Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

SUPPORTING INFORMATION

for

Organic Small Molecule for Detection and Photodegradation of Mitochondrial DNA Mutations

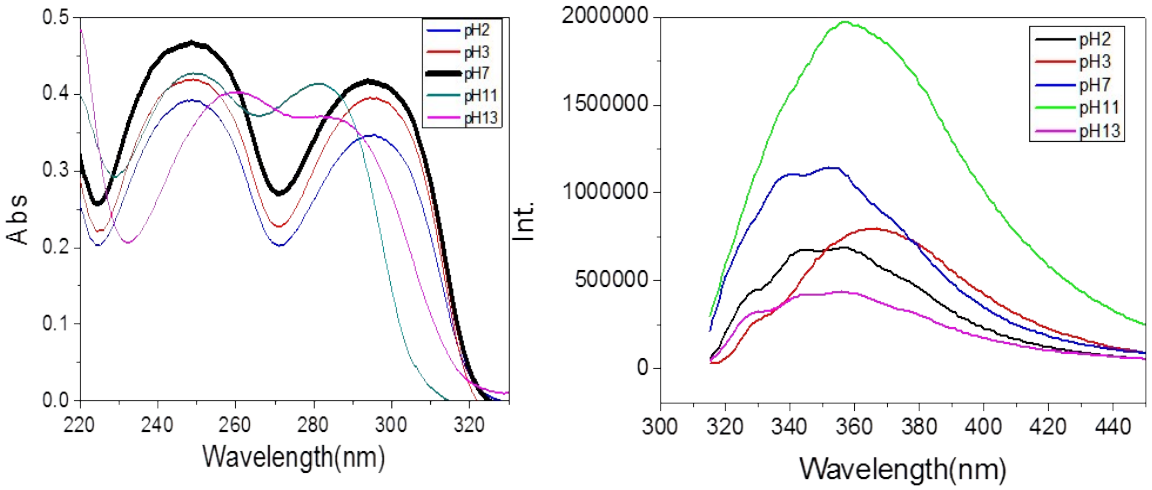

Figure S1: Absorption (left) and emission spectra (right) of 8-oxo-dG in variable pH values of PBS solutions. excitation wavelength is 290 nm

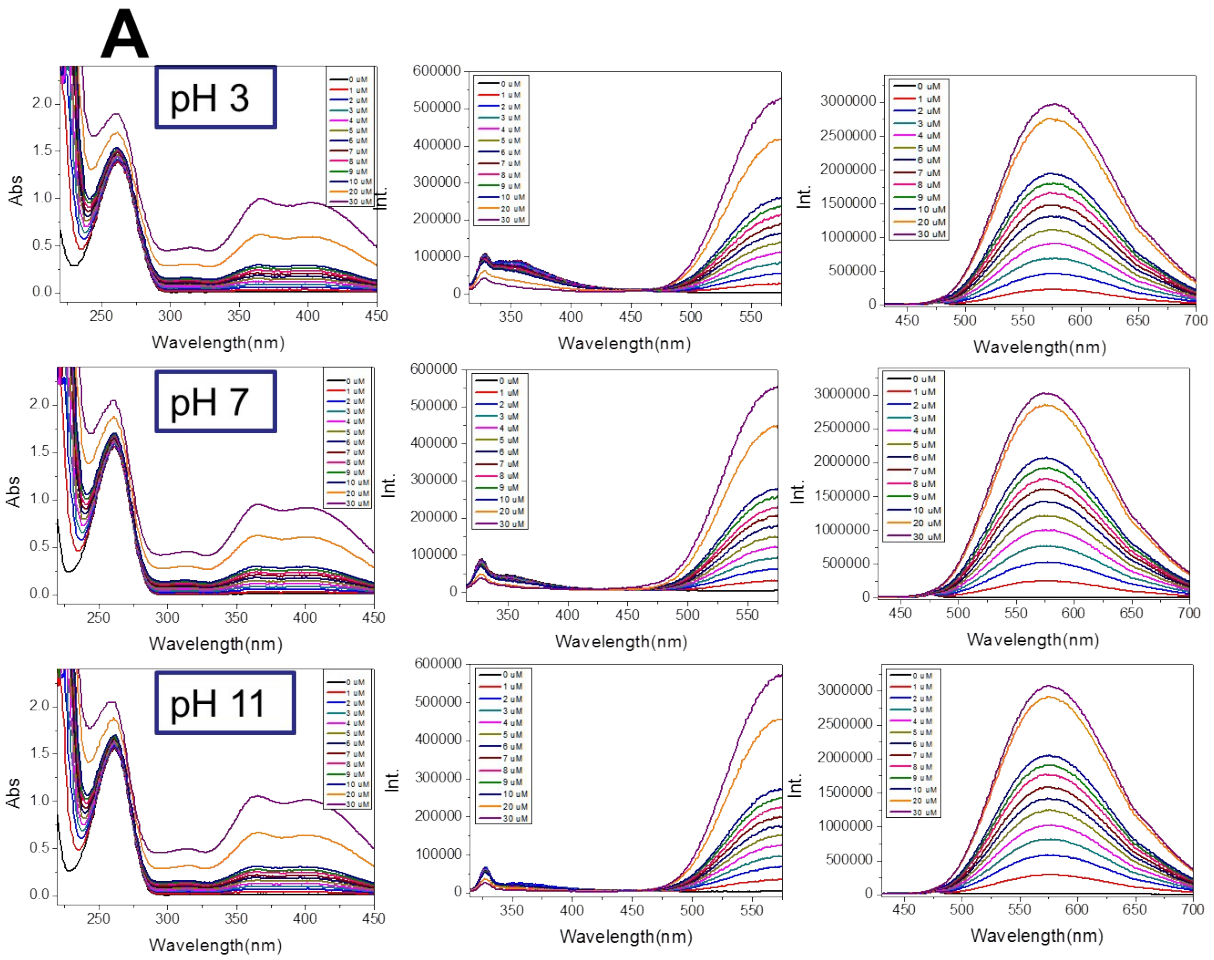

Figure S2: Absorption (left) and emission (middle, right) spectra of the 100 μM of Adenosine in variable concentration of NV-12P at pH 3, 7, 11 buffer solution, respectively. Excitation wavelength: 295, 410 nm

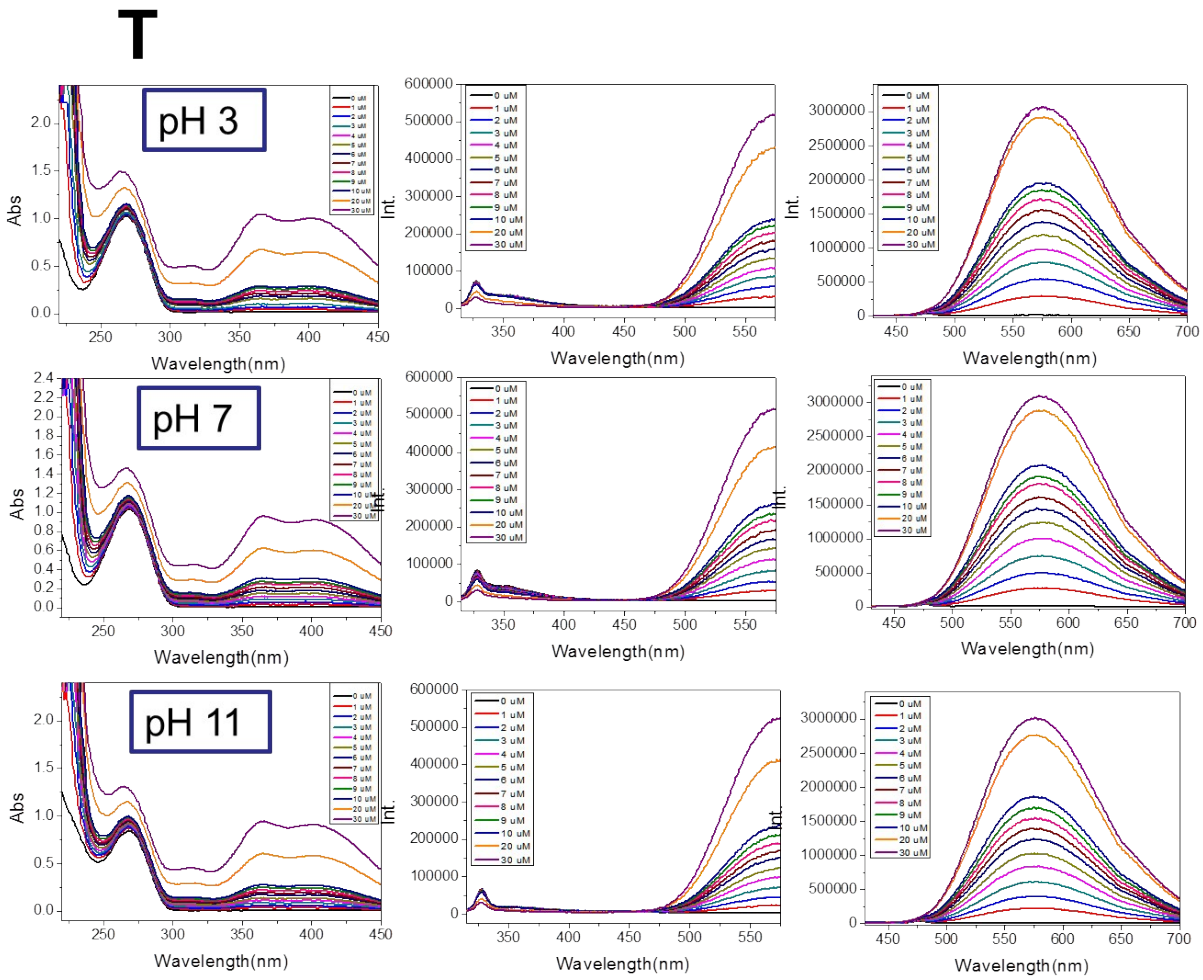

Figure S3: Absorption (left) and emission (middle, right) spectra of the 100 μM of Thymidine in variable concentration of NV-12P at pH 3, 7, 11 buffer solution, respectively.

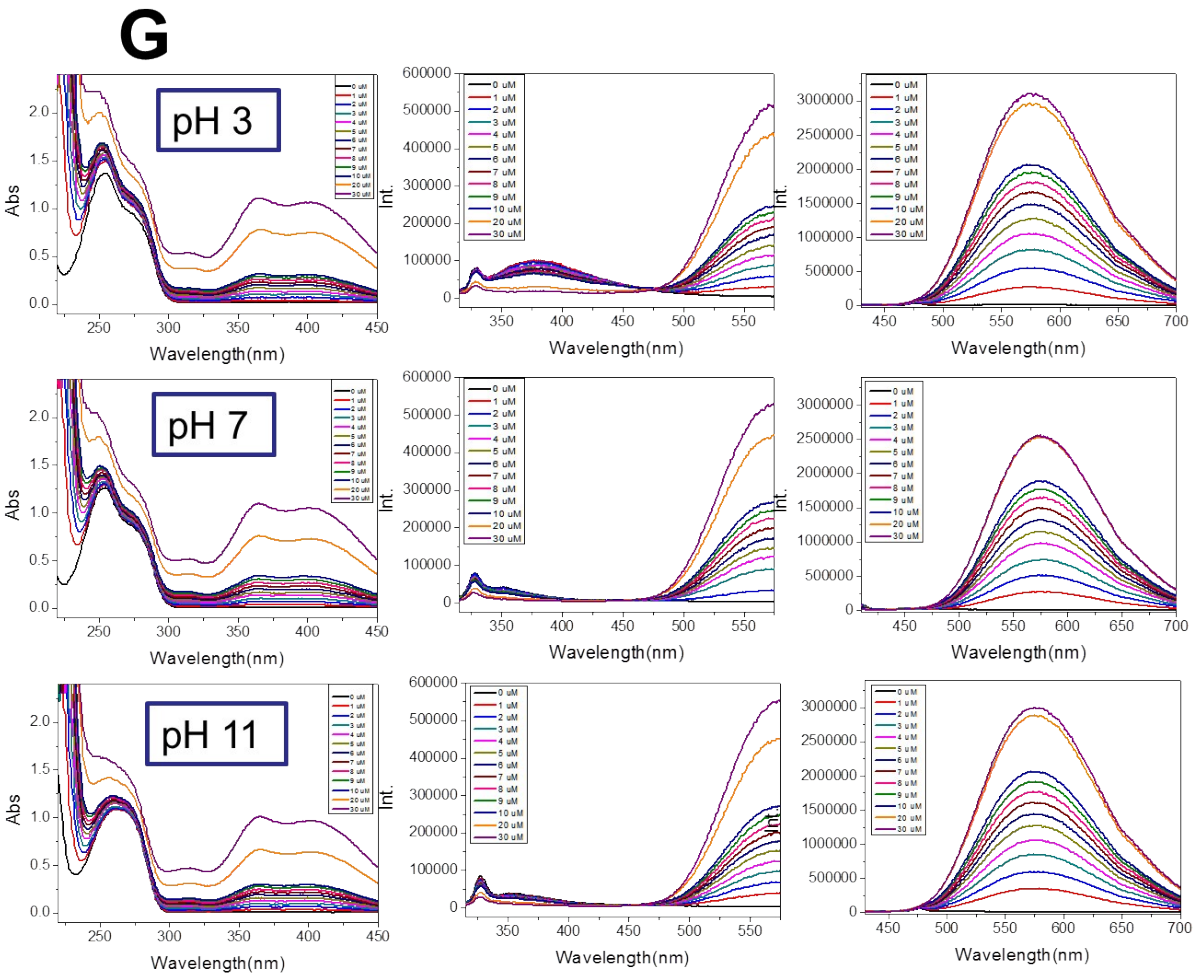

Figure S4: Absorption (left) and emission (middle, right) spectra of the 100 μM of Guanosine in variable concentration of NV-12P at pH 3, 7, 11 buffer solution, respectively.

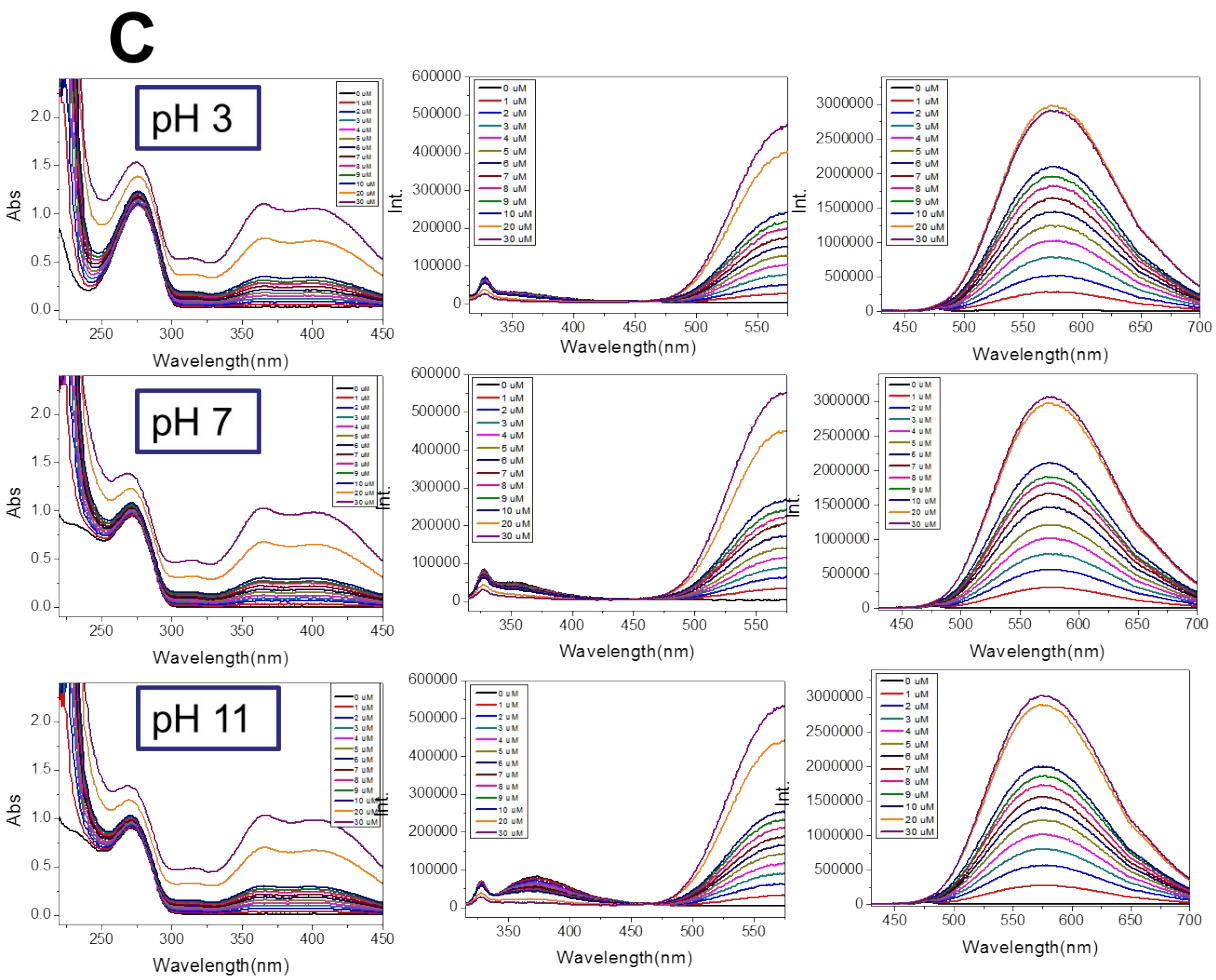

Figure S5: Absorption (left) and emission (middle, right) spectra of the 100 μM of Cytidine in variable concentration of NV-12P at pH 3, 7, 11 buffer solution, respectively.

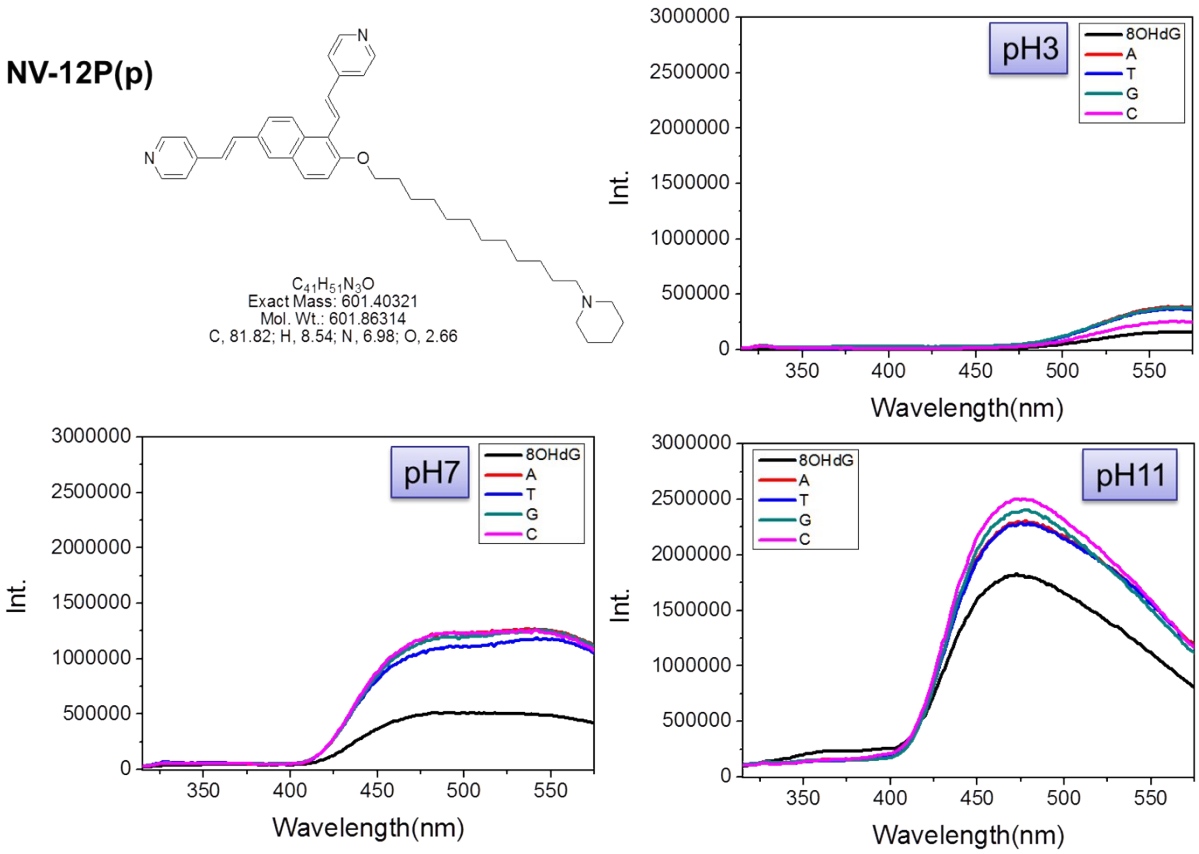

Figure S6: Structure of NV-12P(p) and emission spectra of the 100 μM of DNA in 20 μM of variable concentration of NV-12P at pH 3, 7, 11 buffer solution, respectively. Excitation wavelength: 295nm.

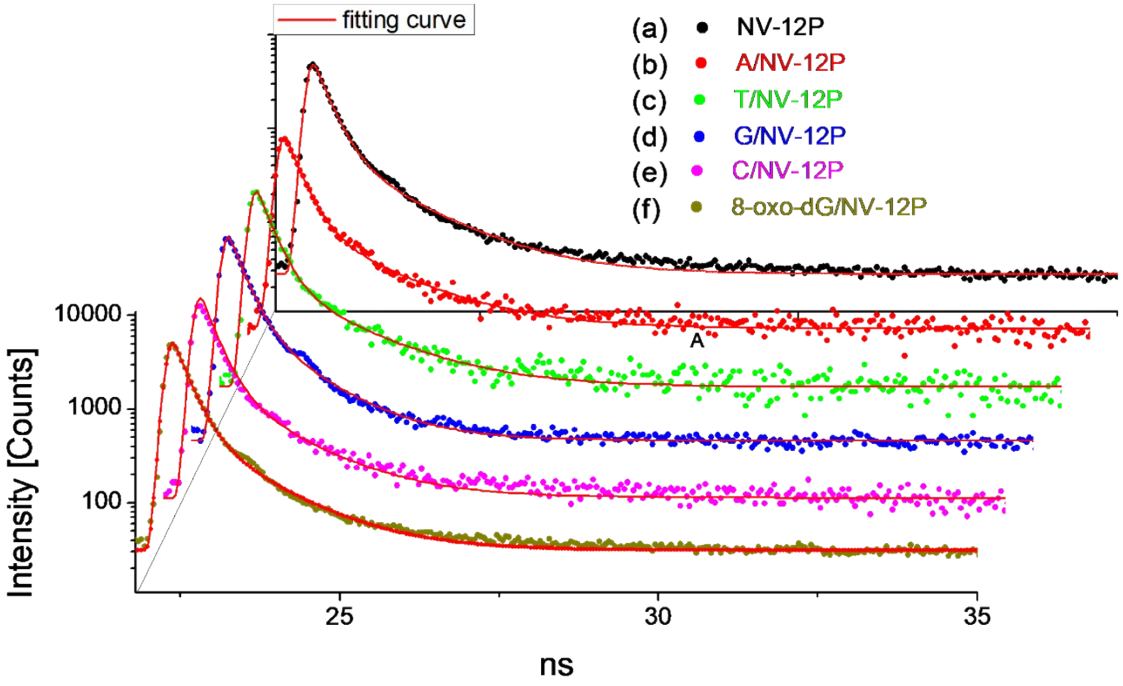

Figure S7. Time-resolved spectra and lifetime curve fittings of compound NV-12P (a) and mixed with DNA base A (b), T (c), G (d), C (e) and 8-oxo-dG (f) in buffer solution. 405 nm picosecond excitation lasers are used and all fitting curves (red lines) were achieved with R square > 0.95. Lifetime values were listed in Table 3.

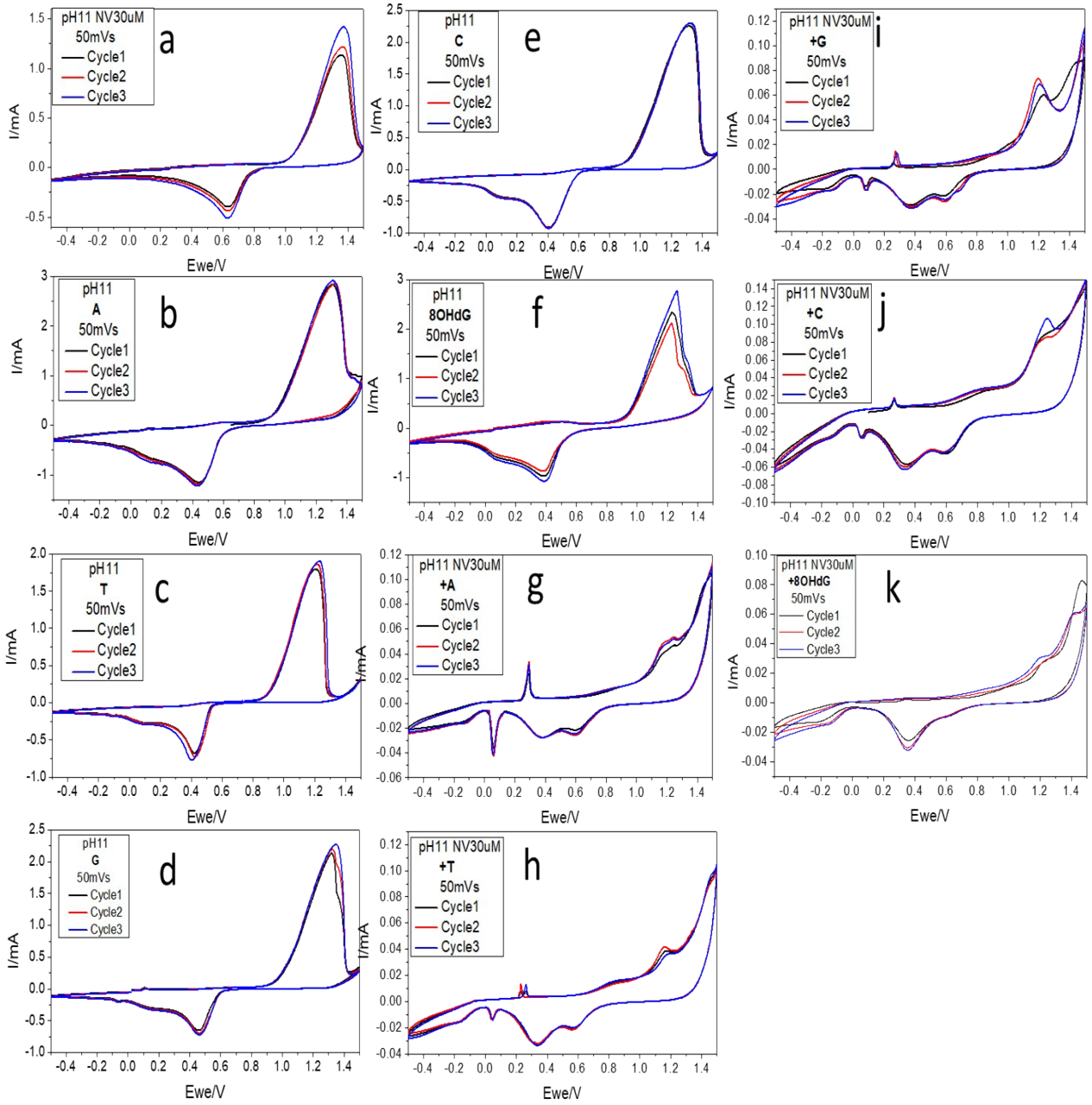

Figure S8. The cyclic voltammogram for 30 uM free NV-12P (a) and 100uM of free DNA base A (b), T (c), G (d), C (e) and 8-oxo-dG (f) in pH 11 buffer solution. (g)~(k) represent the mixture of NV-12P to DNA base A, T, G, C and 8-oxo-dG in pH 11 buffer solution, respectively.

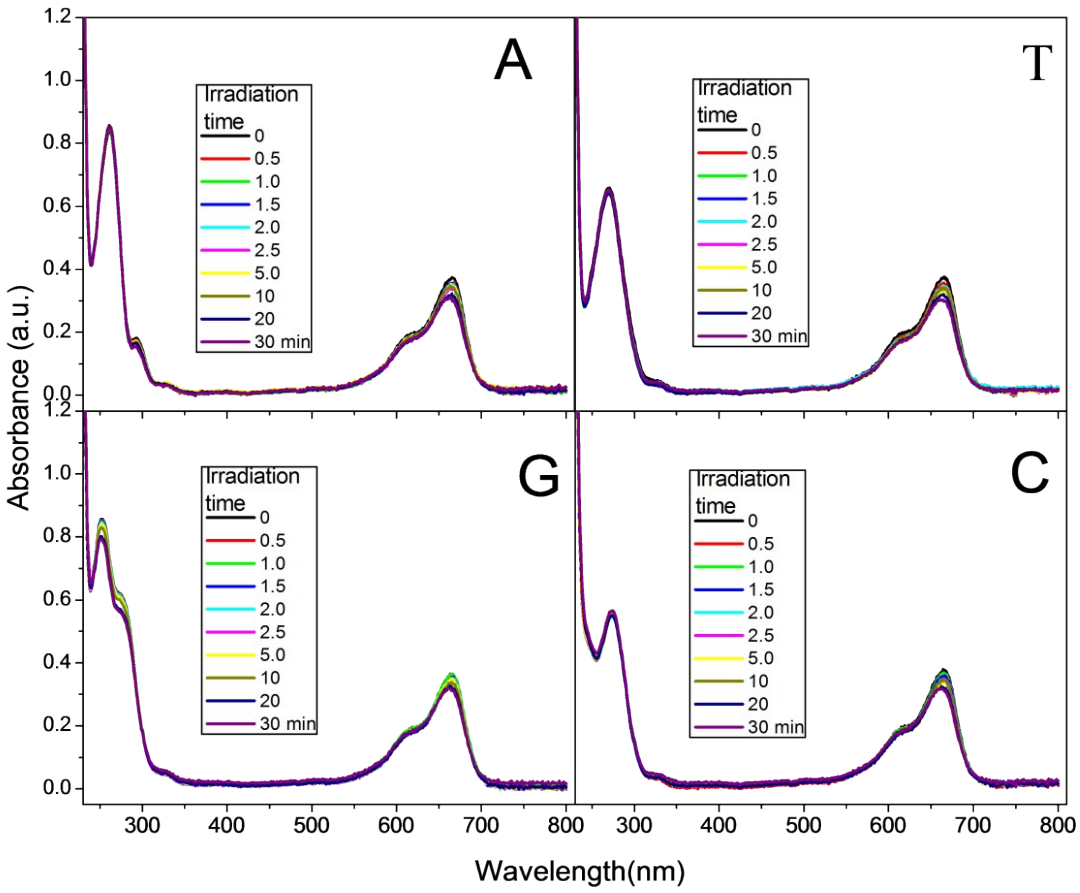

Figure S9: Absorption spectra representation for degradation of A, T, C, G DNA bases under different irradiation time on MB, respectively.