Supporting Information

Antifouling Polymer Brushes via Oxygen-Tolerant Surface-Initiated PET - RAFT

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Equation S1. Conversion of APTES to CTA-SAM. S3

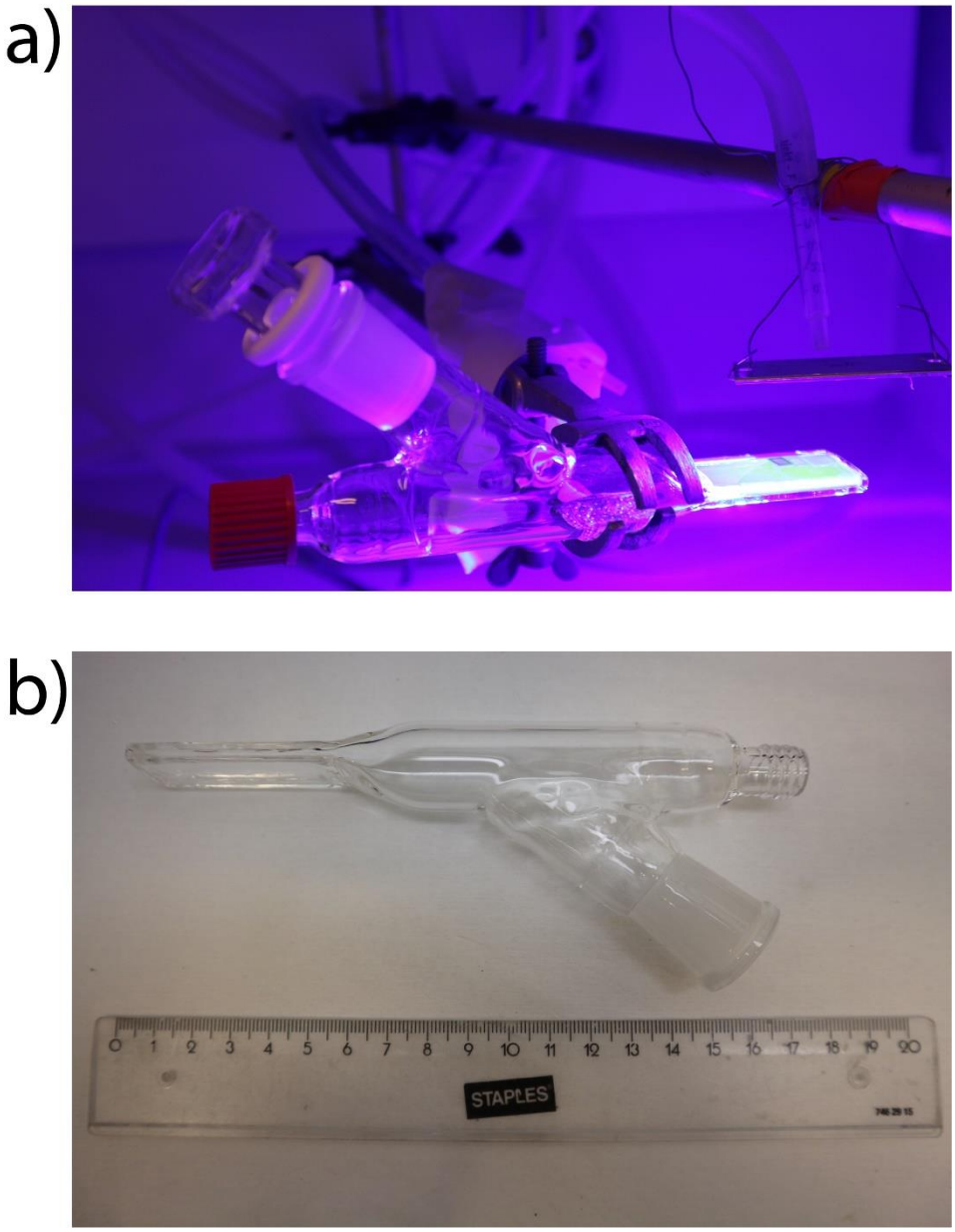
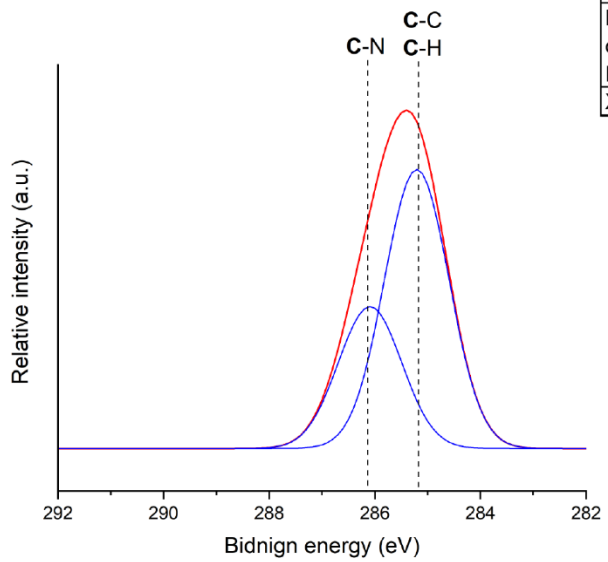


Figure S1. SI-PET-RAFT polymerization setup (a), photo-polymerization reactor (b)



Atom number	2	3	4
Natural atomic orbital occupancies			
Energy	10.02612	10.0334	10.06087
XPS (eV)	285.1017	285.3087	286.0899

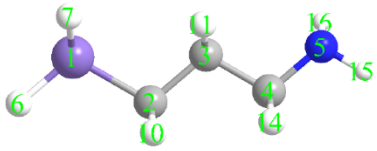


Figure S2. Simulated C1s XPS spectrum of the APTES molecule based on the core orbital energy levels obtained by DFT calculations.

The conversion of APTES to CTA-SAM in the reaction of APTES monolayer with RAFT-NHS was calculated according to this equation:

$$Conversion = 100 \cdot \left(\frac{\frac{\mathrm{C1s}}{\mathrm{N1s}} - 3}{13 - \frac{\mathrm{C1s}}{\mathrm{N1s}}} \right) \quad \text{(S1)}$$

where $\frac{\mathrm{C1s}}{\mathrm{N1s}}$ carbon nitrogen ration in wide-scan XPS spectrum.

Atom number	1	2	3	4	5	6	7	9	10	11	12	14	17	18	19	21
Natural atomic orbital occupancies Energy	10.0476	10.0504	10.047	10.04623	10.06219	10.04967	10.16895	10.14677	10.06374	10.06137	10.16103	10.04354	10.03509	10.04474	10.08316	10.0825
XPS (eV)	284.8923	284.9717	284.8753	284.8534	285.306	284.951	288.3331	287.7042	285.3499	285.2827	288.1085	284.7772	284.5376	284.8112	285.9006	285.8819

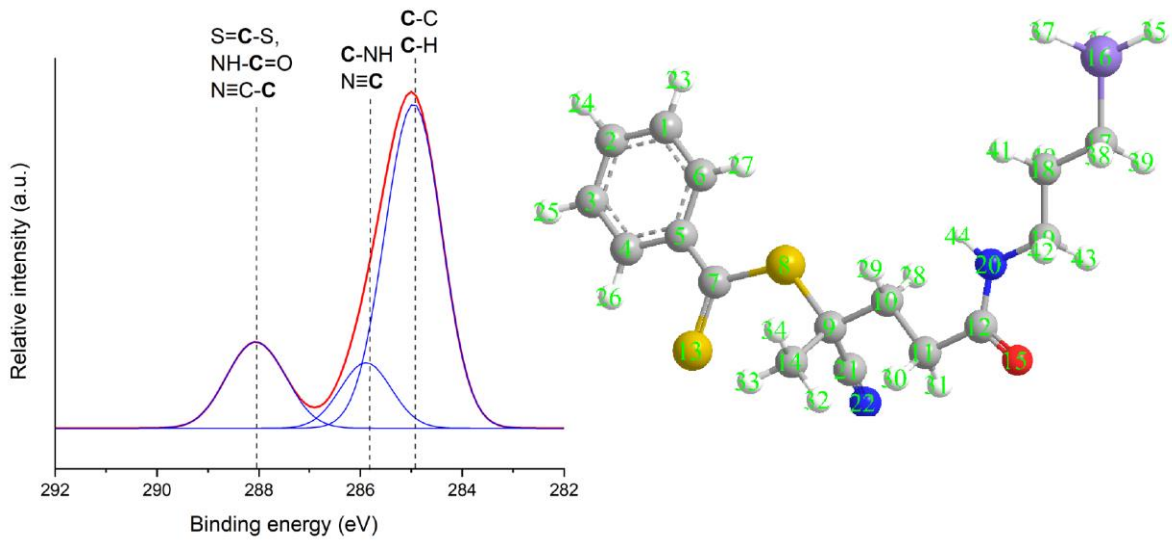
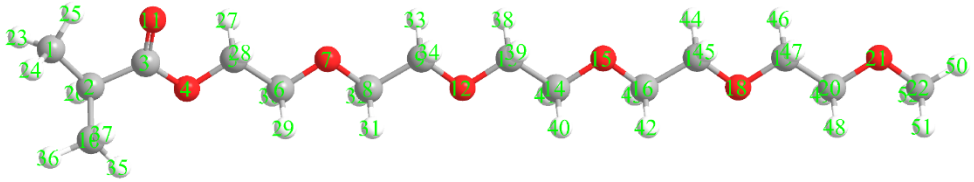


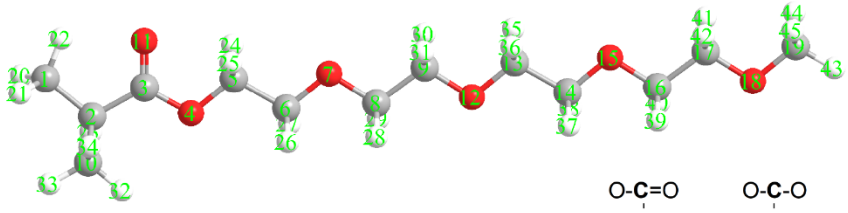
Figure S3. Simulated C1s XPS spectrum of the CTA-SAM molecule based on the core orbital energy levels obtained by DFT calculations.

Atom number	1	2	3	5	6	8	9	10	13	14	16	17	19	19	20	22
Natural atomic orbital occupancies																
Energy	10.02283	10.05929	10.18442	10.10881	10.10638	10.10189	10.10025	10.03256	10.09908	10.09876	10.09805	10.09746	10.09635	10.09635	10.09566	10.09369
XPS (eV)	285.0082	286.0449	289.6031	287.4531	287.384	287.2563	287.2097	285.2848	287.1764	287.1673	287.1471	287.1303	287.0988	287.0988	287.0791	287.0231



Molecular Weight: 322.40

Atom number	1	2	3	5	6	8	9	10	13	14	16	17	16	17	18
Natural atomic orbital occupancies															
Energy	10.0228	10.05921	10.18434	10.10873	10.10625	10.10167	10.10002	10.03249	10.09869	10.09807	10.09673	10.09587	10.09673	10.09587	18.93879
XPS (eV)	285.0073	286.0427	289.6008	287.4508	287.3803	287.25	287.2031	285.2829	287.1653	287.1477	287.1096	287.0851	287.1096	287.0851	538.5415



Molecular Weight: 278.35

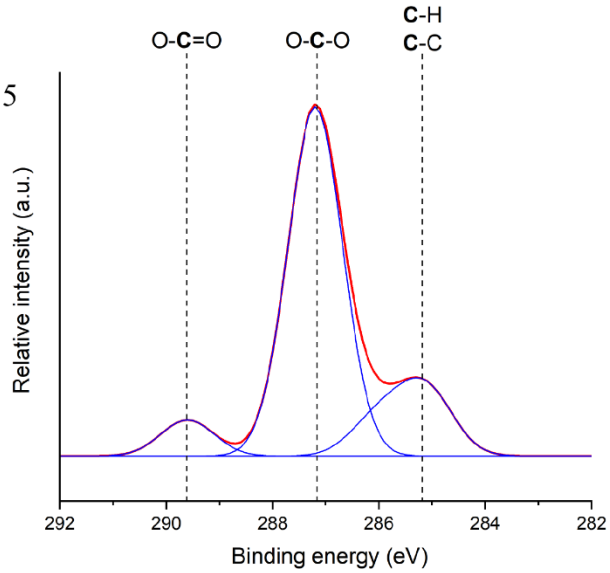
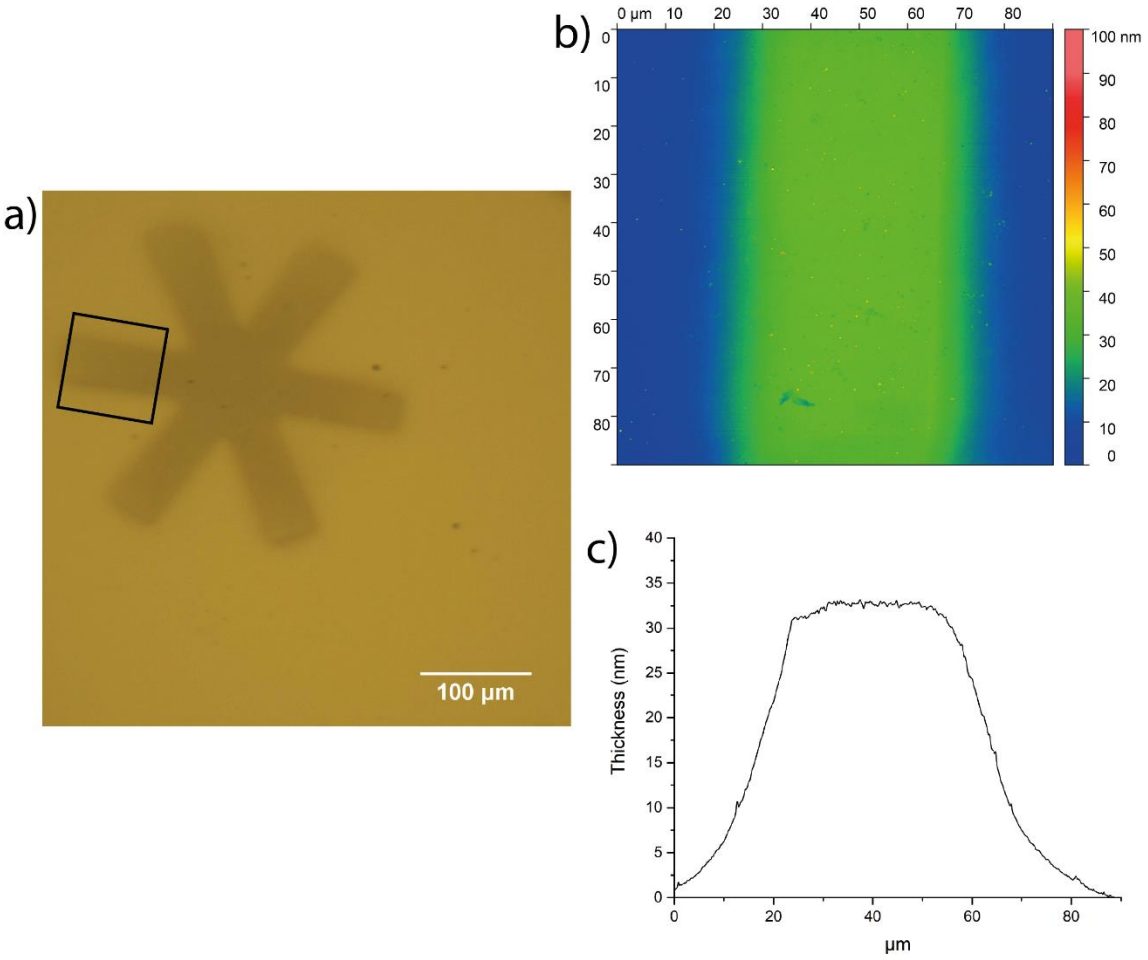


Figure S4. Simulated C1s XPS spectrum of the MeOEGMA Mn 300 monomer using combination of molecules of MeOEGMA with Mw 278.35 and 322.40 based on the core orbital energy levels obtained by DFT calculations.



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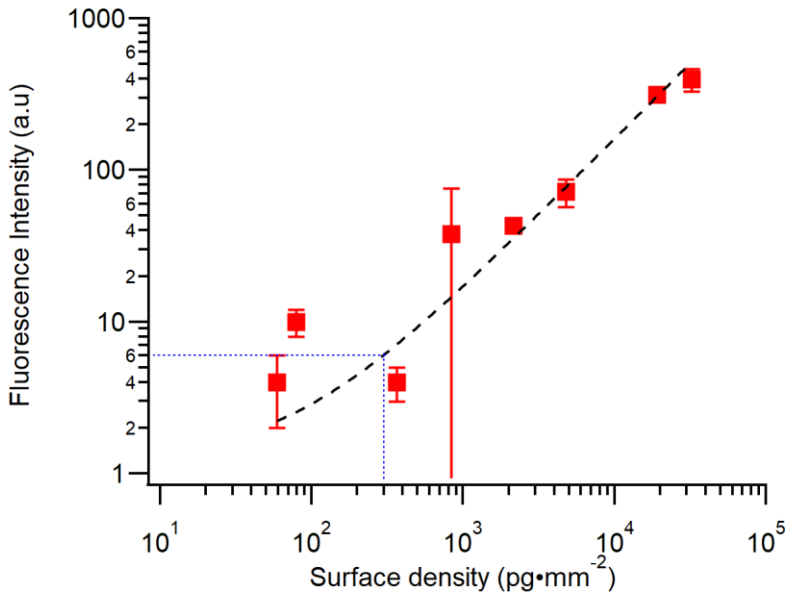

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