Electronic Supplementary Information

Label-free fluorescent assay for real-time monitoring site-specific DNA cleavage by EcoRI endonuclease

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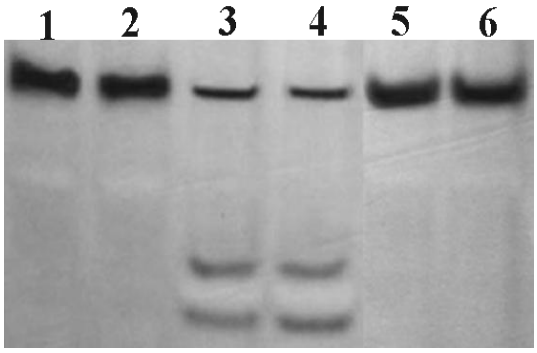

Fig. S1 Electrophoresis analysis of cleavage of dsDNA1 by restriction enzyme. Lane1. 18mer dsDNA1, Lane2. 18mer dsDNA1, Lane3. cleaved dsDNA1 by EcoRI, Lane4. cleaved dsDNA1 by EcoRI. Lane5. cleaved dsDNA1 by BamHI, Lane6. cleaved dsDNA1 by BamHI .The reaction mixture consisted of 5.0 μM dsDNA1 in buffer (50 mM Tris-HCl, 100 mM NaCl, 10 mM $MgCl_2$, and 0.1mg BSA, pH 7.5) and 10 U μL^{-1} EcoR I. In the gel electrophoresis assays, the 20 μL sample was incubated at 37 °C. Subsequently, the samples were applied to a polyacrylamide gel (18%). The electrophoresis was carried in 1×TBE (pH 8.0) at 300 V constant voltage for 1 h. The gels were silver-stained.

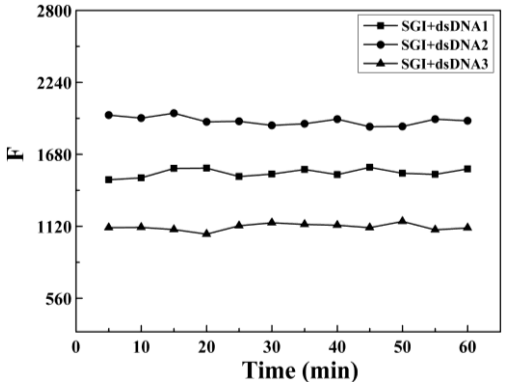

Fig. S2 Fluorescence intensity of SGI/dsDNAs with the prolonging of reacting time at 37°C.

Table S1 Effect of salt concentration on the activity of EcoRI

Reaction medium	S(SGI+dsDNA1)/ B (SGI)	Cleavage fraction (%)
50 mM Tris-HCl	3.31	9.24%
50 mM Tris-HCl, 50mM NaCl， 5mM $MgCl_2$	3.5	17.48%
50 mM Tris-HCl 100mM NaCl，10mM $MgCl_2$	41.06	47.39%
50 mM Tris-HCl 150mM NaCl，15mM $MgCl_2$	15.54	34.53%