

Switching biological functionalities of biointerfaces via dynamic covalent bonds

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Supporting information

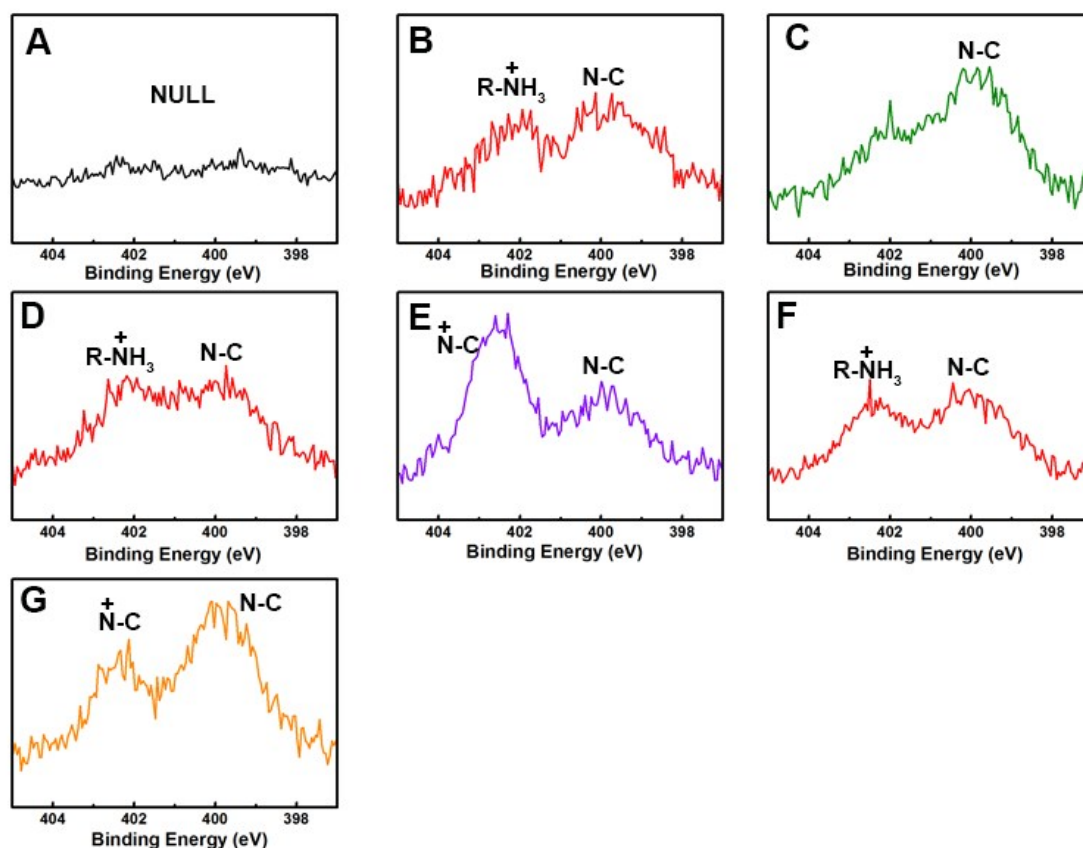


Figure S1. N 1s spectra of SW-GPS (A), SW-AD (B), SW-PSP (C), Ald-PSP detached surface (SW-DPSP, D), SW-PMT (E), Ald-PMT detached surface (SW-DPMT, F), and SW-PMP (G).

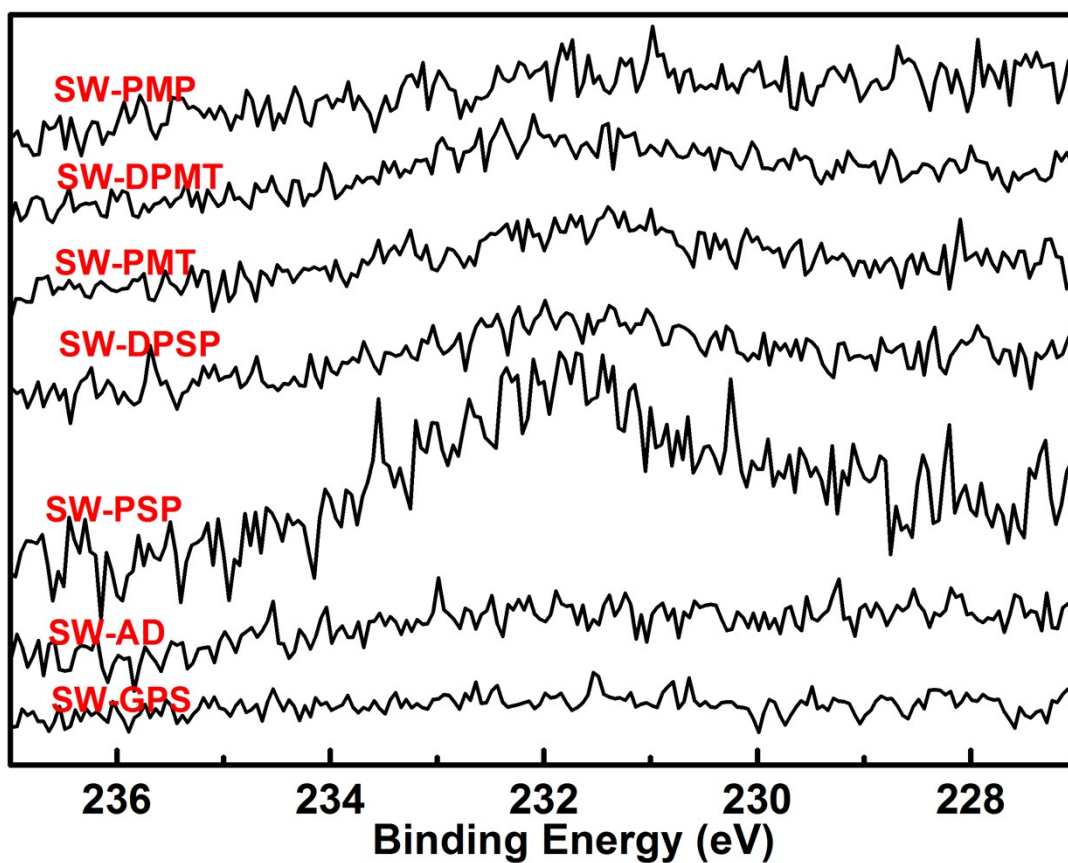


Figure S2. S 2s spectra of SW-GPS, SW-AD, SW-PSP, SW-DPSP, SW-PMT, SW-DPMT, and SW-PMP.

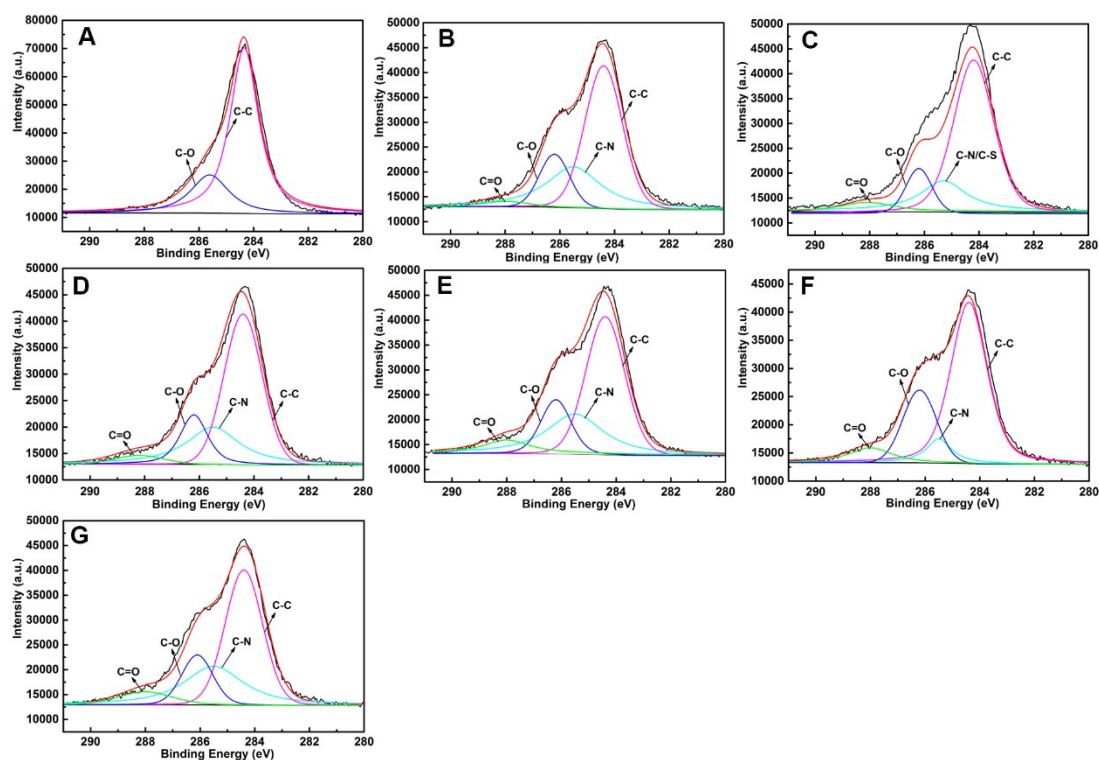


Figure S3. C 1s spectra of SW-GPS (A), SW-AD (B), SW-PSP (C), SW-DPSP (D),

SW-PMT (E), SW-DPMT (F), and SW-PMP (G).

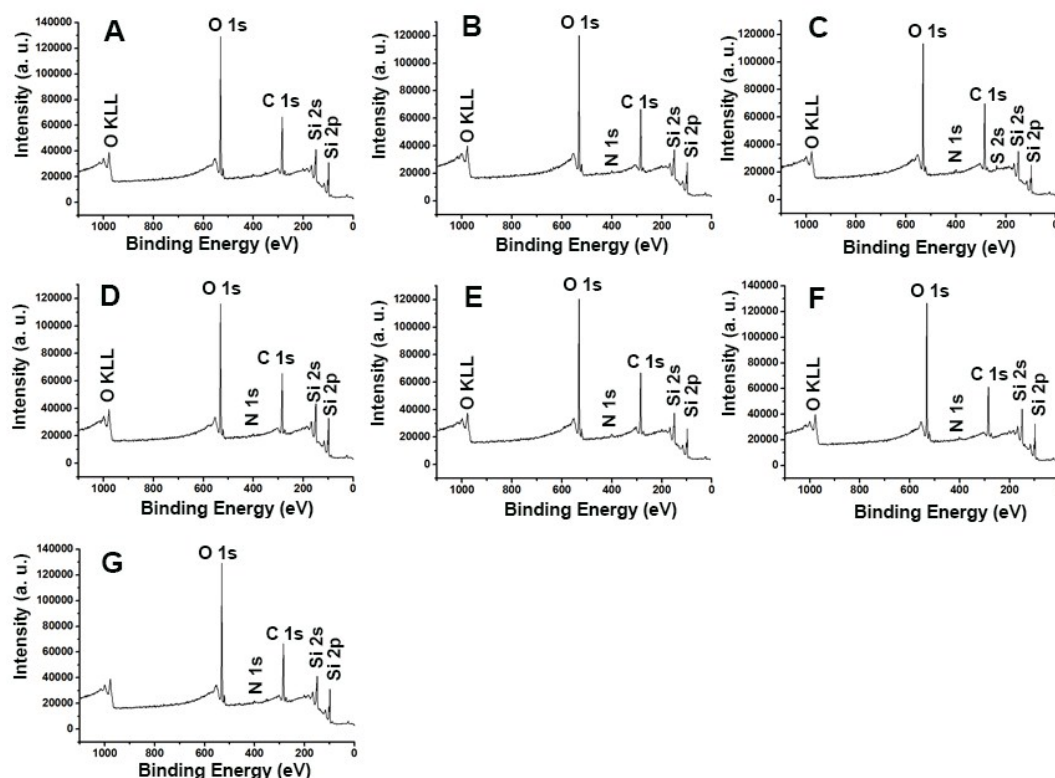


Figure S4. XPS wide spectra for all the substrates: SW-GPS (A), SW-AD (B), SW-PSP (C), SW-DPSP (D), SW-PMT (E), SW-DPMT (F), and SW-PMP (G).

Table S1. Elemental Compositions of SW-PSP and SW-DPSP determined by XPS Analysis.^a

% At Conc	O	N	C	S
SW-PSP	36.6	1.669	60.75	0.981
SW-DPSP	40.62	1.985	57.35	0.0445

^a Typically, we have evaluated the removal efficiency of Ald-polymer by removal of Ald-PSP. From the content of S element via XPS, it can be observed that over 95% of the Ald-PSP brushes have been removed by washing with an acidic solution.

Table S2. Molecular weight and polydispersity values for the Ald-polymers via Gel Permeation Chromatography (GPC, Pump: Waters 600E System Controller; Detector: Waters 410 Differential Refractometer). The GPC test is carried out with Ultrahydrogel 250 and Ultrahydrogel 500 columns at 40 °C, the flow rate is 1 mL/min, and water is used as an eluent. Calibration is made using standard poly(ethylene glycol) (for Ald-PMT) and polysaccharide (for Ald-PSP and Ald-PMP).

Sample	M_n (GPC) (kDa)	M_w (GPC) (kDa)	PDI
Ald-PSP	24.754	36.685	1.482
Ald-PMT	25.128	41.825	1.664
Ald-PMP	19.540	26.729	1.368

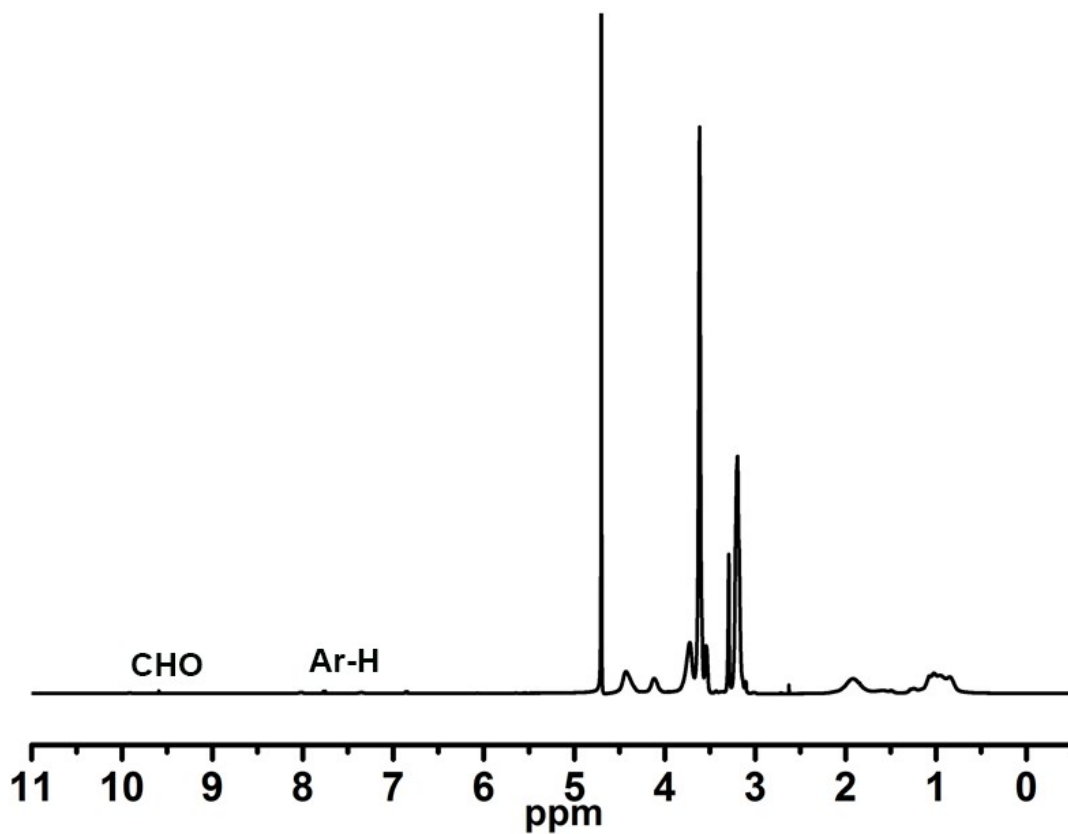


Figure S5. ¹H NMR spectrum of Ald-PMP. The signal at 9.6 ppm is assigned to aldehyde, which indicates that the aldehyde terminated PMP has been successfully synthesized.