Supporting information

Grafting redox-active molecule on graphene oxide through a diamine linker: length optimization for electron transfer

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Table S1. Detail quantitative analysis of wide scan XPS spectra of **GO 1a**, and **GO 2a**.

Sample	at.%		
	C	O	N
GO 1a	70.0	25.8	3.6
GO 2a	80.0	17.1	2.9

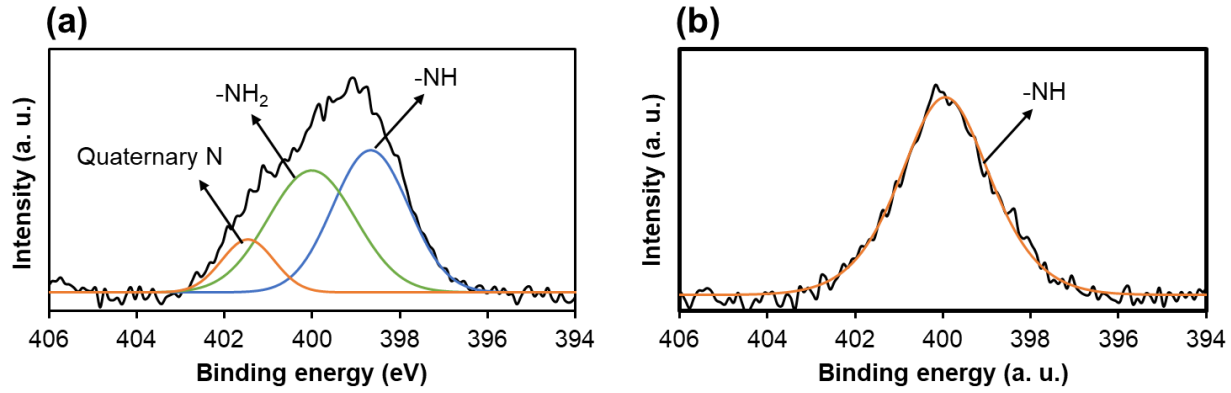

Fig. S1. High-resolution N 1s XPS spectra of (a) **GO 1a**, and (b) **GO 2a**

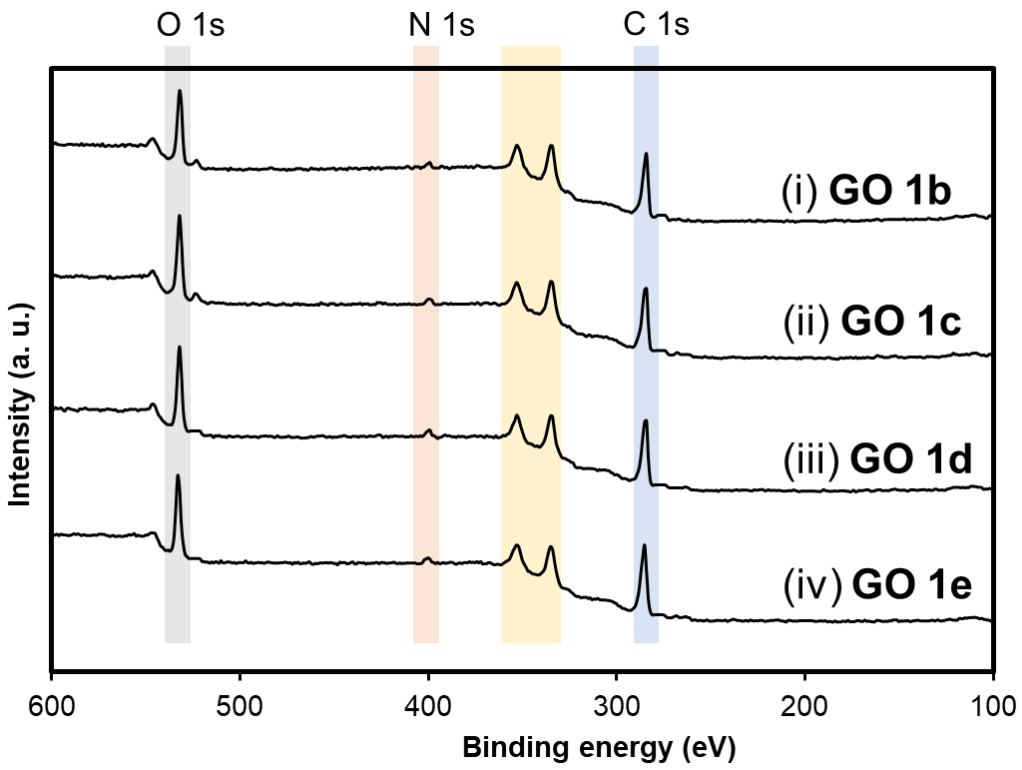

Fig. S2. XPS survey spectra of (i) **GO 1b**, (ii) **GO 1c**, (iii) **GO 1d**, and (iv) **GO 1e**.

Table S2. Detail quantitative analysis of wide scan XPS spectra of **GO 1b**, **GO 1c**, **GO 1d**, and **GO 1e**.

Sample	Element at.%		
	C	O	N
GO 1b	71.7	25.5	2.7
GO 1c	71.7	25.2	2.9
GO 1d	71.3	25.1	3.5
GO 1e	71.9	24.6	3.3

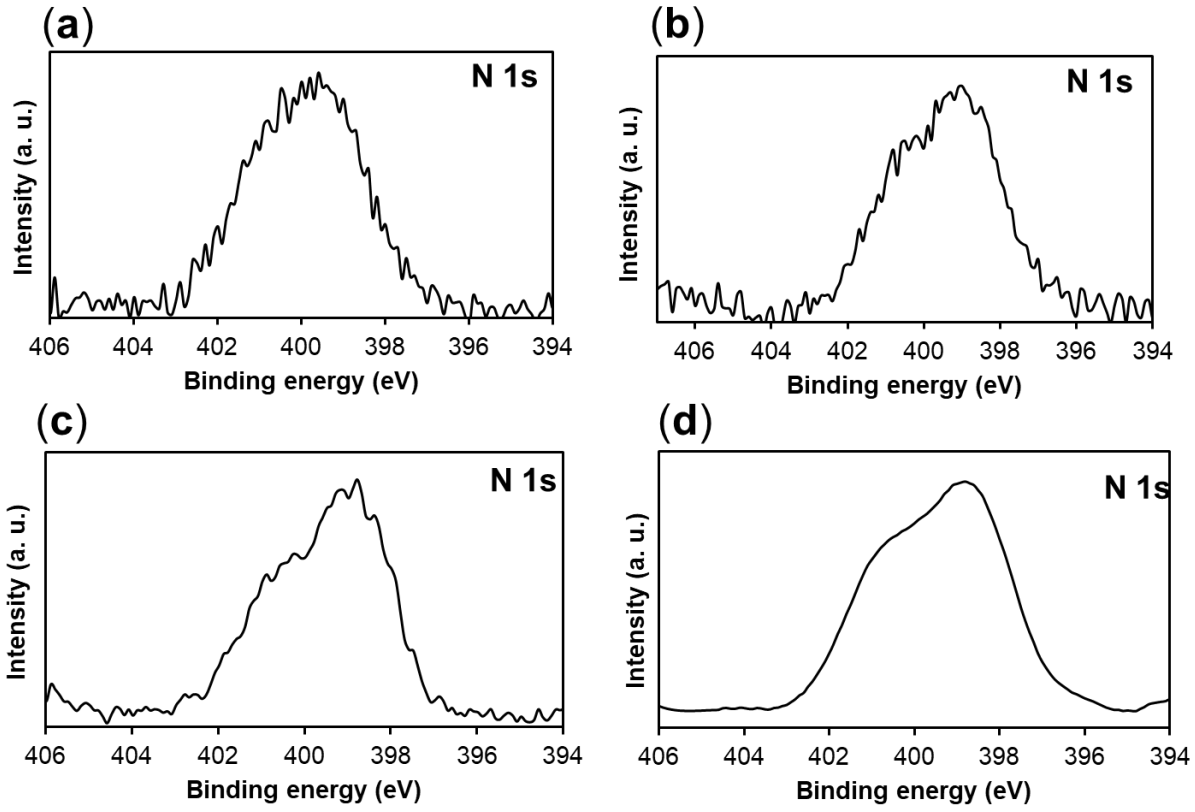

Fig. S3. High-resolution N 1s XPS spectra of (a) **GO 1b**, (b) **GO 1c**, (c) **GO 1d**, and (d) **GO 1e**.

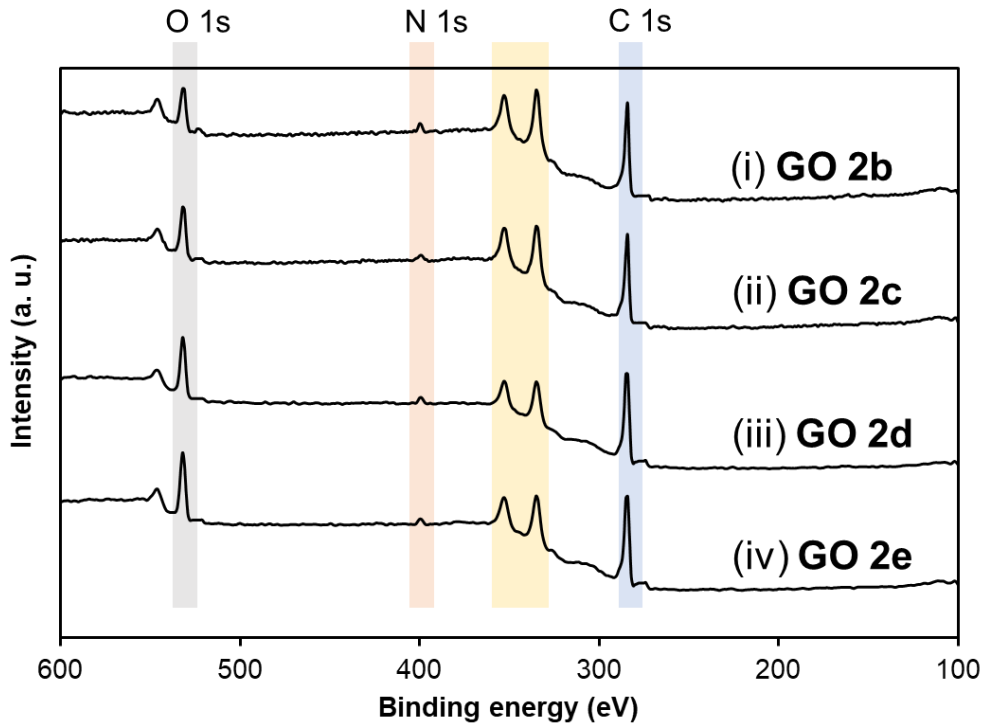

Fig. S4. XPS survey spectra of (i) **GO 2b**, (ii) **GO 2c**, (iii) **GO 2d**, and (iv) **GO 2e**.

Table S3. Detail quantitative analysis of wide scan XPS spectra of **GO 2b**, **GO 2c**, **GO 2d**, and **GO 2e**.

Sample	Element at.%		
	C	O	N
GO 2b	81.3	16.1	2.5
GO 2c	79.7	17.1	2.8
GO 2d	79.1	18.1	2.8
GO 2e	78.1	19.3	2.5

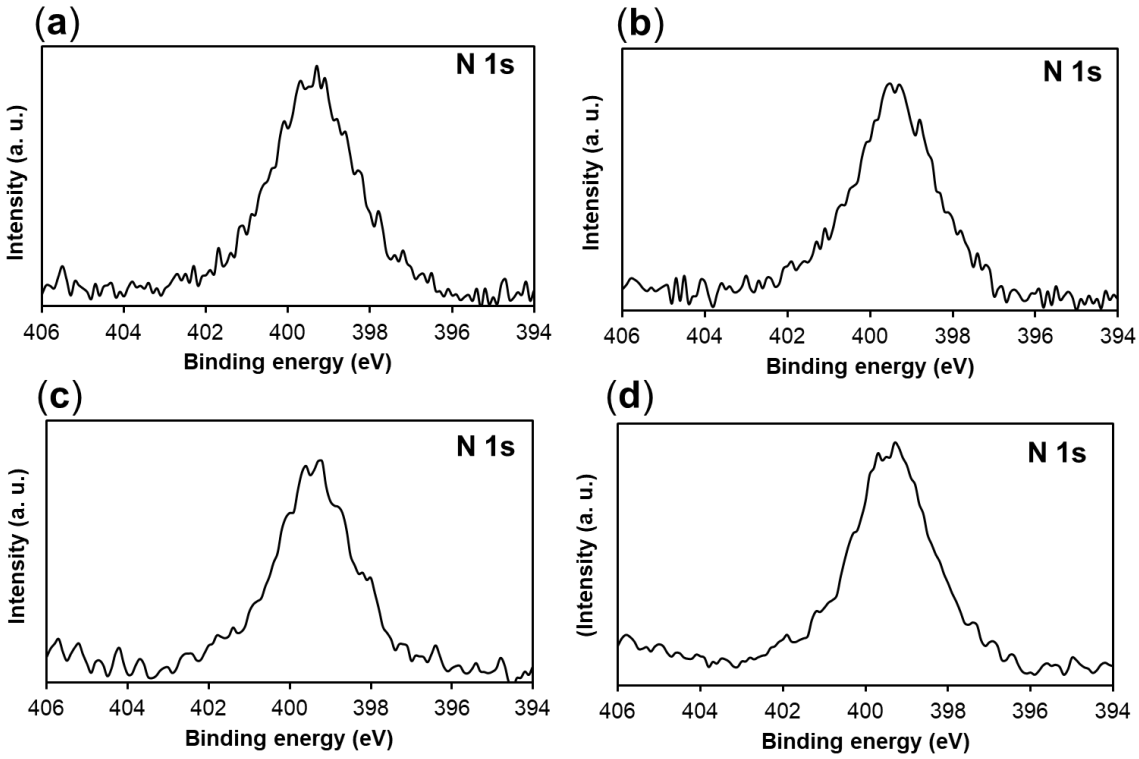

Fig. S5. High-resolution N 1s XPS spectra of (a) **GO 2b**, (b) **GO 2c**, (c) **GO 2d**, and (d) **GO 2e**.

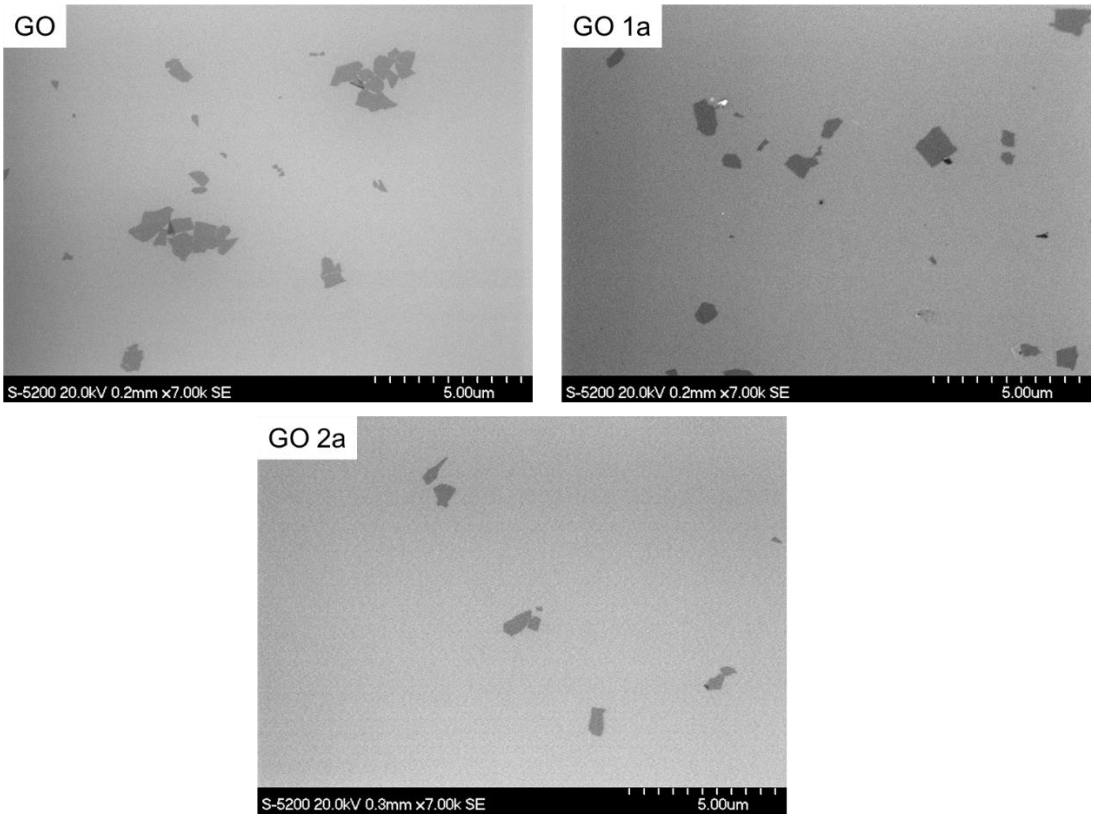

Fig. S6. SEM images of (a) GO, (b) **GO 1a**, and **GO 2a**

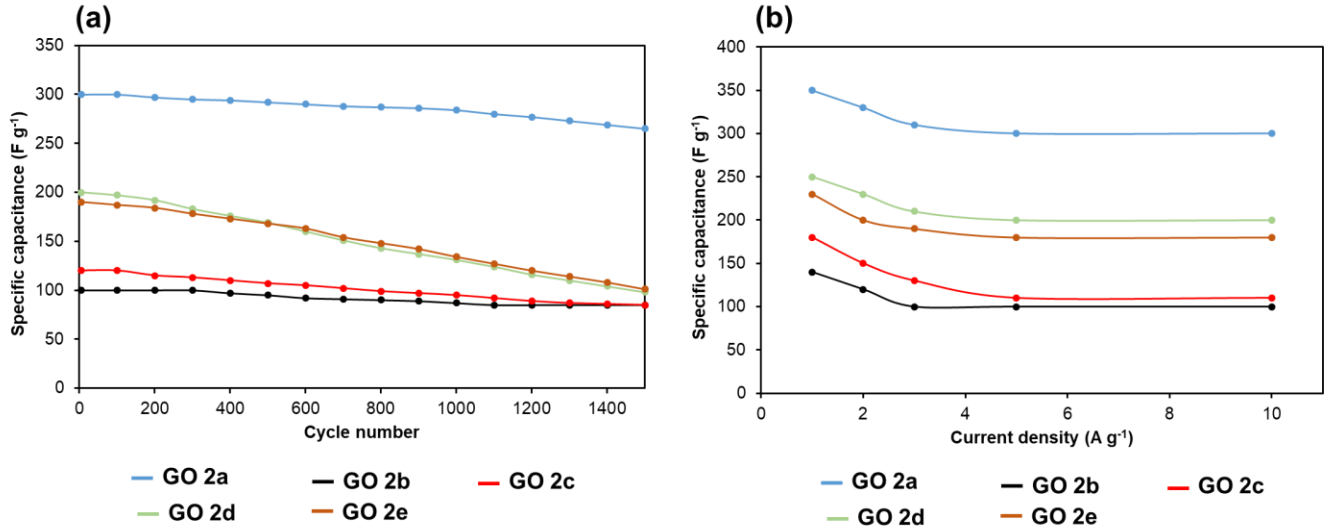

Fig. S7. (a) Cycling stability test of **GO 2a-e** at a current density of 10 A g^{-1}; (b) rate capability test of **GO 2a-e**.

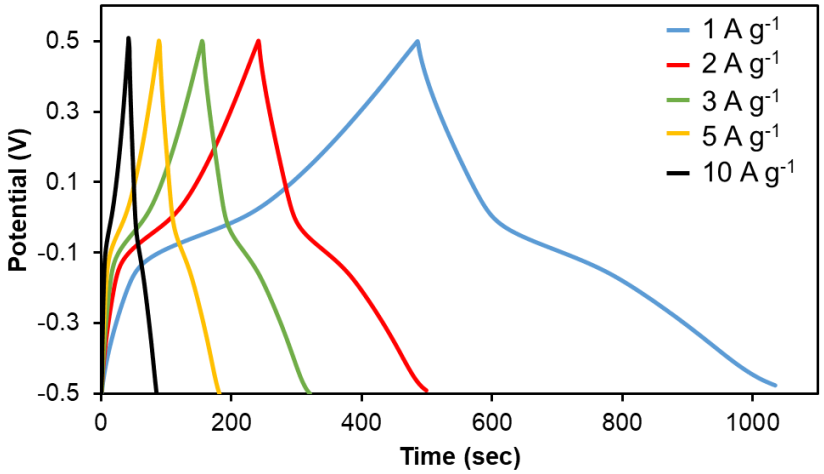

Fig. S8. Galvanostatic charge discharge curve of **GO 2a** at different current density.

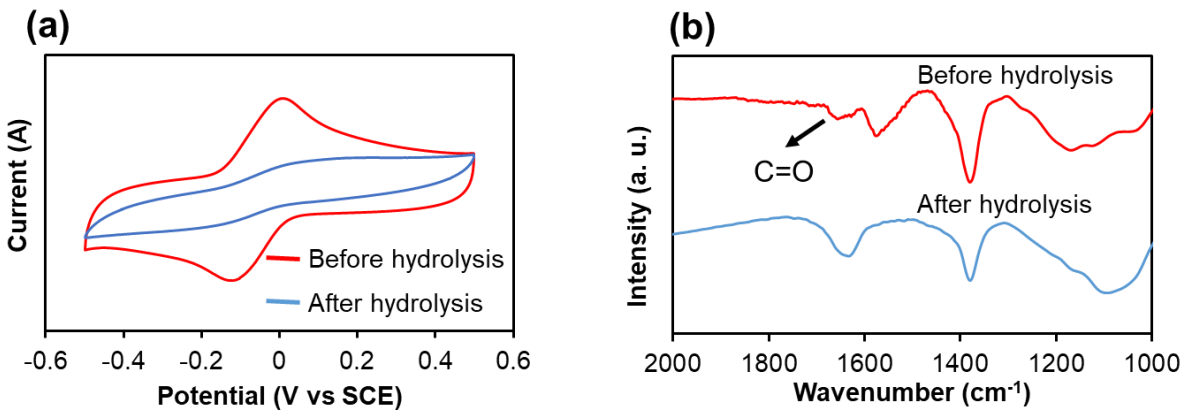

Fig. S9. (a) CV study of **GO 2a** before and after hydrolysis of amide bond at a scan rate of 50 mV s^{-1}, (b) FTIR analysis of **GO 2a** before and after hydrolysis of amide bond.