# **Supporting Information**

for

# Parallel solid-phase synthesis of diaryltriazoles

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# Experimental details and spectra

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#### Synthesis of new compounds

#### **General information and instruments**

Nuclear magnetic resonance spectroscopy (NMR): Bruker Avance 300 (<sup>1</sup>H: 300.1 MHz, <sup>13</sup>C: 75.5 MHz); Bruker Avance 400 (<sup>1</sup>H: 400.1 MHz, <sup>13</sup>C: 100.6 MHz); Bruker Avance 600 Kryo (<sup>1</sup>H: 600.3 MHz, <sup>13</sup>C: 150.9 MHz). The measurements were performed at 300 Kelvin [K] if not stated otherwise. The chemical shifts are in  $\delta$ -values (ppm) relative to the internal or external standard TMS. The spectra were analyzed by first order and coupling constants *J* are given in hertz [Hz]. Abbreviations for the characterization of the signals: s = singlet, d = doublet, t = triplet, g = quartet, m = multiplet, bs = broad singlet, dd = doublet of doublets, dt = doubletof triplets, td = triplet of doublets, tt = triplet of triplets, ddd = doublet of doublets, dddd = doublet of doublets of doublets. Integration is determined as the relative number of protons. Error of reported values: chemical shift 0.01 ppm for <sup>1</sup>H NMR, 0.1 ppm for <sup>13</sup>C NMR; coupling constant: 0.1 Hz. The used solvent for each spectrum is reported. Infrared spectroscopy (IR): Bio-Rad Excalibur FT-IR-Spectrometer "FTS 3000 MX"; Perkin Elmer Precisely FTIR-Spectrometer "Spectrum 100"; abbreviations of the signals: s = strong, m = medium, w = weak; bs, bm, bw are broad signals with the corresponding intensity of the signal. Mass spectrometry (MS): Varian CH-5 (EI); Finnigan MAT 95 (EI); Finnigan MAT TSQ 7000 (ESI); Waters LCT Premier Micromass (ESI). Melting points (mp): Stanford Research System OptiMelt melting point apparatus; Thomas Hoover capillary melting point apparatus; all values are given in °C and are uncorrected. Elementary analysis: Microanalytical Laboratory of the University of Regensburg. Thin layer chromatography: Analytical thin layer chromatography (TLC) was performed on silica gel coated alumina plates (Merck TLC Aluminum sheets Si 60 F<sub>254</sub>, layer thickness 175-225 µm). Visualization was done by UVlight ( $\lambda$  = 254 and 366 nm). Preparative thin layer chromatography (PTLC): Preparative thin layer chromatography (PTLC) was carried out on home-made glass plates (20 × 20 cm) coated with silica gel (60 M, 0.04–0.063 mm, 230–400 mesh ASTM purchased from Merck). Visualization was done by UV-light ( $\lambda$  = 254 and 366 nm). Column chromatography: Column chromatography was performed on silica gel (60 M, 0.04-0.063 mm/230-400 mesh ASTM purchased from Merck) and/or by using prepared solid phase extraction tubes from Mettler-Toledo Autochem (SPE-C18/18% octadecyl, 1000 mg capacity/tube, particle size: 40 µm, mean pore diameter: 6 nm). High pressure liquid chromatography (HPLC): The preparative HPLC purification was performed on an "Agilent system 1100 series" with a Phenomenex Luna 10 µm C18 (2) 100A 250 × 21.2 mm column. For detection a DAD detector was used. Column temperature: 25 °C; injection volume: 300 µL; flow: 21mL/min; gradient: 0 min 5% MeCN/H<sub>2</sub>O [0.0059% TFA w/w]; 8 min 98% MeCN/H<sub>2</sub>O [0.0059% TFA w/w]; maximum pressure: 200 bar. Chemicals: All chemicals were purchased from the Sigma-Aldrich

Corporation, except: (A) Riedel de Haën GmbH: 1-(But-3-yn-2-yl)-3-(4-chlorophenyl)-1methylurea (Buturon), CAS 3766-60-7; (B) Brenntag Schweizerhall AG: 4-Azidobenzoic acid, CAS 6427-66-3. All chemicals were of analytical grade and no further purification was needed. Solvents: Commercially available solvents were used if not stated otherwise. Dry solvents were prepared by common procedures. Solid phase chemistry: All reported reactions on solid phase were carried out using a Wang Resin (Advanced ChemTech, Wang Resin SS, Bead Size: 100–200 Mesh, Polystyrene; 1% DVB, substitution: 0.9 mmol/g, Catalog<sup>#</sup>: SA5009, Lot<sup>#</sup>: 27481). Miniblock system: A Miniblock station from Mettler-Toledo Autochem was used (Bohdan 2080, New Brunswick Scientific, "Compact Shaking and Washing Station", Shaking frequency: 450 rpm).

#### Synthesis of functionalized Wang resins



#### 4-(Azidomethyl)benzoic acid functionalized Wang resin (7):

Resin **7** was synthesized according to **GP1**, using Wang resin (2.2 g, 1.98 mmol, 1.0 equiv), DIC (875 mg, 6.93 mmol, 3.5 equiv), DMAP (121 mg, 0.99 mmol, 0.5 equiv) and 4-(azidomethyl)benzoic acid (**6**, 877 mg, 4.95 mmol, 2.5 equiv), yielding the beige colored, quantitatively functionalized Wang resin **7** (2.55 g, 1.98 mmol, quantitative). IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3025 (w), 2921 (w), 2096 (m), 1716 (m), 1603 (w), 1511 (m), 1452 (m), 1269 (m), 696 (s).



#### 4-Azidobenzoic acid functionalized Wang resin (9):

Compound **9** was synthesized according to **GP1**, using Wang resin (2.5 g, 2.25 mmol, 1.0 equiv), DIC (994 mg, 7.88 mmol, 3.5 equiv), DMAP (137 mg, 1.13 mmol, 0.5 equiv) and 4-azidobenzoic acid (**8**, 918 mg, 5.63 mmol, 2.5 equiv), yielding the orange colored, quantitatively functionalized Wang resin **9** (2.86 g, 2.25 mmol, quantitative). IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3026 (w), 2920 (w), 2114 (m), 1716 (m), 1602 (m), 1512 (m), 1452 (m), 1268 (m), 697 (s).

### Synthesis of substituted triazoles



#### 4-{[4-((Diethylamino)methyl)-1H-1,2,3-triazol-1-yl]methyl}benzoic acid (11a):

The compound was synthesized according to **GP 2** using 4-(azidomethyl)benzoic acid functionalized Wang resin **7** (120 mg, 93  $\mu$ mol, 1.0 equiv), L-ascorbic acid (8.2 mg, 47  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (2.3 mg, 9  $\mu$ mol, 0.1 equiv) and *N*,*N*-diethylpropargylamine (**10a**, 52  $\mu$ L, 373  $\mu$ mol, 4.0 equiv). Cleavage according to **GP 4** yielded compound **11a** (17 mg, 59  $\mu$ mol, 63%) as a light green oil.

<sup>1</sup>H NMR (600 MHz, MeOD)  $\delta$  (ppm) 1.35 (t, <sup>3</sup>J<sub>HH</sub> = 7.0 Hz, 6 H, H-11), 3.18 (bs, 4 H, H-10), 4.44 (s, 2 H, H-9), 5.70 (s, 2 H, H-6); 7.38 (d, <sup>3</sup>J<sub>HH</sub> = 7.9 Hz, 2 H, H-4), 7.79 (d, <sup>3</sup>J<sub>HH</sub> = 7.9 Hz, 2 H, H-3), 8.25 (s, 1 H, H-7); <sup>13</sup>C NMR (150 MHz, MeOD)  $\delta$  (ppm) 9.4 (+, 2 C, C-11), 46.7 (-, 2 C, C-10), 54.7 (-, 2 C, C-6, C-9), 128.1 (C<sub>q</sub>, 1 C, C-2), 129.0 (+, 2 C, C-4), 131.3 (+, 2 C, C-3), 140.3 (C<sub>q</sub>, 1 C, C-5), 163.2 (C<sub>q</sub>, 1 C, C-1); HRMS–EI (m/z): [M<sup>+</sup>] calcd for C<sub>15</sub>H<sub>20</sub>N<sub>4</sub>O<sub>2</sub>, 288.1586; found, 288.1586.



#### 4-[Cyclohex-1-en-1-yl-1*H*-1,2,3-triazol-1-yl]methylbenzoic acid (11d):

According to **GP 2**, the resin-bound molecule **11d** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (300 mg, 233  $\mu$ mol, 1.0 equiv), Lascorbic acid (21 mg, 116  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (6 mg, 23  $\mu$ mol, 0.1 equiv) and 1-ethynyl-1-cyclohexanol (**10d**, 116 mg, 932  $\mu$ mol, 4.0 equiv). The molecule was cleaved according to **GP 4**. The purification was done by preparative HPLC yielding compound **11d** (38 mg, 133  $\mu$ mol, 57%) as a colorless solid.

Mp: 154 °C (decomposition); <sup>1</sup>H NMR (400 MHz, DMSO- $d_6$ )  $\delta$  (ppm) 1.54–1.62 (m, 2 H, H-12), 1.63–1.72 (m, 2 H, H-11), 2.09–2.18 (m, 2 H, H-13), 2.26–2.35 (m, 2 H, H-10), 5.64 (s, 2 H, H-6), 6.35–6.44 (m, 1 H, H-14), 7.35 (d, <sup>3</sup> $J_{HH}$  = 8.2 Hz, 2 H, H-4), 7.92 (d, <sup>3</sup> $J_{HH}$  = 8.2 Hz, 2 H, H-3), 8.16 (s, 1 H, H-7), 12.97 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO- $d_6$ )  $\delta$  (ppm) 21.8 (–, 1 C, C-12), 21.9 (–, 1 C, C-11), 24.6 (–, 1 C, C-13), 25.7 (–, 1 C, C-10), 52.2 (–, 1 C, C-6), 120.2 (+, 1 C, C-7), 123.5 (+, 1 C, C-14), 127.3 (C<sub>q</sub>, 1 C, C-9), 127.6 (+, 2 C, C-4), 129.6 (+, 2 C, C-3), 130.4 (C<sub>q</sub>, 1 C, C-2), 140.8 (C<sub>q</sub>, 1 C, C-5), 148.3 (C<sub>q</sub>, 1 C, C-8), 166.8 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3128 (w), 2939 (w), 2875 (w), 2659 (w), 2535 (w), 1670 (s), 1424 (m), 1274 (m), 1186 (m), 1021 (m), 846 (m), 744 (s); ESIMS: m/z (%): 567.2 (30) [2MH<sup>+</sup>], 325.1 (80) [MH<sup>+</sup> + MeCN], 284.0 (100) [MH<sup>+</sup>].



#### 4-[(4-Phenyl-1*H*-1,2,3-triazol-1-yl)methyl]benzoic acid (11b):

Literature known compound; improved procedure [1].

According to **GP 2**, the resin-bound molecule **11b** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (180 mg, 140  $\mu$ mol, 1.0 equiv), L-ascorbic acid (12 mg, 70  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (3.5 mg, 14  $\mu$ mol, 0.1 equiv) and phenylacetylene (**10b**, 61  $\mu$ L, 559  $\mu$ mol, 4.0 equiv). The molecule was cleaved according to **GP 4** and after evaporation of the solvent, compound **11b** (35 mg, 126  $\mu$ mol, 90%) was obtained as a colorless solid.

Mp: 222 °C (decomposition); <sup>1</sup>H NMR (400 MHz, acetone- $d_6$ , HSQC, HMBC):  $\delta$  (ppm) 5.79 (s, 2 H, H-6), 7.31 (tt, <sup>3</sup> $J_{HH}$  = 7.4 Hz, <sup>4</sup> $J_{HH}$  = 1.3 Hz, 1 H, H-12), 7.41 (t, <sup>3</sup> $J_{HH}$  = 7.6 Hz, 2 H, H-11), 7.50 (d, <sup>3</sup> $J_{HH}$  = 8.3 Hz, 2 H, H-4), 7.88 (dt, <sup>3</sup> $J_{HH}$  = 8.2 Hz, <sup>4</sup> $J_{HH}$  = 1.6 Hz, 2 H, H-10), 8.05 (d, <sup>3</sup> $J_{HH}$  = 8.3 Hz, 2 H, H-3), 8.41 (s, 1 H, H-7); <sup>13</sup>C NMR (100 MHz, acetone- $d_6$ , HSQC, HMBC):  $\delta$  (ppm) 53.9 (–, 1 C, C-6), 121.7 (+, 1 C, C-7), 126.2 (+, 2 C, C-10), 128.7 (+, 1 C, C-12), 128.8 (+, 2 C, C-4), 129.6 (+, 2 C, C-11), 131.0 (+, 2 C, C-3), 132.1 (C<sub>q</sub>, 1 C, C-9), 141.9 (C<sub>q</sub>, 1 C, C-5), 148.3 (C<sub>q</sub>, 1 C, C-8), 166.9 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3067 (w), 2920 (w), 2850 (w), 2670 (w), 2554 (w), 1681 (s), 1291 (s), 732 (s); ESIMS: m/z (%): 559.2 (25) [2MH<sup>+</sup>], 321.1 (100) [MH<sup>+</sup> + MeCN], 280.1 (65) [MH<sup>+</sup>].



#### 4-[1-Phenylvinyl-1*H*-1,2,3-triazol-1-yl]methylbenzoic acid (11e):

According to **GP 2**, the resin-bound molecule **11e** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (300 mg, 233 µmol, 1.0 equiv), Lascorbic acid (21 mg, 116 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (6 mg, 23 µmol, 0.1 equiv) and 2-phenyl-3-butin-2-ol (**10e**,136 mg, 932  $\mu$ mol, 4.0 equiv). The molecule was cleaved according to **GP 4**. The purification was done by preparative HPLC, yielding compound **11e** (51 mg, 165  $\mu$ mol, 71%) as a colorless solid.

Mp: 155 °C (decomposition); <sup>1</sup>H NMR (600 MHz, MeOD, COSY, HSQC, HMBC):  $\delta$  (ppm) 5.46 (d, <sup>2</sup>J<sub>HH</sub> = 1.1 Hz, 1 H, H-10), 5.67 (s, 2 H, H-6), 5.88 (d, <sup>2</sup>J<sub>HH</sub> = 1.0 Hz, 1 H, H-10), 7.28–7.44 (m, 7 H, H-4, H-12, H-13, H-14), 7.91 (s, 1 H, H-7), 8.02 (d, <sup>3</sup>J<sub>HH</sub> = 8.4 Hz, 2 H, H-3); <sup>13</sup>C NMR (150 MHz, MeOD, COSY, HSQC, HMBC):  $\delta$  (ppm) 54.4 (–, 1 C, C-6), 115.6 (–, 1 C, C-10), 124.5 (+, 1 C, C-7), 128.7 (+, 2 C, C-12), 128.9 (+, 2 C, C-4), 129.3 (+, 1 C, C-14), 129.6 (+, 2 C, C-13), 131.4 (+, 2 C, C-3), 132.1 (C<sub>q</sub>, 1 C, C-2), 140.5 (C<sub>q</sub>, 1 C, C-11), 141.1 (C<sub>q</sub>, 1 C, C-9), 141.8 (C<sub>q</sub>, 1 C, C-5), 149.3 (C<sub>q</sub>, 1 C, C-8), 169.2 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3131 (w), 2915 (w), 2848 (w), 2673 (w), 2565 (w), 1686 (s), 1430 (m), 1294 (s), 1049 (m), 730 (s), 698 (s); HRMS–EI (M/Z): [M]<sup>+</sup> calcd for C<sub>18</sub>H<sub>15</sub>N<sub>3</sub>O<sub>2</sub>, 305.1164; found, 305.1165.



# 4-{[4-(1-(3-(4-Chlorophenyl)-1-methylureido)ethyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11c):

According to **GP 2**, the resin-bound molecule **11c** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (150 mg, 116  $\mu$ mol, 1.0 equiv), Lascorbic acid (10 mg, 58  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (3 mg, 12  $\mu$ mol, 0.1 equiv) and 1-(but-3-yn-2-yl)-3-(4-chlorophenyl)-1-methylurea (**10c**, 110 mg, 466  $\mu$ mol, 4.0 equiv). The molecule was cleaved according to **GP 4**. The purification was done by preparative HPLC, yielding compound **11c** (39 mg, 94  $\mu$ mol, 81%) as a colorless solid.

Mp: 183–189 °C; <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 1.47 (d, <sup>3</sup>*J*<sub>HH</sub> = 7.0 Hz, 3 H, H-10), 2.72 (s, 3 H, H-11), 5.66 (q, <sup>3</sup>*J*<sub>HH</sub> = 7.0 Hz, 1 H, H-9), 5.67 (s, 2 H, H-6), 7.28 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.9 Hz, 2 H, H-15), 7.39 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.0 Hz, 2 H, H-4), 7.54 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.9 Hz, 2 H, H-14), 7.94 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.0 Hz, 2 H, H-3), 8.14 (s, 1 H, NH), 8.46 (s, 1 H, H-7), 12.99 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 16.8 (+, 1 C, C-10), 28.7 (+, 1 C, C-11), 45.7 (+, 1 C, C-9), 52.3 (-, 1 C, C-6), 121.2 (+, 2 C, C-14), 123.1 (+, 1 C, C-7), 125.2 (C<sub>q</sub>, 1 C, C-16), 127.8 (+, 2 C, C-4), 127.9 (+, 2 C, C-15), 128.0 (+, 2 C, C-3), 139.5 (C<sub>q</sub>, 1 C, C-13), 140.8 (C<sub>q</sub>, 1 C, C-5), 147.7 (C<sub>q</sub>, 1 C, C-8), 155.1 (C<sub>q</sub>, 1 C, C-12), 166.8 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3112 (w), 2983 (w), 2922 (w), 2255 (w), 1647 (m), 1493 (m), 1402 (m), 1242 (m), 1023 (s), 824 (m), 647 (m); ESIMS: m/z (%): 827.4 (20) [2MH<sup>+</sup>], 414.0 (100) [MH<sup>+</sup>].



#### 4-{[4-(2-Formylphenyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11f):

According to **GP 2**, the resin-bound molecule **11f** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 2-ethynylbenzaldehyde (**10f**, 40 mg, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11f** (23 mg, 74 µmol, 95%) as a light yellow solid.

Mp: 144 °C (decomposition); <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>) δ (ppm) 5.80 (s, 2 H, H-6), 7.47 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.2 Hz, 2 H, H-4), 7.56 (td, <sup>3</sup>*J*<sub>HH</sub> = 7.2 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.0 Hz, 1 H, H-12), 7.74 (td, <sup>3</sup>*J*<sub>HH</sub> = 7.7 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.0 Hz, 1 H, H-11), 7.78 (dd, <sup>3</sup>*J*<sub>HH</sub> = 7.7 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.3 Hz, 1 H, H-13), 7.89 (dd, <sup>3</sup>*J*<sub>HH</sub> = 7.7 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.0 Hz, 2 H, H-10), 7.96 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.2 Hz, 2 H, H-3), 8.78 (s, 1 H, H-7), 10.34 (s, 1 H, H-15), 13.03 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>) δ (ppm) 52.5 (-, 1 C, C-6), 124.9 (+, 1 C, C-7), 127.4 (+, 1 C, C-10), 127.8 (+, 2 C, C-4), 128.3 (+, 1 C, C-13), 128.5 (+, 1 C, C-12), 129.6 (+, 2 H, C-3), 132.7 (C<sub>q</sub>, 1 C, C-2), 133.2 (C<sub>q</sub>, 1 C, C-9), 133.7 (+, 1 C, C-11), 138.1 (C<sub>q</sub>, 1 C, C-14), 140.3 (C<sub>q</sub>, 1 C, C-5), 144.0 (C<sub>q</sub>, 1 C, C-8), 166.7 (C<sub>q</sub>, 1 C, C-1), 192.3 (+, 1 C, C-15); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3141 (w), 3014 (w), 2884 (w), 2809 (w), 1675 (s), 1602 (m), 1400 (m), 1198 (m), 759 (s), 739 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>17</sub>H<sub>14</sub>N<sub>3</sub>O<sub>3</sub>, 308.1030; found, 308.1027.



#### 4-[(4-m-Tolyl-1*H*-1,2,3-triazol-1-yl)methyl]benzoic acid (11g):

According to **GP 2**, the resin-bound molecule **11g** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78  $\mu$ mol, 1.0 equiv), Lascorbic acid (6.9 mg, 39  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8  $\mu$ mol, 0.1 equiv) and 3-ethynyltoluene (**10g**, 40  $\mu$ L, 311  $\mu$ mol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11g** (23 mg, 77 µmol, 99%) as a colorless solid.

Mp: 138 °C (decomposition); <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>, HSQC, HMBC)  $\delta$  (ppm) 2.37 (s, 3 H, H-15), 5.65 (s, 2 H, H-6), 7.14 (d, <sup>3</sup>*J*<sub>HH</sub> = 7.6 Hz, 1 H, H-12), 7.29 (t, <sup>3</sup>*J*<sub>HH</sub> = 7.7 Hz, 1 H, H-11), 7.36 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-4), 7.57 (d, <sup>3</sup>*J*<sub>HH</sub> = 7.7 Hz, 1 H, H-10), 7.65 (s, 1 H, H-14), 7.70 (s, 1 H, H-7), 8.09 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-3); <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>, HSQC, HMBC)  $\delta$  (ppm) 21.4 (+, 1 C, C-15), 53.7 (-, 1 C, C-6), 119.6 (+, 1 C, C-7), 122.8 (+, 1 C, C-10), 126.4 (+, 1 C, C-14), 127.8 (+, 2 C, C-4), 128.7 (+, 1 C, C-11), 129.1 (+, 1 C, C-12), 130.0 (C<sub>q</sub>, 1 C, C-2), 130.9 (+, 2 C, C-3), 138.5 (C<sub>q</sub>, 1 C, C-13), 140.1 (C<sub>q</sub>, 1 C, C-5), 169.5 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3134 (w), 2949 (w), 2884 (w), 2675 (w), 1687 (m), 1282 (m), 779 (s), 725 (s), 690 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>17</sub>H<sub>16</sub>N<sub>3</sub>O<sub>2</sub>, 294.1237; found, 294.1245.



#### 4-{[4-(3-Fluorophenyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11h):

According to **GP 2**, the resin-bound molecule **11h** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 1-ethynyl-3-fluorobenzene (**10h**, 36 µL, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11h** (22 mg, 75 µmol, 97%) as a colorless solid.

Mp: 174 °C (decomposition); <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 5.76 (s, 2 H, H-6), 7.16 (dddd, <sup>3</sup>*J*<sub>HF</sub> = 8.9 Hz, <sup>3</sup>*J*<sub>HH</sub> = 8.0 Hz, <sup>4</sup>*J*<sub>HH</sub> = 2.6 Hz, <sup>4</sup>*J*<sub>HH</sub> = 0.8 Hz, 1 H, H-12), 7.43 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, 2 H, H-4), 7.49 (ddd, <sup>3</sup>*J*<sub>HH</sub> = 8.0 Hz, <sup>3</sup>*J*<sub>HH</sub> = 7.9 Hz, <sup>4</sup>*J*<sub>HF</sub> = 6.2 Hz, 1 H, H-11), 7.66 (ddd, <sup>3</sup>*J*<sub>HF</sub> = 10.4 Hz, <sup>4</sup>*J*<sub>HH</sub> = 2.5 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.5 Hz, 1 H, H-14), 7.71 (ddd, <sup>3</sup>*J*<sub>HH</sub> = 7.8 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.1 Hz, <sup>4</sup>*J*<sub>HH</sub> = 0.9 Hz, 1 H, H-10), 7.96 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-3), 8.74 (s, 1 H, H-7), 12.92 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 52.8 (-, 1 C, C-6), 111.9 (+, d, <sup>2</sup>*J*<sub>CF</sub> = 23.0 Hz, 1 C, C-12), 114.8 (+, d, <sup>2</sup>*J*<sub>CF</sub> = 21.0 Hz, 1 C, C-14), 121.3 (+, d, <sup>4</sup>*J*<sub>CF</sub> = 2.6 Hz, 1 C, C-10), 122.7 (+, 1 C, C-7), 128.1 (+, 2 C, C-4), 129.9 (+, 2 H, C-3), 130.7 (C<sub>q</sub>, 1 C, C-2), 131.2 (+, d, <sup>3</sup>*J*<sub>CF</sub> = 8.4 Hz, 1 C, C-11), 133.1 (C<sub>q</sub>, d, <sup>3</sup>*J*<sub>CF</sub> = 8.4 Hz, 1 C, C-9), 140.7 (C<sub>q</sub>, 1 C, C-5), 145.8 (C<sub>q</sub>, d, <sup>4</sup>*J*<sub>CF</sub> = 2.9 Hz, 1 C, C-8), 162.7 (C<sub>q</sub>, d, <sup>1</sup>*J*<sub>CF</sub> = 242.9 Hz, 1 C, C-13), 167.0 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3134 (w), 2956 (w), 2922 (w), 2849 (w), 2680 (w),

1682 (s), 1428 (m), 1295 (s), 862 (s), 784 (s), 730 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for  $C_{16}H_{13}FN_3O_2$ , 298.0986; found, 298.0990.



#### 4-{[4-(3-Chlorophenyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11i):

According to **GP 2**, the resin-bound molecule **11i** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 3-chloro-1-ethynylbenzene (**10i**, 38 µL, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11i** (24 mg, 76 µmol, 98%) as a light-beige solid.

Mp: 168 °C (decomposition); <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>, HSQC, HMBC) δ (ppm) 5.76 (s, 2 H, H-6), 7.39 (ddd, <sup>3</sup>*J*<sub>HH</sub> = 8.0 Hz, <sup>4</sup>*J*<sub>HH</sub> = 2.1 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.0 Hz, 1 H, H-12), 7.44 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-4), 7.47 (t, <sup>3</sup>*J*<sub>HH</sub> = 7.9 Hz, 1 H, H-11), 7.84 (ddd, <sup>3</sup>*J*<sub>HH</sub> = 7.8 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.3 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.2 Hz, 1 H, H-10), 7.91 (t, <sup>4</sup>*J*<sub>HH</sub> = 1.8 Hz, 1 H, H-14), 7.96 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-3), 8.77 (s, 1 H, H-7), 13.04 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>, HSQC, HMBC) δ (ppm) 52.6 (-, 1 C, C-6), 122.5 (+, 1 C, C-7), 123.6 (+, 1 C, C-10), 124.7 (+, 1 C, C-14), 127.6 (+, 1 C, C-12), 127.9 (+, 2 C, C-4), 129.7 (+, 2 C, C-3), 130.5 (C<sub>q</sub>, 1 C, C-2), 130.8 (+, 1 C, C-11), 132.6 (C<sub>q</sub>, 1 C, C-9), 133.6 (C<sub>q</sub>, 1 C, C-13), 140.4 (C<sub>q</sub>, 1 C, C-5), 145.3 (C<sub>q</sub>, 1 C, C-8), 166.8 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3134 (w), 3081 (w), 2953 (w), 1687 (m), 1281 (m), 871 (m), 779 (s), 725 (s), 690 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>16</sub>H<sub>13</sub>CIN<sub>3</sub>O<sub>2</sub>, 314.0691; found, 314.0672; MF: C<sub>16</sub>H<sub>12</sub>CIN<sub>3</sub>O<sub>2</sub>; MW: 313.74



**4-{[4-(3-(Trifluoromethyl)phenyl)-1***H***-1,2,3-triazol-1-yl]methyl}benzoic acid (11j):** According to **GP 2**, the resin-bound molecule **11j** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), L-ascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 3-ethynyl- $\alpha$ , $\alpha$ , $\alpha$ -trifluorotoluene (**10j**, 45 µL, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11j** (26 mg, 76 µmol, 98%) as a colorless solid.

Mp: 124 °C; <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 5.78 (s, 2 H, H-6), 7.45 (d, <sup>3</sup>J<sub>HH</sub> = 8.4 Hz, 2 H, H-4), 7.65–7.73 (m, 2 H, H-11, H-12), 7.96 (d, <sup>3</sup>J<sub>HH</sub> = 8.3 Hz, 2 H, H-3), 8.14–8.22 (m, 2 H, H-10, H-14), 8.87 (s, 1 H, H-7), 12.96 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 52.7 (–, 1 C, C-6), 121.5 (+, d, <sup>3</sup>J<sub>CF</sub> = 3.7 Hz, 1 C, C-12), 122.7 (+, 1 C, C-7), 124.3 (+, d, <sup>3</sup>J<sub>CF</sub> = 3.5 Hz, 1 C, C-14), 125.4 (C<sub>q</sub>, 1 C, C-15), 127.9 (+, 2 C, C-4), 128.9 (+, 1 C, C-11), 129.7 (C<sub>q</sub>, d, <sup>2</sup>J<sub>CF</sub> = 31.7 Hz, 1 C, C-13), 129.8 (+, 2 C, C-3), 130.1 (+, 1 C, C-10), 130.5 (C<sub>q</sub>, 1 C, C-2), 131.6 (C<sub>q</sub>, 1 C, C-9), 140.4 (C<sub>q</sub>, 1 C, C-5), 145.3 (C<sub>q</sub>, 1 C, C-8), 166.8 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3080 (w), 2850 (w), 2556 (w), 1682 (s), 1429 (m), 1294 (s), 1175 (m), 1126 (s), 1069 (m), 807 (m), 729 (s), 697 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>17</sub>H<sub>13</sub>F<sub>3</sub>N<sub>3</sub>O<sub>2</sub>, 348.0954; found, 348.0968.



#### 4-{[4-(4-Bromophenyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11k):

According to **GP 2**, the resin-bound molecule **11k** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 1-bromo-4-ethynylbenzene (**10k**, 56 mg, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11k** (27 mg, 75 µmol, 97%) as a colorless solid.

Mp: 245 °C; <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 5.75 (s, 2 H, H-6), 7.43 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.2 Hz, 2 H, H-4), 7.63 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.5 Hz, 2 H, H-11), 7.81 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.5 Hz, 2 H, H-10), 7.95 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.2 Hz, 2 H, H-3), 8.71 (s, 1 H, H-7); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 52.5 (–, 1 C, C-6), 120.7 (C<sub>q</sub>, 1 C, C-12), 122.0 (+, 1 C, C-7), 127.0 (+, 2 C, C-10), 127.8 (+, 2 C, C-4), 129.6 (+, 2 C, C-3), 129.7 (C<sub>q</sub>, 1 C, C-9), 130.4 (C<sub>q</sub>, 1 C, C-2), 131.7 (+, 2 C, C-11), 140.4 (C<sub>q</sub>, 1 C, C-5), 145.5 (C<sub>q</sub>, 1 C, C-8), 166.7 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3114 (w), 3083 (w), 2857 (w), 2664 (w), 2544 (w), 1673 (s), 1423 (m), 1283 (s), 1185 (m), 818 (s), 714 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>16</sub>H<sub>13</sub>BrN<sub>3</sub>O<sub>2</sub>, 359.0186; found, 359.0198.



#### 4-{[4-(4-Methoxyphenyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11I):

According to **GP 2**, the resin-bound molecule **11I** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 4-ethynylanisole (**10I**, 40 µL, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. After evaporation of the solvent, compound **11I** (24 mg, 76 µmol, 98%) was yielded as a colorless solid.

Mp: 238 °C (decomposition); <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 3.77 (s, 3 H, H-13), 5.72 (s, 2 H, H-6), 7.00 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-11), 7.42 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-4), 7.77 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-10), 7.95 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-3), 8.54 (s, 1 H, H-7); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 52.5 (-, 1 C, C-6), 55.1 (+, 1 C, C-13), 114.3 (+, 2 C, C-11), 120.8 (+, 1 C, C-7), 123.1 (C<sub>q</sub>, 1 C, C-9), 126.5 (+, 2 C, C-10), 127.9 (+, 2 C, C-4), 129.8 (+, 2 C, C-3), 130.5 (C<sub>q</sub>, 1 C, C-2), 140.8 (C<sub>q</sub>, 1 C, C-5), 146.7 (C<sub>q</sub>, 1 C, C-8), 159.0 (C<sub>q</sub>, 1 C, C-12), 166.9 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3103 (w), 2847 (w), 2672 (w), 2545 (w), 1682 (s), 1498 (m), 1428 (m), 1245 (s), 1173 (m), 1024 (s), 818 (s), 726 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>17</sub>H<sub>16</sub>N<sub>3</sub>O<sub>3</sub>, 310.1186; found, 310.1165.



#### 4-{[4-(4-(Dimethylamino)phenyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11m):

According to **GP 2**, the resin-bound molecule **11m** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 4-ethynyl-*N*,*N*-dimethylaniline (**10m**, 45 mg, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. After evaporation of the solvent, compound **11m** (22 mg, 68 µmol, 88%) was yielded as a dark red solid. Mp: 154 °C (decomposition); <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 2.96 (s, 6 H, H-13), 5.70 (s, 2 H, H-6), 6.90 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, 2 H, H-11), 7.41 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.1 Hz, 2 H, H-4), 7.70 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.5 Hz, 2 H, H-10), 7.94 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.1 Hz, 2 H, H-3), 8.48 (s, 1 H, H-7); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 40.6 (+, 2 C, C-13), 52.3 (-, 1 C, C-6), 113.4 (+, 2 C, C-11), 120.1 (+, 1 C, C-7), 126.0 (+, 2 C, C-10), 127.7 (+, 2 C, C-4), 128.8 (C<sub>q</sub>, 1 C, C-9), 129.6 (+, 2 C, C-3), 130.3 (C<sub>q</sub>, 1 C, C-2), 140.7 (C<sub>q</sub>, 1 C, C-5), 148.8 (C<sub>q</sub>, 1 C, C-8), 166.7 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3131 (w), 3077 (w), 2884 (w), 2676 (w), 1687 (m), 1573 (m), 1282 (m), 1098 (m), 780 (s), 691 (s); MS (ESI+, TOF) m/z (%) 323.1 (100) [MH<sup>+</sup>].



#### 4-{[4-(4-*tert*-Butylphenyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11n):

According to **GP 2**, the resin-bound molecule **11n** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 4-*tert*-butylphenylacetylene (**10n**, 56 µL, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. After evaporation of the solvent, compound **11n** (26 mg, 76 µmol, 98%) was yielded as a colorless solid.

Mp: 243 °C (decomposition); <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>, HSQC, HMBC)  $\delta$  (ppm) 1.31 (s, 9 H, H-14), 5.62 (s, 2 H, H-6), 7.33 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.2 Hz, 2 H, H-4), 7.42 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, 2 H, H-11), 7.69 (s, 1 H, H-7), 7.71 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, 2 H, H-10), 8.06 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.2 Hz, 2 H, H-3), 11.84 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>, HSQC, HMBC)  $\delta$  (ppm) 31.2 (+, 3 C, C-14), 34.6 (C<sub>q</sub>, 1 C, C-13), 53.8 (-, 1 C, C-6), 119.6 (+, 1 C, C-7), 125.5 (+, 2 C, C-10), 125.8 (+, 2 C, C-11), 127.1 (C<sub>q</sub>, 1 C, C-9), 127.7 (+, 2 C, C-4), 130.7 (+, 2 C, C-3), 130.9 (C<sub>q</sub>, 1 C, C-2), 139.5 (C<sub>q</sub>, 1 C, C-5), 148.4 (C<sub>q</sub>, 1 C, C-8), 151.5 (C<sub>q</sub>, 1 C, C-12), 168.6 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 2960 (w), 2927 (w), 2671 (w), 2545 (w), 1685 (s), 1424 (m), 1283 (m), 1188 (m), 1021 (m), 835 (m), 745 (s); MS (ESI+, TOF) m/z (%) 671.3 (15) [2MH<sup>+</sup>], 336.1 (100) [MH<sup>+</sup>].



#### 4-{[4-(4-Pentylphenyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11o):

According to **GP 2**, the resin-bound molecule **110** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 1-ethynyl-4-pentylbenzene (**100**, 61 µL, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. After evaporation of the solvent, compound **110** (26 mg, 75 µmol, 97%) was yielded as a colorless solid.

Mp: 169 °C (decomposition); <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>, HSQC, HMBC) δ (ppm) 0.84 (t, <sup>3</sup>*J*<sub>HH</sub> = 7.0 Hz, 3 H, H-17), 1.20–1.33 (m, 4 H, H-15, H-16), 1.56 (quintet, <sup>3</sup>*J*<sub>HH</sub> = 7.5 Hz, 2 H, H-14), 2.57 (t, <sup>3</sup>*J*<sub>HH</sub> = 7.8 Hz, 2 H, H-13), 5.73 (s, 2 H, H-6), 7.24 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.2 Hz, 2 H, H-11), 7.42 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-4), 7.74 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.2 Hz, 2 H, H-10), 7.95 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-3), 8.59 (s, 1 H, H-7); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>, HSQC, HMBC) δ (ppm) 13.9 (+, 1 C, C-17), 21.9 (-, 1 C, C-16), 30.5 (-, 1 C, C-15), 30.8 (-, 1 C, C-14), 34.8 (-, 1 C, C-13), 52.6 (-, 1 C, C-6), 121.4 (+, 1 C, C-7), 125.1 (+, 2 C, C-10), 127.9 (+, 2 C, C-4), 128.0 (C<sub>q</sub>, 1 C, C-9), 128.8 (+, 2 C, C-11), 129.8 (+, 2 C, C-3), 130.5 (C<sub>q</sub>, 1 C, C-2), 140.8 (C<sub>q</sub>, 1 C, C-5), 142.2 (C<sub>q</sub>, 1 C, C-12), 146.8 (C<sub>q</sub>, 1 C, C-8), 166.9 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 2959 (m), 2927 (m), 2857 (m), 2671 (w), 2555 (w), 1685 (s), 1424 (m), 1284 (m), 1188 (m), 1049 (m), 836 (m), 745 (s); MS MS (ESI+, TOF) m/z (%) 699.4 (15) [2MH<sup>+</sup>], 350.2 (100) [MH<sup>+</sup>].



### **4-{[4-(4-Methoxy-2-methylphenyl)-1***H***-1,2,3-triazol-1-yl]methyl}benzoic acid (11p):** According to **GP 2**, the resin-bound molecule **11p** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 μmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 μmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 μmol,

0.1 equiv) and 1-ethynyl-4-methoxy-2-methylbenzene (**10p**, 45 mg, 311  $\mu$ mol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11p** (25 mg, 77  $\mu$ mol, 99%) as a colorless solid.

Mp: 146 °C (decomposition); <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 2.40 (s, 3 H, H-15), 3.77 (s, 3 H, H-16), 5.74 (s, 2 H, H-6), 6.85 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, <sup>4</sup>*J*<sub>HH</sub> = 2.7 Hz, 1 H, H-11), 6.87 (d, <sup>4</sup>*J*<sub>HH</sub> = 2.5 Hz, 1 H, H-13), 7.43 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-4), 7.66 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, 1 H, H-10), 7.95 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-3), 8.42 (s, 1 H, H-7), 13.02 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 21.2 (+, 1 C, C-15), 52.3 (-, 1 C, C-6), 55.0 (+, 1 C, C-16), 111.5 (+, 1 C, C-11), 115.9 (+, 1 C, C-13), 122.4 (C<sub>q</sub>, 1 C, C-9), 122.9 (+, 1 C, C-7), 127.7 (+, 2 C, C-4), 129.4 (+, 1 C, C-10), 129.7 (+, 2 C, C-3), 130.4 (C<sub>q</sub>, 1 C, C-2), 136.4 (C<sub>q</sub>, 1 C, C-14), 140.9 (C<sub>q</sub>, 1 C, C-5), 145.8 (C<sub>q</sub>, 1 C, C-8), 158.7 (C<sub>q</sub>, 1 C, C-12), 166.8 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3122 (w), 3090 (w), 3002 (w), 2836 (w), 2675 (w), 2552 (w), 1686 (s), 1425 (m), 1287 (m), 729 (s); MS (ESI+, TOF) m/z (%) 647.3 (5) [2MH<sup>+</sup>], 324.1 (100) [MH<sup>+</sup>].



#### 4-{[4-(4-Fluoro-3-methylphenyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11q):

According to **GP 2**, the resin-bound molecule **11q** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 4-ethynyl-1-fluoro-2-methylbenzene (**10q**, 41 µL, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11q** (24 mg, 76 µmol, 98%) as a brown solid.

Mp: 153 °C (decomposition); <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 2.27 (d, <sup>4</sup>*J*<sub>HF</sub> = 1.6 Hz, 3 H, H-15), 5.73 (s, 2 H, H-6), 7.20 (dd, <sup>3</sup>*J*<sub>HF</sub> = 8.9 Hz, <sup>3</sup>*J*<sub>HH</sub> = 8.7 Hz, 1 H, H-11), 7.42 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-4), 7.69 (ddd, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, <sup>4</sup>*J*<sub>HF</sub> = 5.0 Hz, <sup>4</sup>*J*<sub>HH</sub> = 2.1 Hz, 1 H, H-10), 7.78 (dd, <sup>4</sup>*J*<sub>HF</sub> = 7.6 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.7 Hz, 1 H, H-14), 7.95 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.3 Hz, 2 H, H-3), 8.61 (s, 1 H, H-7); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 14.1 (+, d, <sup>3</sup>*J*<sub>CF</sub> = 3.0 Hz, 1 C, C-15), 52.5 (-, 1 C, C-6), 115.4 (+, d, <sup>2</sup>*J*<sub>CF</sub> = 22.6 Hz, 1 C, C-11), 121.5 (+, 1 C, C-7), 124.5 (+, d,

 ${}^{3}J_{CF}$  = 8.3 Hz, 1 C, C-10), 124.7 (C<sub>q</sub>, d,  ${}^{2}J_{CF}$  = 17.5 Hz, 1 C, C-13), 126.8 (C<sub>q</sub>, d,  ${}^{4}J_{CF}$  = 3.4 Hz, 1 C, C-9), 127.9 (+, 2 C, C-4), 128.4 (+, d,  ${}^{3}J_{CF}$  = 5.1 Hz, 1 C, C-14), 129.7 (+, 2 C, C-3), 130.5 (C<sub>q</sub>, 1 C, C-2), 140.6 (C<sub>q</sub>, 1 C, C-5), 145.9 (C<sub>q</sub>, 1 C, C-8), 160.3 (C<sub>q</sub>, d,  ${}^{1}J_{CF}$  = 243.5 Hz, 1 C, C-12), 166.9 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3133 (w), 2673 (w), 1687 (s), 1426 (m), 1197 (m), 730 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>17</sub>H<sub>15</sub>FN<sub>3</sub>O<sub>2</sub>, 312.1143; found, 312.1146.



#### 4-{[4-(Thiophen-3-yl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11r):

According to **GP 2**, the resin-bound molecule **11r** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), Lascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 3-ethynylthiophene (**10r**, 31 µL, 311 µmol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11r** (22 mg, 76 µmol, 98%) as a colorless solid.

Mp: 195 °C (decomposition); <sup>1</sup>H NMR (400 MHz, DMSO- $d_6$ , HSQC)  $\delta$  (ppm) 5.74 (s, 2 H, H-6), 7.41 (d, <sup>3</sup> $J_{HH}$  = 8.4 Hz, 2 H, H-4), 7.52 (dd, <sup>3</sup> $J_{HH}$  = 5.0 Hz, <sup>4</sup> $J_{HH}$  = 1.2 Hz, 1 H, H-10), 7.63 (dd, <sup>3</sup> $J_{HH}$  = 5.0 Hz, <sup>4</sup> $J_{HH}$  = 3.0 Hz, 1 H, H-11), 7.86 (dd, <sup>4</sup> $J_{HH}$  = 2.9 Hz, <sup>4</sup> $J_{HH}$  = 1.2 Hz, 1 H, H-12), 7.95 (d, <sup>3</sup> $J_{HH}$  = 8.4 Hz, 2 H, H-3), 8.51 (s, 1 H, H-7), 12.95 (s, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO- $d_6$ , HSQC)  $\delta$  (ppm) 52.4 (–, 1 C, C-6), 120.9 (+, 1 C, C-12), 121.5 (+, 1 C, C-7), 125.7 (+, 1 C, C-10), 127.1 (+, 1 C, C-11), 127.8 (+, 2 C, C-4), 129.7 (+, 2 C, C-3), 130.5 (C<sub>q</sub>, 1 C, C-2), 131.9 (C<sub>q</sub>, 1 C, C-9), 140.7 (C<sub>q</sub>, 1 C, C-5), 143.2 (C<sub>q</sub>, 1 C, C-8), 166.9 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3091 (w), 2920 (w), 2852 (w), 2668 (w), 2544 (w), 1681 (s), 1426 (m), 1283 (m), 779 (s), 730 (s); MS (TOF, ES+): m/z (%) = 571.1 (5) [2MH<sup>+</sup>], 286.1 (100) [MH<sup>+</sup>].



#### 4-{[4-(6-Methoxynaphthalen-2-yl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (11s):

According to **GP 2**, the resin-bound molecule **11s** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78  $\mu$ mol, 1.0 equiv), Lascorbic acid (6.9 mg, 39  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8  $\mu$ mol, 0.1 equiv) and 2-ethynyl-6-methoxynaphthalene (**10s**, 57 mg, 311  $\mu$ mol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11s** (26 mg, 73  $\mu$ mol, 94%) as a colorless solid.

Mp: 297 °C; <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>, HSQC, HMBC) δ (ppm) 3.88 (s, 3 H, H-19), 5.77 (s, 2 H, H-6), 7.18 (dd,  ${}^{3}J_{HH} = 8.9$  Hz,  ${}^{4}J_{HH} = 2.6$  Hz, 1 H, H-15), 7.34 (d,  ${}^{4}J_{HH} = 2.5$  Hz, 1 H, H-13), 7.46 (d,  ${}^{3}J_{HH} = 7.9$  Hz, 2 H, H-4), 7.87 (d,  ${}^{3}J_{HH} = 9.1$  Hz, 1 H, H-16), 7.88 (d,  ${}^{3}J_{HH} = 8.7$  Hz, 1 H, H-11), 7.95 (dd,  ${}^{3}J_{HH} = 8.6$  Hz,  ${}^{4}J_{HH} = 1.6$  Hz, 1 H, H-10), 7.97 (d,  ${}^{3}J_{HH} = 7.7$  Hz, 2 H, H-3), 8.33 (d,  ${}^{4}J_{HH} = 1.6$  Hz, 1 H, H-18), 8.71 (s, 1 H, H-7), 13.03 (bs, 1 H, COOH);  ${}^{13}$ C NMR (100 MHz, DMSO-*d*<sub>6</sub>, HSQC, HMBC) δ (ppm) 52.5 (-, 1 C, C-6), 55.1 (+, 1 C, C-19), 105.9 (+, 1 C, C-13), 119.1 (+, 1 C, C-15), 121.6 (+, 1 C, C-7), 123.4 (+, 1 C, C-18), 124.0 (+, 1 C, C-10), 124.1 (Cq, 1 C, C-7), 125.7 (Cq, 1 C, C-9), 127.3 (+, 1 C, C-16), 127.9 (+, 2 C, C-4), 128.4 (Cq, 1 C, C-2), 129.4 (+, 1 C, C-11), 129.7 (+, 2 C, C-3), 133.8 (Cq, 1 C, C-12), 140.7 (Cq, 1 C, C-5), 146.9 (Cq, 1 C, C-8), 157.4 (Cq, 1 C, C-14), 170.4 (Cq, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3128 (w), 2920 (w), 2564 (w), 1690 (m), 1225 (m), 724 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>21</sub>H<sub>18</sub>N<sub>3</sub>O<sub>3</sub>, 360.1343; found, 360.1339.



#### 4-{[4-(Phenanthren-9-yl)-1H-1,2,3-triazol-1-yl]methyl}benzoic acid (11t):

According to **GP 2**, the resin-bound molecule **11t** was synthesized, using 4-(azidomethyl)benzoic acid functionalized Wang resin (100 mg, 78 µmol, 1.0 equiv), L- ascorbic acid (6.9 mg, 39  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8  $\mu$ mol, 0.1 equiv) and 9-ethynylphenanthrene (**10t**, 63 mg, 311  $\mu$ mol, 4.0 equiv). Cleavage was done according to **GP 4**, followed by purification using a SPE tube. Subsequently, the solvent was evaporated, yielding compound **11t** (28 mg, 75  $\mu$ mol, 96%) as a colorless solid.

Mp: 89–93 °C–<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>)  $\delta$  (ppm) 5.74 (s, 2 H, H-6), 7.44 (d, <sup>3</sup>J<sub>HH</sub> = 7.9 Hz, 2 H, H-4), 7.60 (t, <sup>3</sup>J<sub>HH</sub> = 7.3 Hz, 2 H), 7.65–7.70 (m, 2 H), 7.89 (d, <sup>3</sup>J<sub>HH</sub> = 7.2 Hz, 2 H), 7.98 (s, 1 H, H-7), 8.12 (d, <sup>3</sup>J<sub>HH</sub> = 7.9 Hz, 2 H, H-3), 8.31 (d, <sup>3</sup>J<sub>HH</sub> = 7.7 Hz, 1 H), 8.69 (d, <sup>3</sup>J<sub>HH</sub> = 8.2 Hz, 1 H), 8.75 (d, <sup>3</sup>J<sub>HH</sub> = 7.9 Hz, 1 H), 9.25 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>)  $\delta$  (ppm) 54.0 (–, 1 C, C-6), 122.5 (+, 1 C), 123.0 (+, 1 C), 125.9 (+, 1 C), 126.7 (+, 1 C), 126.9 (+, 1 C), 127.0 (+, 1 C), 127.2 (+, 1 C), 127.9 (+, 2 C, C-4), 128.5 (+, 1 C), 128.9 (+, 1 C), 129.9 (C<sub>q</sub>, 1 C), 130.4 (C<sub>q</sub>, 1 C), 130.7 (C<sub>q</sub>, 1 C), 130.8 (+, 2 C, C-3), 131.2 (+, 1 C), 139.4 (C<sub>q</sub>, 1 C), 177.6 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3129 (w), 2920 (w), 2854 (w), 1691 (m), 1427 (m), 1261 (m), 975 (m), 734 (s); MS (ESI+, TOF) m/z (%) 759.3 (50) [2MH<sup>+</sup>], 380.1 (100) [MH<sup>+</sup>].



#### 4-[4-(2-Formylphenyl)-1*H*-1,2,3-triazol-1-yl]benzoic acid (12a):

The synthesis of the resin-bound molecule **78** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79  $\mu$ mol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8  $\mu$ mol, 0.1 equiv) and 2-ethynylbenzaldehyde (**10f**, 41 mg, 314  $\mu$ mol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of dichloromethane/methanol, yielding compound **12a** (11 mg, 38  $\mu$ mol, 49%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 7.64 (t, <sup>3</sup>*J*<sub>HH</sub> = 7.5 Hz, 1 H, H-11), 7.83 (td, <sup>3</sup>*J*<sub>HH</sub> = 7.5 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.4 Hz, 1 H, H-10), 7.89 (dd, <sup>3</sup>*J*<sub>HH</sub> = 7.7 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.0 Hz, 1 H, H-12), 7.96 (dd, <sup>3</sup>*J*<sub>HH</sub> = 7.8 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.0 Hz, 1 H, H-9), 8.17 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.9 Hz, 2 H, H-4), 8.20 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.9 Hz, 2 H, H-3), 9.48 (s, 1 H, H-6), 10.43 (bs, 1 H, H-14), 13.25 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 119.9 (+, 2 C, C-4), 123.0 (+, 1 C, C-6), 127.6 (+, 1 C, C-9), 128.9 (+, 1 C, C-12), 129.8 (+, 1 C, C-11), 131.1 (+, 2 C, C-3), 132.3 (C<sub>q</sub>, 1 C, C-2), 133.5 (C<sub>q</sub>, 1 C, C-8), 134.0 (+, 1 C, C-10), 137.3 (C<sub>q</sub>, 1 C, C-13), 139.3 (C<sub>q</sub>, 1 C, C-5),

145.0 (C<sub>q</sub>, 1 C, C-7), 167.0 (C<sub>q</sub>, 1 C, C-1), 192.3 (+, 1 C, C-14); MS (ESI+, TOF) m/z (%) 294.1 (100) [MH<sup>+</sup>].



#### 4-(4-m-Tolyl-1*H*-1,2,3-triazol-1-yl)benzoic acid (12b):

The synthesis of the resin-bound molecule **12b** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79 µmol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 3-ethynyltoluene (**10g**, 41 µL, 314 µmol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of dichloromethane/methanol, yielding compound **12b** (10 mg, 35 µmol, 44%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 2.40 (s, 3 H, H-14), 7.22 (d, <sup>3</sup>*J*<sub>HH</sub> = 7.9 Hz, 1 H, H-11), 7.40 (t, <sup>3</sup>*J*<sub>HH</sub> = 7.7 Hz, 1 H, H-10), 7.76 (d, <sup>3</sup>*J*<sub>HH</sub> = 7.7 Hz, 2 H, H-9), 7.80 (s, 1 H, H-13), 8.09 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.7 Hz, 2 H, H-4), 8.17 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.7 Hz, 2 H, H-3), 9.41 (s, 1 H, H-6), 13.09 (bs, 1 H, COOH); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 2682 (w), 2556 (w), 2114 (w), 1702 (s), 1604 (s), 1518 (m), 1379 (m), 1320 (m), 1294 (m), 1036 (s), 782 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>16</sub>H<sub>14</sub>N<sub>3</sub>O<sub>2</sub>, 280.1081; found, 280.1084.



#### 4-[4-(3-Fluorophenyl)-1*H*-1,2,3-triazol-1-yl]benzoic acid (12c):

The synthesis of the resin-bound molecule **12c** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79  $\mu$ mol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8  $\mu$ mol, 0.1 equiv) and 1-ethynyl-3-fluorobenzene (**10h**, 36  $\mu$ L, 314  $\mu$ mol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of dichloromethane/methanol, yielding compound **12c** (10 mg, 35  $\mu$ mol, 45%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 7.25 (dddd, <sup>3</sup>*J*<sub>HF</sub> = 8.6 Hz, <sup>3</sup>*J*<sub>HH</sub> = 8.6 Hz, <sup>4</sup>*J*<sub>HH</sub> = 2.6 Hz, <sup>4</sup>*J*<sub>HH</sub> = 0.7 Hz, 1 H, H-11), 7.58 (ddd, <sup>3</sup>*J*<sub>HH</sub> = 8.0 Hz, <sup>3</sup>*J*<sub>HH</sub> = 7.9 Hz, <sup>4</sup>*J*<sub>HF</sub> = 6.2 Hz, 1 H, H-10), 7.76 (ddd, <sup>3</sup>*J*<sub>HF</sub> = 10.2 Hz, <sup>4</sup>*J*<sub>HH</sub> = 2.5 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.5 Hz, 1 H, H-13), 7.82 (ddd, <sup>3</sup>*J*<sub>HH</sub> = 7.8 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.2 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.0 Hz, 1 H, H-9), 8.10 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-4), 8.19 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-3), 9.52 (s, 1 H, H-6), 13.25 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 111.9 (+, d, <sup>2</sup>*J*<sub>CF</sub> = 22.9 Hz, 1 C, C-11), 115.0 (+, d, <sup>2</sup>*J*<sub>CF</sub> = 20.9 Hz, 1 C, C-13), 119.7 (+, 2 C, C-4), 120.4 (+, 1 C, C-6), 121.3 (+, d, <sup>4</sup>*J*<sub>CF</sub> = 2.8 Hz, 1 C, C-9), 130.7 (C<sub>q</sub>, 1 C, C-2), 131.1 (+, 2 C, C-3), 131.2 (+, d, <sup>3</sup>*J*<sub>CF</sub> = 8.8 Hz, 1 C, C-10), 132.3 (C<sub>q</sub>, d, <sup>3</sup>*J*<sub>CF</sub> = 8.5 Hz, 1 C, C-8), 139.5 (C<sub>q</sub>, 1 C, C-5), 146.4 (C<sub>q</sub>, d, <sup>4</sup>*J*<sub>CF</sub> = 3.1 Hz, 1 C, C-7), 162.5 (C<sub>q</sub>, d, <sup>1</sup>*J*<sub>CF</sub> = 243.1 Hz, 1 C, C-12), 166.3 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 2918 (w), 2849 (w), 2559 (w), 2112 (w), 1682 (s), 1606 (s), 1293 (m), 1229 (m), 1034 (m), 860 (s), 769 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>15</sub>H<sub>11</sub>FN<sub>3</sub>O<sub>2</sub>, 284.0830; found, 284.0841.



#### 4-[4-(3-Chlorophenyl)-1*H*-1,2,3-triazol-1-yl]benzoic acid (12d):

The synthesis of the resin-bound molecule **12d** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79 µmol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 3-chloro-1-ethynylbenzene (**10i**, 38 µL, 314 µmol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of dichloromethane/methanol, yielding compound **12d** (10 mg, 35 µmol, 44%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 7.47 (ddd, <sup>3</sup>*J*<sub>HH</sub> = 8.0 Hz, <sup>4</sup>*J*<sub>HH</sub> = 2.1 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.0 Hz, 1 H, H-11), 7.56 (t, <sup>3</sup>*J*<sub>HH</sub> = 7.9 Hz, 1 H, H-10), 7.95 (dt, <sup>3</sup>*J*<sub>HH</sub> = 7.8 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.2 Hz, 1 H, H-9), 8.01 (t, <sup>4</sup>*J*<sub>HH</sub> = 1.8 Hz, 1 H, H-13), 8.10 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.7 Hz, 2 H, H-4), 8.19 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.7 Hz, 2 H, H-3), 9.55 (s, 1 H, H-6), 13.23 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 119.6 (+, 2 C, C-4), 120.5 (+, 1 C, C-6), 123.8 (+, 1 C, C-9), 124.9 (+, 1 C, C-13), 128.1 (+, 1 C, C-11), 131.0 (+, 1 C, C-10), 131.1 (+, 2 C, C-3), 132.0 (C<sub>q</sub>, 1 C, C-8), 133.7 (C<sub>q</sub>, 1 C, C-12), 139.3 (C<sub>q</sub>, 1 C, C-5), 146.1 (C<sub>q</sub>, 1 C, C-7); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 2818 (w), 2549 (w), 2109 (w), 1681 (s), 1604 (s), 1519 (m), 1290 (s), 1226 (s), 1180 (m), 1031 (s), 940 (m), 767 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>15</sub>H<sub>11</sub>ClN<sub>3</sub>O<sub>2</sub>, 300.0534; found, 300.0565.



#### 4-{4-[3-(Trifluoromethyl)phenyl]-1H-1,2,3-triazol-1-yl}benzoic acid (12e):

Literature known compound; improved procedure [2]

The synthesis of the resin-bound molecule **12e** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79 µmol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 3-ethynyl- $\alpha$ , $\alpha$ , $\alpha$ -trifluorotoluene (**10j**, 45 µL, 314 µmol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of dichloromethane/methanol, yielding compound **12e** (11 mg, 32 µmol, 41%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 7.76–7.80 (m, 2 H, H-10, H-11), 8.11 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.6 Hz, 2 H, H-4), 8.20 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.7 Hz, 2 H, H-3), 8.26–8.32 (m, 2 H, H-9, H-13), 9.65 (s, 1 H, H-6), 13.09 (bs, 1 H, COOH); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>16</sub>H<sub>11</sub>F<sub>3</sub>N<sub>3</sub>O<sub>2</sub>, 334.0798; found, 334.0802.



#### 4-[4-(4-Bromophenyl)-1*H*-1,2,3-triazol-1-yl]benzoic acid (12f):

The synthesis of the resin-bound molecule **12f** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79 µmol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 1-bromo-4-ethynylbenzene (**10k**, 57 mg, 314 µmol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube before the purification was done by column chromatography on silica gel (ethyl acetate/petroleum ether 4:1,  $R_f$  0.49), yielding compound **12f** (6 mg, 16 µmol, 21%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 7.71 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.5 Hz, 2 H, H-10), 7.82 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.6 Hz, 2 H, H-9), 8.01 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-4), 8.12 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-3), 9.34 (s, 1 H, H-6); MS (ESI+, TOF) m/z (%) 344.1, 346.0 (50) [MH<sup>+</sup>].



#### 4-[4-(4-Methoxyphenyl)-1*H*-1,2,3-triazol-1-yl]benzoic acid (12g):

Literature known compound; improved procedure [3].

The synthesis of the resin-bound molecule **12g** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79 µmol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 4-ethynylanisole (**10I**, 41 µL, 314 µmol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of dichloromethane/methanol, yielding compound **12g** (12 mg, 41 µmol, 52%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 3.82 (s, 3 H, H-12), 7.08 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.9 Hz, 2 H, H-10), 7.89 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-9), 8.10 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-4), 8.18 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-3), 9.32 (s, 1 H, H-6), 13.25 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 55.1 (+, 1 C, C-12), 114.4 (+, 2 C, C-10), 118.6 (+, 1 C, C-6), 119.5 (+, 2 C, C-4), 122.4 (C<sub>q</sub>, 1 C, C-8), 126.7 (+, 2 C, C-9), 130.5 (C<sub>q</sub>, 1 C, C-2), 131.0 (+, 2 C, C-3), 139.5 (C<sub>q</sub>, 1 C, C-5), 147.5 (C<sub>q</sub>, 1 C, C-7), 159.3 (C<sub>q</sub>, 1 C, C-11), 166.3 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 3115 (w), 2912 (w), 2777 (w), 1682 (m), 1409 (m), 1284 (m), 1226 (s), 1028 (m), 947 (m), 837 (s), 771 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>16</sub>H<sub>14</sub>N<sub>3</sub>O<sub>3</sub>, 296.1030; found, 296.1049.



#### 4-{4-[4-(Dimethylamino)phenyl]-1*H*-1,2,3-triazol-1-yl}benzoic acid (12h):

The synthesis of the resin-bound molecule **12h** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79  $\mu$ mol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8  $\mu$ mol, 0.1 equiv) and 4-ethynyl-*N*,*N*-dimethylaniline (**10m**, 46 mg, 314  $\mu$ mol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of DCM / methanol, yielding compound **12h** (9 mg, 30  $\mu$ mol, 38%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 2.96 (s, 6 H, H-12), 6.84 (d, <sup>3</sup>*J*<sub>HH</sub> = 9.0 Hz, 2 H, H-9), 7.77 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.9 Hz, 2 H, H-10), 8.10 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-4), 8.17 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-3), 9.22 (s, 1 H, H-6), 13.02 (bs, 1 H, COOH); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>17</sub>H<sub>17</sub>N<sub>4</sub>O<sub>2</sub>, 309.1346; found, 309.1308.



#### 4-[4-(4-tert-Butylphenyl)-1H-1,2,3-triazol-1-yl]benzoic acid (12i):

The synthesis of the resin-bound molecule **12i** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79 µmol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 4-*tert*-butylphenylacetylene (**10n**, 57 µL, 314 µmol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of dichloromethane/methanol, yielding compound **12i** (10 mg, 32 µmol, 41%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 1.33 (s, 9 H, H-13), 7.54 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, 2 H, H-10), 7.88 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, 2 H, H-9), 8.12 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.7 Hz, 2 H, H-4), 8.18 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.7 Hz, 2 H, H-3), 9.40 (s, 1 H, H-6), 13.04 (bs, 1 H, COOH); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 2554 (w), 2108 (w), 1677 (s), 1601 (s), 1425 (m), 1284 (s), 1252 (s), 1176 (m), 1024 (m), 766 (s); MS (ESI+, TOF) m/z (%) 643.3 (5) [2MH<sup>+</sup>], 322.2 (100) [MH<sup>+</sup>].



#### 4-[4-(4-Pentylphenyl)-1H-1,2,3-triazol-1-yl]benzoic acid (12j):

The synthesis of the resin-bound molecule **12j** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79  $\mu$ mol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8  $\mu$ mol, 0.1 equiv) and 1-ethynyl-4-pentylbenzene (**10o**, 61  $\mu$ L, 314  $\mu$ mol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL

of a 1:1 mixture of dichloromethane/methanol, yielding compound **12j** (17 mg, 49 µmol, 63%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>, HSQC)  $\delta$  (ppm) 0.87 (t, <sup>3</sup>*J*<sub>HH</sub> = 6.9 Hz, 3 H, H-16), 1.25–1.38 (m, 4 H, H-14, H-15), 1.61 (quintet, <sup>3</sup>*J*<sub>HH</sub> = 7.5 Hz, 2 H, H-13), 2.62 (t, <sup>3</sup>*J*<sub>HH</sub> = 7.6 Hz, 2 H, H-12), 7.33 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.1 Hz, 2 H, H-10), 7.86 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.1 Hz, 2 H, H-9), 8.11 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-4), 8.18 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.7 Hz, 2 H, H-3), 9.38 (s, 1 H, H-6), 13.05 (bs, 1 H, COOH); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>, HSQC)  $\delta$  (ppm) 13.8 (+, 1 C, C-16), 21.9 (–, 1 C, C-15), 30.4 (–, 1 C, C-14), 30.8 (–, 1 C, C-13), 34.8 (–, 1 C, C-12), 119.1 (+, 1 C, C-6), 119.5 (+, 2 C, C-4), 125.3 (+, 2 C, C-9), 127.9 (C<sub>q</sub>, 1 C, C-8), 128.8 (+, 2 C, C-10), 130.5 (C<sub>q</sub>, 1 C, C-2), 131.0 (+, 2 C, C-3), 139.5 (C<sub>q</sub>, 1 C, C-5), 142.7 (C<sub>q</sub>, 1 C, C-11), 147.6 (C<sub>q</sub>, 1 C, C-7), 166.3 (C<sub>q</sub>, 1 C, C-1); IR (cm<sup>-1</sup>)  $\tilde{v}$ : 2957 (w), 2924 (w), 2854 (w), 2108 (w), 1681 (s), 1604 (s), 1428 (m), 1288 (s), 1230 (s), 1037 (m), 860 (m), 769 (s); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>20</sub>H<sub>22</sub>N<sub>3</sub>O<sub>2</sub>, 336.1707; found, 336.1706.



#### 4-[4-(4-Methoxy-2-methylphenyl)-1*H*-1,2,3-triazol-1-yl]benzoic acid (12k):

The synthesis of the resin-bound molecule **12k** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79 µmol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 1-ethynyl-4-methoxy-2-methylbenzene (**10p**, 46 mg, 314 µmol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube before the purification was done by column chromatography on silica gel (ethyl acetate/petroleum ether 4:1,  $R_{\rm f}$  0.31), yielding compound **12k** (11 mg, 37 µmol, 47%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>, HSQC, HMBC)  $\delta$  (ppm) 2.49 (s, 3 H, H-14), 3.80 (s, 3 H, H-15), 6.90 (dd, <sup>3</sup>*J*<sub>HH</sub> = 8.5 Hz, <sup>4</sup>*J*<sub>HH</sub> = 2.5 Hz, 1 H, H-10), 6.93 (d, <sup>4</sup>*J*<sub>HH</sub> = 2.5 Hz, 1 H, H-12), 7.72 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, 1 H, H-9), 7.99 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, 2 H, H-4), 8.15 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.4 Hz, 2 H, H-3), 8.98 (s, 1 H, H-6); <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>, HSQC, HMBC)  $\delta$  (ppm) 21.2 (+, 1 C, C-14), 55.0 (+, 1 C, C-15), 111.6 (+, 1 C, C-10), 116.0 (+, 1 C, C-12), 119.0 (+, 2 C, C-4), 120.4 (+, 1 C, C-6), 122.0 (C<sub>q</sub>, 1 C, C-8), 129.8 (+, 1 C, C-9), 131.0 (+, 2 C, C-3), 136.9 (C<sub>q</sub>, 1 C, C-13), 137.7 (C<sub>q</sub>, 1 C, C-5), 146.7 (C<sub>q</sub>, 1 C, C-7), 159.0 (C<sub>q</sub>, 1 C, C-11), 167.4 (C<sub>q</sub>, 1 C, C-1); HRMS (ESI+): [MH<sup>+</sup>] calcd for C<sub>17</sub>H<sub>16</sub>N<sub>3</sub>O<sub>3</sub>, 310.1179; found, 310.1186.



#### 4-[4-(4-Fluoro-3-methylphenyl)-1*H*-1,2,3-triazol-1-yl]benzoic acid (12l):

The synthesis of the resin-bound molecule **12I** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79  $\mu$ mol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8  $\mu$ mol, 0.1 equiv) and 4-ethynyl-1-fluoro-2-methylbenzene (**10q**, 42  $\mu$ L, 314  $\mu$ mol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of dichloromethane/methanol, yielding compound **12I** (9 mg, 31  $\mu$ mol, 40%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 2.33 (d, <sup>4</sup>J<sub>HF</sub> = 1.5 Hz, 3 H, H-14), 7.23 (dd, <sup>3</sup>J<sub>HF</sub> = 9.8 Hz, <sup>3</sup>J<sub>HH</sub> = 8.4 Hz, 1 H, H-10), 7.80 (ddd, <sup>3</sup>J<sub>HH</sub> = 7.8 Hz, <sup>4</sup>J<sub>HF</sub> = 4.8 Hz, <sup>4</sup>J<sub>HH</sub> = 2.1 Hz, 1 H, H-9), 7.90 (dd, <sup>4</sup>J<sub>HF</sub> = 7.5 Hz, <sup>4</sup>J<sub>HH</sub> = 1.7 Hz, 1 H, H-13), 8.10 (d, <sup>3</sup>J<sub>HH</sub> = 8.6 Hz, 2 H, H-4), 8.18 (d, <sup>3</sup>J<sub>HH</sub> = 8.6 Hz, 2 H, H-3), 9.41 (s, 1 H, H-6), 13.15 (bs, 1 H, COOH); MS (ESI+, TOF) m/z (%) 298.1 (100) [MH<sup>+</sup>].



#### 4-[4-(Thiophen-3-yl)-1*H*-1,2,3-triazol-1-yl]benzoic acid (12m):

Literature known compound, improved procedure [4]

The synthesis of the resin-bound molecule **12m** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79 µmol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39 µmol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8 µmol, 0.1 equiv) and 3-ethynylthiophene (**10r**, 31 µL, 314 µmol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of dichloromethane/methanol, yielding compound **12m** (13 mg, 48 µmol, 61%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 7.60 (dd, <sup>3</sup>*J*<sub>HH</sub> = 5.0 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.2 Hz, 1 H, H-9), 7.73 (dd, <sup>3</sup>*J*<sub>HH</sub> = 5.0 Hz, <sup>4</sup>*J*<sub>HH</sub> = 3.0 Hz, 1 H, H-10), 7.97 (dd, <sup>4</sup>*J*<sub>HH</sub> = 2.9 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.2 Hz, 1 H, H-

11), 8.09 (d,  ${}^{3}J_{HH}$  = 8.8 Hz, 2 H, H-4), 8.18 (d,  ${}^{3}J_{HH}$  = 8.8 Hz, 2 H, H-3), 9.31 (s, 1 H, H-6), 13.20 (bs, 1 H, COOH); MS (ESI+, TOF) m/z (%) 272.1 (100) [MH<sup>+</sup>].



#### 4-[4-(6-Methoxynaphthalen-2-yl)-1*H*-1,2,3-triazol-1-yl]benzoic acid (12n):

The synthesis of the resin-bound molecule **12n** followed **GP 2**. The 4-azidobenzoic acid functionalized Wang resin **9** (100 mg, 79  $\mu$ mol, 1.0 equiv) was treated with L-ascorbic acid (6.9 mg, 39  $\mu$ mol, 0.5 equiv), copper(II) sulfate pentahydrate (2.0 mg, 8  $\mu$ mol, 0.1 equiv) and 2-ethynyl-6-methoxynaphthalene (**10s**, 57 mg, 314  $\mu$ mol, 4.0 equiv). After the cleavage according to **GP 4**, the crude product was pre-purified using a SPE tube and then washed twice with 2 mL of a 1:1 mixture of dichloromethane/methanol, yielding compound **12n** (7 mg, 20  $\mu$ mol, 26%) as a red solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>, HSQC, HMBC)  $\delta$  (ppm) 3.91 (s, 3 H, H-18), 7.23 (dd, <sup>3</sup>*J*<sub>HH</sub> = 8.9 Hz, <sup>4</sup>*J*<sub>HH</sub> = 2.6 Hz, 1 H, H-14), 7.39 (d, <sup>4</sup>*J*<sub>HH</sub> = 2.4 Hz, 1 H, H-12), 7.58 (d, <sup>3</sup>*J*<sub>HH</sub> = 9.1 Hz, 1 H, H-15), 8.04 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.5 Hz, <sup>4</sup>*J*<sub>HH</sub> = 1.7 Hz, 1 H, H-9), 8.10 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 1 H, H-10), 8.14 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-4), 8.20 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.8 Hz, 2 H, H-3), 8.40 (d, <sup>4</sup>*J*<sub>HH</sub> = 1.6 Hz, 1 H, H-17), 9.51 (s, 1 H, H-6), 13.20 (bs, 1 H, COOH); IR (cm<sup>-1</sup>)  $\tilde{v}$  : 2838 (w), 2525 (bw), 2110 (m), 1682 (m), 1603 (s), 1510 (m), 1266 (s), 1175 (m), 1026 (m), 981 (s), 856 (m), 786 (s); MS (ESI+, TOF) m/z (%) 346.1 (100) [MH<sup>+</sup>].



#### 4-{[5-(4-Bromophenyl)-1*H*-1,2,3-triazol-1-yl]methyl}benzoic acid (13f):

Compound **13f** was synthesized according to **GP 3**, using 4-(azidomethyl)-benzoic acid functionalized Wang resin **7** (100 mg, 78  $\mu$ mol, 1.0 equiv), Cp × RuCl(PPh<sub>3</sub>)<sub>2</sub> (3 mg, 4  $\mu$ mol, 0.05 equiv) and 1-bromo-4-ethynylbenzene (**10k**, 56 mg, 311  $\mu$ mol, 4.0 equiv), followed by **GP 4**. The cleaved crude product, was pre-purified using a SPE tube before the purification

was done by preparative TLC (ethyl acetate/petroleum ether 4:1,  $R_{\rm f}$  0.72) yielding compound **13f** (13 mg, 38 µmol, 48%) as a colorless solid.

<sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>)  $\delta$  (ppm) 5.72 (s, 2 H, H-6), 6.98 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.2 Hz, 2 H, H-4), 7.41 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.5 Hz, 2 H, H-11), 7.67 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.5 Hz, 2 H, H-10), 7.84 (d, <sup>3</sup>*J*<sub>HH</sub> = 8.2 Hz, 2 H, H-3), 8.00 (s, 1 H, H-8); HRMS (ESI+) (m/z): [MH<sup>+-</sup>]: calcd for C<sub>16</sub>H<sub>13</sub>BrN<sub>3</sub>O<sub>2</sub>, 358.0186; found, 358.0197; MF: C<sub>16</sub>H<sub>12</sub>BrN<sub>3</sub>O<sub>2</sub>; MW: 358.19

# Copies of spectra of new compounds

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<sup>1</sup>H-NMR (300 MHz, CDCl<sub>3</sub>)
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<sup>13</sup>C-NMR (75 MHz, CDCl<sub>3</sub>)







<sup>1</sup>H NMR (400 MHz, acetone- $d_6$ )



<sup>13</sup>C NMR (100 MHz, acetone- $d_6$ )



<sup>1</sup>H NMR (600 MHz, methanol-d4)



<sup>13</sup>C NMR (150 MHz, methanol-d4)





la fa fassa da

100

150

50



<sup>13</sup>C-NMR (100 MHz, DMSO-d<sub>6</sub>)





<sup>13</sup>C-NMR (100 MHz, DMSO-d<sub>6</sub>)





<sup>13</sup>C-NMR (100 MHz, DMSO-d<sub>6</sub>)





| 150



<sup>13</sup>C-NMR (100 MHz, DMSO-d<sub>6</sub>)









<sup>13</sup>C-NMR (100 MHz, DMSO-d<sub>6</sub>)





<sup>13</sup>C-NMR (100 MHz, DMSO-d<sub>6</sub>)



Structure	Formula	Calculated	Crude	Crude purity (UV
		exact mass	weight	area percent)
HO N=N N	C17H15N3O2	293.1164267	14.7 mg	43.3%
HO N=N	C20H21N3O2	335.1633769	17.6 mg	80.2%
HO N=N N J	C18H17N3O3	323.1269914	16.1 mg	81.2%
HO N=N N F	C17H14FN3O2	311.1070049	23.0 mg	88.8%

# Data on purity of crude material after resin cleavage



C14H11N3O2S 285.0571973 22.6 mg 92.3%







C24H17N3O2	379.1320768	17.9 mg	74.3%
024111/1002	079.1020700	17.5 1118	7 1.0 /0







C17H15N3O3 309.1113414 23.6 mg 94.2%



C17H12F3N3O2 347.0881612 26.0 mg 90.3%



C <sub>21</sub> H <sub>23</sub> N <sub>3</sub> O <sub>2</sub> 349.179027 19.2 mg 82.3	3%
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C16H12ClN3O2 313.0618044 24.1 mg 89.1%











$C_{15}H_{12}N_4O_2$	280.0960257	15.2 mg	91.5%







$C_{16}H_{13}N_3O_2$	279.1007767	29.2 mg	91.0%
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$C_{17}H_{15}N_3O_2$	293.1164267	17.4 mg	78.1%



 $C_{18}H_{17}N_3O_2$ 

307.1320768 20.0 mg

83.7%



C22H17N3O2 355.1320768 27.2 mg

97.9%

### References

- Sonawane, N. D.; Verkman, A. S. *Bioorg. Med. Chem.* 2008, *16*, 8187–8195. doi:10.1016/j.bmc.2008.07.044
- Almstead, N.; Karp, G. M.; Wild, R.; Welch, E.; Campbell, J. A.; Ren, H.; Chen, G. Preparation of diaryl substituted pyrazoles and analogs for nonsense suppression. WO 2006044502, June 27, 2006.
- 3. Wang, M.; Das, M. R.; Li, M.; Boukherroub, R.; Szunerits, S. *J. Phys. Chem. C* **2009**, *113*, 17082–17086. doi:10.1021/jp904501q
- Coelho, A.; Diz, P.; Caameno, O.; Sotelo, E. Adv. Synth. Catal. 2010, 352, 1179– 1192. doi:10.1002/adsc.200900680