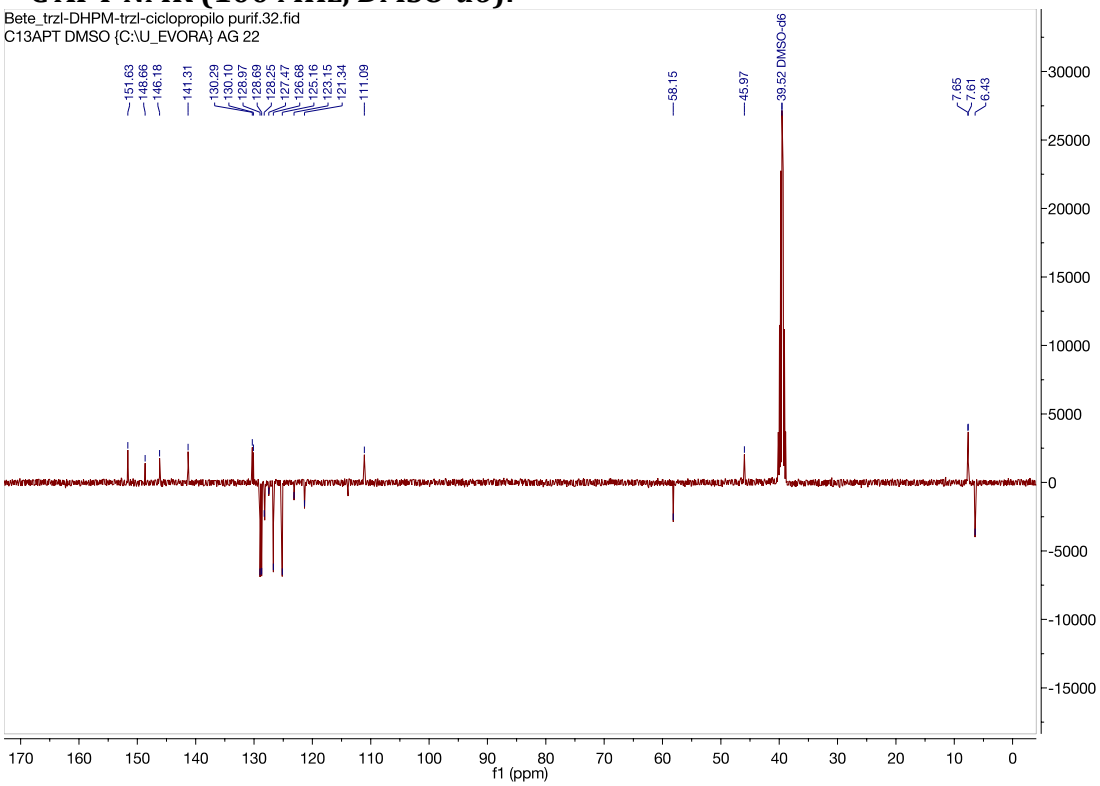



## 2.4.3. 6-((4-Cyclopropyl-1*H*-1,2,3-triazol-1-yl)methyl)-4-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B3:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

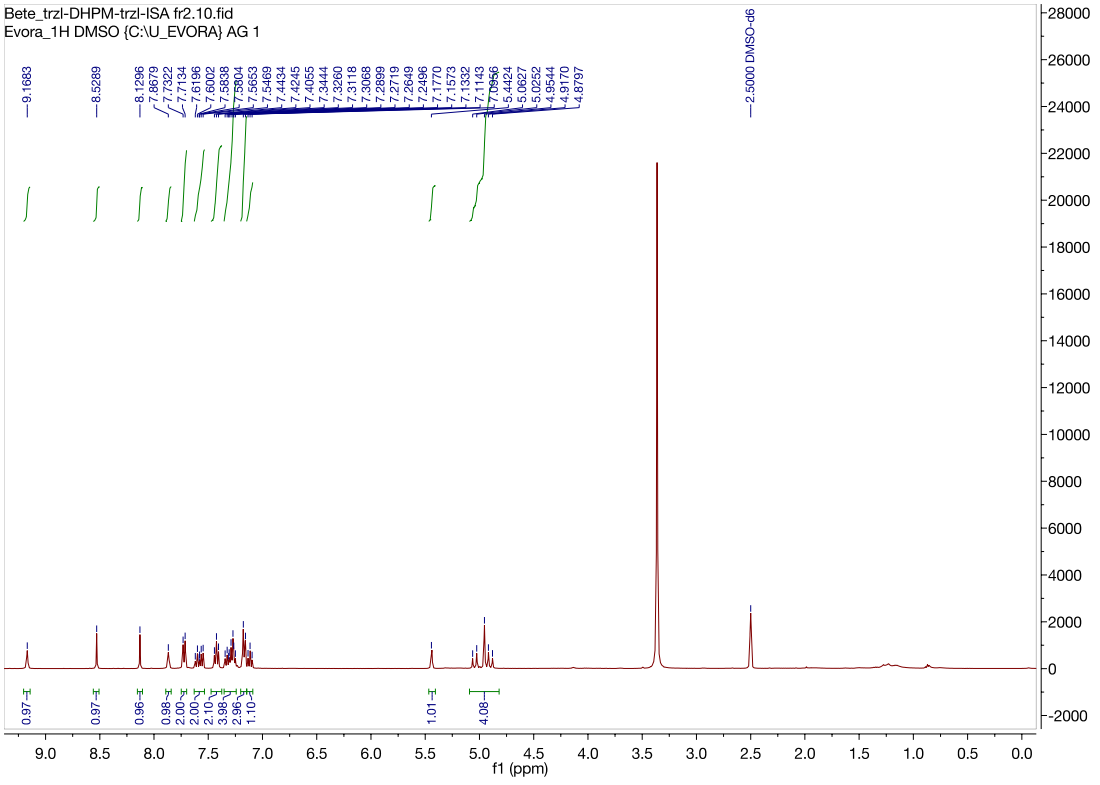


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

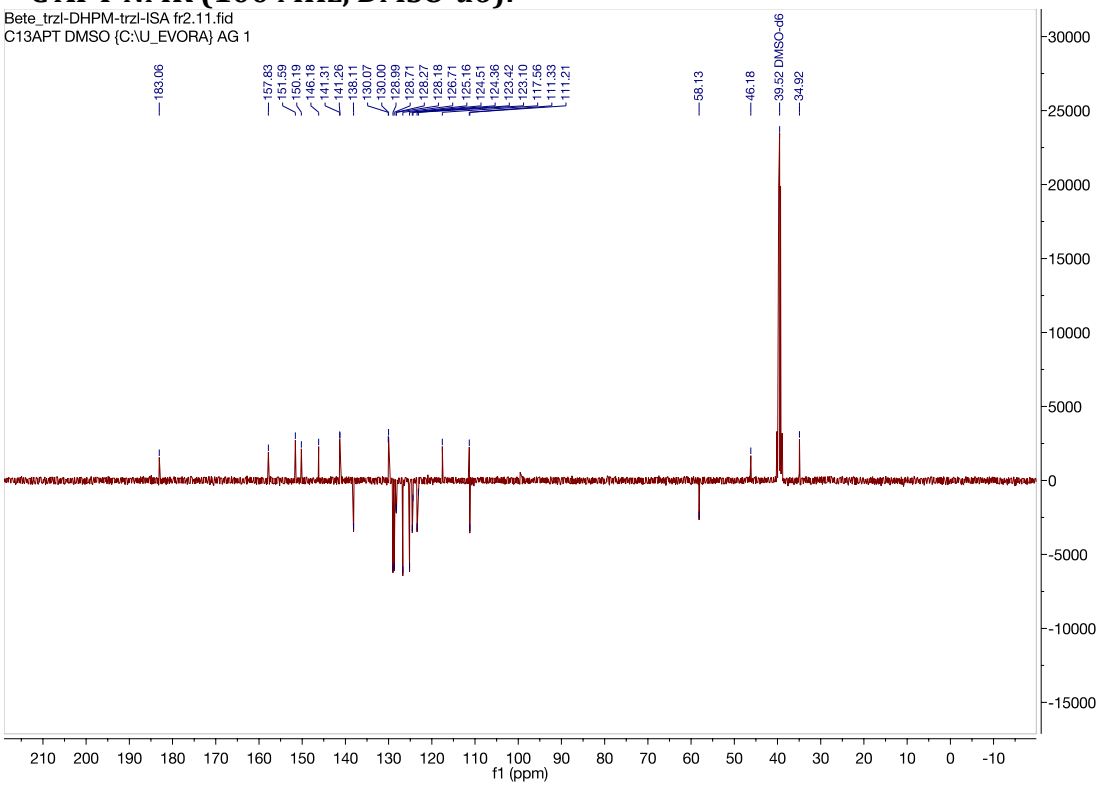



## 2.4.4. *1-((1-((2-Oxo-6-phenyl-5-(4-phenyl-1,2,3-triazol-1-yl)-1,2,3,6-tetrahydropyrimidin-4-yl)methyl)-1,2,3-triazol-4-yl)methyl)indoline-2,3-dione B4:*

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

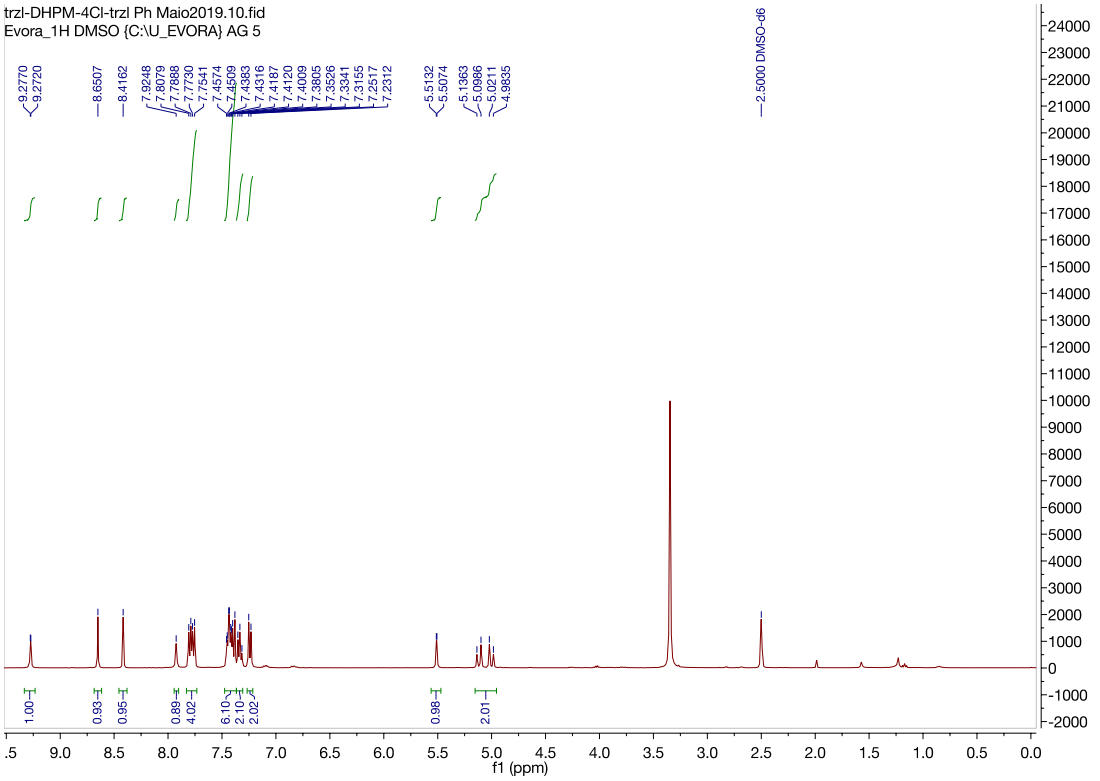


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

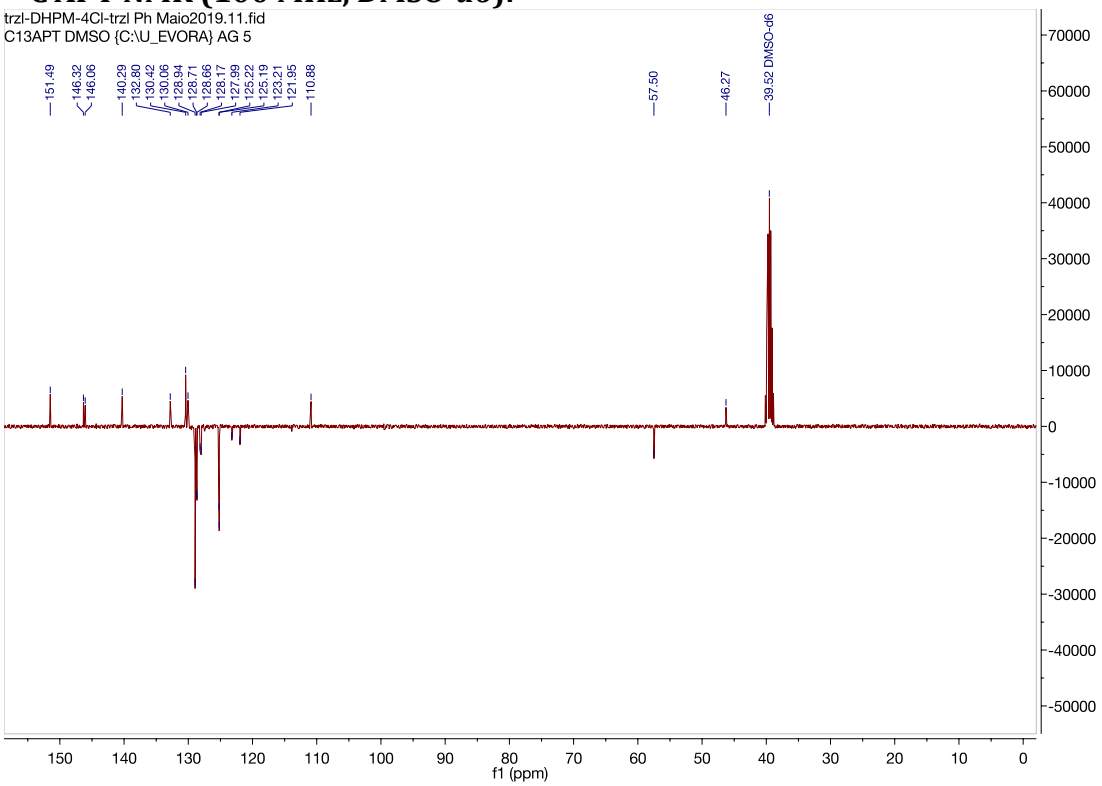



## 2.4.5. 4-(4-Chlorophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-6-((4-phenyl-1,2,3-triazol-1-yl)methyl)-3,4-dihydropyrimidin-2-one B5:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

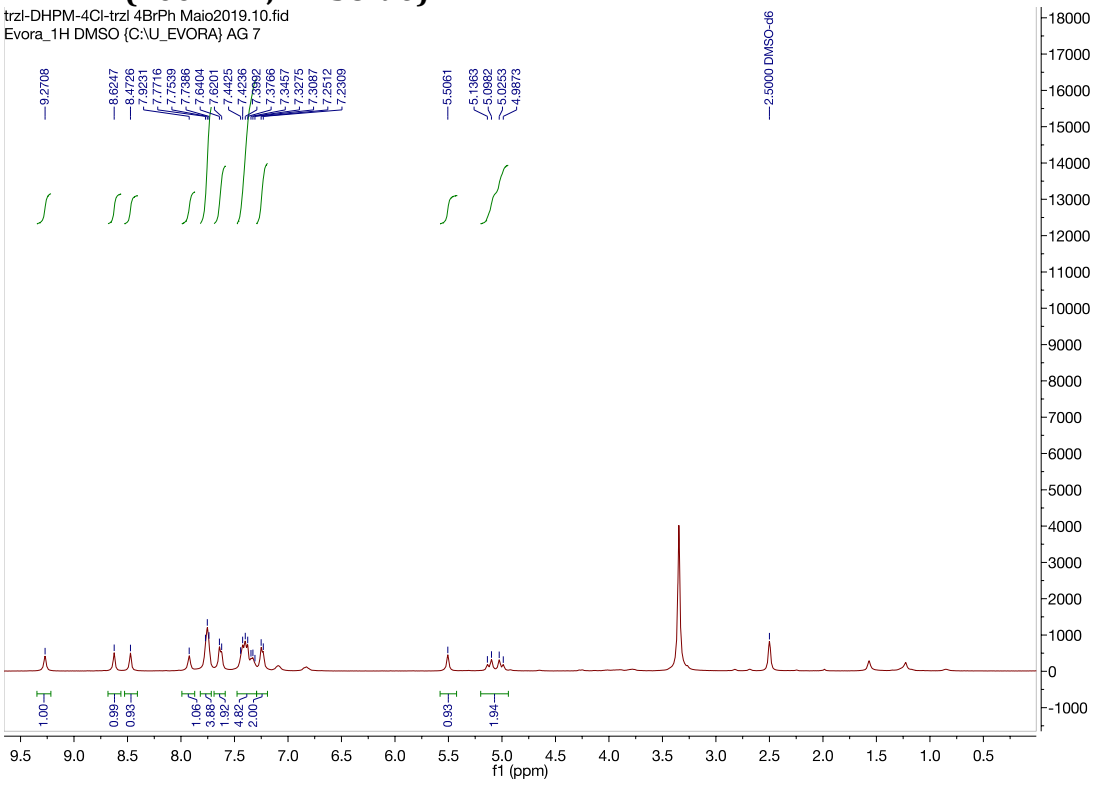


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

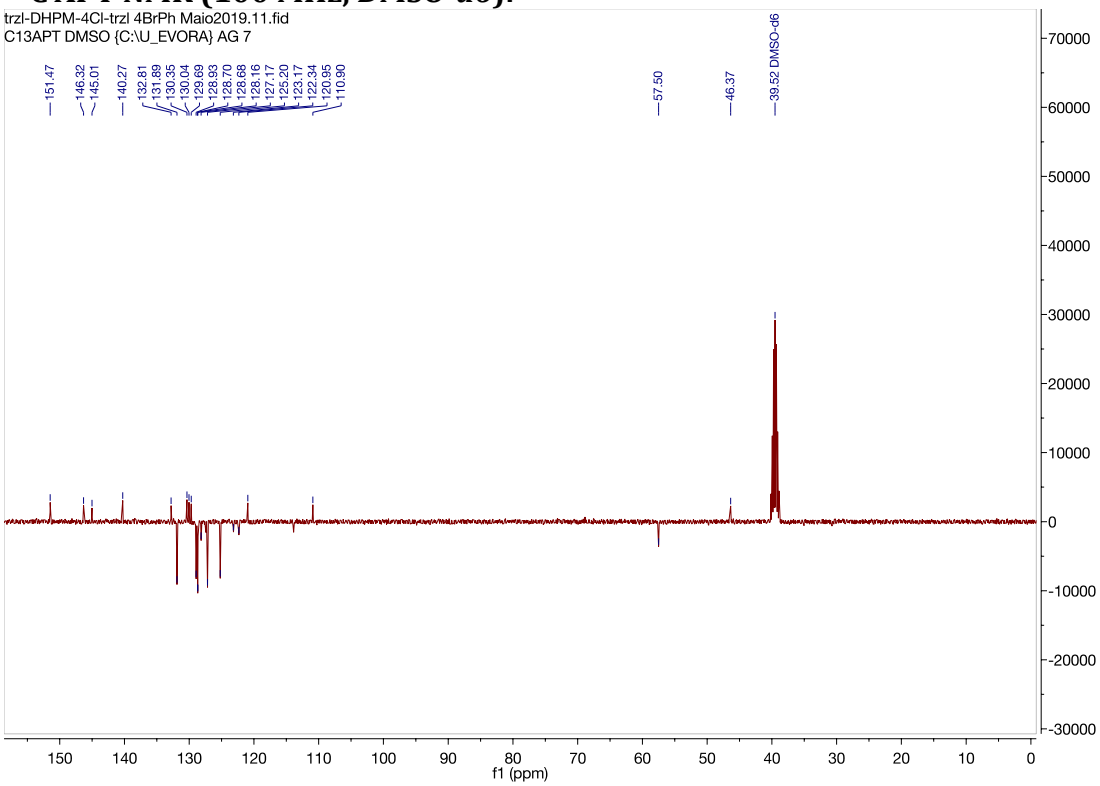



## 2.4.6. 6-((4-(4-Bromophenyl)-1,2,3-triazol-1-yl)methyl)-4-(4-chlorophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B6:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

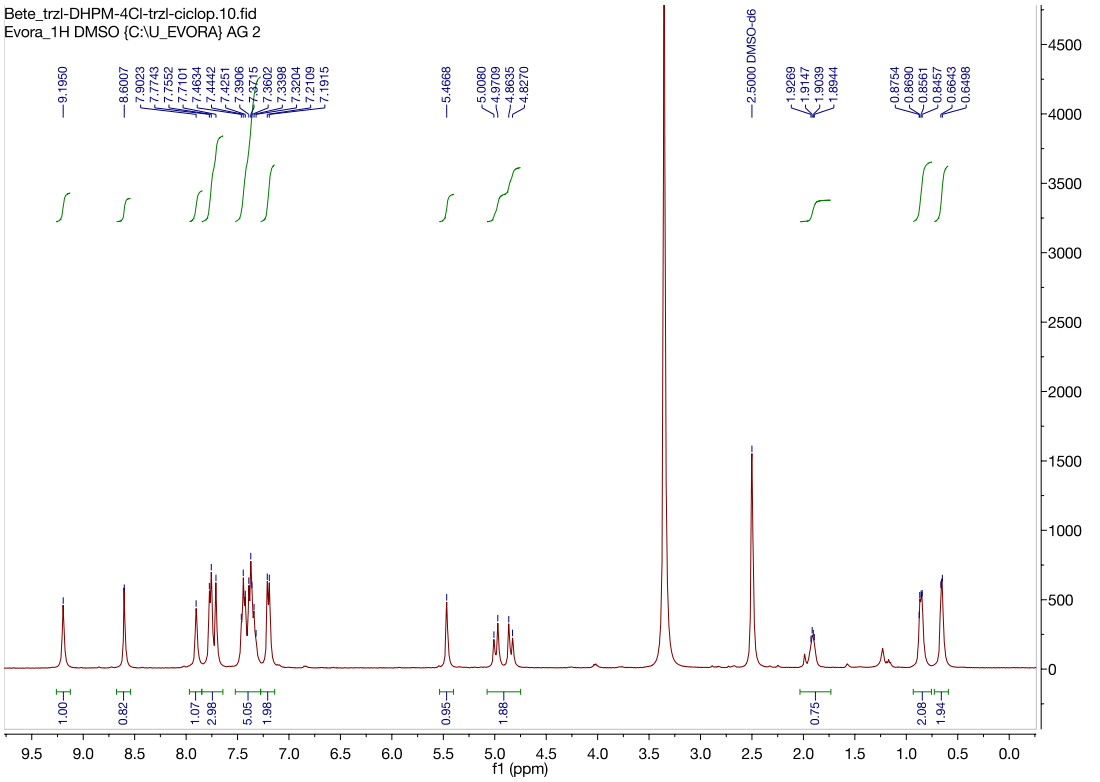


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

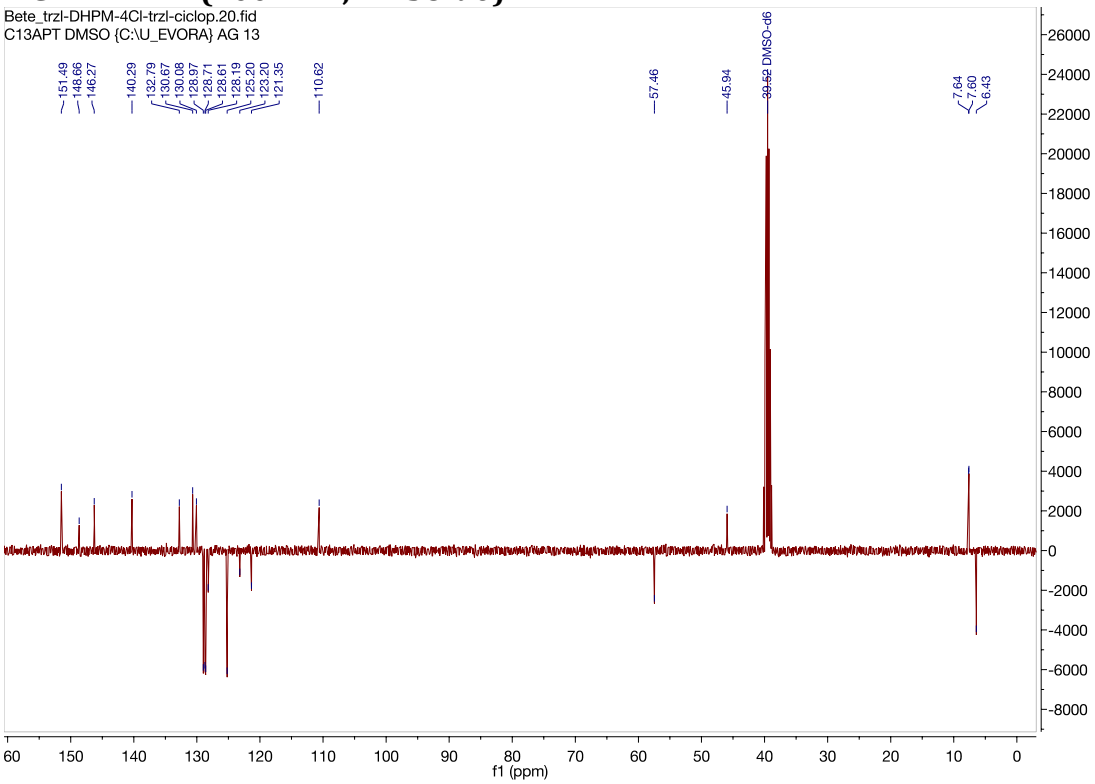



## 2.4.7. 4-(4-Chlorophenyl)-6-((4-cyclopropyl-1,2,3-triazol-1-yl)methyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B7:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

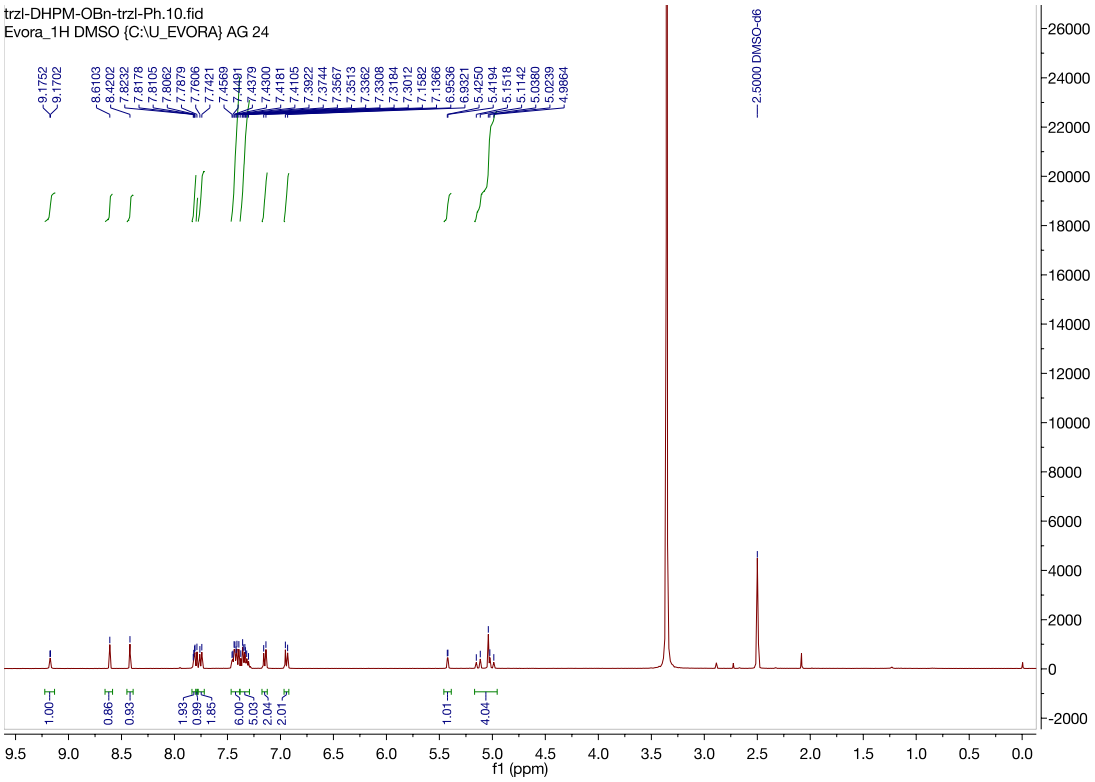


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

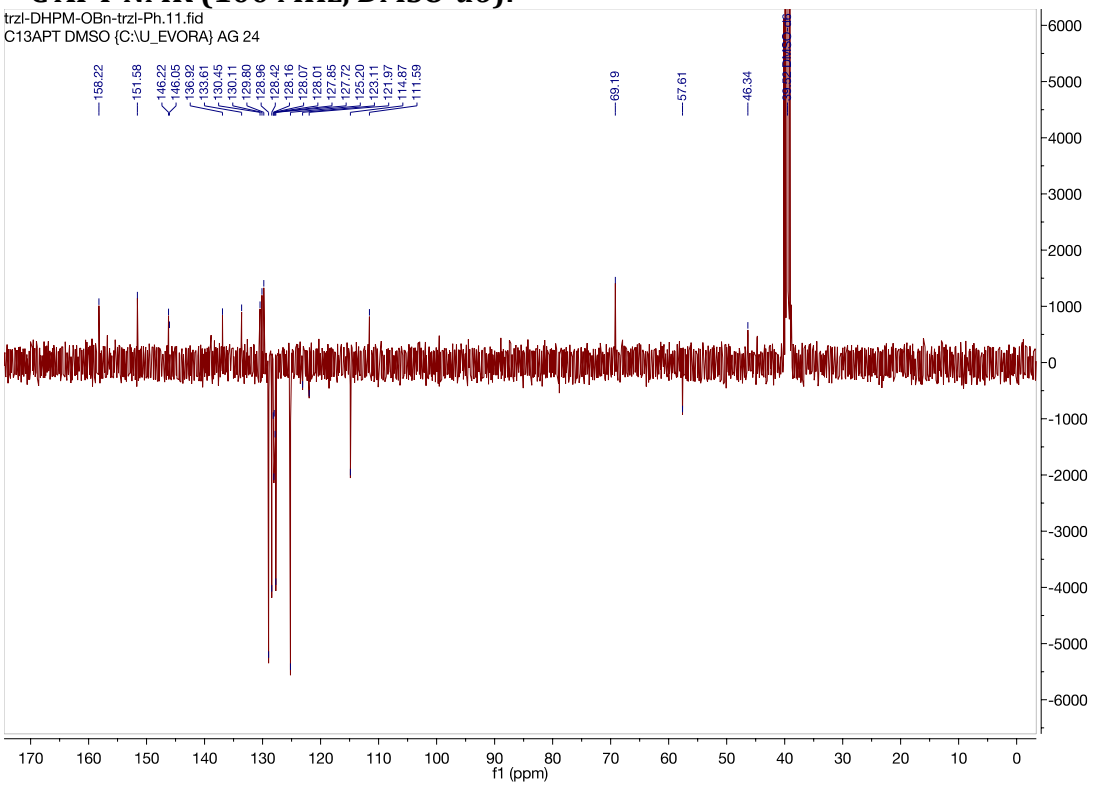



## 2.4.8. 4-(4-(Benzyloxy)phenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-6-((4-phenyl-1,2,3-triazol-1-yl)methyl)-3,4-dihydropyrimidin-2-one B8:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

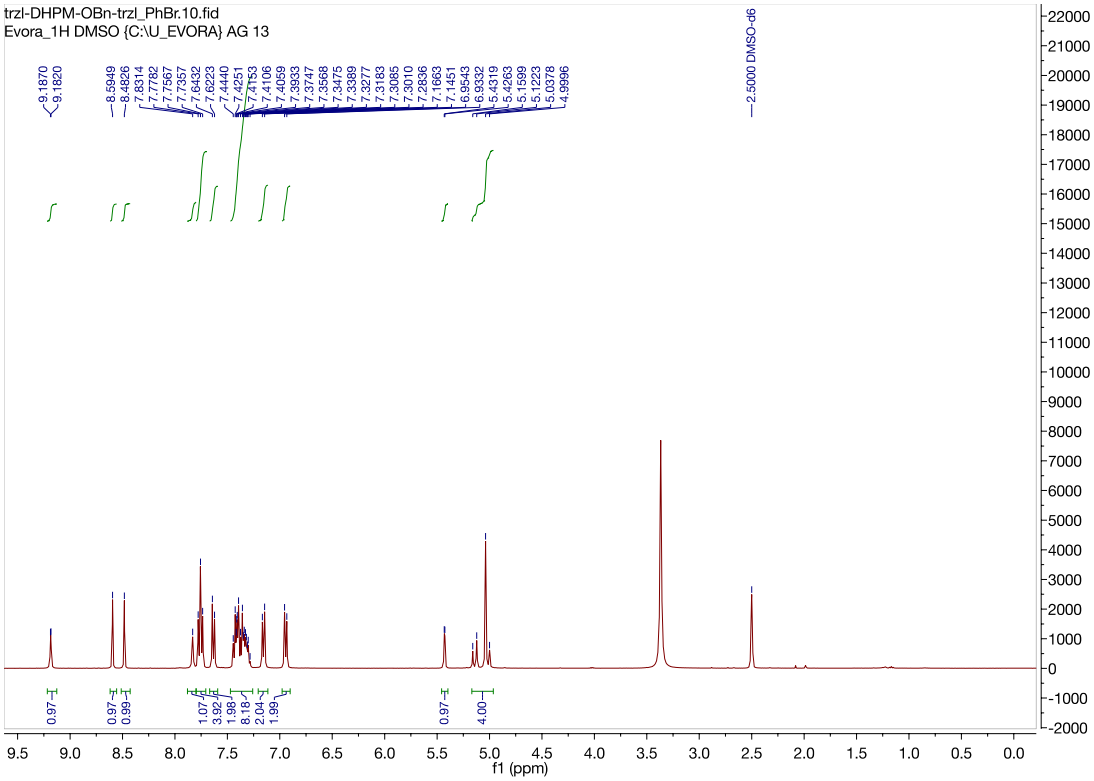


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

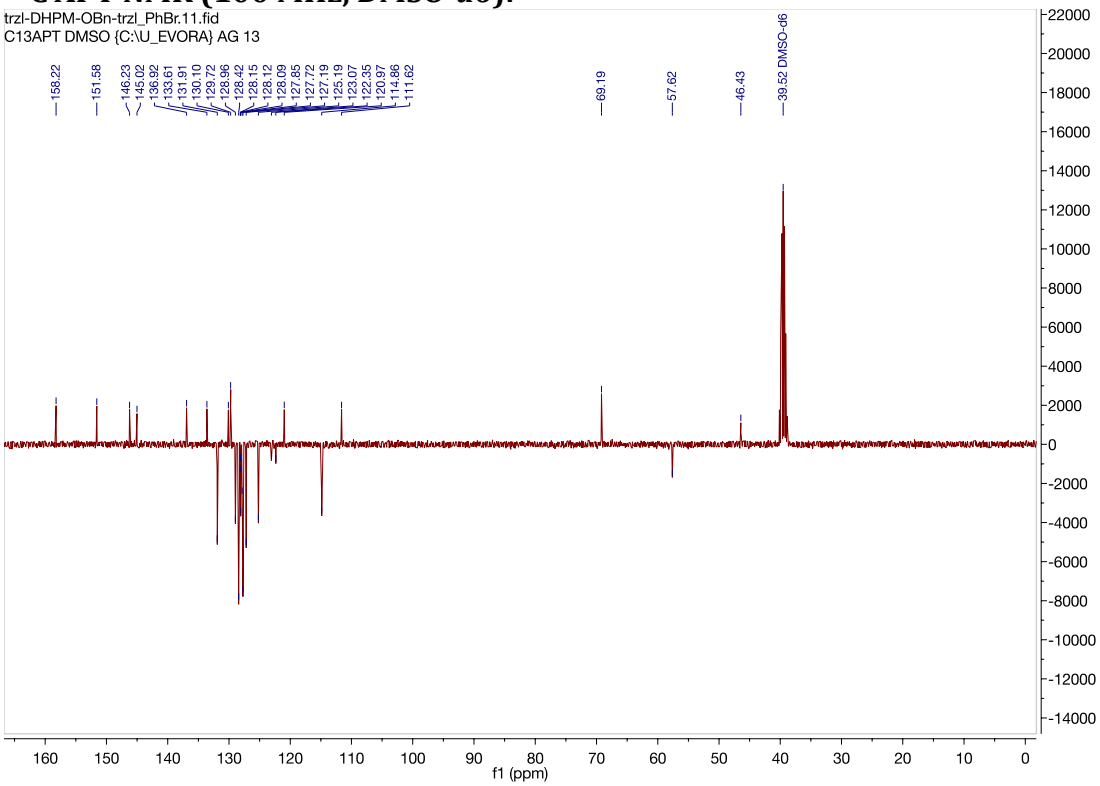



## 2.4.9. 4-(4-(Benzyloxy)phenyl)-6-((4-(4-bromophenyl)-1,2,3-triazol-1-yl)methyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B9:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

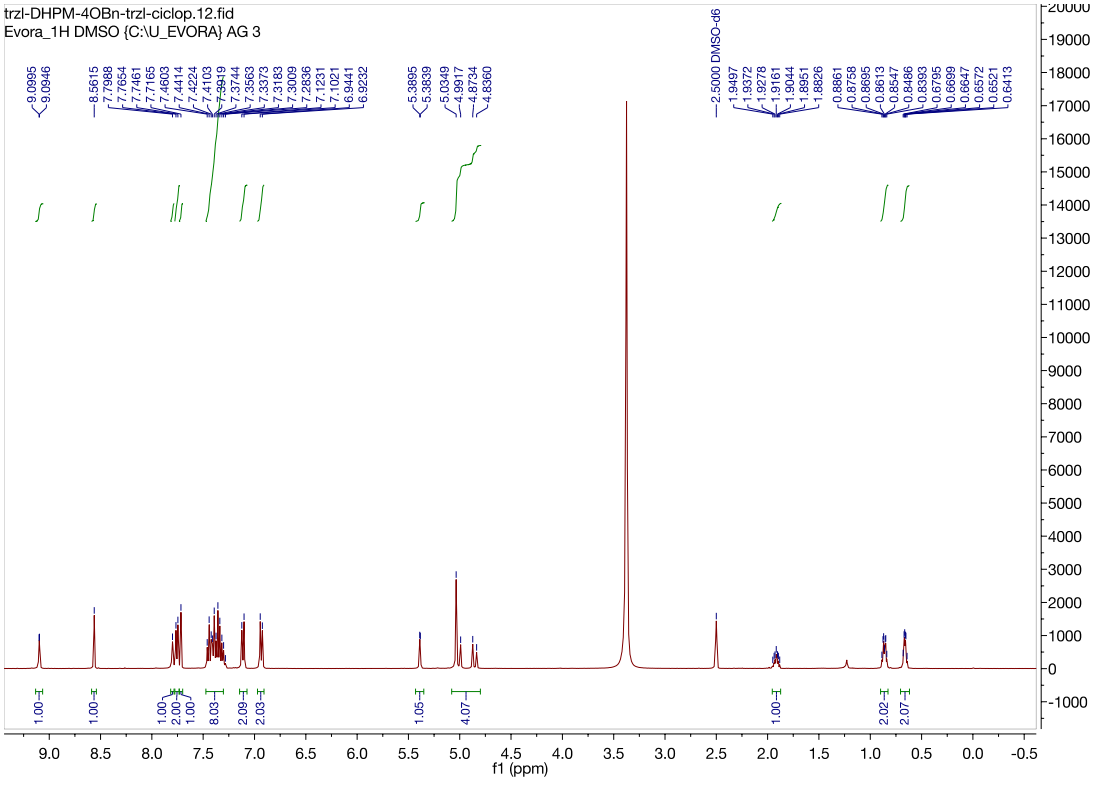


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

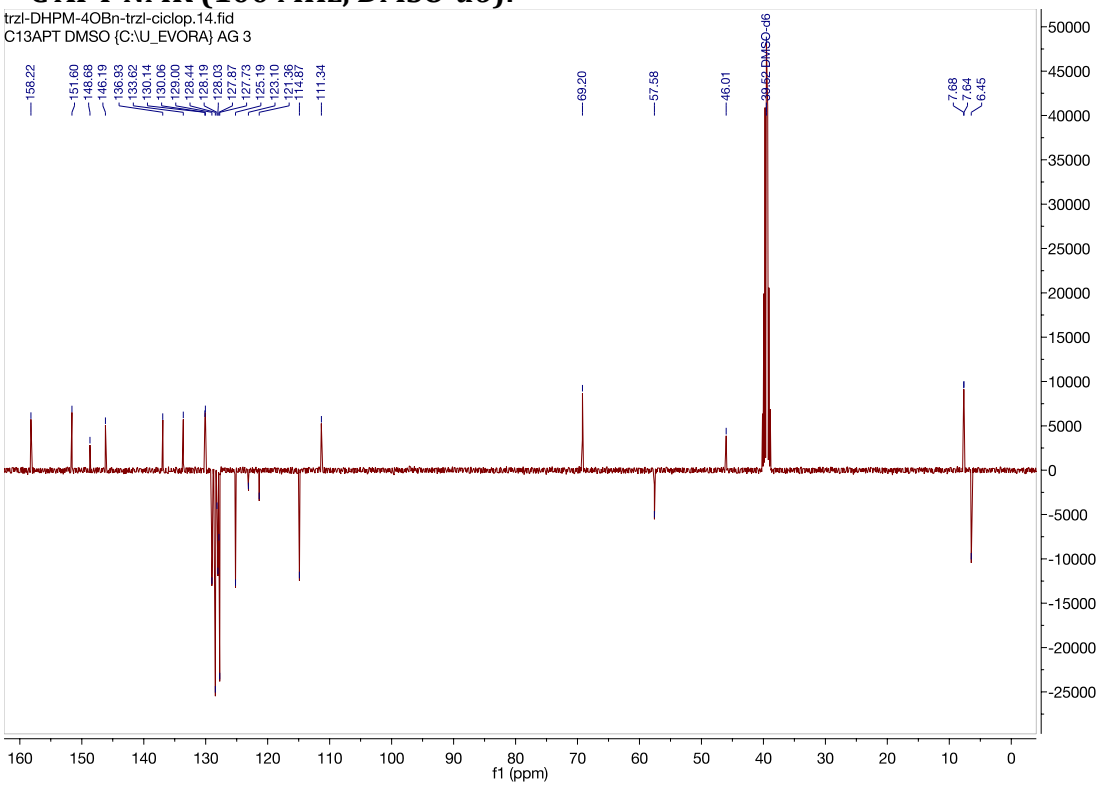



## 2.4.10. 4-(4-(Benzyloxy)phenyl)-6-((4-cyclopropyl-1,2,3-triazol-1-yl)methyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B10:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

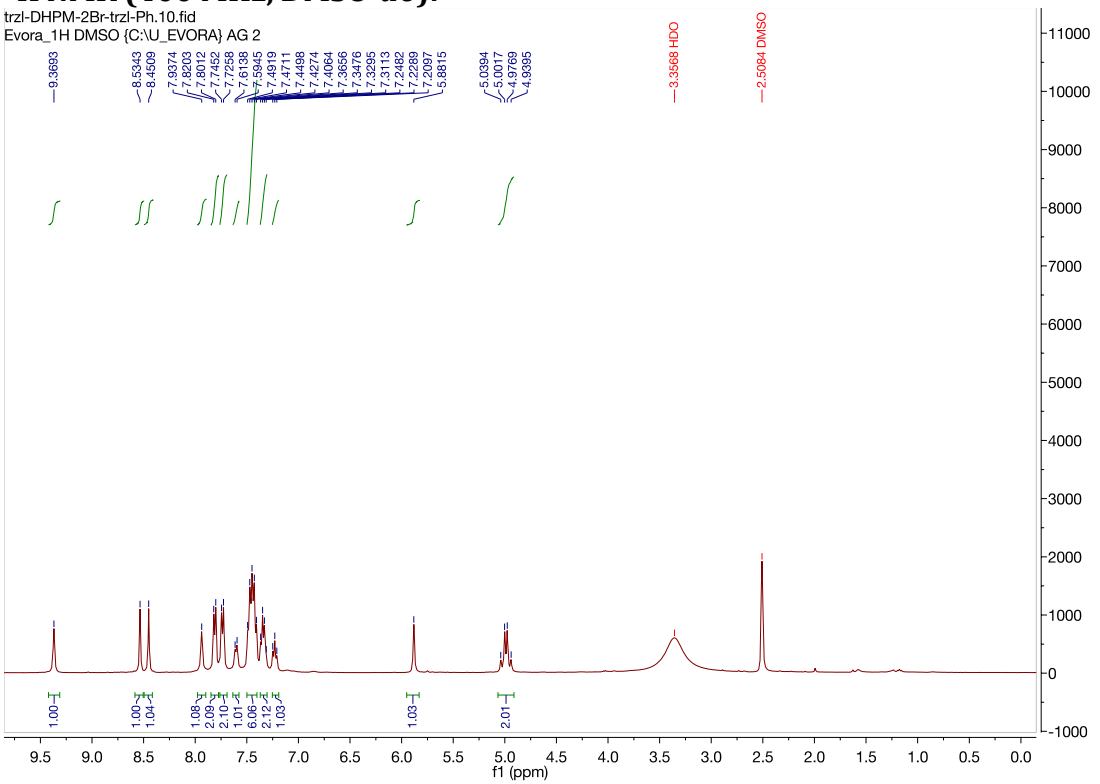


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

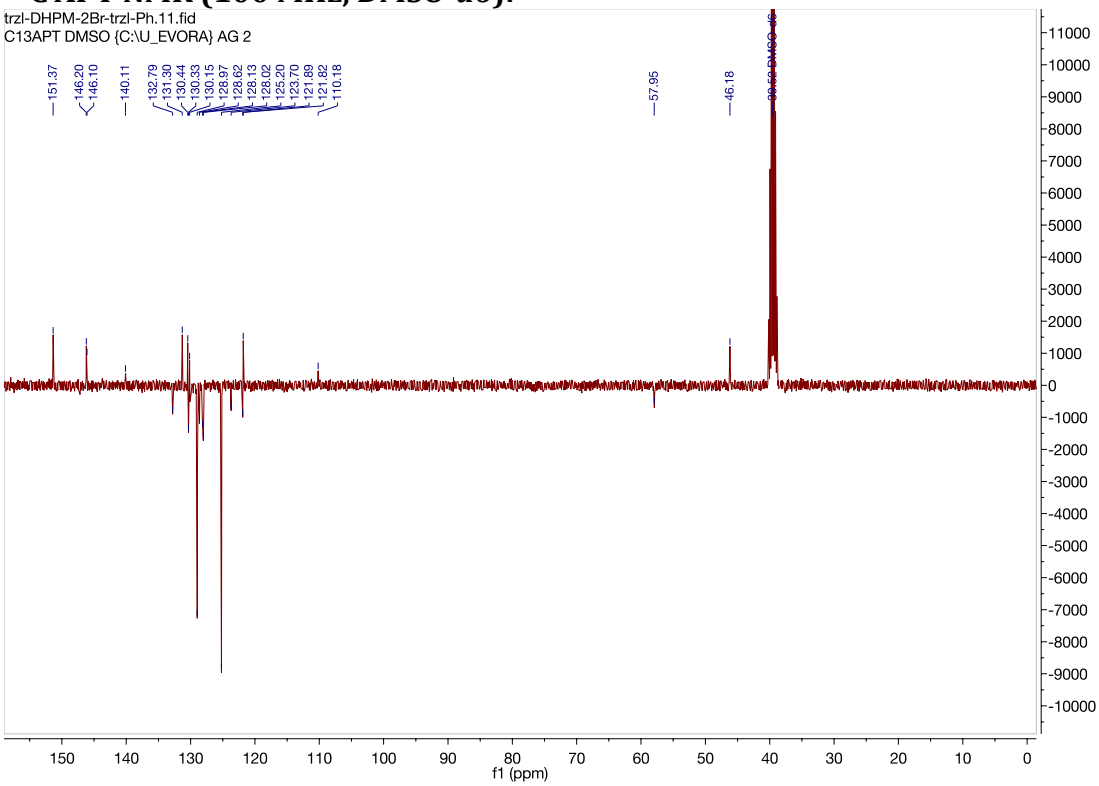



## 2.4.11. 4-(2-Bromophenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-6-((4-phenyl-1,2,3-triazol-1-yl)methyl)-3,4-dihydropyrimidin-2-one B11:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

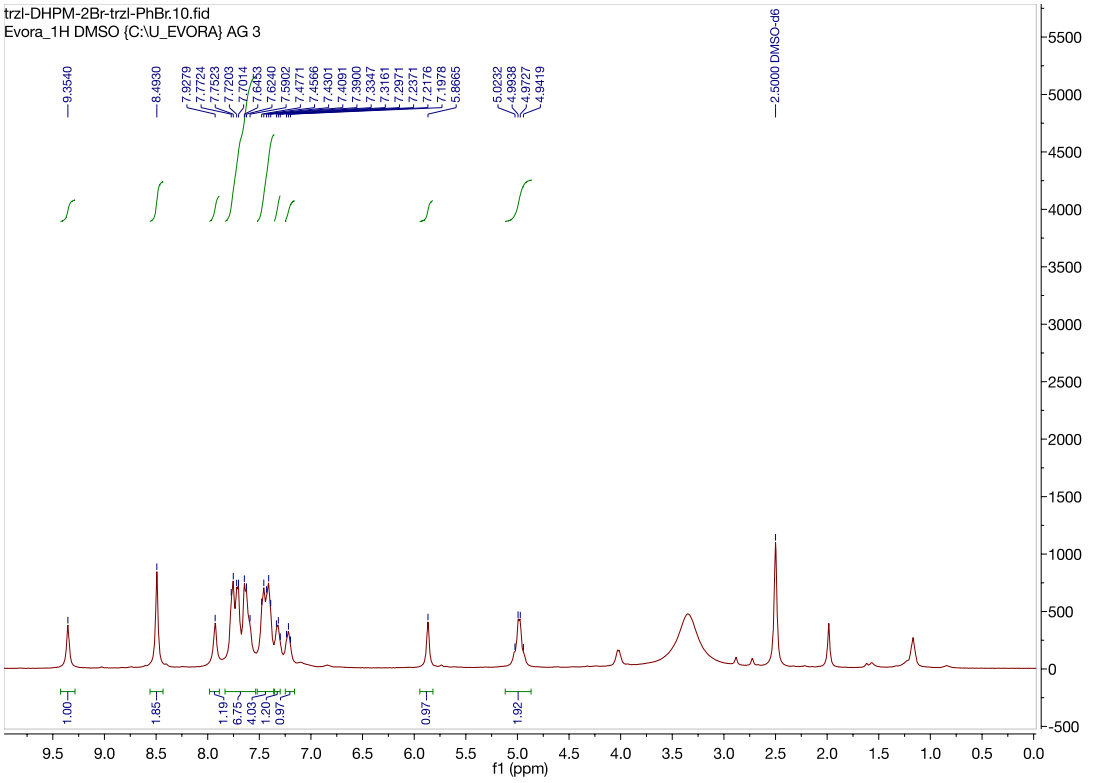


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

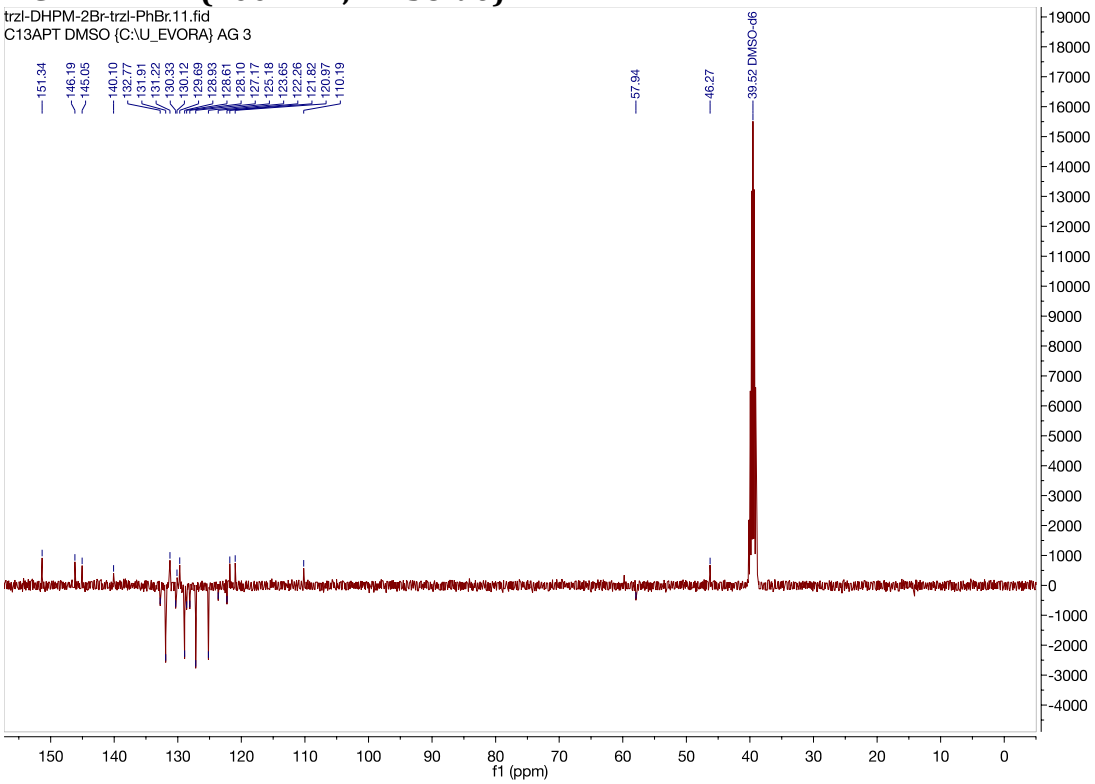



## 2.4.12. 4-(2-Bromophenyl)-6-((4-(4-bromophenyl)-1,2,3-triazol-1-yl)methyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B12:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

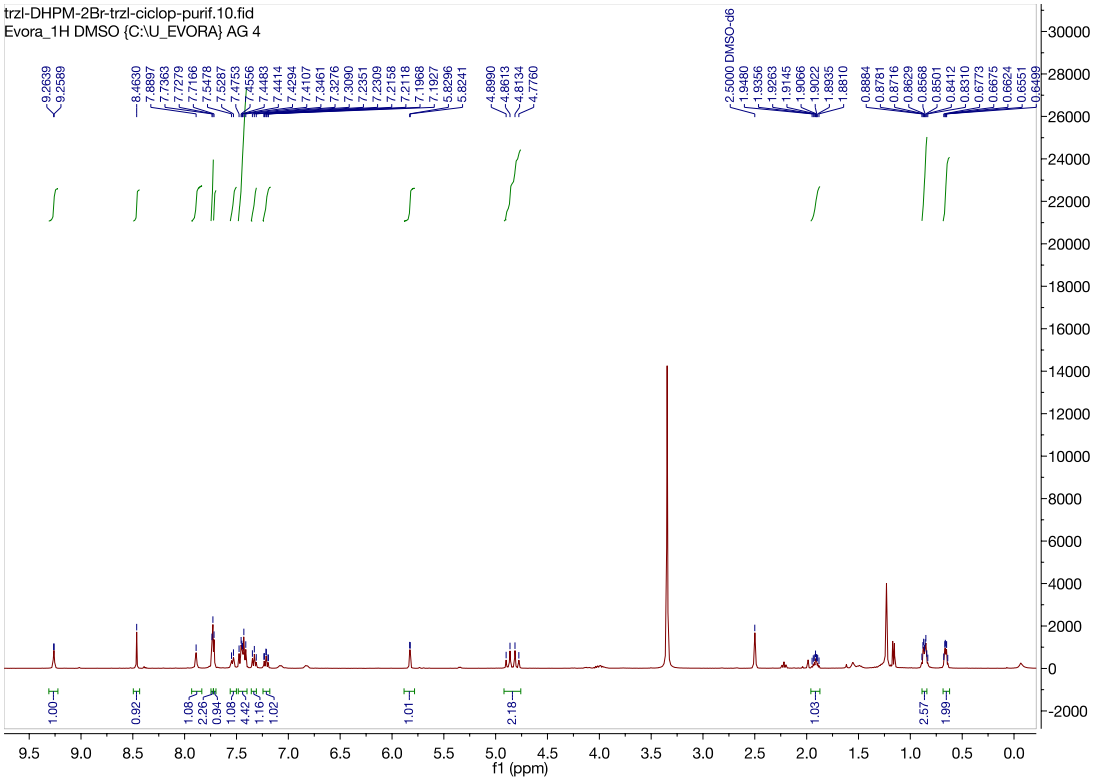


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

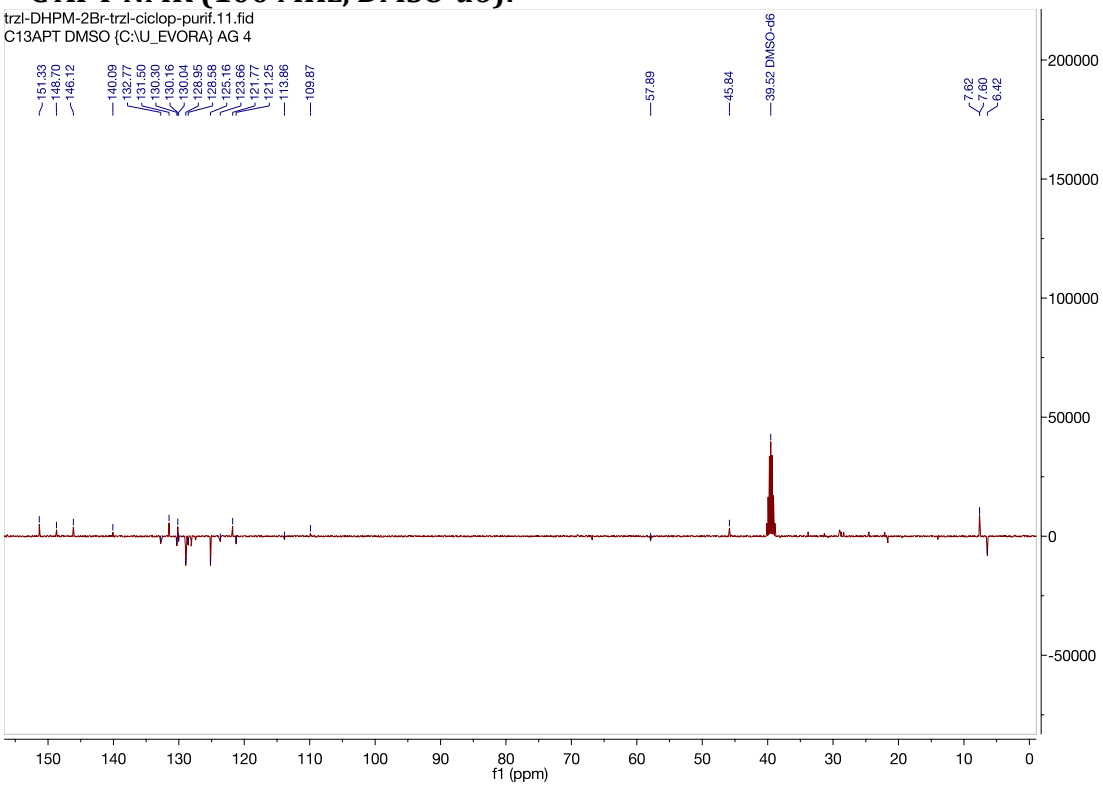



## 2.4.13. 4-(2-Bromophenyl)-6-((4-cyclopropyl-1,2,3-triazol-1-yl)methyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B13:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

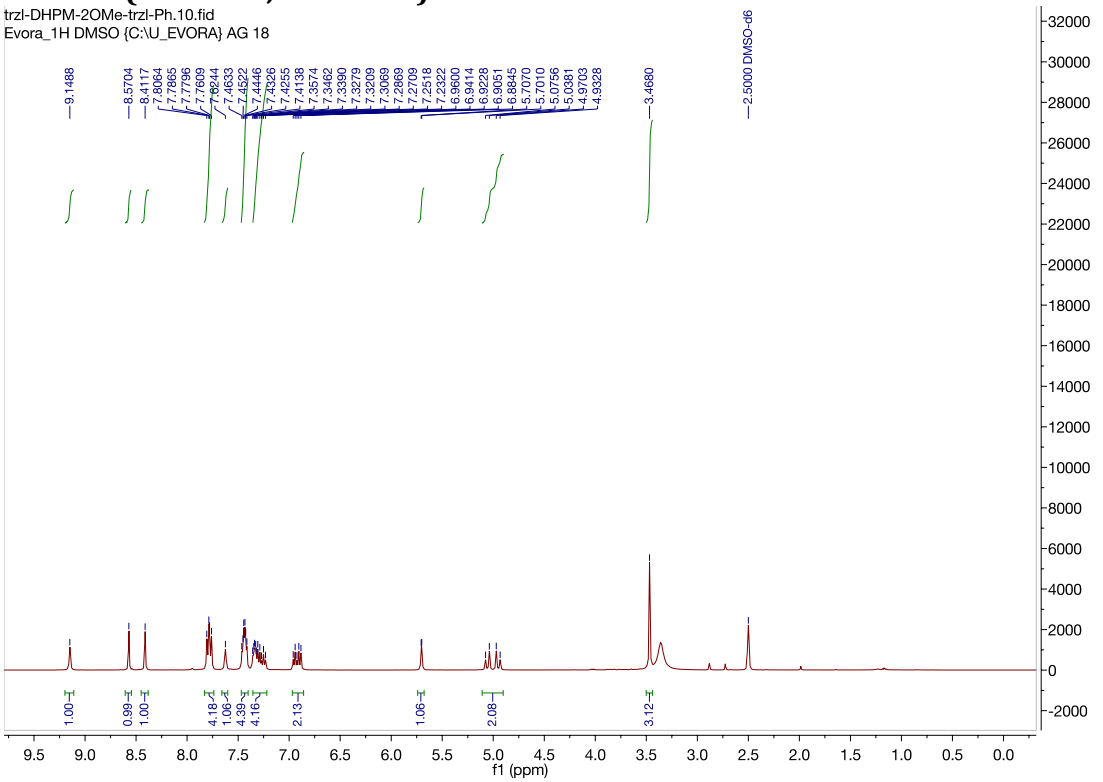


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

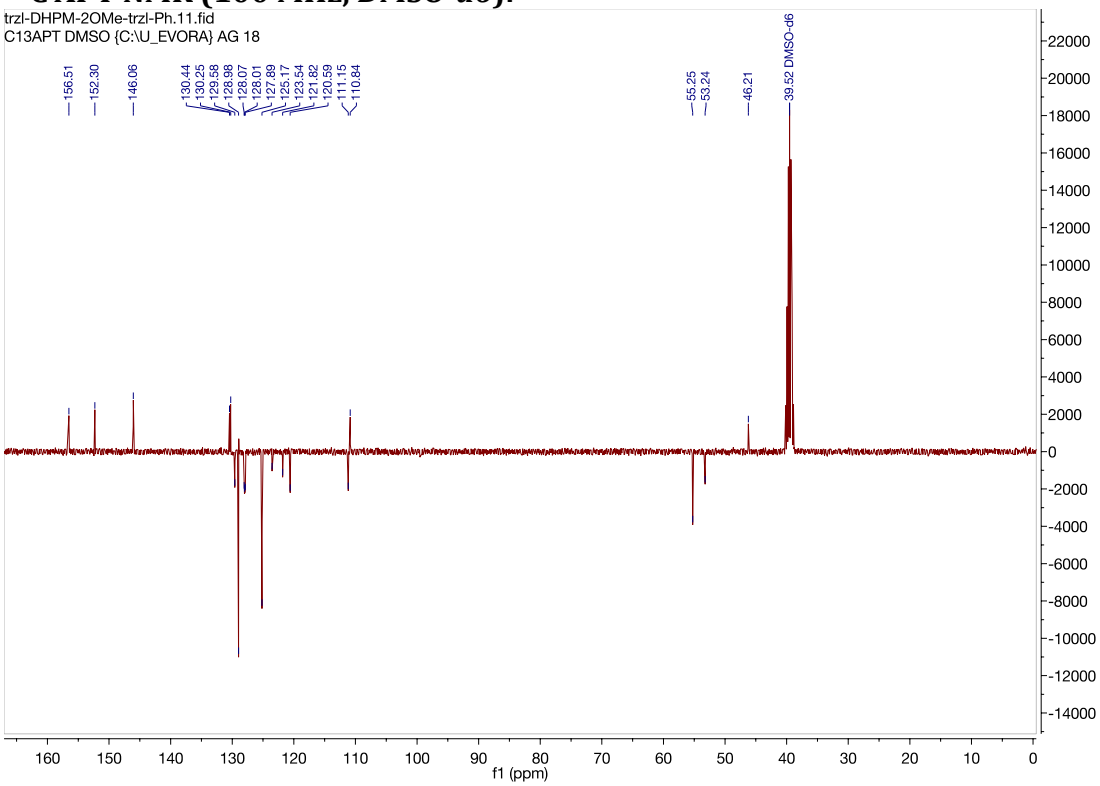



## 2.4.14. 4-(2-Methoxyphenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-6-((4-phenyl-1,2,3-triazol-1-yl)methyl)-3,4-dihydropyrimidin-2-one B14:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

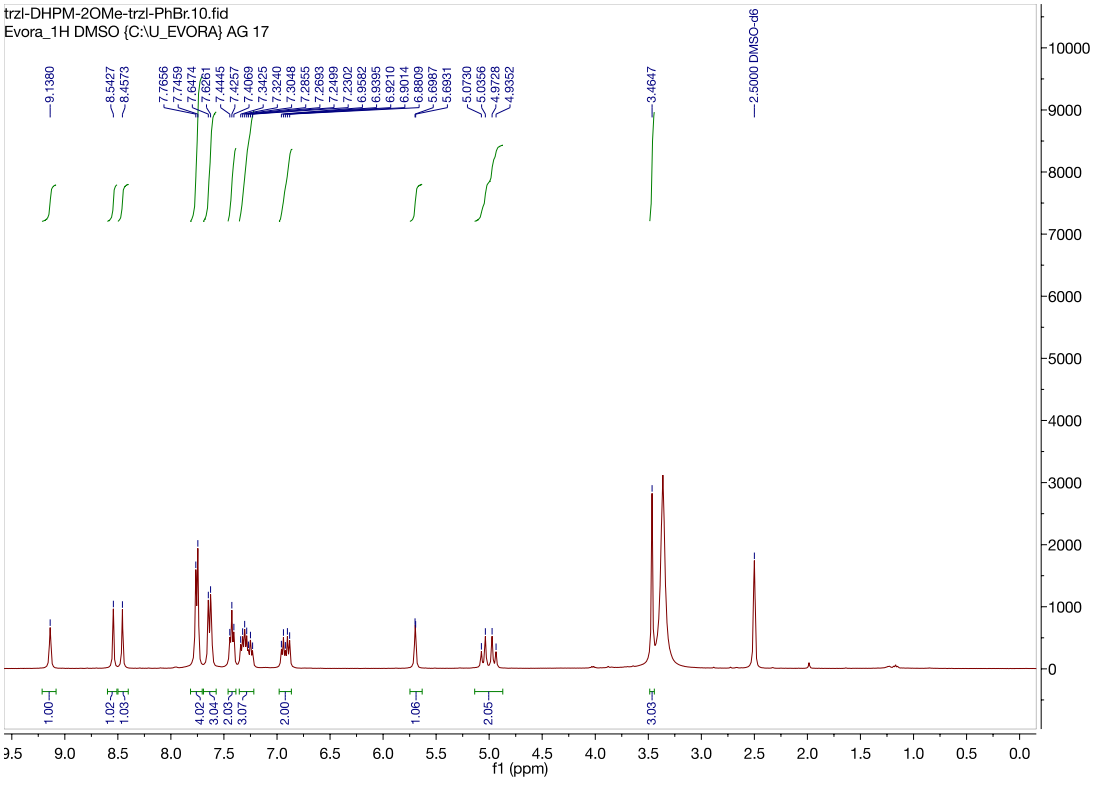


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

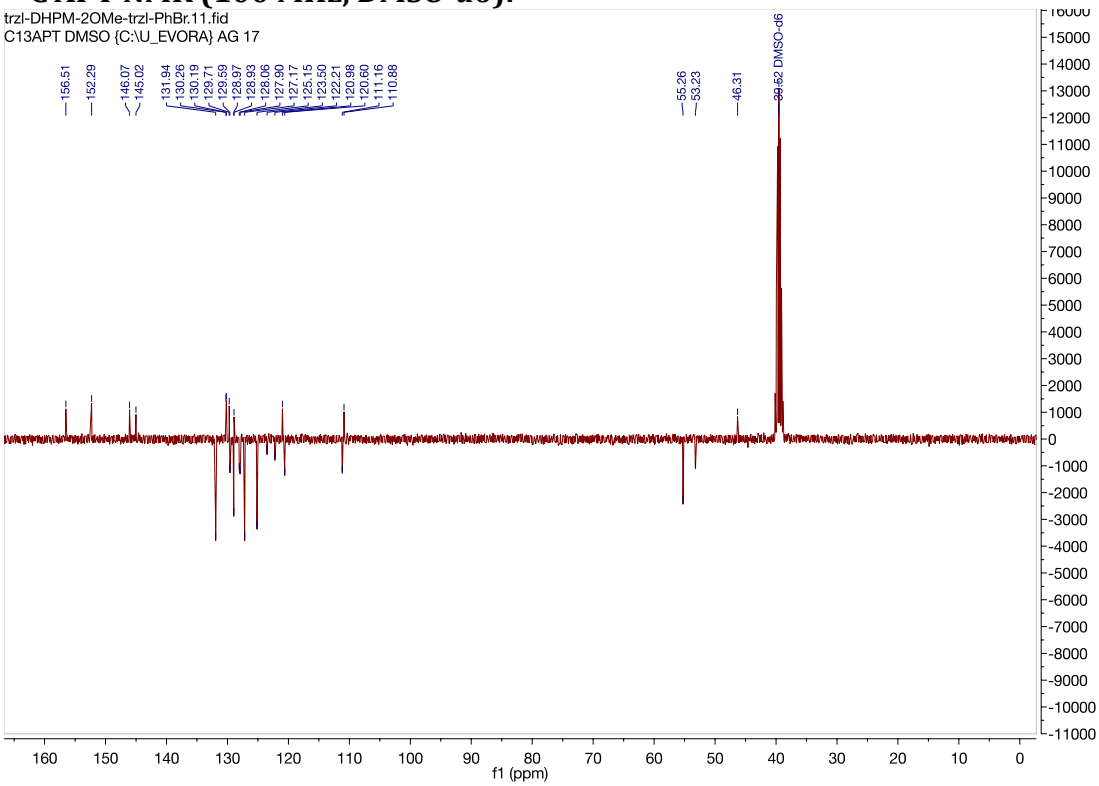



## 2.4.15. 6-((4-(4-Bromophenyl)-1,2,3-triazol-1-yl)methyl)-4-(2-methoxyphenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B15:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**

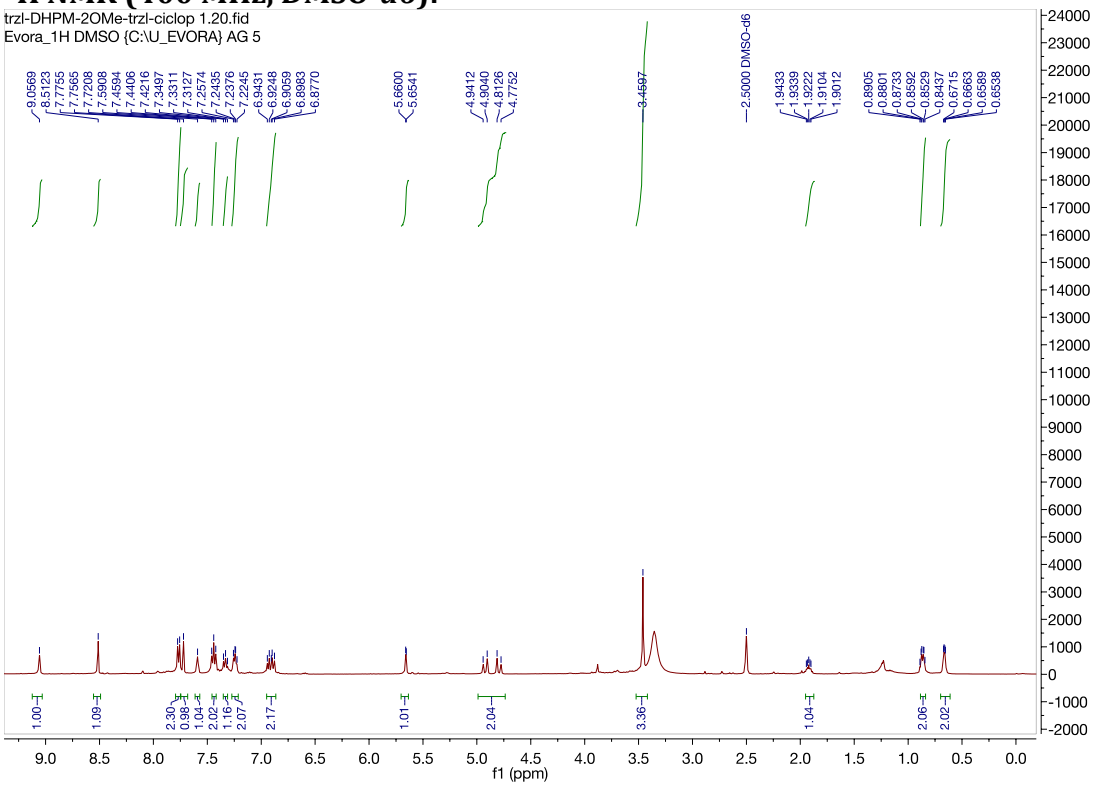


**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**

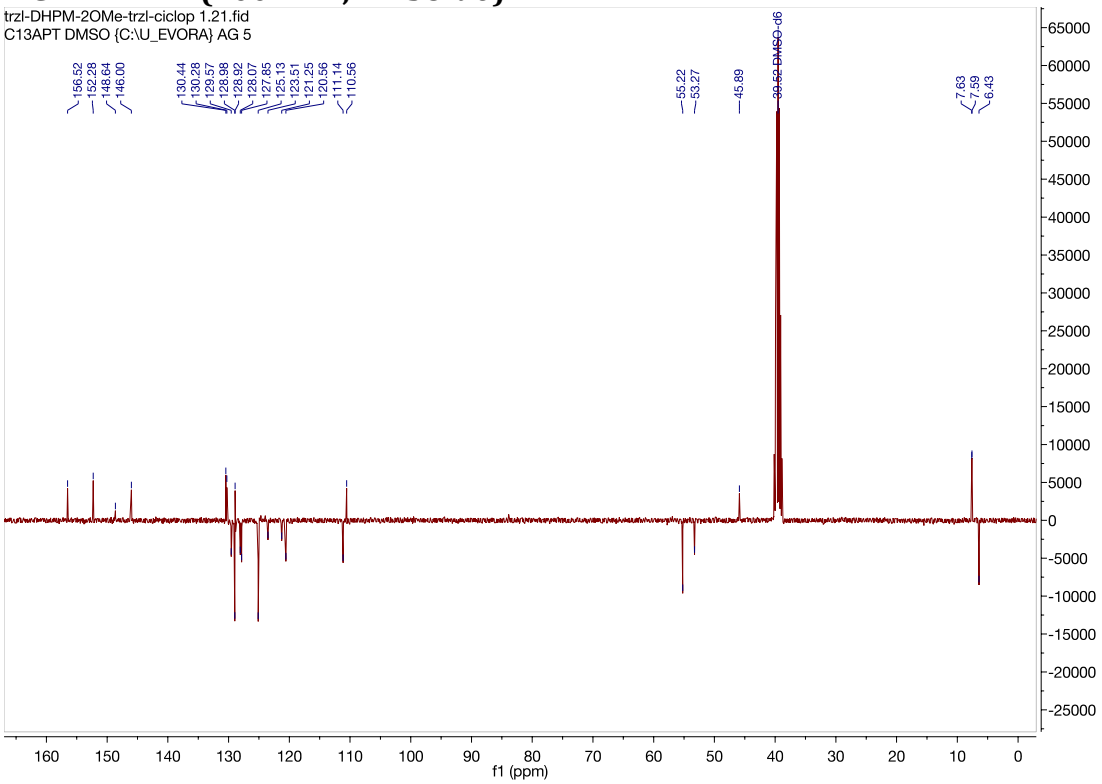



## 2.4.16. 6-((4-Cyclopropyl-1,2,3-triazol-1-yl)methyl)-4-(2-methoxyphenyl)-5-(4-phenyl-1,2,3-triazol-1-yl)-3,4-dihydropyrimidin-2-one B16:

**$^{1}$H NMR (400 MHz, DMSO-*d6*):**



**$^{13}$C APT NMR (100 MHz, DMSO-*d6*):**




## *3. Methodology for Anti-Proliferative Assays:*

Cells used in this study were purchased from the ATCC or were donated to the group by partner institutions. For screening, we used the following human solid tumour cell lines: A549 and SW1573 (non-small cell lung), HBL-100 and T-47D (breast), HeLa (cervix) and WiDr (colon).

Cells were grown in RPMI 1640 medium supplemented with 5% FBS and 2 mM glutamine. Cells were incubated at 37°C, 5% CO2 and 95% relative humidity.

Compounds for testing (A1-A3, B1-B4 and B7) were dissolved in DMSO in order to prepare 40 mM stock solutions.

Antiproliferative assay: The tests were performed using our implementation of NCI60 protocol.[4] Cells were grown in monolayers in 96-well plates. The maximum test concentration was 100 µM and drug exposure time was 48 h.

**References and Notes:**

(1). McNulty, J.; Zepeda-Velazquez, C. *Angew. Chem. Int. Ed.* **2014**, *53*, 8450.
(2). Lu, Y.; Wang, L.; Wang, X.; Xi, T.; Liao, J.; Wang, Z.; Jiang, F., *Eur. J. of Med. Chem,* **2017**, *135*, 125.
(3). Kumar, D.; Reddy, V. B.; Kumar, A. Mandal, D.; Tiwari, R.; Parang, K. *Bioorg. & Med. Chem. Lett.* **2011**, *21*, 449.
(4). https://dtp.cancer.gov/discovery_development/nci-60/