Supporting Information

Contents:

HPLC-MS analyses were performed on an Agilent Series 1100 with VWL-detector with a ZORBAX Eclipse-XDB-C8 column (4.6 mm x 150 mm x 5 µm) coupled to a Bruker Esquire 2000 mass-spectrometer with APC-Ionization. MeOH and H_2O with 0,1% HCOOH were used as an eluent system (gradient 20-100 % MeOH; Flow: 0,5 mL/min). UV-detection was peformed at 210 nm.

Elemental analyses were done by Fa. Ilse Beetz, Mikroanalytisches Laboratorium, Kronach (Germany) or at the Institute of Organic Chemistry, Erlangen.

IR-Spectra were registered on Jasco FT/IR 410 instrument, using a film of substance on NaCl-crystal or via KBr pellet

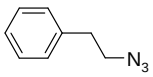
^{1}H and ^{13}C-NMR spectra were recorded in solution using a Bruker AM 360 instrument or a Bruker Avance 600 spectometer with tetramethylsilane as internal standard. If not otherwise reported $CDCl_3$ (99,8 %) was used as solvent.

1. Synthesis and Characterization of Library Building blocks

General procedure for the synthesis of azides:

All organic azides were prepared from the corresponding phenylalkyl bromide by nucleophilic substitution with sodium azide. To a solvent mixture of CH_3CN / H_2O (10:1) the phenylalkyl bromide (1 eq.) was added NaN_3 (3 eq.) and NaI (0.5 eq.). The reaction mixture was stirred for 12 hours at reflux temperature. The crude product was isolated by addition of diethyl ether and washing with brine. The organic layer was dried (Na_2SO_4) and evaporated under reduced pressure. The residue was purified by flash chromatography (hexane/ethyl-acetate 8:1 or 9:1).

(2-Azidoethyl)-benzene



Synthesis according to the general procedure.

Yield: 92% (7.36 mmol ; 1.08 g) , yellow oil

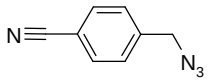
MW: 147.18

HPLC: R_{T1} (MeOH/H_2O) = 19.9 min; R_{T2} (CH_3CN/H_2O) = 22.7 min

APCI-MS: m/z 120.1 (M+1 -N_2)

Analytical data (IR, ^{1}H-NMR, ^{13}C-NMR) described in literature. This compound was characterized by IR, ^{1}H-NMR, ^{13}C-NMR and is in accordance to the data previously reported [1] [2]

4-(Azidomethyl)-benzonitrile



Synthesis according to the general procedure.

Yield: 89% (4.55 mmol; 0.72 g) , bright yellow oil

MW 158.16

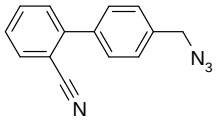
HPLC R_{T1} (MeOH/H_2O) = 16.4 min; R_{T2} (CH_3CN/H_2O) = 21.4 min

APCI-MS m/z 131 (M+1 -N_2)

IR (NaCl) v (cm^{-1}): 3062, 2931, 2881, 2229, 2102, 1608, 1504, 1415,1346,1292

Analytical data (^{1}H-NMR, ^{13}C-NMR) described in literature. This compound was characterized by IR, ^{1}H-NMR, ^{13}C-NMR and is in accordance with the data previously reported. [3]

4'-(Azidomethyl)-biphenyl-2-carbonitrile



Synthesis according to the general procedure.

Yield: 98% (5.90 mmol ; 1.38 g) , pale yellow solid

MW 234.26

HPLC R_{T1} (MeOH/H_2O) = 19.9 min; R_{T2} (CH_3CN/H_2O) = 23.0 min

APCI-MS m/z 207.0 (M+1 -N_2)

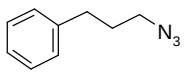
IR (NaCl) v (cm^{-1}): 3085, 3058, 2938, 2911, 2854, 2217, 2186, 2102,1592, 1477, 1346,1265

1H-NMR (360 MHz; CDCl3) ppm:
4.42 (s, 2H), 7.3-7.61(m, 6H), 7.65 (dt, 1H, Jt = 7.7 Hz, Jd = 1.3 Hz), 7.76 (dd, 1H, Jd = 7.7 Hz, Jd = 0.9 Hz)
^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm):

54.4, 111.28, 118.53, 127.73, 128.40 (2C), 129.21 (2C), 129.99, 132.84, 133.74, 136.06, 138.08, 144.79

Analytical data (mp, ^{1}H-NMR) described in literature. This compound was characterized by IR, ^{1}H-NMR, ^{13}C-NMR and is in accordance with the data previously reported. [4]

(3-Azidopropyl)-benzene



Synthesis according to the general procedure.

Yield: 93% (14.97 mmol; 2.41 g), yellow oil

MW 161.20

HPLC R_{T1} (MeOH/H_2O) = 21.0 min; R_{T2} (CH_3CN/H_2O) = 23.6 min

APCI-MS m/z 134.0 (M+1 -N_2)

IR (NaCl) v (cm^{-1}): 3085, 3062, 3027, 2938, 2865, 2098, 1604, 1496, 1454, 1346

^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm):

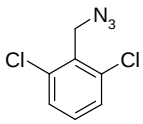
1.91 (quint.; 2H; J= 7.20 Hz), 2.70 (t; 2H; J= 7.6 Hz), 3.27 (t; 2H; J = 6.82 Hz), 7.15 – 7.24 (m; 3H); 7.25 – 7.34 (m; 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm):

30.4, 32.7, 50.6, 126.1, 128.42 (2C), 128.48 (2C), 140.8

Analytical data described in literature.[5]

2-(Azidomethyl)-1,3-dichlorobenzene



Synthesis according to the general procedure.

Yield: 95% (12.25 mmol; 2.47 g), yellow oil

MW 202.04

HPLC R_{T1} ($MeOH/H_2O$) = 21.5 min; R_{T2} (CH_3CN/H_2O) = 23.7 min

APCI-MS m/z 173.9 (M+1 $-N_2$ ref. ^{35}Cl)

IR (NaCl) v (cm^{-1}): 3081, 2954, 2877, 2098, 1581, 1562, 1438, 1342, 1253

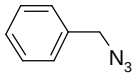
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm):

4.68 (s, 2H), 7.20- 7.25 (m, 1H), 7.36 (d, 2H, J= 8.16 Hz)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm):

49.1, 128.5 (2C), 130.2 (2C), 131.5, 136.4

(Azidomethyl)-benzene



Synthesis according to the general procedure.

Yield: 98% (14.45 mmol; 1.92 g), yellow oil

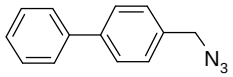
MW 133.15

HPLC R_{T1} ($MeOH/H_2O$) = 18.8 min; R_{T2} (CH_3CN/H_2O) = 22.4 min

APCI-MS m/z 106.0 (M+1 $-N_2$)

Analytical data (IR, ^{1}H-NMR, ^{13}C-NMR) described in literature. This compound was characterized by IR, ^{1}H-NMR, ^{13}C-NMR and is in accordance to the data previously reported. [6] [7]

4-(Azidomethyl)-biphenyl [8]



Synthesis according to the general procedure.

Yield: 75% (3 mmol; 0.62 g) , pale yellow solid

MW 209.25

TLC R_f = 0.8 (PE/EE 2:1)

HPLC R_{T1} ($MeOH/H_2O$) = 22.1 min; R_{T2} (CH_3CN/H_2O) = 23.9 min

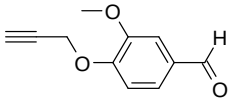
APCI-MS m/z 182.0 (M+1 $-N_2$)

IR (NaCl) v (cm^{-1}): 3058, 3029, 2927, 2871, 2094, 1486, 1448, 1342

^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm):

4.38 (s, 2H), 7.31- 7.49 (m, 5H), 7.54 – 7.64 (m, 4H)

3-Methoxy-4-prop-2-ynyloxybenzaldehyde



4-Hydroxy-3-methoxy-benzaldehyde (0.76 g; 5 mmol, 1 eq.) was dissolved in dry DMF (40 ml). After addition of KI (0,17 g; 1 mmol, 0.2 eq.) and K_2CO_3 (1.3 g ; 9.4 mmol, 1.8 eq) the flask was capped with a septum and propargylbromide (80 % wt) (0.91 g; 6 mmol, 1.22 eq.) was slowly injected by a syringe. The reaction mixture was heated to 120 ℃ for 15 hou rs. After cooling to room temperature the mixture was extracted with diethylether (2 x 100 mL) and the combined organic layers were washed with brine, dried (Na_2SO_4) and evaporated under reduced pressure to yield the crude product. Subsequent purification by flash chromatography (hexane/ethyl-acetate 5:1) yielded 82% (4.11 mmol ; 0.78 g) of *O*-propargylvanillin as a white solid.

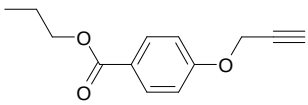
MW 190.20

HPLC R_{T1} (MeOH/H_2O) = 14.4 min ; R_{T2} (CH_3CN/H_2O) = 19.9 min

APCI-MS m/z 191.0 (M+1)

Analytical data (mp, ^{1}H-NMR, ^{13}C-NMR) described in literature. This compound was characterized by IR, ^{1}H-NMR, ^{13}C-NMR and is in accordance with the data previously reported. [9]

Propyl-4-(prop-2-yn-1-yloxy)-benzoate



To a mixture of propyl-4-hydroxybenzoate (4.15 g; 24.9 mmol) and K_2CO_3 (6 g; 43.4 mmol; 1.7 eq.) in dry DMF (30 mL) was added propargylbromide (7.3 g; 62 mmol; 2.5 eq.) by a syringe. The mixture was stirred at 50℃ over night. After being cooled to room temperature the crude product was isolated by extraction with diethyl ether (2 x 100 mL) and brine. Evaporation of the organic solvent and purification of the residue by flash chromatography (hexane/ethyl acetate 9:1) afforded the desired propyl-4-(prop-2-yn-1-yloxy)-benzoate in 84 % yield (21 mmol; 4.57 g).

MW 218.24

HPLC R_{T1} (MeOH/H_2O) = 20.3 min; R_{T2} (CH_3CN/H_2O) = 23.0 min

APCI-MS m/z 219 (M+1)

IR (NaCl) v (cm^{-1}): 3293, 2969, 2881, 2121, 1712, 1604, 1508, 1311, 1276, 1245, 1172, 1106, 1022, 848, 771

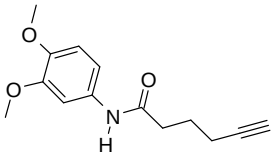
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm):

1.02 (t, 3H, J = 7.37 Hz), 1.77 (m, 2H), 2.53 (t, 1H, J = 2.38 Hz), 4.25 (t, 2H, J = 6.6 Hz), 4.74 (d, 2H; J = 2.49 Hz), 6.96 – 7.03 (m, 2H) 7.99 – 8.05 (m, 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm):

10.5, 22.15, 55.85, 66.31, 76.01, 77.85, 114.46 (2C), 123.87, 131.49 (2C), 161.08, 166.26

***N*-(3,4-Dimethoxyphenyl)-hex-5-ynoylamide**



3,4-Dimethoxyaniline (1.15 g; 7.5 mmol; 1 eq.) was dissolved in dry CH_2Cl_2 (40 mL) followed by the addition of DIPEA (1.29 g; 10 mmol, 1.3 eq.) and a solution of DIC (2.6 g; 20.6 mmol; 2.7 eq.) and 2.0 g HOBt-hydrate (21.2 mmol; 2.7 eq.) in CH_2Cl_2 (10 mL). 5-Hexynoic acid (0.9 g; 7.5 mmol; 1 eq) was added and reaction mixture was stirred for 48 hours at room temperature. The solution was treated with diethyl ether and washed with 0.5 N aq. HCl (2 x 100 mL). After drying with Na_2SO_4 and evaporation of the solvent the residue was purified by flash chromatography (hexane/ethyl acetate 5:1). Yield: 76 % (5.7 mmol; 1.41 g)

MW 247.28

HPLC R_{T1} ($MeOH/H_2O$) = 14.6 min; R_{T2} (CH_3CN/H_2O) = 18.9 min

APCI-MS m/z 248.1 (M+1)

IR (NaCl) v (cm^{-1}): 3289, 3073, 2938, 2834, 2113, 1658, 1608, 1515, 1454, 1234, 1164, 1025

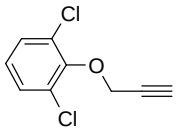
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm):

1.95 (quint.; 2H; J= 7.03 Hz); 2.00 (t; 1H; J= 2.61 Hz), 2.32 (dt; 2H; J = 6.69 Hz; 2.57 Hz), 2.49 (t; 2H; J= 7.26 Hz), 3.85 (s; 3H), 3.87 (s; 3H), 6.79 (d; 1H; J= 8.4 Hz), 6.84 (dd; 1H; J= 8.6 Hz; 2.27 Hz), 7.22-7.27 (s br.; 1H), 7.37 (d;1H; J = 2.04 Hz)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm):

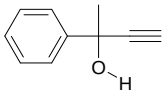
17.8, 23.94, 35.85, 55.8, 56.1, 69.34, 83.43, 104.9, 111.3, 111.6, 131.5, 145.85, 149.08, 170.3

1,3-Dichloro-2-(prop-2-yn-1-yloxy)-benzene



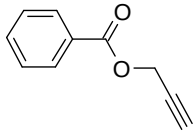
This compound was purchased at Maybridge Organics. [10]

2-Phenylbut-3-yn-2-ol



This compound was purchased at Acros Organics in 98%+ quality.[11] [12] [13]

Prop-2-yn-1-yl benzoate



A mixture of benzoyl chloride (10.98 g; 78 mmol) and propargyl alcohol (4.35 g; 77.5 mmol) was treated with DIPEA (10.96 g; 85 mmol; 1.1 eq.) and stirred for 24 hours at room temperature. Extraction with with hexane/ethyl acetate 3/1 (3 x 150 mL) and washing of the combined organic layers with brine (2 x 30 mL) was followde by drying ($MgSO_4$) and evaporation of the solvent under reduced pressure. The resulting yellow oil was purified by flash chromatography (hexane/ethyl acetate 5/2) to yield 68 % (8.5 g; 53 mmol) the desired propargyl benzoate.

MW 160.16

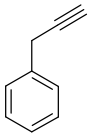
HPLC R_{T1} (MeOH/H_2O) = 18.0 min; R_{T2} (CH_3CN/H_2O) = 21.97 min

APCI-MS m/z 161.0 (M+1)

IR (NaCl) v (cm^{-1}): 3297, 3066, 2946, 2129, 1724, 1600, 1450, 1369, 1315, 1268, 1176, 1106, 1068, 1025, 979, 925, 709, 686

Analytical data (IR, ^{1}H-NMR, ^{13}C-NMR) described in literature. This compound was characterized by IR and ^{1}H-NMR and is in accordance with the data previously reported. [14] [15] [16]

Prop-2-yn-1-ylbenzene

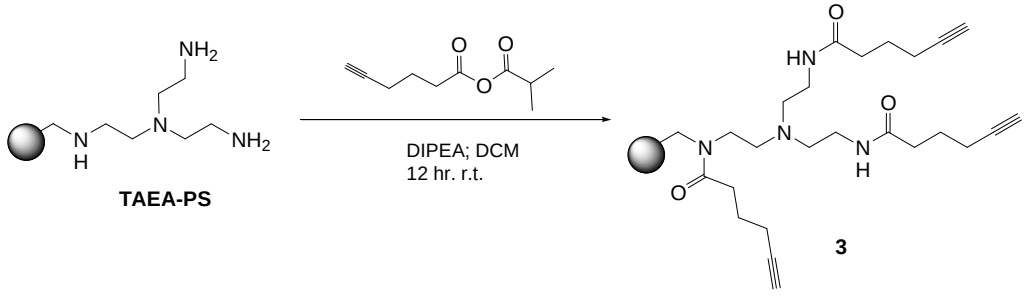


This compound was purchased at Acros Organics in 97% quality (stabilized).

2. Preparation of Scavenger Resins

Tris-(2-aminoethyl)-amine PS resin was purchased at Novabiochem (Merck). Merrifield resin was purchased at Acros Organics.

Tris-(2-hex-5-ynyl-amido-ethyl)-amin polystyrene resin 3.



Preparation of hexynoic acid mixed anhydride:

A mixture of 5-hexynoic acid (97 %; 1.05 g; 9.36 mmol) and DIPEA (2.42 g; 18.7 mmol) was slowly treated with a solution of isobutyryl chloride (98 %; 0.99 g) in dry CH_2Cl_2 (5 mL) under N_2 atmosphere. The resulting yellow solution was stirred for 12 hours at room temperature to form the mixed anhydride. Extraction with hexane (4 times with 50 mL) and washing of the combined organic layers with 0.5 N aq. HCl (3 x 30 mL) was followed by drying (Na_2SO_4) and evaporation of the solvent. A bright yellow oil was obtained which was dried at under high vacuum over night. An FT-IR-spectrum

(liquid film on NaCl) showed the expected alkyne-stretch bands at 3291 cm^{-1} and 2117 cm^{-1} as well as two C=O bands (1812 cm^{-1} and 1747 cm^{-1}). The compound was not further purified and directly used for acylation reaction.

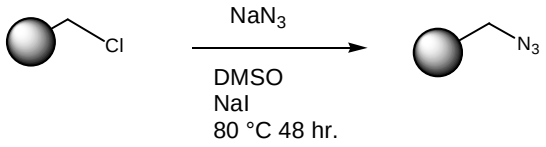
Preparation of tris-(2-hex-5-ynyl-amidoethyl)-amine polystyrene resin **3**:

Tris-(2-aminoethyl)-amine PS resin (TAEA-HL; 3.2 mmol/g) was pre-swollen for 10 minutes with a minimal volume of dry CH_2Cl_2. Then, DIPEA (3 eq.) was added and the vial was set under nitrogen atmosphere. The acylation was performed by injection of isobutyryl hexynoate (3 eq.). This reaction mixture was moderately stirred at room temperature over night. The resin was recovered by filtration through a glass pore filter (Por. 3) and washed alternately with CH_2Cl_2 and MeOH (5 cycles). The last washing step was performed with ether, to remove residual CH_2Cl_2. The resin was dried at 40℃ on a rotary evaporator and for 12 hours at the oil pump. Completeness of acylation was monitored by performing a Kaiser test for primary amines. Negative Kaiser-test (no staining) indicated that all primary amine functionalities were acylated. An FT-IR-spectrum (KBr-pellet) of the resin showed the characteristic bands for the alkyne-stretch-vibration at 3293 cm^{-1}(C≡C-H) and 2115 cm^{-1} (C≡C).

Maximal theoretical load (assuming that all primary and secondary amines are acylated with hexynoic-acid): **2.45 mmol alkyne/g**

Azidomethyl polystyrene resin (AM-PS)

(Synthesis according to Löber S., Rodriquez-Loaiza P., Gmeiner P.; Organic Letters ; 2003 ; 5 ; 1753-1755)



Merrifield resin (2.0-2.2 mmol Cl/g; 1 eq.) was loaded to a flask together with NaN_3 (10 eq.) and NaI (3 eq.). After addition of dry DMSO the mixture was stirred moderately at a temperature of 80℃ for 2 days. The resin was then recovered by filtration through a glass pore filter (Por. 3) and washed alternately with CH_2Cl_2 and MeOH (6 cycles with 30 mL at a time). The last washing step was performed with ether to remove residual CH_2Cl_2. FT-IR spectrum in KBr indicated a strong signal for the azido-group (2096 cm^{-1}). The resin was then dried under high vacuum for 2 days.

Elemental analysis gave following results:

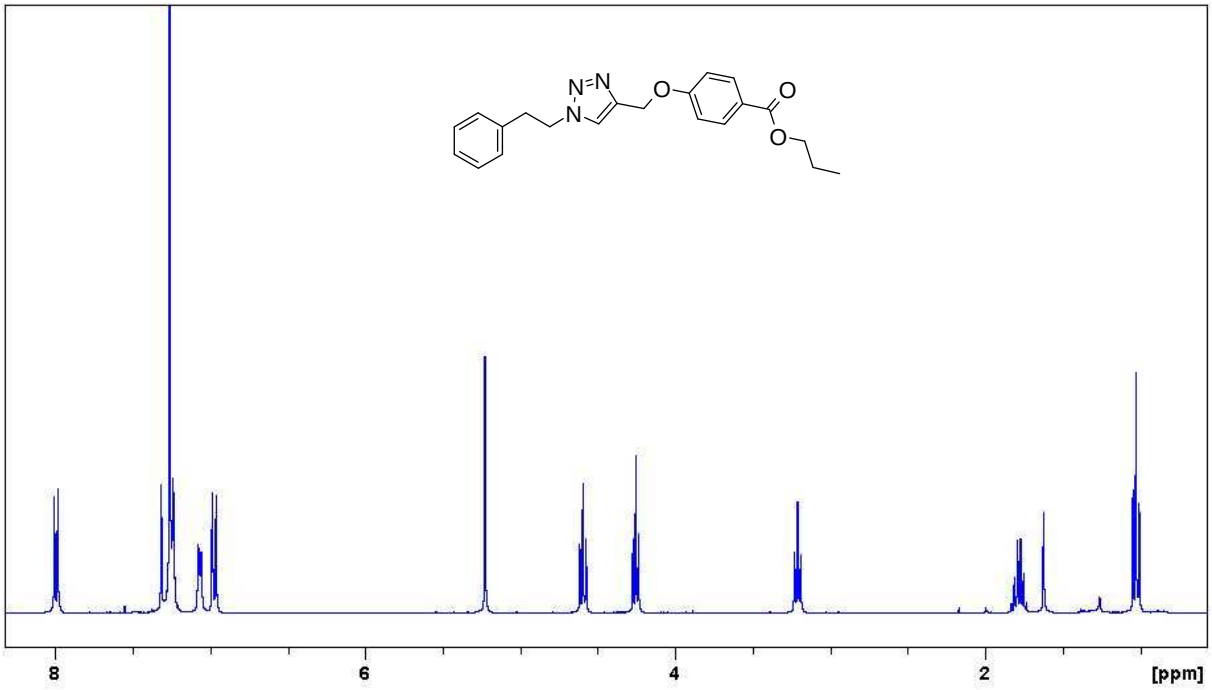
Azidomethyl- PS resin:

10.08% N equal 2.4 mmol azide/g.

3. Crude ^{1}H-NMR Spectra and Characterization of Representative Library Members

The crude products were characterized by NMR and FT-IR without further purification. HPLC-MS samples were directly taken from the reaction solution.

Propyl 4-{[1-(2-phenylethyl)-1H-1,2,3-triazol-4-yl]methoxy}benzoate ($C_{21}H_{23}N_3O_3$)



MW: 365,42

APCI-MS: m/z 366.2 (M+1)

HPLC: R_{T1} (MeOH/H_2O) = 20.7 min, R_{T2} (CH_3CN/H_2O) = 23.1 min

IR (NaCl) v (cm^{-1}): 2965, 1708, 1604, 1508, 1457, 1276, 1249, 1168, 1106, 1002, 771, 698

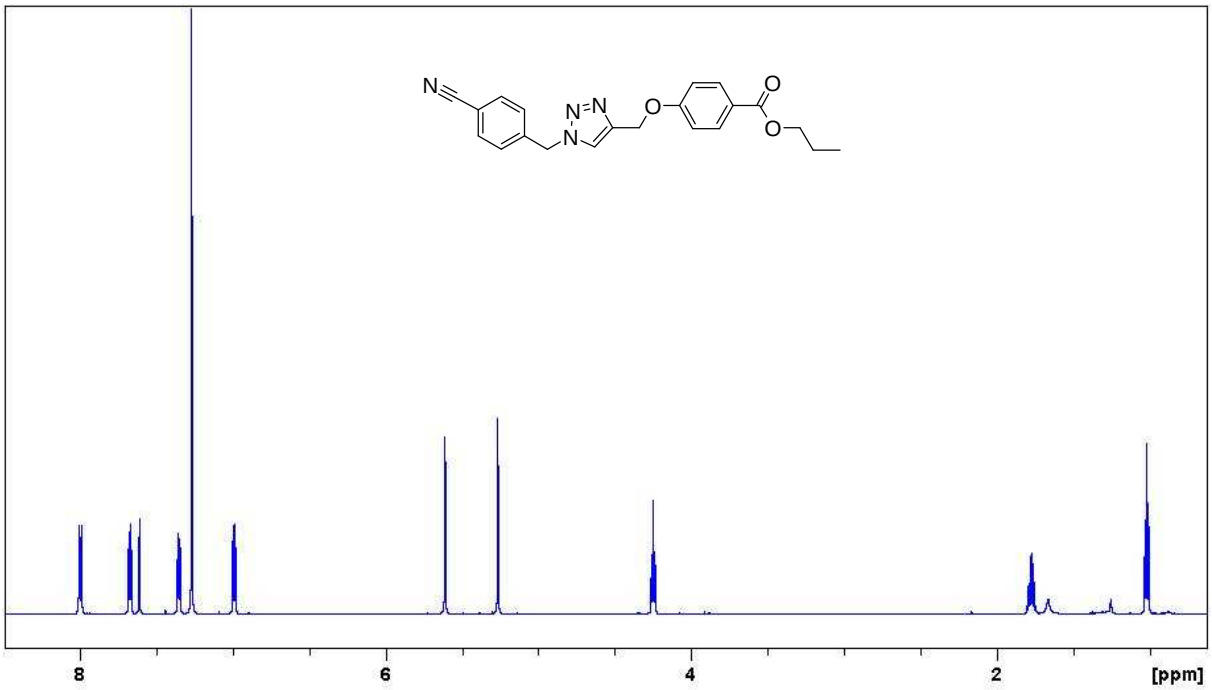
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 1.02 (t, 3H, J = 7.37 Hz), 1.77 (m, 2H), 3.20 (t, 2H, J = 7.15 Hz), 4.25 (t, 2H, J = 6.69 Hz), 4.59 (t, 2H, J = 7.15 Hz), 5.22 (s, 2H), 6.94 – 7.00 (m, 2H), 7.04 – 7.09 (m, 2H), 7.22 – 7.25 (m, 3H), 7.31 (s, 1H), 7.96 – 8.03 (m, 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 10.50, 22.15, 36.69, 51.76, 62.02, 66.28, 114.36 (2C), 123.03, 123.50, 127.13, 128.62 (2C), 128.82 (2C), 131.54 (2C), 136.82, 143.27, 161.77, 166.31

CHN: $C_{21}H_{23}N_3O_3$

Calc.: C 69.02 H 6.34 N 11.50 found: C 69.04 H 6.44 N 11.13

Propyl 4-{[1-(4-cyanobenzyl)-1H-1,2,3-triazol-4-yl]methoxy}benzoate ($C_{21}H_{20}N_4O_3$)



MW: 376,40

APCI-MS: m/z 377.2 (M+1)

HPLC: R_{T1} (MeOH/H_2O) = 19.1 min; R_{T2} (CH_3CN/H_2O) = 22.5 min

IR (NaCl) v (cm^{-1}): 2965, 2881, 2229, 1708, 1604, 1508, 1276, 1253, 1168, 1106, 848, 763

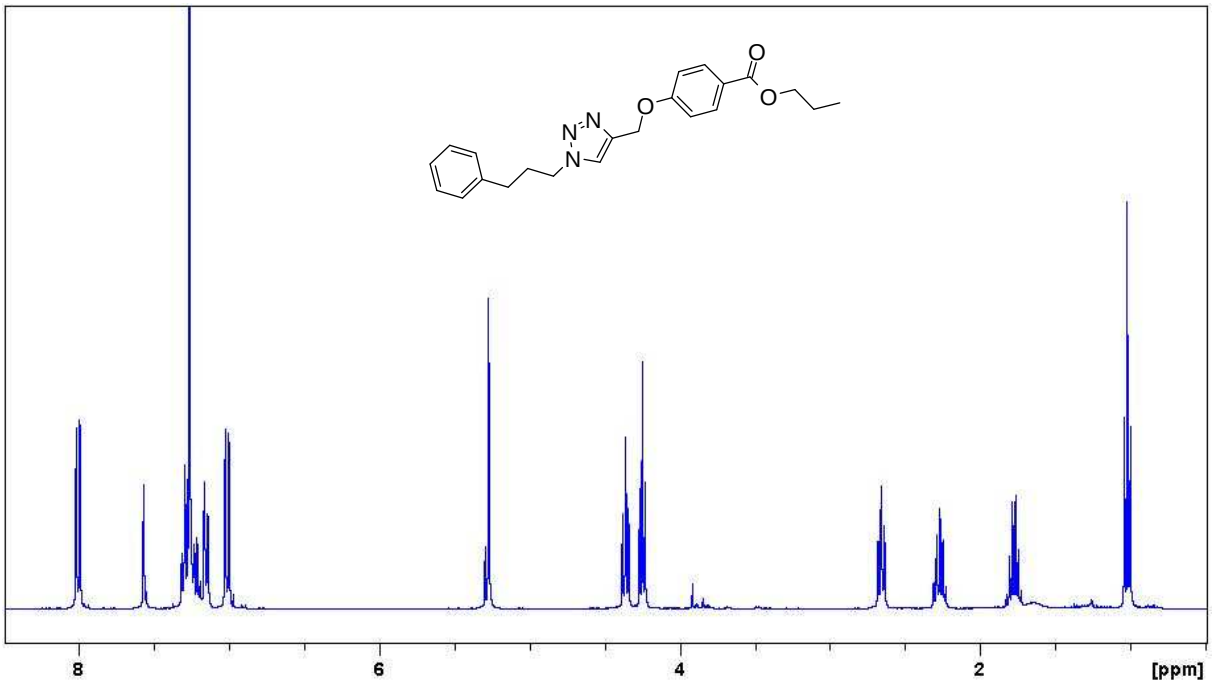
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 1.02 (t, 3H, J = 7.36 Hz), 1.77 (m, 2H), 4.24 (t, 2H, J = 6.61 Hz), 5.26 (s, 2H), 5.61 (s, 2H), 6.97 – 7.01 (m, 2H), 7.33 – 7.37 (m, 2H), 7.60 (s, 1H), 7.65 – 7.69 (m, 2H), 7.97 – 8.01 (m, 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 10.47, 22.12, 53.48, 62.00, 66.31, 112.93, 114.31 (2C), 117.99, 122.87, 123.68, 128.40 (2C), 131.56 (2C), 132.90 (2C), 139.52, 144.49, 161.64, 166.22

CHN: $C_{21}H_{20}N_4O_3 \cdot 0.4\ H_2O$

Calc.: C 65.75 H 5.47 N 14.60 found: C 65.59 H 5.52 N 14.51

Propyl 4-{[1-(3-phenylpropyl)-1H-1,2,3-triazol-4-yl]methoxy}benzoate ($C_{22}H_{25}N_3O_3$)



MW: 379,45

APCI-MS: m/z 380.2 (M+1)

HPLC: R_{T1} (MeOH/H_2O) = 21.4 min, R_{T2} (CH_3CN/H_2O) = 23.6 min

IR (NaCl) v (cm^{-1}): 2965, 2877, 1708, 1604, 1508, 1276, 1249, 1168, 1106, 1002

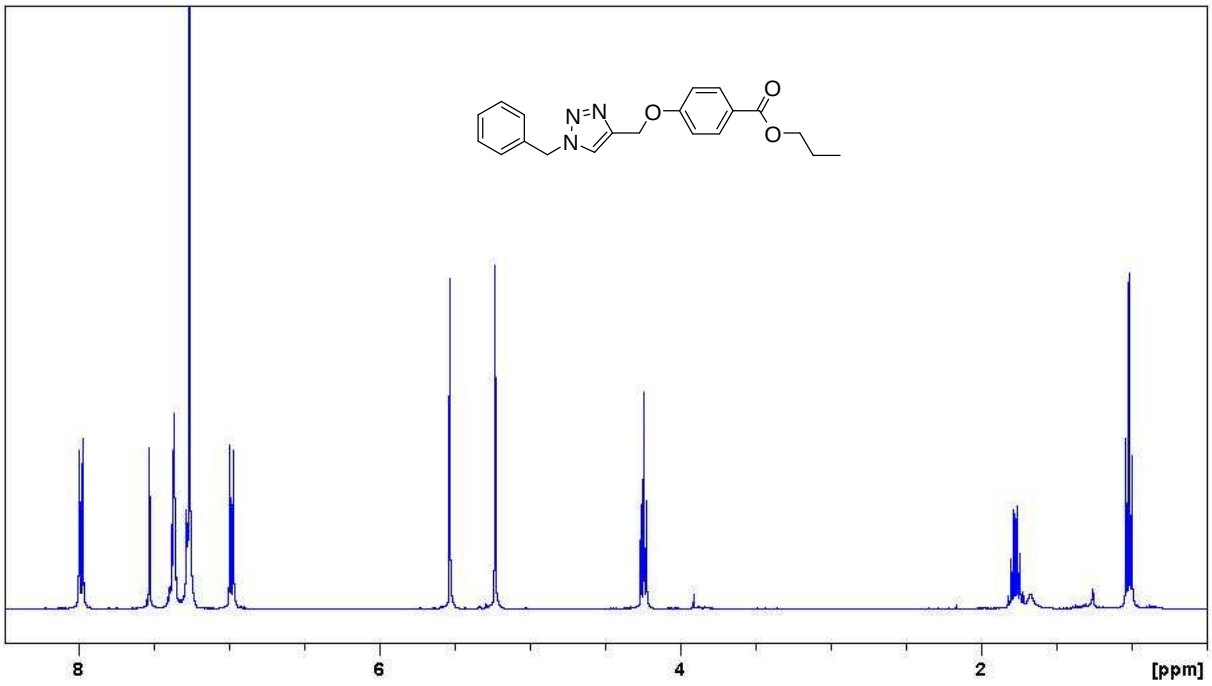
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 1.01 (t, 3H, J = 7.15 Hz); 1.77 (m, 2H), 2.26 (quint., 2H, J = 7.32 Hz,), 2.65 (t, 2H, J = 7.49 Hz), 4.24 (t, 2H, J = 6.69 Hz), 4.35 (t, 2H, J = 7.15 Hz) 5.27 (s, 2H,), 6.98-7.04 (m, 2H), 7.12-7.16 (m, 2H) 7.16-7.24 (m, 1H) 7.27-7.32 (m, 2H), 7.56 (s, 1H), 7.97-8.02 (m, 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 10.50, 22.14 , 31.53 , 32.46, 49.64, 62.14, 66.28, 114.37 (2C), 122.69, 123.56, 126.39, 128.38 (2C), 128.63 (2C), 131.57 (2C), 139.97, 143.62, 161.81, 166.30

CHN: $C_{22}H_{25}N_3O_3 \cdot 0.7\ H_2O$

Calc.: C 67.40 H 6.79 N 10.72 found: C 67.44 H 6.59 N 11.56

Propyl 4-[(1-benzyl-1H-1,2,3-triazol-4-yl)methoxy]benzoate ($C_{20}H_{21}N_3O_3$)



MW: 351,39

APCI-MS: m/z 352.2 (M+1)

HPLC: R_{T1} (MeOH/H_2O) = 20.4 min, R_{T2} (CH_3CN/H_2O) = 23.0 min

IR (NaCl) v (cm^{-1}): 2965, 2877, 1708, 1604, 1508, 1276, 1249, 1168, 1106, 1002

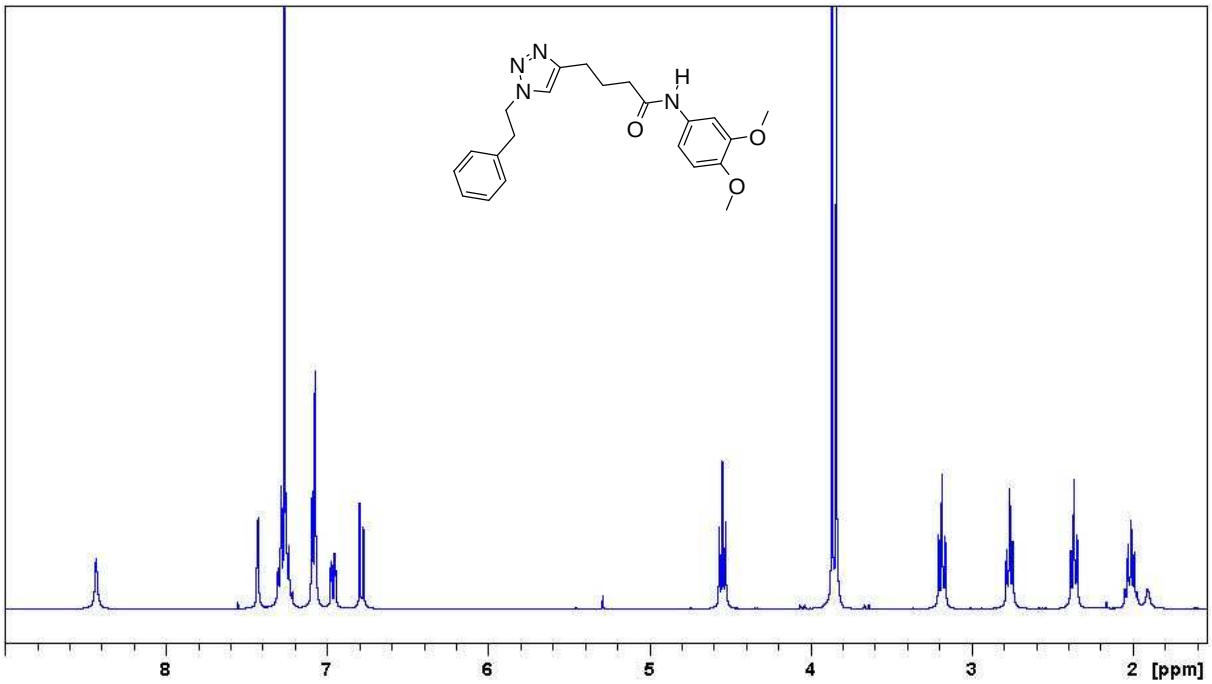
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 1.01 (t, 3H, J = 7.49 Hz), 1.77 (m, 2H), 4.24 (t, 2H, J = 6.85 Hz), 5.23 (s, 2H), 5.53 (s, 2H), 6.96 – 7.01 (m, 2H), 7.27 – 7.30 (m, 2H), 7.33 – 7.42 (m, 3H), 7.53 (s, 1H), 7.96 – 8.01 (m, 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 10.49, 22.11, 54.27, 62.07, 66.26, 114.31 (2C), 122.67, 123.51, 128.10 (2C), 128.84, 129.14 (2C), 131.53 (2C), 134.33 (2C),143.92, 161.76, 166.28

CHN: $C_{20}H_{21}N_3O_3 \cdot 0.5\ H_2O$

Calc.: C 66.65 H 6.15 N 11.66 found: C 66.67 H 6.16 N 11.43

***N*-(3,4-Dimethoxyphenyl)-4-[1-(2-phenylethyl)-1H-1,2,3-triazol-4-yl]butanamide** ($C_{22}H_{26}N_4O_3$)



MW: 394,46

APCI-MS: m/z 395.3 (M+1)

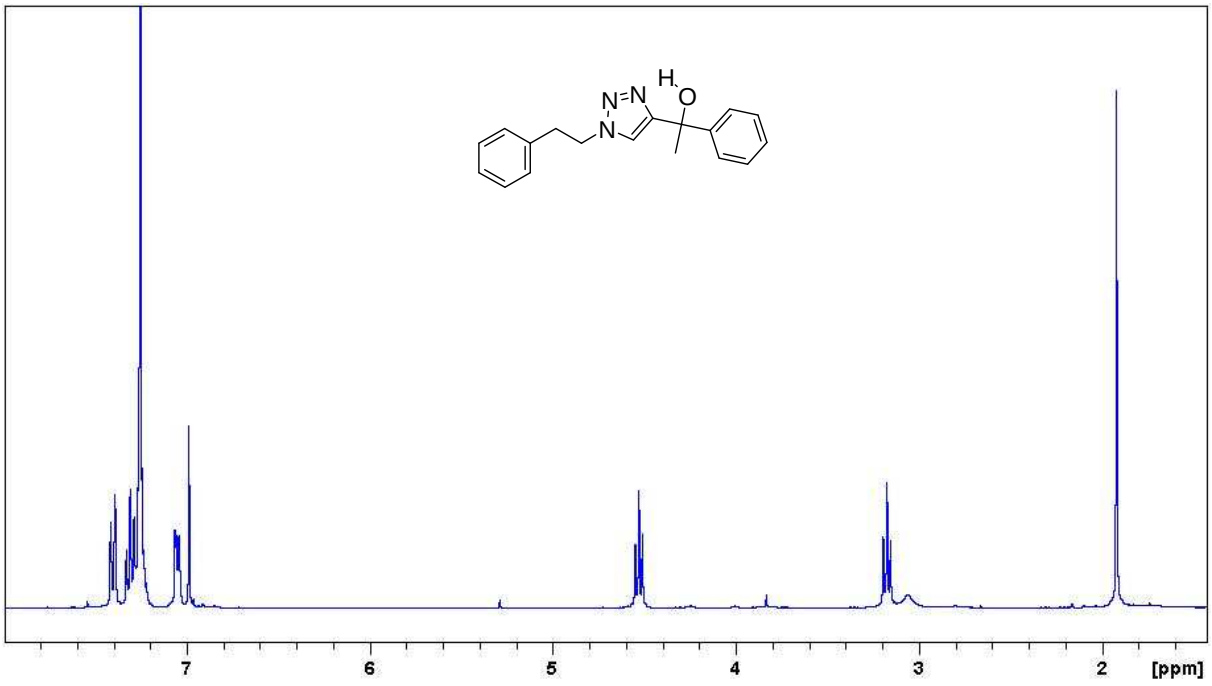
HPLC: R_{T1} (MeOH/H_2O) = 17.1 min, R_{T2} (CH_3CN/H_2O) = 20.2 min

IR (NaCl) v (cm^{-1}): 3282, 3135, 2935, 2834, 1658, 1608, 1515, 1454, 1407, 1234, 1133, 1025, 748

^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 2.01 (quint., 2H, J = 6.92 Hz), 2.36 (t, 2H, J = 7.03 Hz), 2.67 (t, 2H, J = 7.03 Hz), 3.18 (t, 2H, J = 7.26 Hz), 3.84 (s, 3H), 3.87 (s, 3H), 4.54 (t, 2H, J = 7.26 Hz), 6.78 (d, 1H, J = 8.62 Hz), 6.96 (dd, 1H, J = 8.62 Hz, 2.27 Hz), 7.06 – 7.11 (m, 3H), 7.21 – 7.31 (m, 3H), 7.43 (d, 1H, J = 2.49 Hz), 8.43 (s, 1H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 23.93, 25.75, 36.06, 36.69, 51.51, 55.86, 56.11, 104.78, 111.39, 111.58, 121.54, 127.07, 128.59 (2C), 128.75 (2C), 132.07, 136.98, 145.56, 146.82, 148.97, 171.07

1-Phenyl-1-[1-(2-phenylethyl)-1H-1,2,3-triazol-4-yl]ethanol ($C_{18}H_{19}N_3O$)



MW: 293,36

APCI-MS: m/z 276.1 (M^+ -OH)

HPLC: R_{T1} (MeOH/H_2O) = 18.3 min, R_{T2} (CH_3CN/H_2O) = 20.9 min

IR (NaCl) v (cm^{-1}): 3386, 3139, 3062, 2927, 2854, 1496, 1450, 1369, 1218, 1052, 698

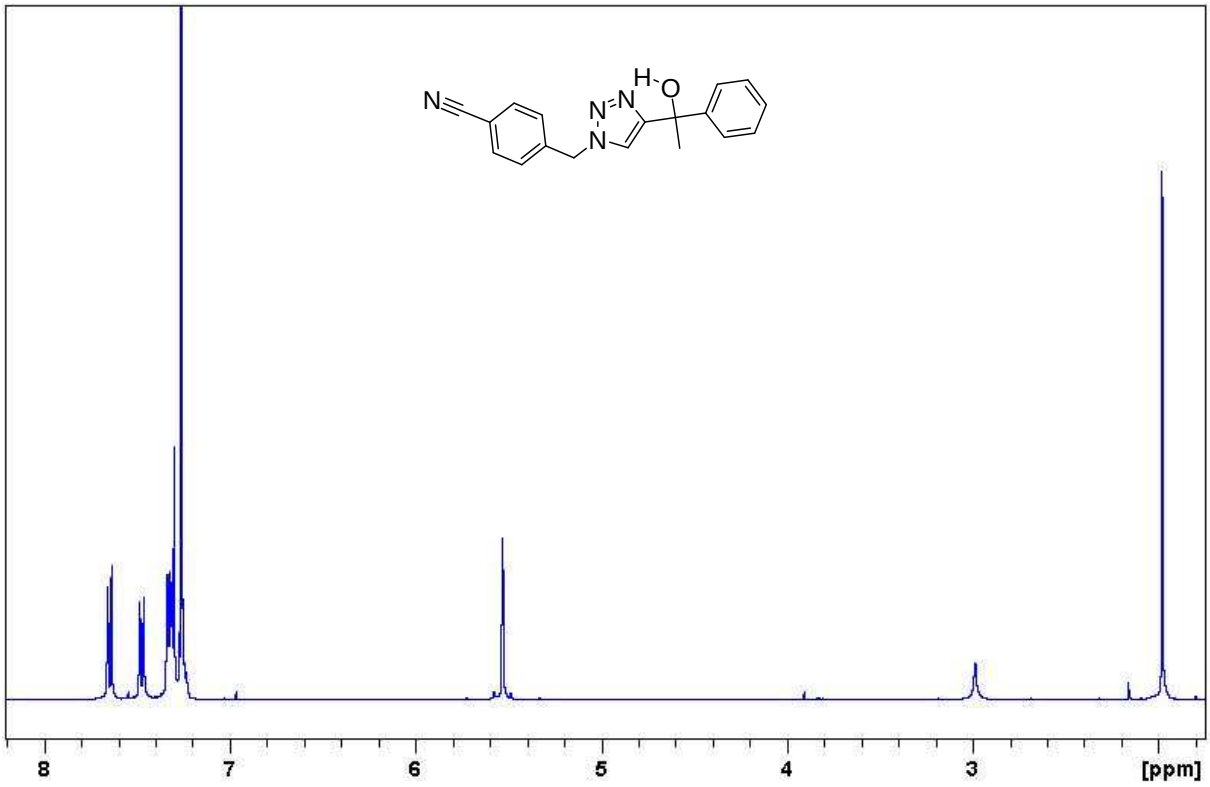
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 1.92 (s, 3H), 3.05 (s br., 1H), 3.17 (t, 2H, J = 7.26 Hz), 4.53 (t, 2H, J = 7.37 Hz), 6.98 (s, 1H), 7.02 – 7.08 (m, 2H), 7.20 – 7.34 (m, 6H), 7.38 – 7.43 (m, 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 30.57, 36.77, 51.65, 71.95, 120.92, 125.17 (2C), 127.06, 127.11, 128.13 (2C), 128.66 (2C), 128.77 (2C), 136.95, 146.50, 154.49

CHN: $C_{18}H_{19}N_3O \cdot 0.8\ H_2O$

Calc.: C 70.24 H 6.75 N 13.65 found: C 70.28 H 6.61 N 13.36

4-{[4-(1-Hydroxy-1-phenylethyl)-1H-1,2,3-triazol-1-yl]methyl}benzonitrile ($C_{18}H_{16}N_4O$)



MW: 304,3458

APCI-MS: m/z 287.1 (M^+ -OH)

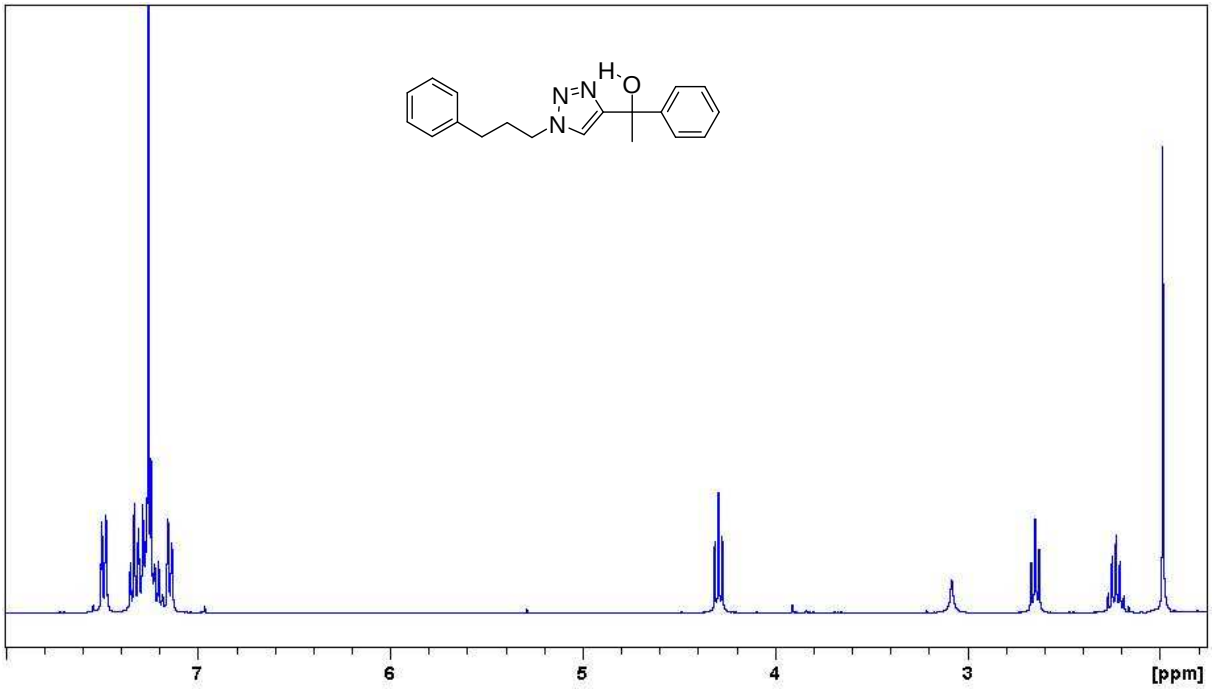
HPLC: R_{T1} ($MeOH/H_2O$) = 15.8 min, R_{T2} (CH_3CN/H_2O) = 20.1 min

IR (NaCl) v (cm^{-1}): 3409, 3139, 3058, 2981, 2927, 2854, 2229, 1608, 1492, 1446, 1369, 1218, 1141, 1049, 817, 767, 701

^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 1.98 (s, 3H), 2.99 (s br., 1H), 5.53 (s, 2H), 7.22 – 7.25 (m, 1H), 7.26 – 7.35 (m, 6H), 7.45– 7.50 (m, 2H), 7.62 – 7.67 (m, 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm):30.65, 53.36, 72.11, 112.79, 118.07, 120.64, 125.11 (2C), 127.29, 128.26 (2C),128.40 (2C), 132.86 (2C), 139.66, 146.20, 155.84

1-Phenyl-1-[1-(3-phenylpropyl)-1H-1,2,3-triazol-4-yl]ethanol ($C_{19}H_{21}N_3O$)



MW: 307,38

APCI-MS: m/z 290.1 (M^+ - OH)

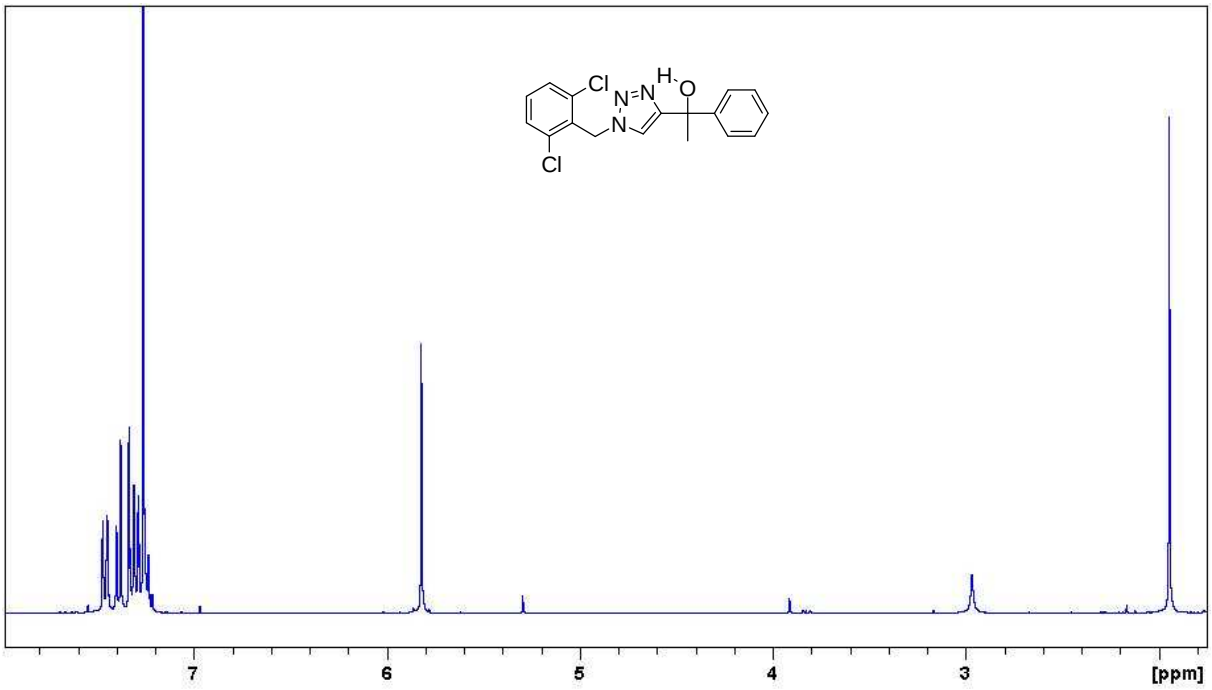
HPLC: R_{T1} (MeOH/H_2O) = 19.4 min, R_{T2} (CH_3CN/H_2O) = 21.7 min

IR (NaCl) ν (cm^{-1}): 3386, 3058, 2981, 2931, 1492, 1450, 1369, 1218, 1130, 1056, 763, 698

^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 1.98 (s, 3H), 2.22 (quint., 2H, J = 7.32 Hz), 2.64 (t, 2H, J = 7.49 Hz), 3.08 (s br., 1H), 4.29 (t, 2H, J = 7.26 Hz) 7.13 – 7.26 (m, 4H) 7.26 – 7.36 (m, 5H), 7.46 – 7.51 (m, 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 30.65, 31.52, 32.52, 49.50, 72.02, 120.44, 125.19 (2C), 126.34, 127.16, 128.19 (2C), 128.39 (2C), 128.59 (2C), 140.06, 146.52, 154.91

1-[1-(2,6-Dichlorobenzyl)-1H-1,2,3-triazol-4-yl]-1-phenylethanol ($C_{17}H_{15}Cl_2N_3O$)



MW: 348,22

APCI-MS: m/z 330 (M^+ –OH ref. ^{35}Cl)

HPLC: R_{T1} ($MeOH/H_2O$) = 18.9 min, R_{T2} (CH_3CN/H_2O) = 21.7 min

IR (NaCl) v (cm^{-1}): 3390, 3062, 2981, 2931, 1562, 1438, 1211, 763

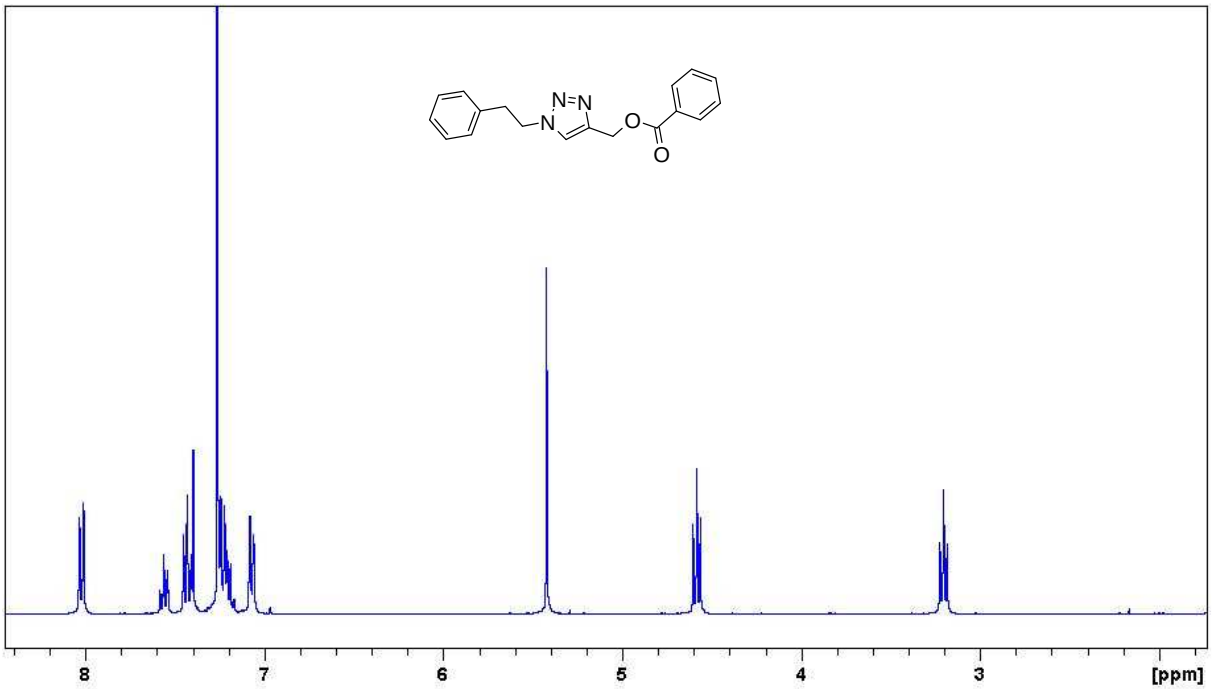
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 1.94 (s, 3H), 2.96 (s br., 1H), 5.81 (s, 2H), 7.20 - 7.26 (m, 2H), 7.26 – 7.34 (m, 5H), 7.37 (s, 1H), 7.39 (d, 1H, J = 1.13 Hz), 7.43 – 7.48 (m, 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 30.80, 49.0, 72.20, 120.18, 125.18 (2C), 127.13 (2C), 128.16 (2C), 128.88 (2C), 130.05, 131.02, 136.82, 146.50, 154.71

CHN: $C_{17}H_{15}Cl_2N_3O \cdot 0.7\ H_2O$

Calc.: C 56.59 H 4.58 N 11.65 found: C 56.89 H 4.61 N 11.31

[1-(2-Phenylethyl)-1H-1,2,3-triazol-4-yl]methyl benzoate ($C_{18}H_{17}N_3O_2$)



MW: 307,34

APCI-MS: m/z 308.1 (M+1)

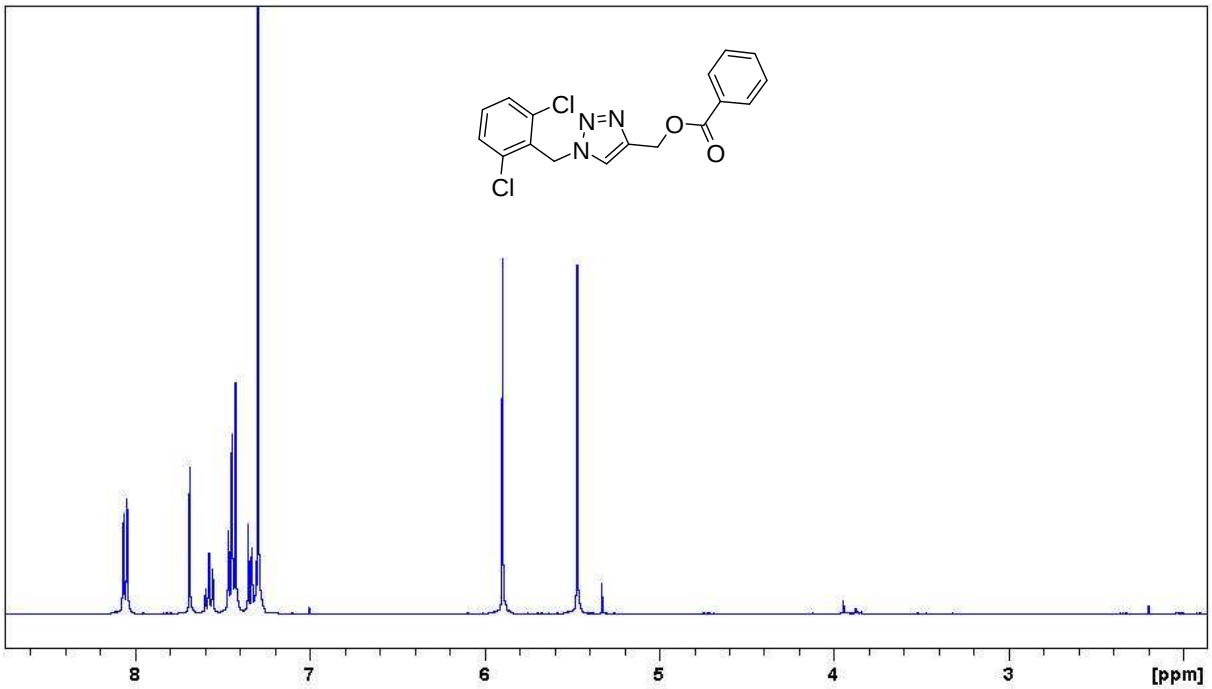
HPLC: R_{T1} (MeOH/H_2O) = 19.3 min, R_{T2} (CH_3CN/H_2O) = 22.3 min

IR (NaCl) v (cm^{-1}): 3143, 3062, 2954, 2927, 1720, 1600, 1454, 1272, 1106, 944, 713

^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 3.2 (t, 2H, J = 7.37 Hz), 4.58 (t, 2H, J = 7.26 Hz), 5.42 (s, 2H), 7.05 – 7.09 (m, 2H), 7.15 – 7.25 (m, 3H), 7.38 – 7.46 (m, 3H), 7.53 – 7.59 (m, 1H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 29.67, 36.72, 51.70, 58.06, 124.27, 127.10, 128.34 (2C), 128.62 (2C),128.79 (2C), 129.71(2C), 129.80, 133.15, 136.82, 142.67, 166.36

[1-(2,6-Dichlorobenzyl)-1H-1,2,3-triazol-4-yl]methyl benzoate ($C_{17}H_{13}Cl_2N_3O_2$)



MW: 362,21

APCI-MS: m/z 362.0 (M+1 ^{35}Cl)

HPLC: R_{T1} (MeOH/H_2O) = 20.2 min, R_{T2} (CH_3CN/H_2O) = 22.8 min

IR (NaCl) v (cm^{-1}): 3143, 3073, 2962, 1720, 1600, 1562, 1492, 1438, 1384, 1315, 1268, 1176, 1110, 944, 763, 713

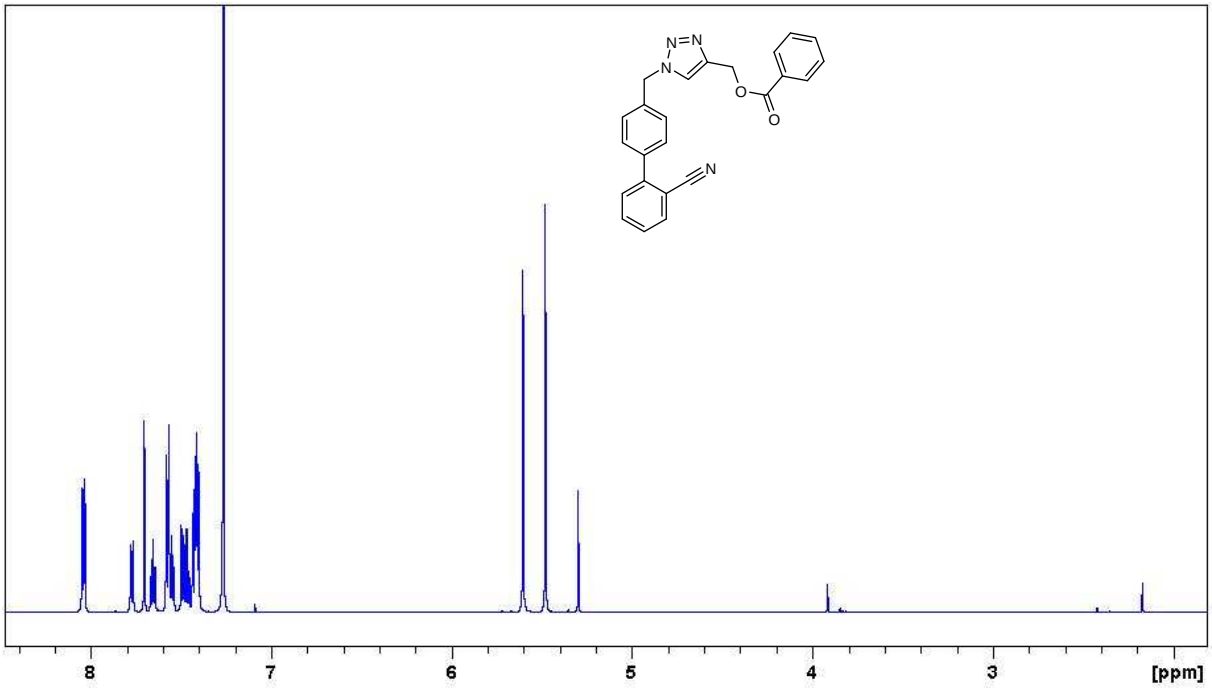
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 5.43 (s, 2H), 5.86 (s, 2H), 7.27 – 7.32 (m, 1H), 7.38 – 7.44 (m, 4H), 7.50 – 7.58 (m, 1H), 7.65 (s, 1H), 8.00 – 8.05 (m, 2 H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm):49.06, 57.99, 123.68, 128.33 (2C), 128.91 (2C), 129.80 (2C), 129.94, 131.12 (2C), 133.11, 136.83, 142.77, 166.39

CHN: $C_{17}H_{13}Cl_2N_3O_2 \cdot 0.3\ H_2O$

Calc.: C 55.54 H 3.73 N 11.43 found: C 55.57 H 3.72 N 11.14

{1-[(2'-Cyanobiphenyl-4-yl)methyl]-1H -1,2,3-triazol-4-yl}methyl benzoate ($C_{24}H_{18}N_4O_2$)



MW: 394,4253

APCI-MS: m/z 395.1 (M+1)

HPLC: R_{T1} (MeOH/H_2O) = 19.7 min, R_{T2} (CH_3CN/H_2O) = 22.7 min

IR (NaCl) v (cm^{-1}): 3143, 3066, 2958, 2225, 1716, 1450, 1268, 1106, 948

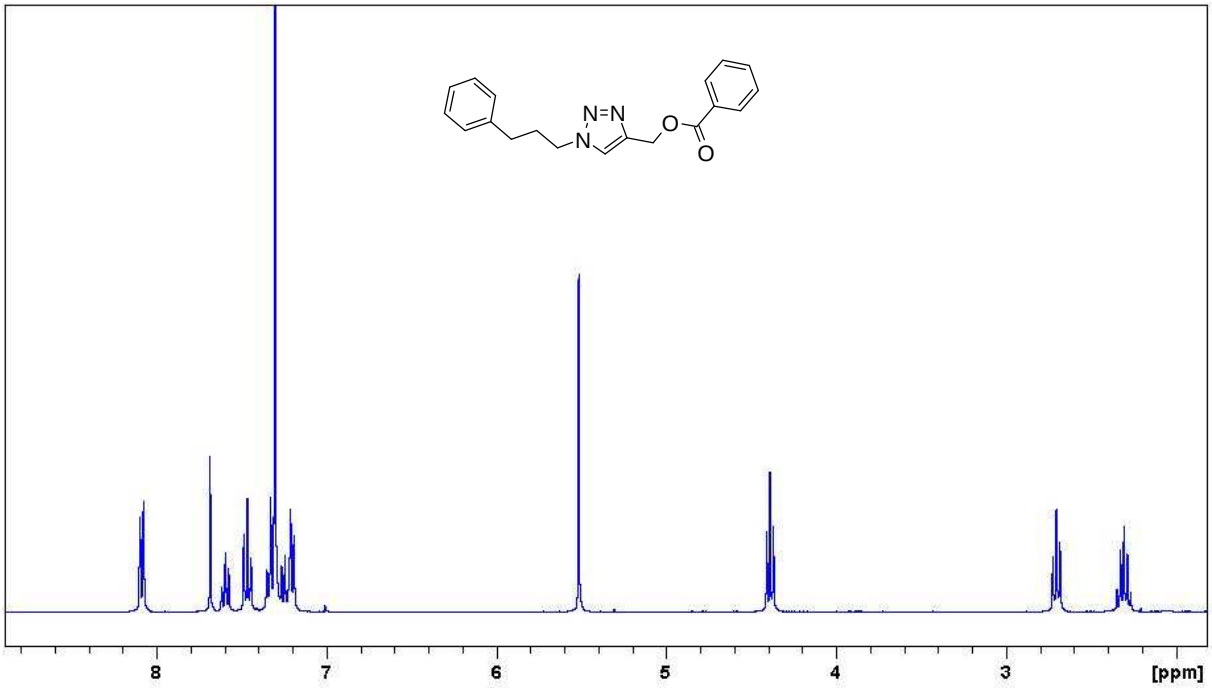
^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 5.47 (s, 2H), 5.6 (s, 2H), 7.38 – 7.44 (m, 4H), 7.46 (ddd, 1H, J = 7.74 Hz , J = 7.74 Hz, J = 1.13 Hz), 7.48 – 7. 50 (m, 1H), 7.52 – 7.60 (m, 3H), 7.65 (ddd, 1H, J = 7.5 Hz , J = 7.5 Hz, J = 1.13 Hz), 7.70 (s, 1H), 7.76 (dd, 1H, J = 7.74 Hz , J = 0.95 Hz), 8.02 – 8.05 (m,2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 53.38, 53.78, 58.09, 111.24, 118.46, 123.93, 127.91, 128.35 (2C), 128.37 (2C), 129.53 (2C), 129.73 (2C), 129.97, 132.91, 133.15, 133.77, 134.96, 138.67, 143.5, 144.45, 166.41

CHN: $C_{24}H_{18}N_4O_2 \cdot 1.1\ H_2O$

Calc.: C 69.59 H 4.92 N 13.52 found: C 69.43 H 4.80 N 13.45

[1-(3-Phenylpropyl)-1H-1,2,3-triazol-4-yl]methyl benzoate ($C_{19}H_{19}N_3O_2$)



MW: 321,37

APCI-MS: m/z 322.1 (M+1)

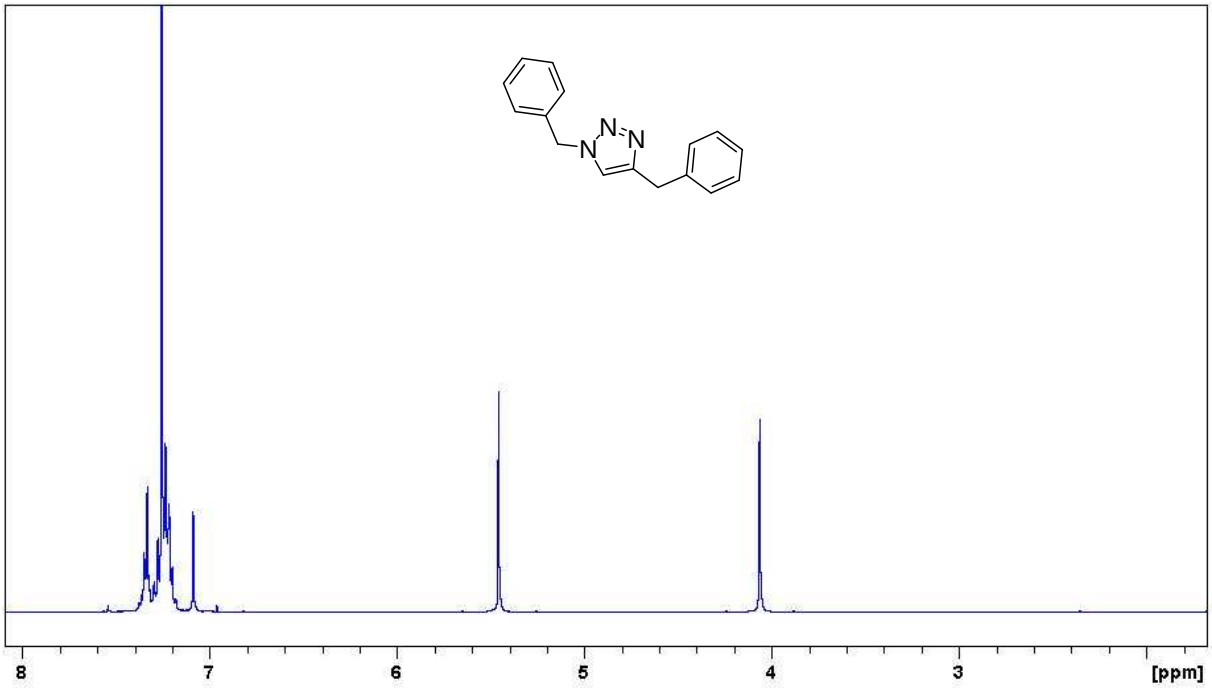
HPLC: R_{T1} ($MeOH/H_2O$) = 20.4 min, R_{T2} (CH_3CN/H_2O) = 22.9 min

IR (NaCl) v (cm^{-1}): 3027, 2927, 1716, 1450, 1268, 1106, 1025, 709

^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 2.26 (qunit., 2H, J = 7.32 Hz), 2.66 (t, 2H, J = 7.49 Hz), 4.34 (t, 2H, J = 7.15 Hz), 5.47 (s, 2H), 7.13 – 7.23 (m, 3H), 7.23 – 7.31 (m, 2H), 7.39 -7.45 (m, 2H), 7.52 – 7.58 (m, 1H), 7.64 (s, 1H), 8.02 – 8.07 (m, 2H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 31.52, 32.46, 49.55, 58.12, 123.89, 126.35, 128.36 (2C), 128.38 (2C), 128.60 (2C), 129.71 (2C), 129.75, 133.17, 139.98, 142.92, 166.47

1,4-Dibenzyl-1H-1,2,3-triazole ($C_{16}H_{15}N_3$)



MW: 249,31

APCI-MS: m/z 250.0 (M+1)

HPLC: R_{T1} (MeOH/H_2O) = 18.8 min, R_{T2} (CH_3CN/H_2O) = 21.9 min

IR (NaCl) v (cm^{-1}): 3120, 3062, 3031, 2919, 1542, 1462, 1454, 1211, 1130, 1072, 725, 698

^{1}H-NMR ($CDCl_3$, 360 MHz) δ (ppm): 4.06 (s, 2H) 5.46 (s, 2H), 7.08 (s, 1H), 7.17- 7.26 (m, 6H), 7.26 – 7.39 (m, 4H)

^{13}C-NMR ($CDCl_3$, 90 MHz) δ (ppm): 32.31, 54.06, 121.28, 126.45, 127.94 (2C), 128.58 (2C), 128.62, 128.69 (2C), 129.04 (2C), 134.84, 139.05, 148.09

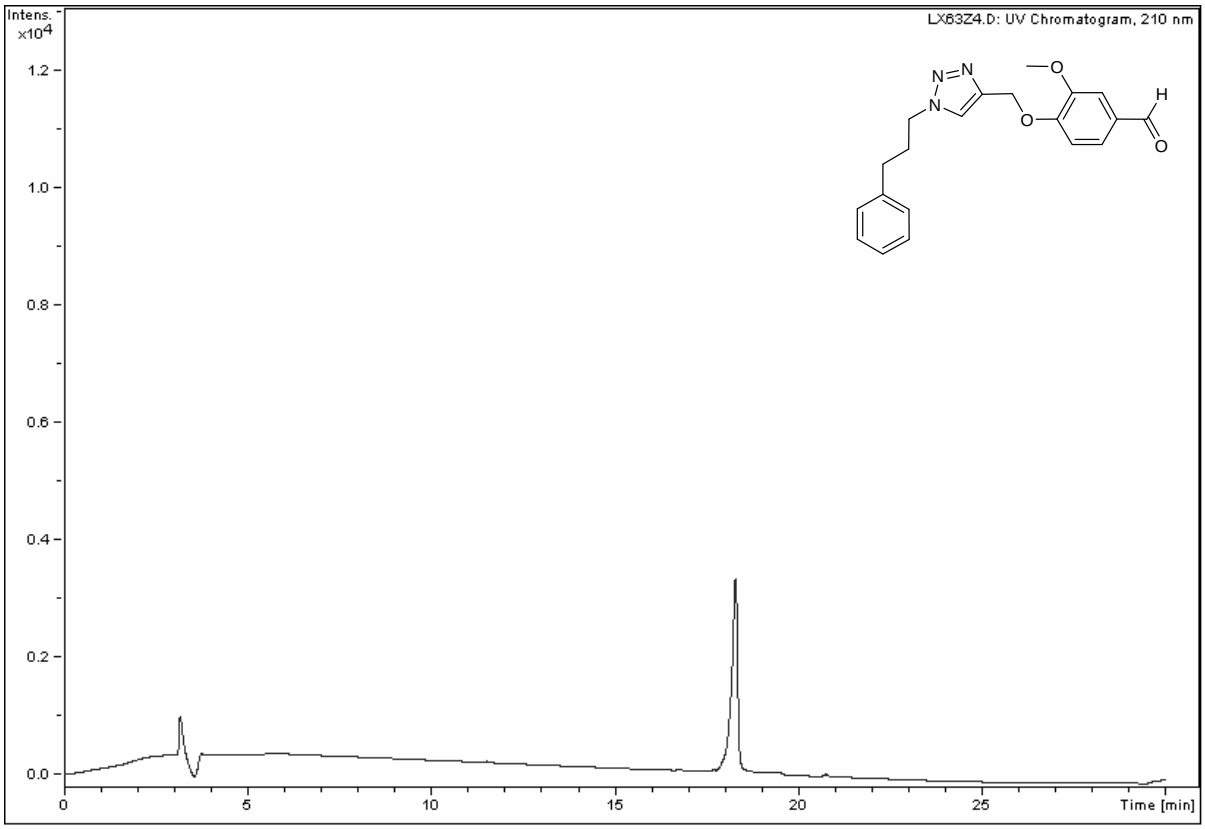
CHN: $C_{16}H_{15}N_3 \cdot 0.4\ H_2O$

Calc.: C 74.92 H 6.21 N 16.38 found: C 74.62 H 6.04 N 16.41

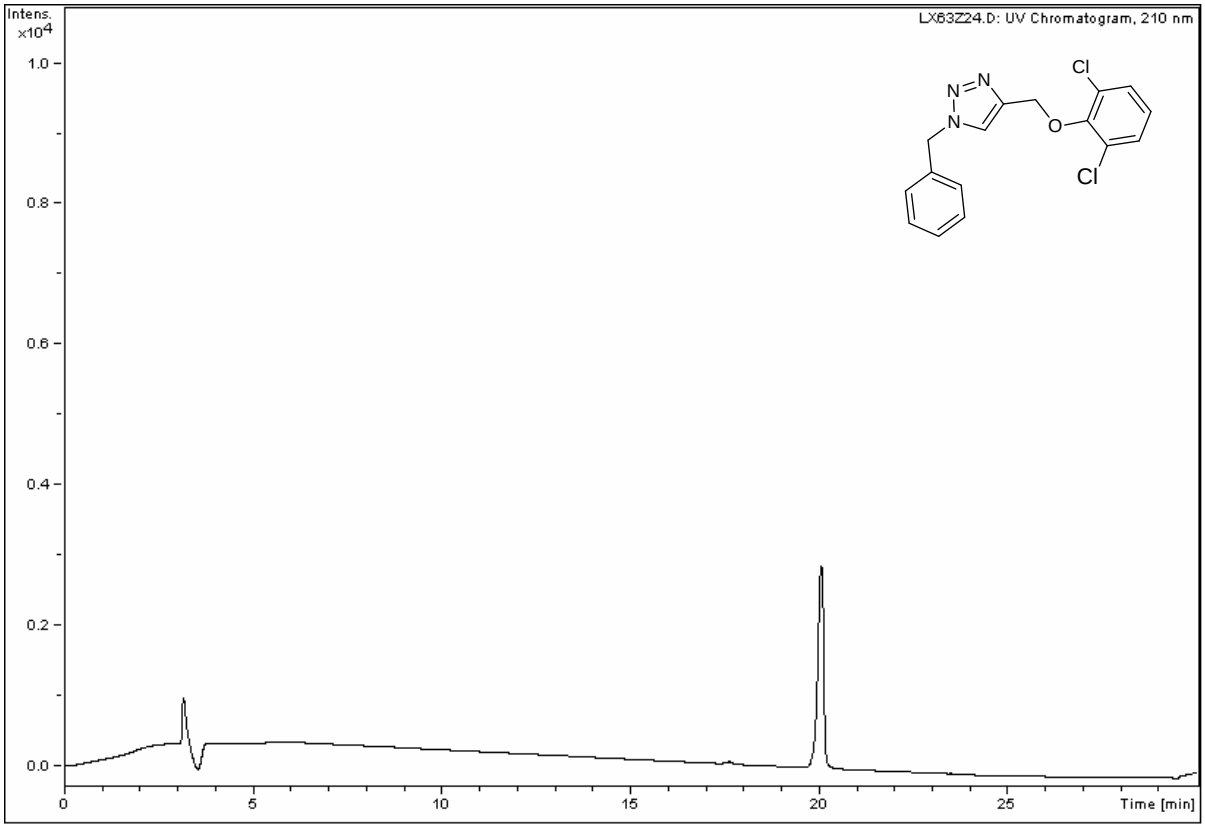
4. Representative HPLC-spectra of Library Members

For HPLC analysis 20µl samples were directly taken from the reaction solution with a microliter-syringe. After a short evaporation time, samples were diluted to approx. 0.5 ml with MeOH. Occasionally occurring signals at 11.2 min and 25.8 min are resulting from residual CH_2Cl_2 in the LC-MS vial (see Blank-run p.28).

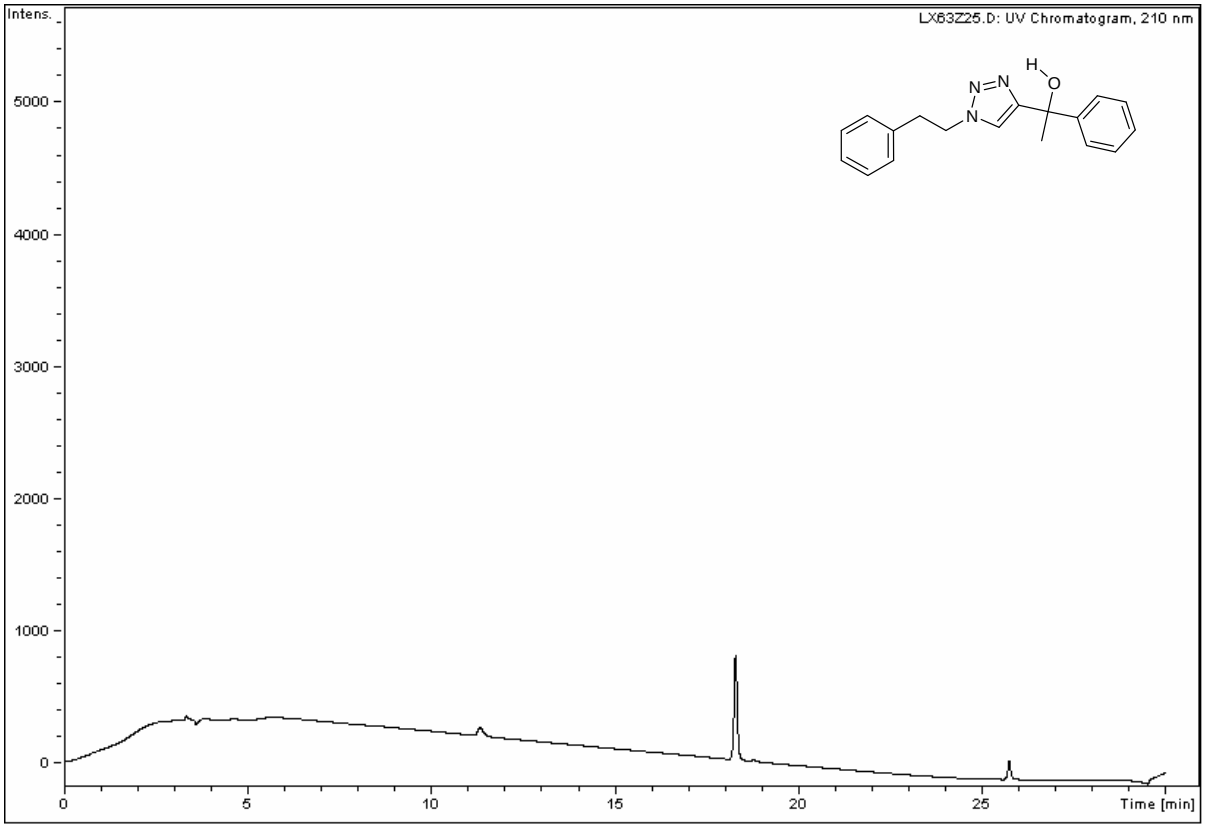
3-Methoxy-4-{[1-(3-phenylpropyl)-1H-1,2,3-triazol-4-yl]methoxy}benzaldehyde



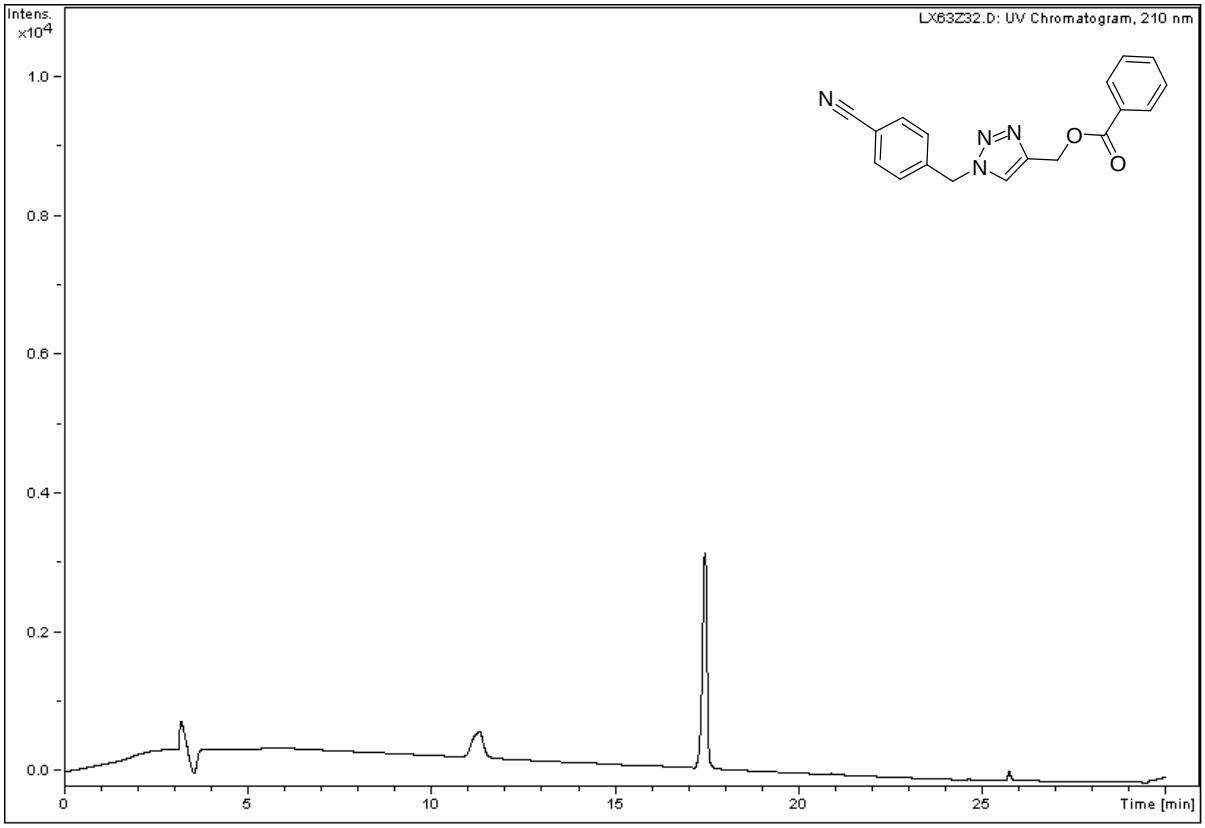
1-Benzyl-4-[(2,6-dichlorophenoxy)methyl]-1H-1,2,3-triazole



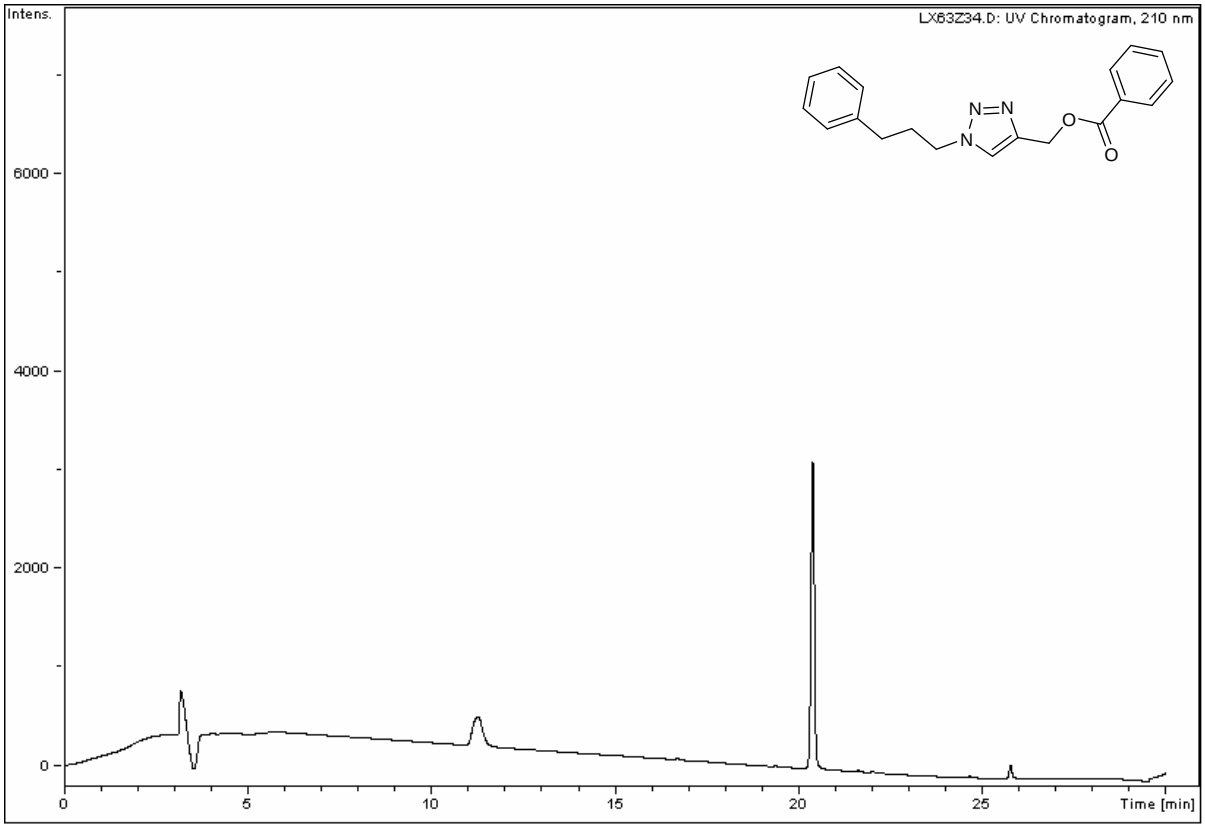
1-Phenyl-1-[1-(2-phenylethyl)-1H-1,2,3-triazol-4-yl]ethanol



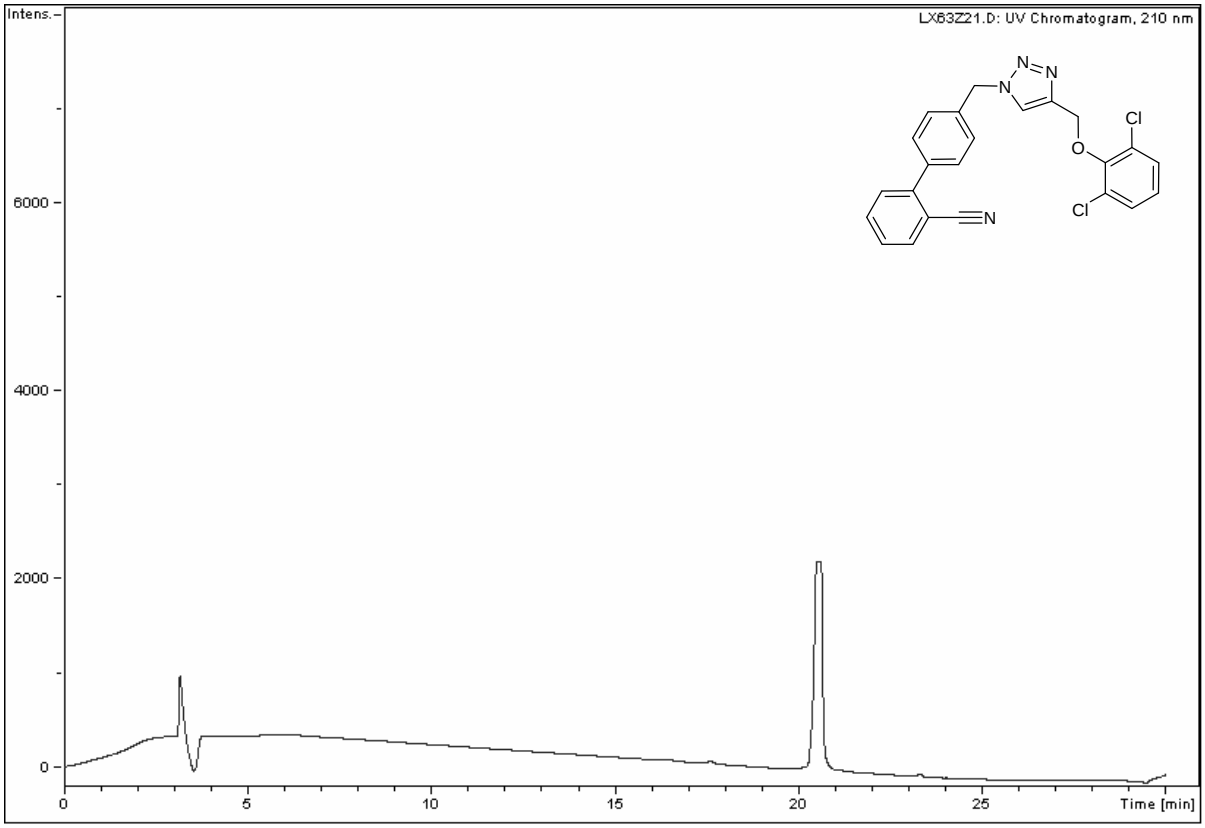
[1-(4-Cyanobenzyl)-1H-1,2,3-triazol-4-yl]methyl benzoate



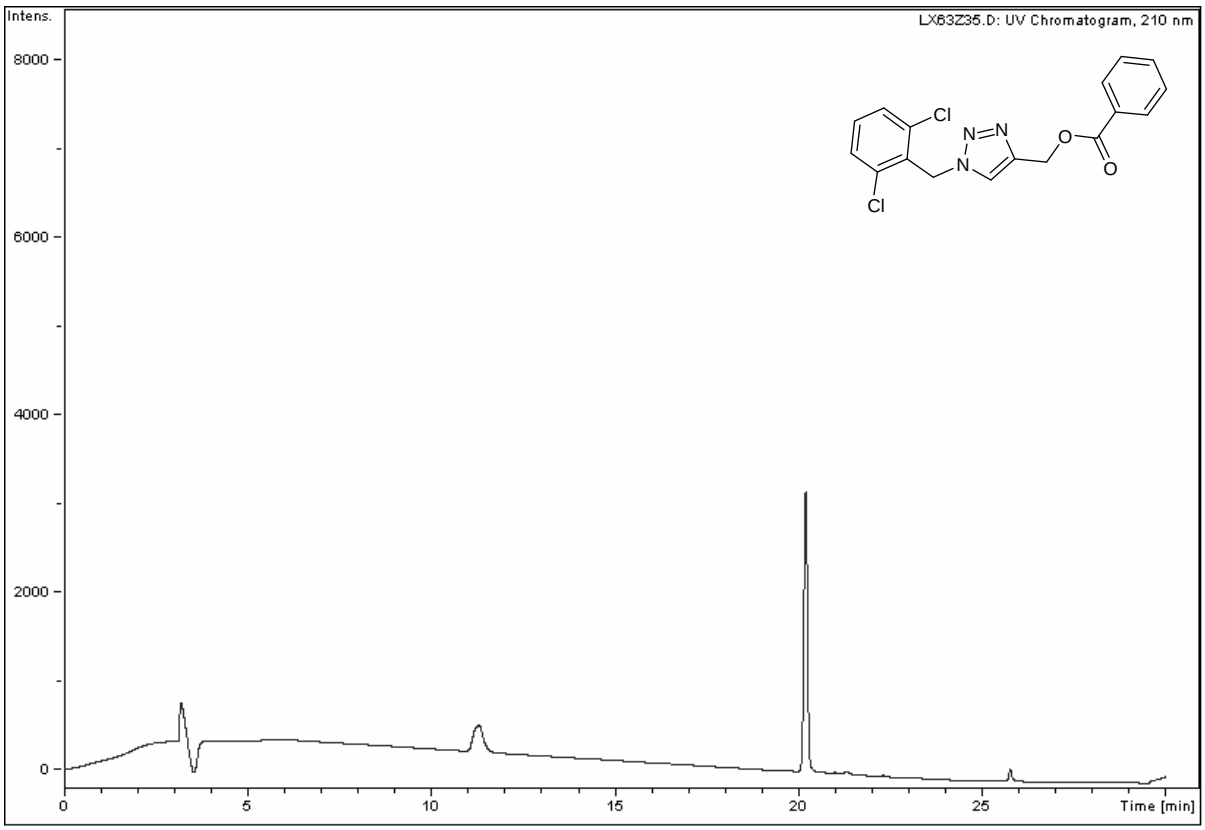
[1-(3-Phenylpropyl)-1H-1,2,3-triazol-4-yl]methyl benzoate



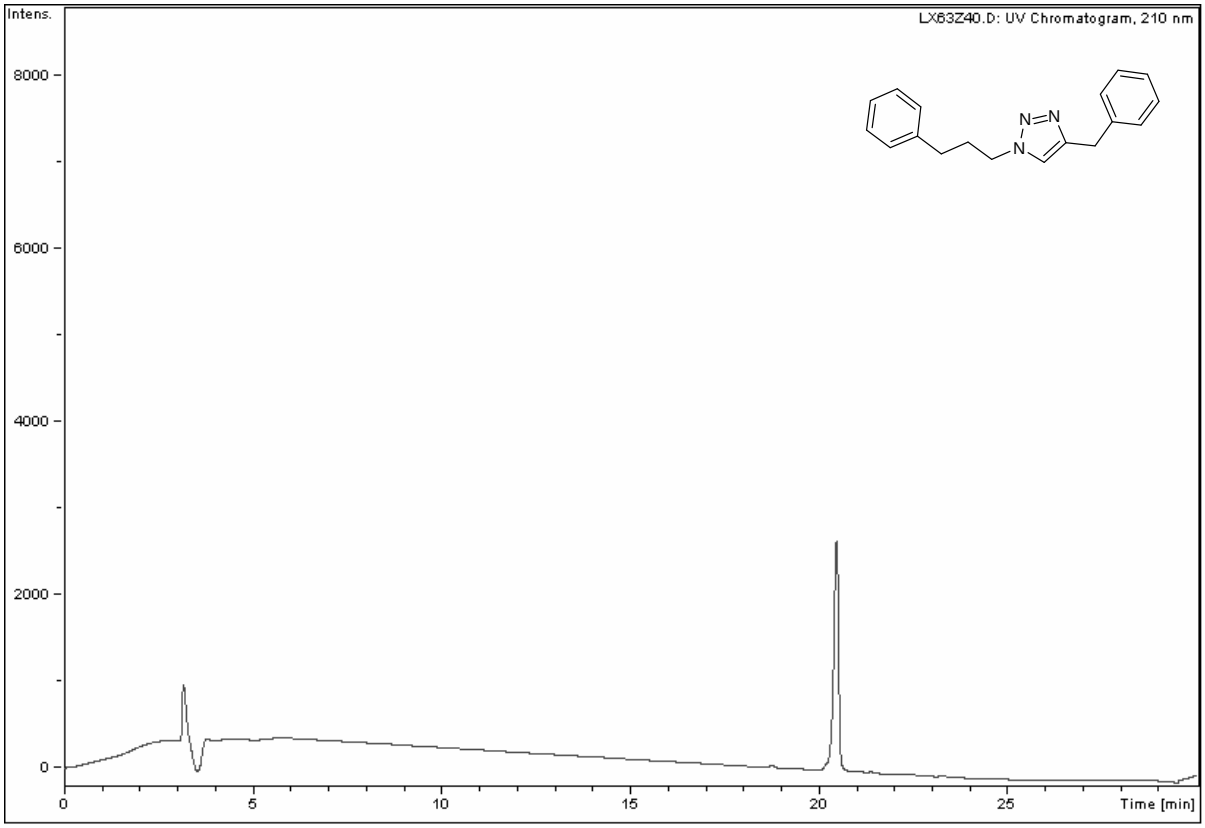
4'-({4-[(2,6-Dichlorophenoxy)methyl]-1H-1,2,3-triazol-1-yl}methyl)biphenyl-2-carbonitrile



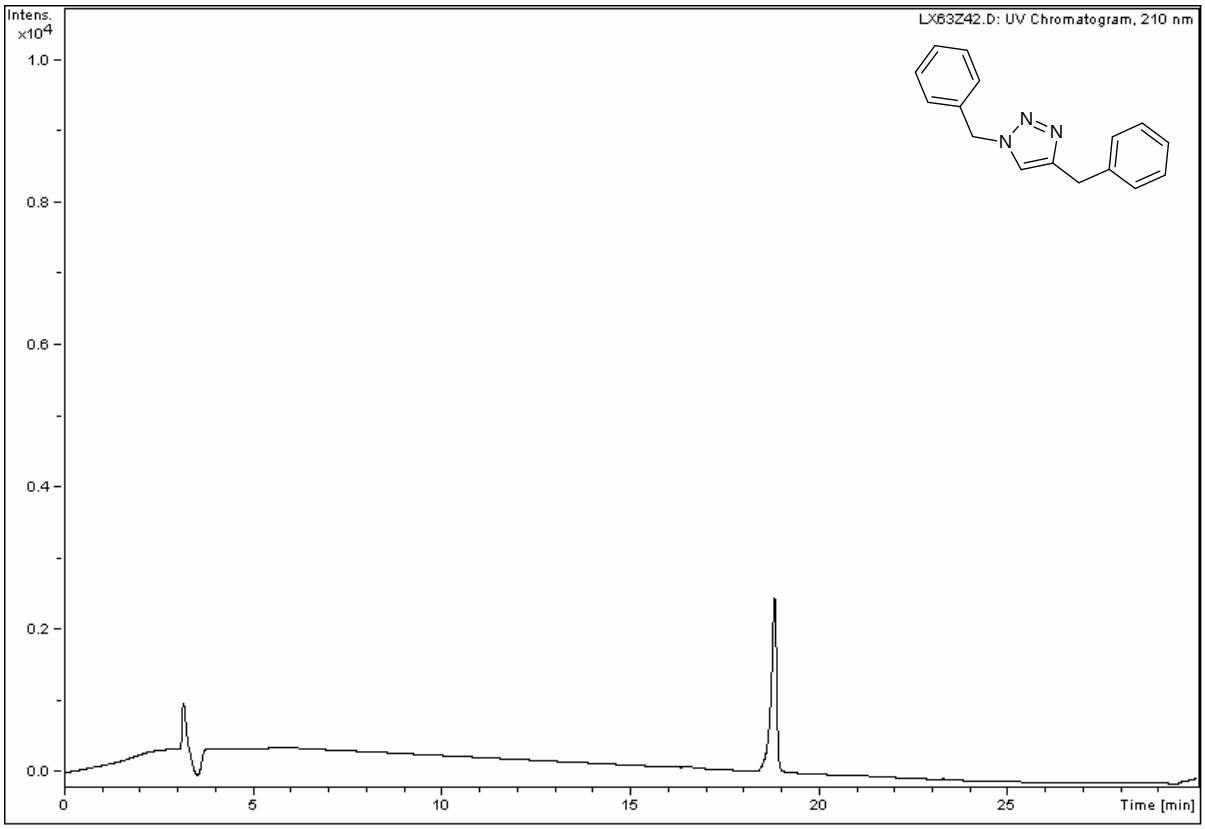
[1-(2,6-Dichlorobenzyl)-1H-1,2,3-triazol-4-yl]methyl benzoate



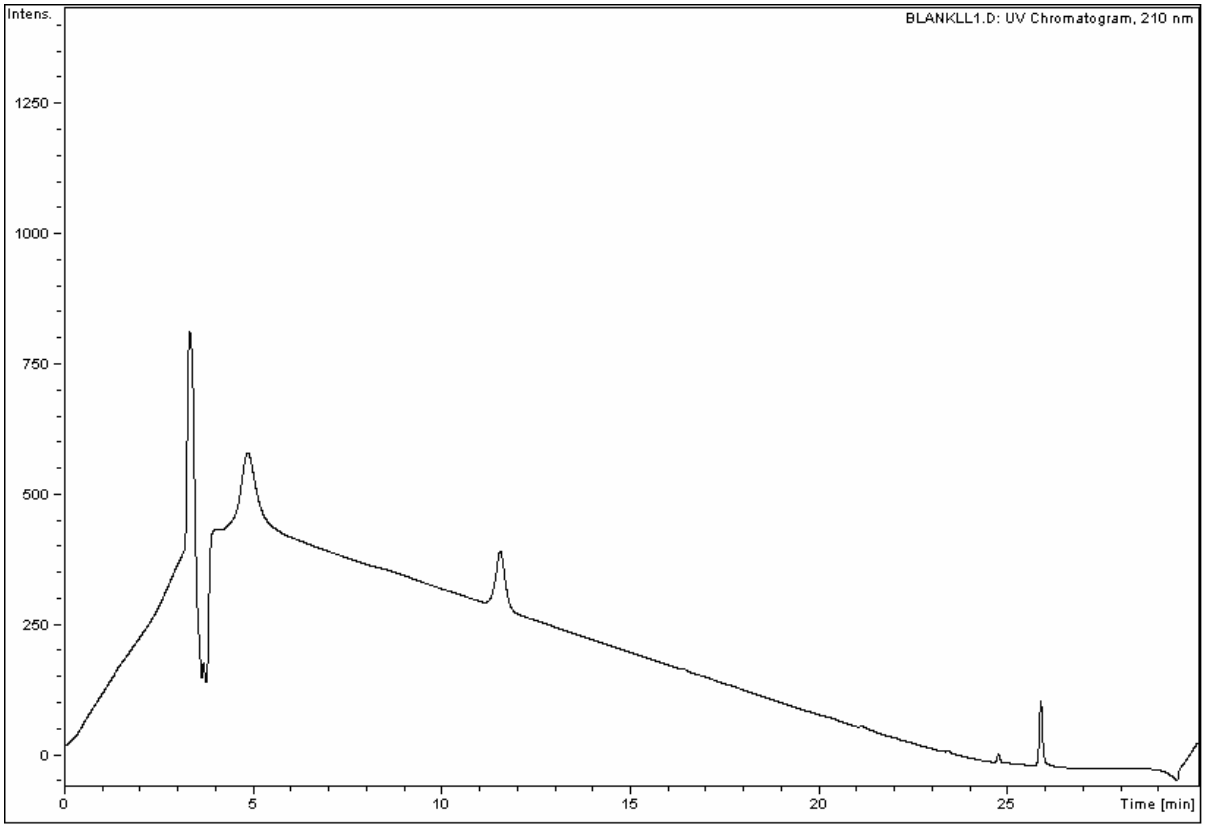
4-Benzyl-1-(3-phenylpropyl)-1H-1,2,3-triazole



1,4-Dibenzyl-1H-1,2,3-triazole



Blank HPLC-run (MeOH with 5% CH_2Cl_2)



5. Literature

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