

Supporting Information

Quantitative Detection of Disappearance of Antioxidant Ability of Catechin by Near-Infrared Absorption and Near-Infrared Photoluminescence Spectra of Single-Walled Carbon Nanotubes

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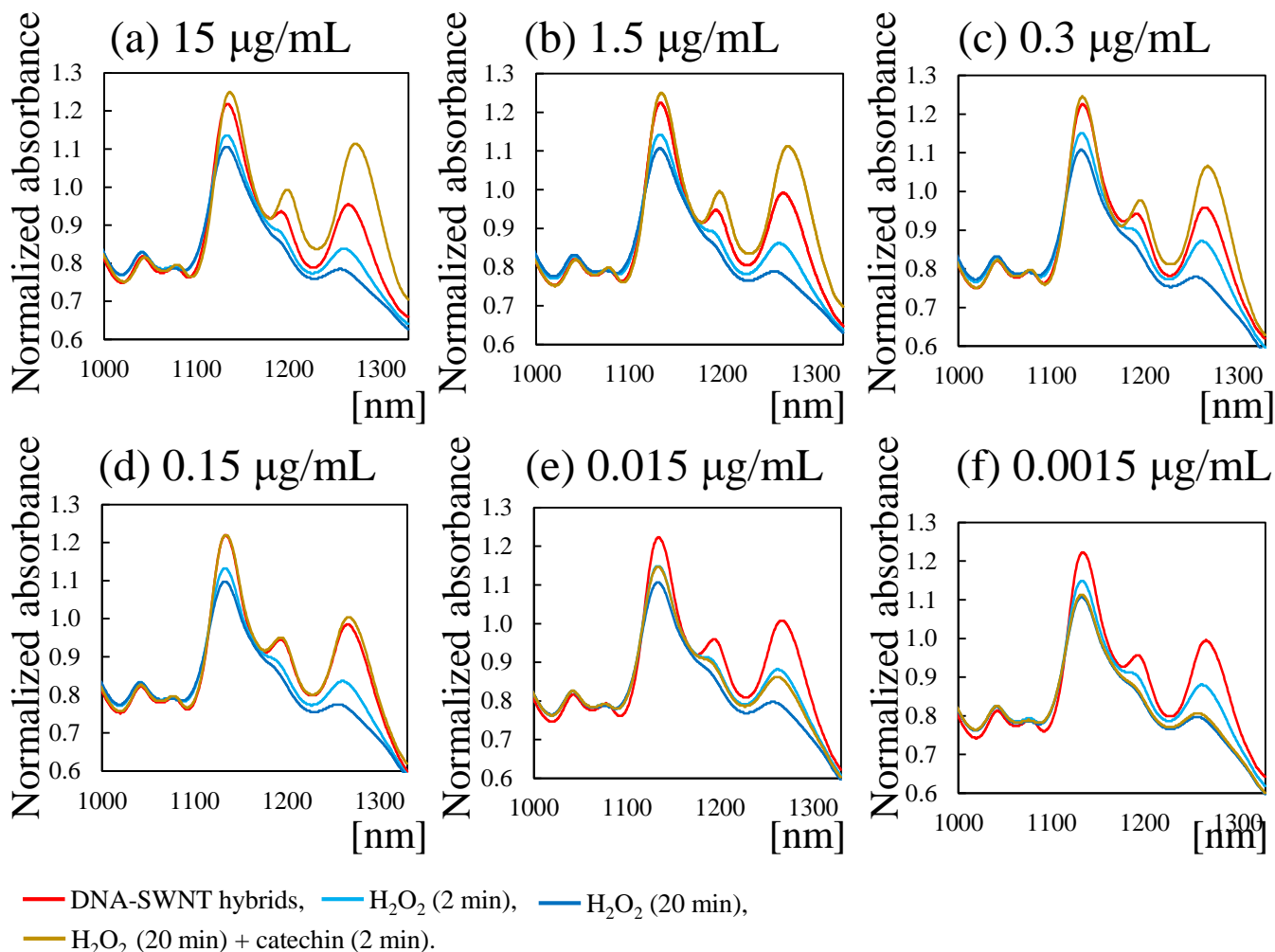


Figure S1. NIR absorbance spectra of DNA-SWNT hybrids in the presence or absence of H₂O₂ and catechin. Catechin concentration ranged from 0 to 15 $\mu\text{g/mL}$. (a) 15 $\mu\text{g/mL}$, (b) 1.5 $\mu\text{g/mL}$, (c) 0.3 $\mu\text{g/mL}$, (d) 0.15 $\mu\text{g/mL}$, (e) 0.015 $\mu\text{g/mL}$, (f) 0.0015 $\mu\text{g/mL}$. Red line: initial DNA-SWNT suspension without adding H₂O₂ and catechin. Sky blue line: oxidized with 0.03% H₂O₂ for 2 min. Dark blue line: oxidized with 0.03% H₂O₂ for 20 min. Gold line: incubated with catechin for 2 min after oxidizing with H₂O₂ for 20 min.

Figure S1.

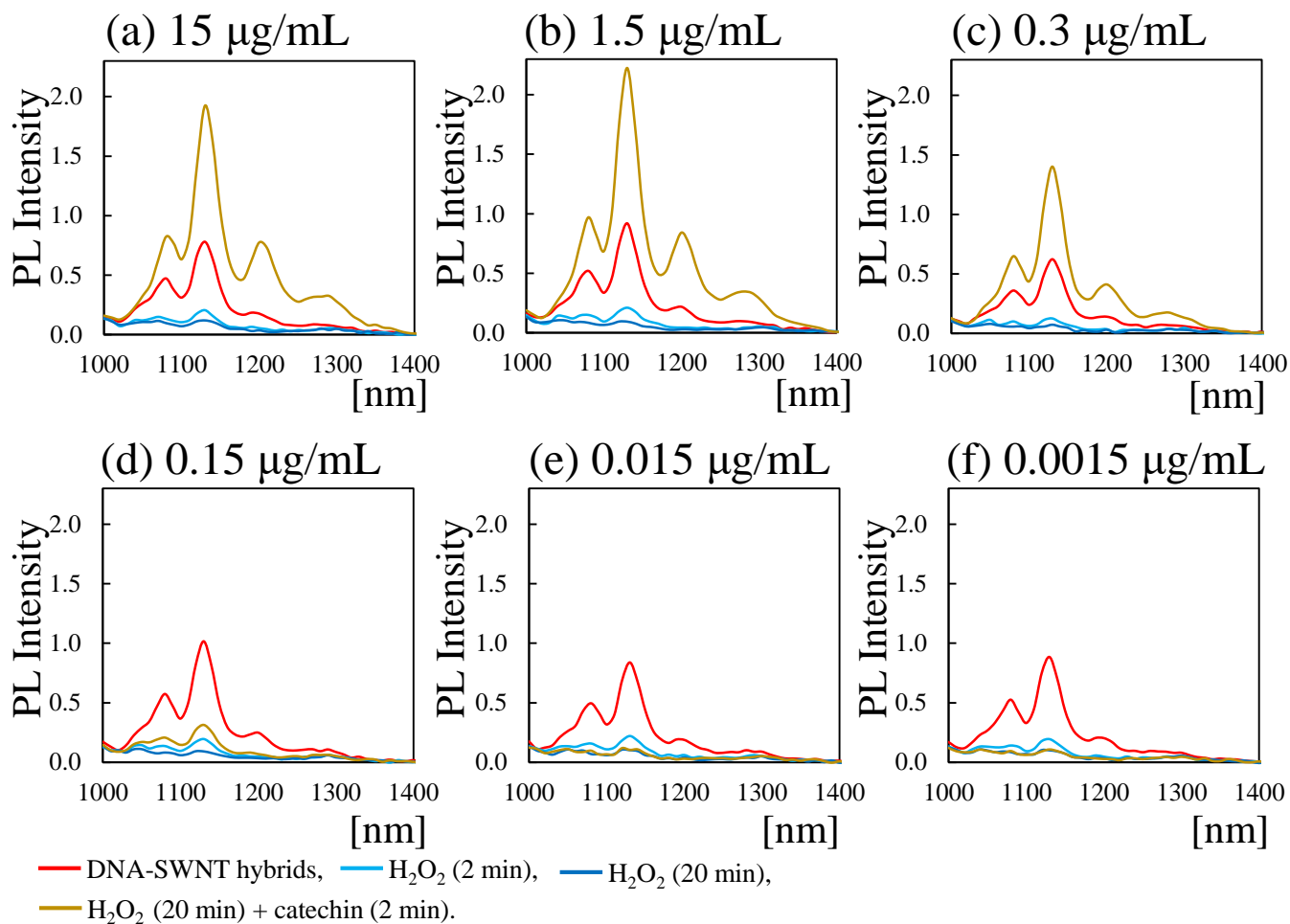


Figure S2. NIR PL spectra of DNA-SWNT hybrids in the presence or absence of catechin. Excitation wavelength was 730 nm. Catechin concentration ranged from 0 to 15 $\mu\text{g/mL}$. (a) 15 $\mu\text{g/mL}$, (b) 1.5 $\mu\text{g/mL}$, (c) 0.3 $\mu\text{g/mL}$, (d) 0.15 $\mu\text{g/mL}$, (e) 0.015 $\mu\text{g/mL}$, (f) 0.0015 $\mu\text{g/mL}$. Red line: initial DNA-SWNT suspension without adding H_2O_2 and catechin. Sky blue line: oxidized with 0.03% H_2O_2 for 2 min. Dark blue line: oxidized with 0.03% H_2O_2 for 20 min. Gold line: incubated with catechin for 2 min after oxidizing with H_2O_2 for 20 min.

Figure S2

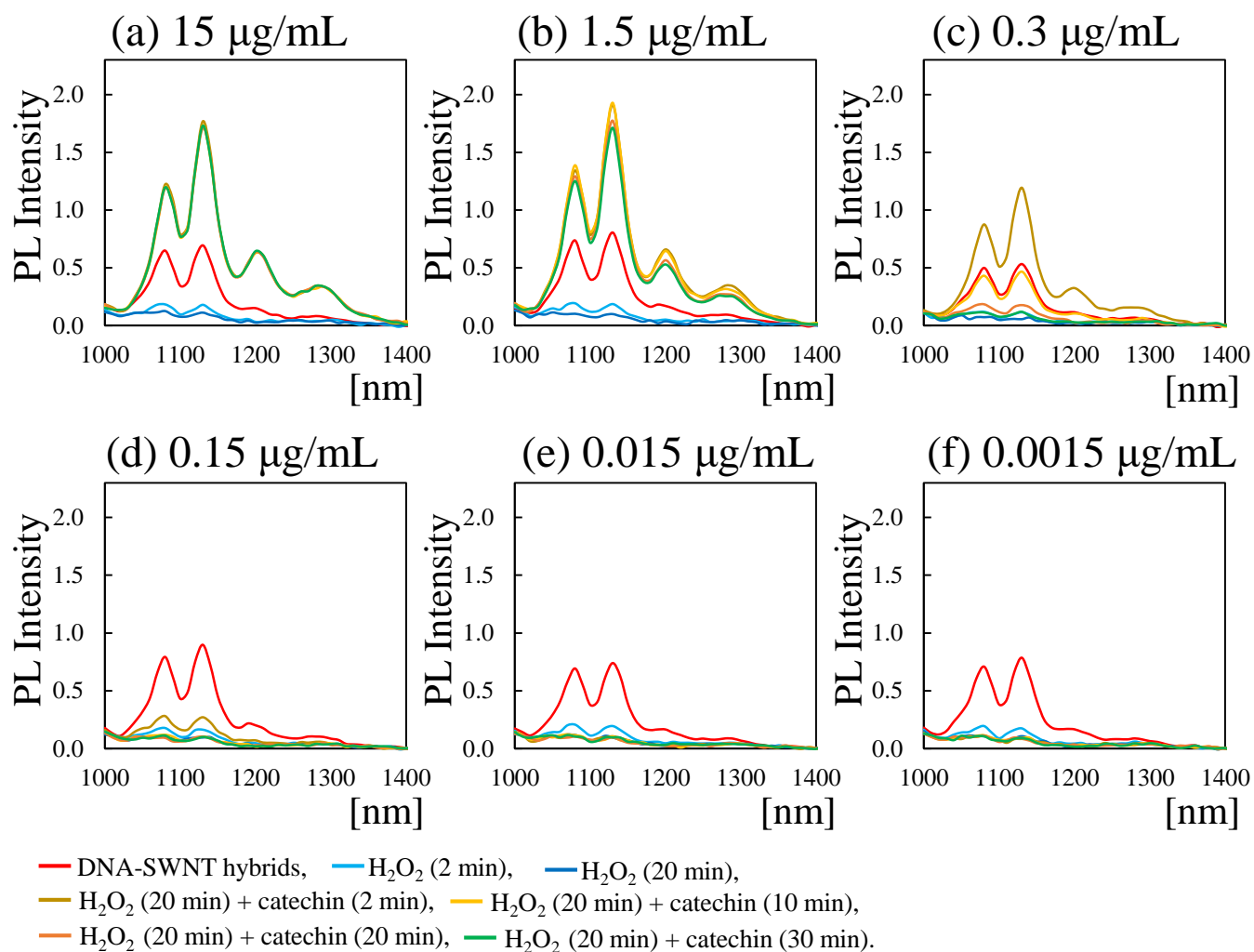


Figure S3. NIR PL spectra of DNA-SWNT hybrids in the presence or absence of catechin. Excitation wavelength was 740 nm. Catechin concentration ranged from 0 to 15 $\mu\text{g/mL}$. (a) 15 $\mu\text{g/mL}$, (b) 1.5 $\mu\text{g/mL}$, (c) 0.3 $\mu\text{g/mL}$, (d) 0.15 $\mu\text{g/mL}$, (e) 0.015 $\mu\text{g/mL}$, (f) 0.0015 $\mu\text{g/mL}$. Red line: initial DNA-SWNT suspension without adding H_2O_2 and catechin. Sky blue line: oxidized with 0.03% H_2O_2 for 2 min. Dark blue line: oxidized with 0.03% H_2O_2 for 20 min. Gold line: incubated with catechin for 2 min after oxidizing with H_2O_2 for 20 min. Yellow line: incubated with catechin for 10 min after oxidizing with H_2O_2 for 20 min. Orange line: incubated with catechin for 20 min after oxidizing with H_2O_2 for 20 min. Green line: incubated with catechin for 30 min after oxidizing with H_2O_2 for 20 min.

Figure S3

Catechin Concentration [mg/mL]		Initial		H ₂ O ₂ , 2 min		H ₂ O ₂ , 20 min		Catechin, 2 min		Catechin, 10 min		Catechin, 20 min		Catechin, 30 min	
15(10, 2)		0.54±0.09	100.0	0.13±0.03	24.7	0.10±0.02	18.5	1.03±0.15	190.7	0.99±0.15	183.3	0.97±0.14	179.6	0.95±0.15	175.9
1.5(10, 2)		0.59±0.12	100.0	0.13±0.03	22.0	0.08±0.01	13.6	1.19±0.17	201.7	1.12±0.19	189.8	1.02±0.17	172.9	0.93±0.18	157.6
0.3(10, 2)		0.47±0.02	100.0	0.11±0.01	23.4	0.07±0.00	14.9	0.89±0.01	189.4	0.46±0.03	97.9	0.20±0.01	42.6	0.13±0.01	27.7
0.15(10, 2)		0.60±0.14	100.0	0.12±0.03	20.0	0.08±0.02	13.3	0.38±0.05	63.3	0.12±0.00	20.0	0.09±0.01	15.0	0.08±0.02	13.3
0.015(10, 2)		0.56±0.12	100.0	0.13±0.04	23.2	0.08±0.02	14.3	0.11±0.04	19.6	0.09±0.02	16.1	0.08±0.01	14.3	0.08±0.02	14.3
0.0015(10, 2)		0.67±0.02	100.0	0.17±0.04	25.4	0.09±0.02	13.4	0.11±0.02	16.4	0.10±0.02	14.9	0.10±0.02	14.9	0.11±0.01	16.4

Table S1. Numerical analysis of NIR PL spectra. Excitation wavelength was 740 nm.

Table S1