Supplementary Information

Reversible Sol–Gel Signaling System with epMB for Study of the Enzyme and pH-triggered Oligonucleotide Release from a Biotin Hydrogel

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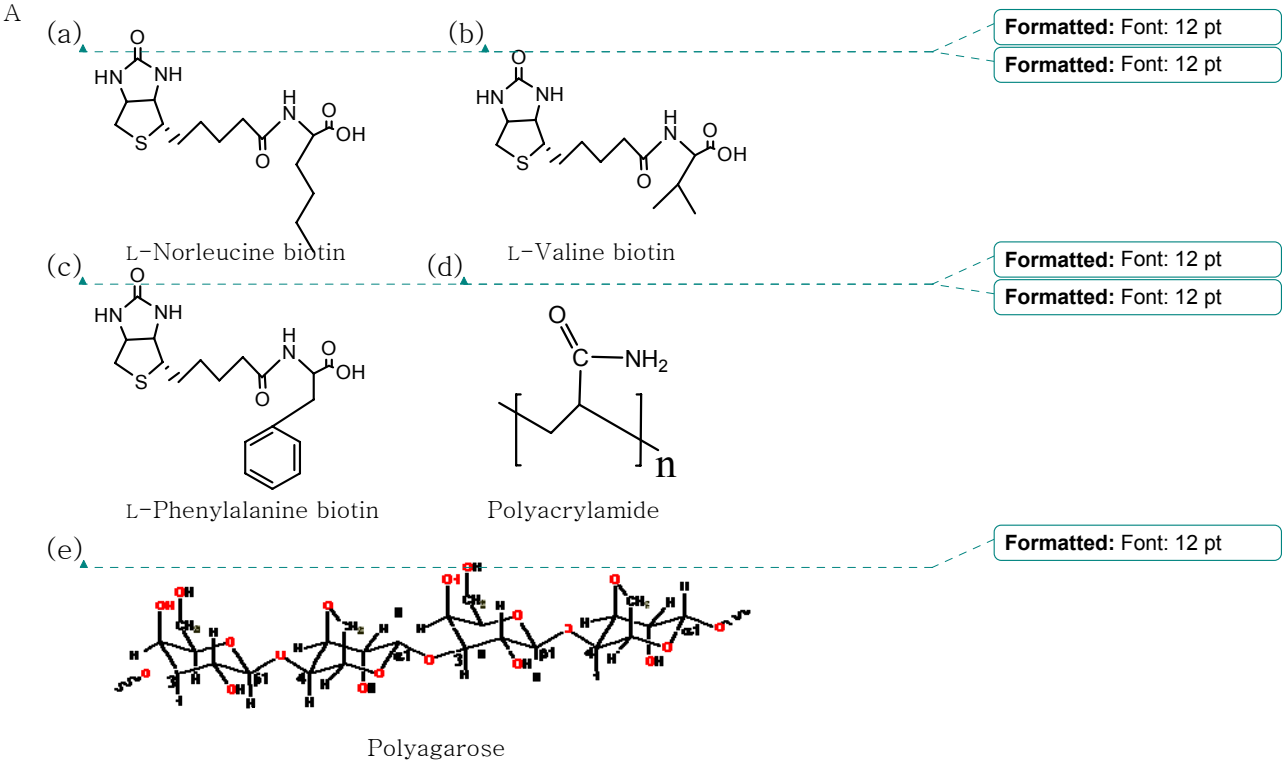
Table S1. MALDI-TOF mass spectral data

Sequence	MALDI-TOF signal [M^+]	
	Calc. *m/z*	**Found *m/z***
S1	8766	8768
S2	4542	4543

A



B

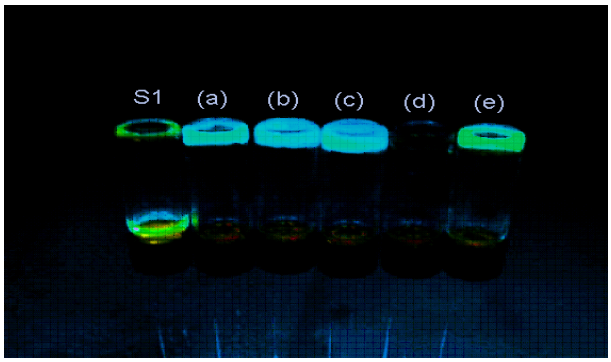


Figure S1. A, Several types of gelators. B, Photographic images of several gels. (a) L-Norleucine biotin, (b) L-

valine biotin, (c) L-phenylalanine biotin, (d) polyacrylamide, and (e) polyagarose with ODN **S1.**

Formation and Deformation of Gels

The gelator **G1**(0.001 mg, 0.003 mmol) and 180 μL of the corresponding solvent (100 mM Tris–HCl (pH 7.2), 100 Mm NaCl, 10 mM $MgCl_2$,) were mixed in a test-tube and heated until the solid was dissolved. Then we added 20 μL of 1.5 μM **S1** into the solution, which was cooled to room temperature and kept at 25°C for 10 min. The sample that had no fluid solvent in the vial was defined as a gel state. In order to induce deformation of the gel, we used 5% $NaHCO_3$ and carboxypeptidase. After adding the basic solution or the carboxypeptidase solution, the mixture was stirred for 10 min and we then checked the fluidity of gel. We found that 10 min was long enough for complete deformation of the gel.

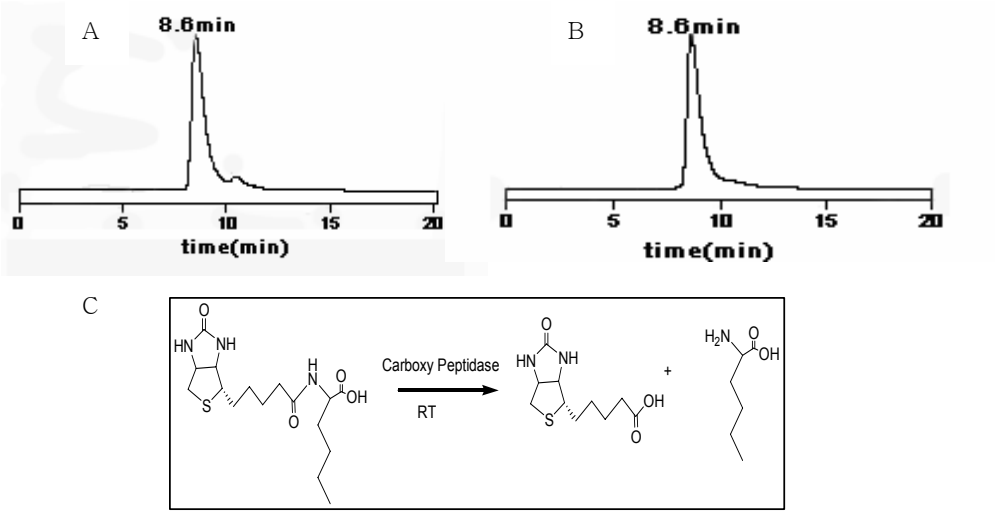


Figure S2. HPLC spectra of: A, commercial normal leucine; B, biotin gel **G1**+ODN **S1** solution after treating with carboxypeptidase; C, schema of cleavage of the peptide bond by carboxypeptidase. The HPLC conditions were: eluent, water; flow-rate, 2.5 ml/min; column, C18 reverse HPLC, at 210nm.

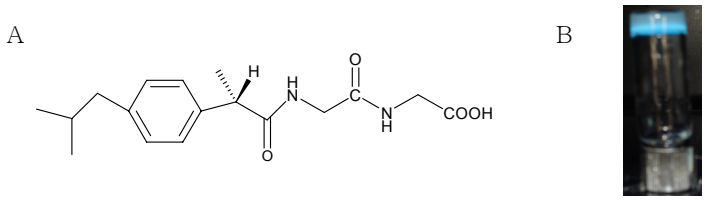


Figure S3. Ibuprofen hydrogel structure (A) and its photographic image (B) of the gel with epMB.

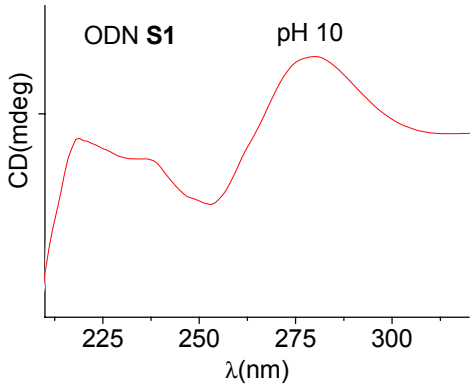


Figure S4. Circular dichroism spectrum for ODN **S1** at pH10. Sample was prepared in buffer (100 mM Tris–HCl (pH 7.2), 10 mM $MgCl_2$, 100 mM NaCl) at 20 °C, 256nm.

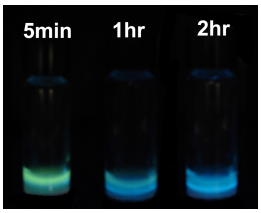


Figure S5. Time dependant photographic image after adding epMB in to the **G1** gel.