Electronic Supporting Information

# Multicomponent polymerization: development of one-pot synthetic route to functional polymers using diyne, *N*-sulfonyl azide and water/ethanol as reactants

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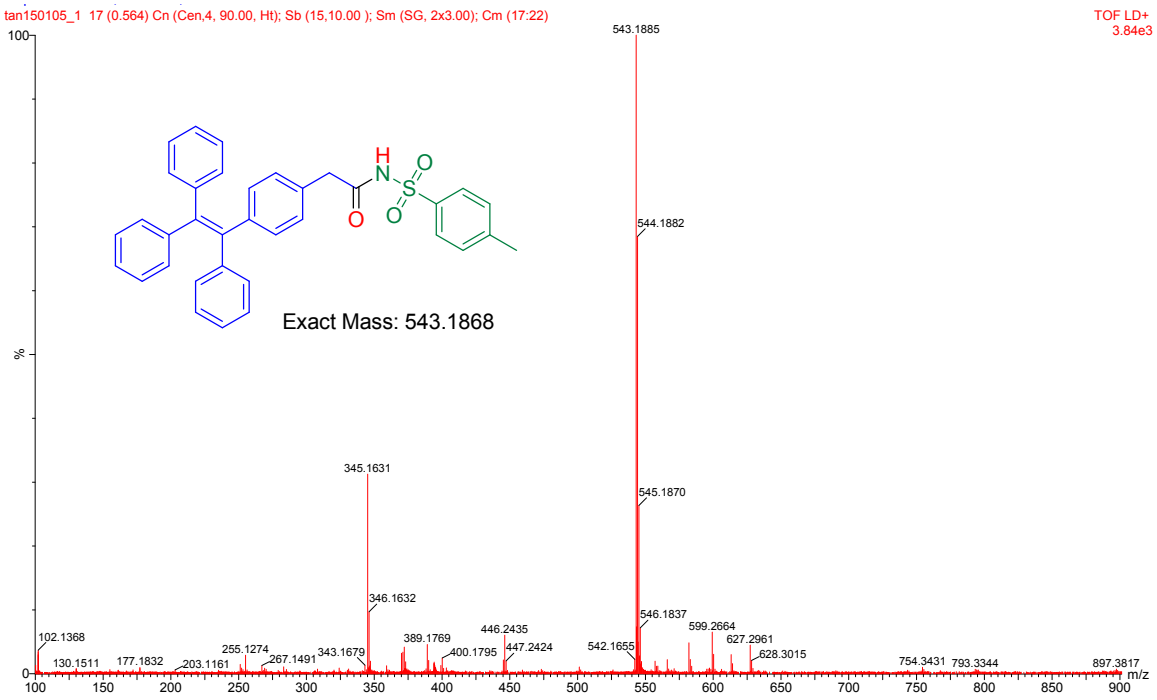


**Fig. S1** MALDI-TOF mass spectrum of **5**.

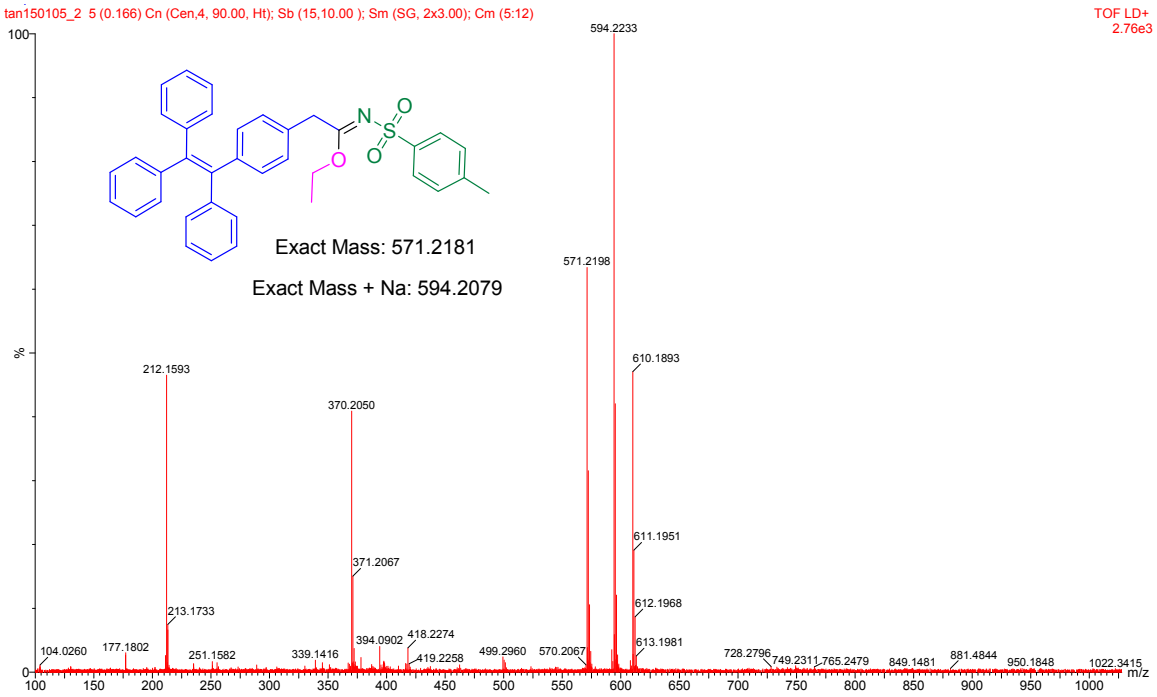


**Fig. S2** MALDI-TOF mass spectrum of **6**.

**Table S1** Crystal data and structure refinement for **5**

| | | |
|---|---|---|
| Empirical formula | $C_{36}H_{31}Cl_2NO_3S$ | |
| Formula weight | 628.58 | |
| Temperature | 99.9(6) K | |
| Wavelength | 1.54184 Å | |
| Crystal system | Orthorhombic | |
| Space group | Fdd2 | |
| Unit cell dimensions | a = 128.559(3) Å | α = 90°. |
| | b = 18.5908(4) Å | β = 90°. |
| | c = 5.29842(10) Å | λ = 90°. |
| Volume | 12663.3(5) Å$^3$ | |
| Z | 16 | |
| Density (calculated) | 1.319 Mg/m$^3$ | |
| Absorption coefficient | 2.753 mm$^{-1}$ | |
| F(000) | 5248 | |
| Crystal size | 0.10 × 0.08 × 0.03 mm$^3$ | |
| Theta range for data collection | 4.81 to 67.46°. | |
| Index ranges | -154<=h<=140, -22<=k<=17, -6<=l<=4 | |
| Reflections collected | 12221 | |
| Independent reflections | 4619 [R(int) = 0.0393] | |
| Completeness to theta = 66.50° | 97.8 % | |
| Absorption correction | Semi-empirical from equivalents | |
| Max. and min. transmission | 1.00000 and 0.90763 | |
| Refinement method | Full-matrix least-squares on F$^2$ | |

| | |
|---|---|
| Data / restraints / parameters | 4619 / 7 / 397 |
| Goodness-of-fit on $F^2$ | 1.004 |
| Final R indices [I>2sigma(I)] | $R_1 = 0.0428$, $wR_2 = 0.0969$ |
| R indices (all data) | $R_1 = 0.0460$, $wR_2 = 0.0986$ |
| Largest diff. peak and hole | 0.315 and -0.317 e.Å$^{-3}$ |

**Table S2** Crystal data and structure refinement for **6**

| | |
|---|---|
| Empirical formula | $C_{37}H_{33}NO_3S$ |
| Formula weight | 571.70 |
| Temperature/K | 99.9(6) |
| Crystal system | monoclinic |
| Space group | $P2_1/n$ |
| a/Å | 17.4283(6) |
| b/Å | 9.6165(2) |
| c/Å | 19.5792(7) |
| α/° | 90 |
| β/° | 115.005(4) |
| γ/° | 90 |
| Volume/Å$^3$ | 2973.89(19) |
| Z | 4 |
| $\rho_{calc}$g/cm$^3$ | 1.277 |
| μ/mm$^{-1}$ | 1.265 |
| F(000) | 1208.0 |
| Crystal size/mm$^3$ | 0.2 × 0.15 × 0.03 |
| Radiation | CuKα (λ = 1.54184) |
| 2 theta range for data collection/° | 8.932 to 134.996 |
| Index ranges | $-20 \leq h \leq 20$, $-9 \leq k \leq 11$, $-23 \leq l \leq 20$ |
| Reflections collected | 15924 |
| Independent reflections | 5332 [$R_{int} = 0.0473$, $R_{sigma} = 0.0474$] |
| Data/restraints/parameters | 5332/0/381 |
| Completeness to theta = 66.5° | 99.5% |
| Goodness-of-fit on $F^2$ | 1.002 |
| Final R indexes [I>=2σ (I)] | $R_1 = 0.0427$, $wR_2 = 0.1103$ |
| Final R indexes [all data] | $R_1 = 0.0593$, $wR_2 = 0.1195$ |
| Largest diff. peak/hole / e Å$^{-3}$ | 0.44/-0.43 |