

Supporting Information

A profluorescent nitroxide probe for ascorbic acid detection and its application to quantitative analysis of diabetic rat plasma

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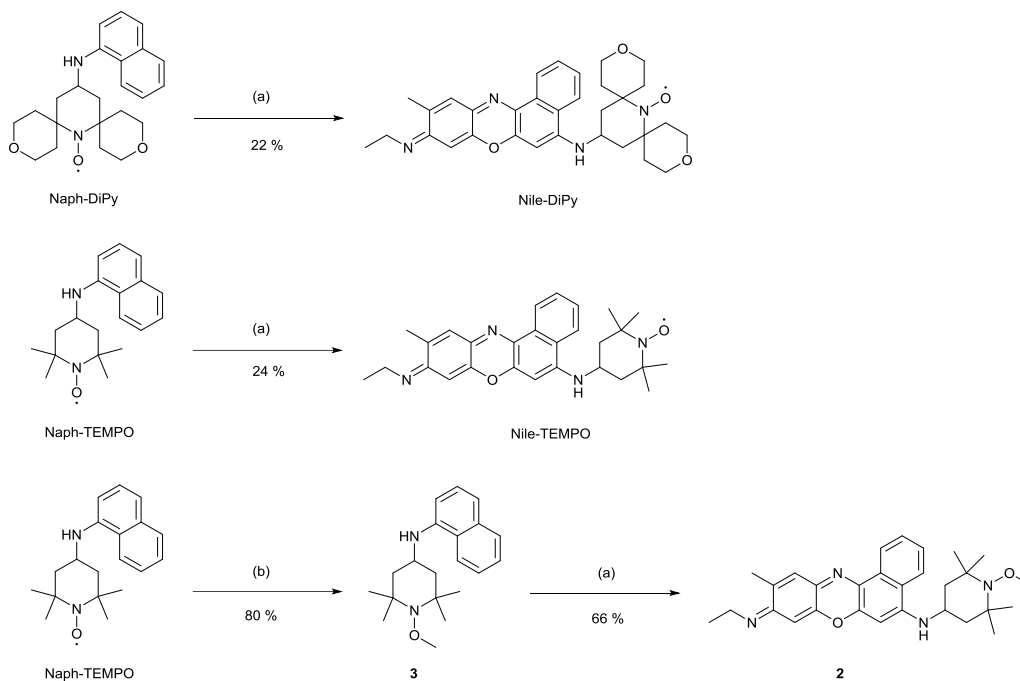
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Supplemental Scheme S1. Synthesis of 2 and Nile-DiPy



Reagents and conditions: (a) 5-(ethylamino)-4-methyl-2-nitrosphenol hydrochloride, NaNO_2 , conc.

HCl, EtOH (b) $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, H_2O_2 , DMSO

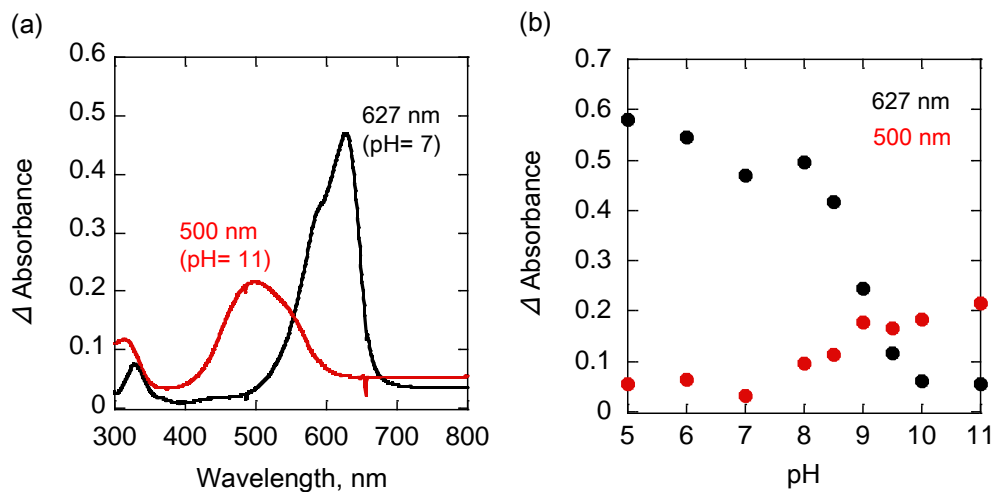


Figure S1. (a) Absorption spectrum in various pH concentration and (b) Dependence on pH of 5 μM Nile-DiPy. Buffer was prepared as following pH solution: pH 5.0, 6.0, 7.0, 8.0, 8.5, 9.0, 9.5, 10, 11.

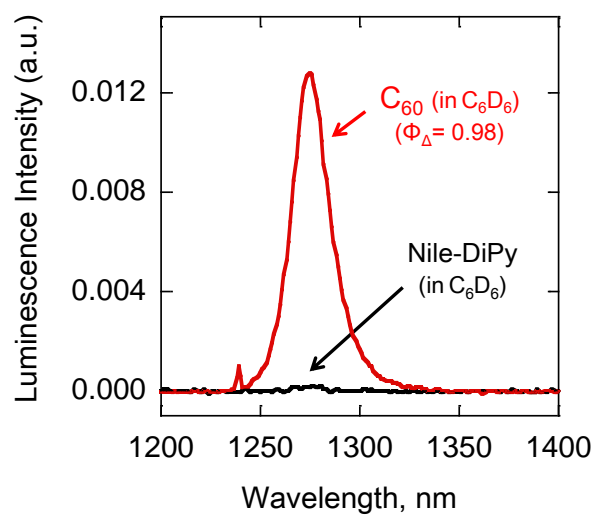


Figure S2. Near-IR phosphorescence spectra of the $^1\text{O}_2$ generated from C_{60} (red) and Nile-DiPy (black) excited at 532 nm in C_6D_6

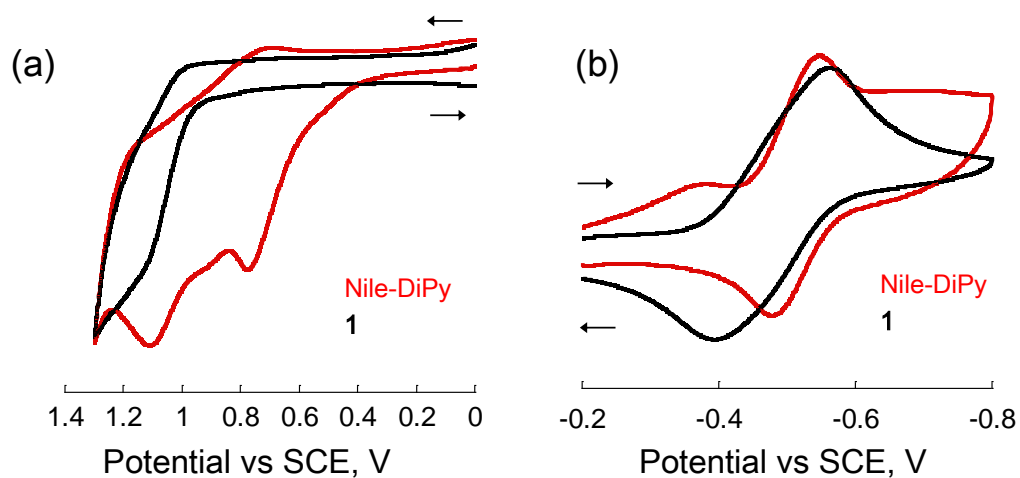


Figure S3. Cyclic voltammograms showing oxidation potential (a) and reduction potential (b) of 0.1 mM Nile-DiPy (red), **1** (black) in MeOH containing 0,10 M TBAPF₆ as a supporting electrolyte

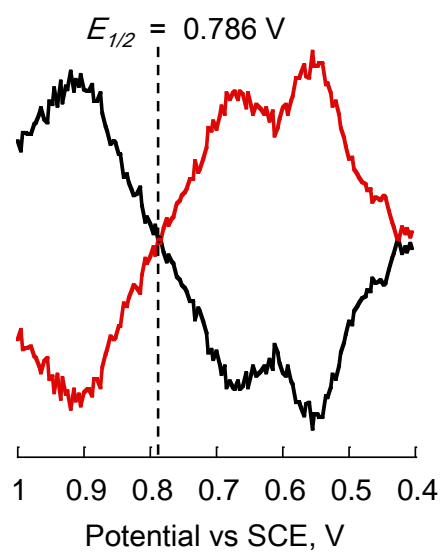


Figure S4. Second-harmonic alternating current voltammograms showing reduction potential of 0.1 mM Nile-DiPy in MeOH containing 0,10 M TBAPF₆ as a supporting electrolyte

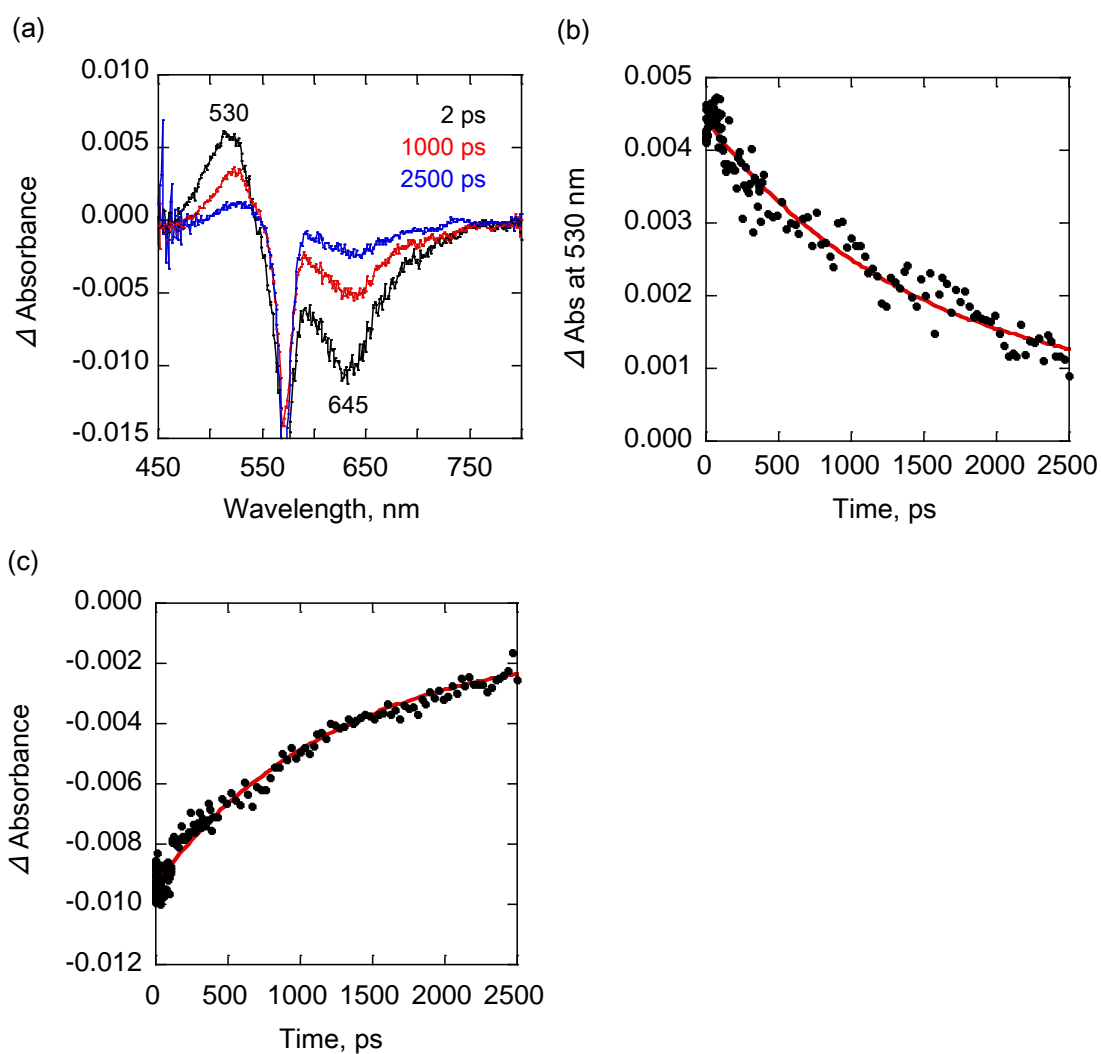


Figure S5. (a) Femtosecond transient absorption spectra of **1** in N_2 -saturated aqueous solution containing 5% (v/v) DMSO at 298 K after 627 nm laser excitation; Time profile of absorbance at (b) 530 nm and (c) 645 nm. Red lines: single-exponential fitting

Table S1. Lifetime of the singlet excited state of Nile Blue derivatives in aqueous solution containing 5% DMSO

compound	Lifetime of the singlet excited state, s ⁻¹
Nile-DiPy	4.9×10 ⁹
Nile-TEMPO	4.5×10 ⁹
1	5.8×10 ⁸
2	5.5×10 ⁸

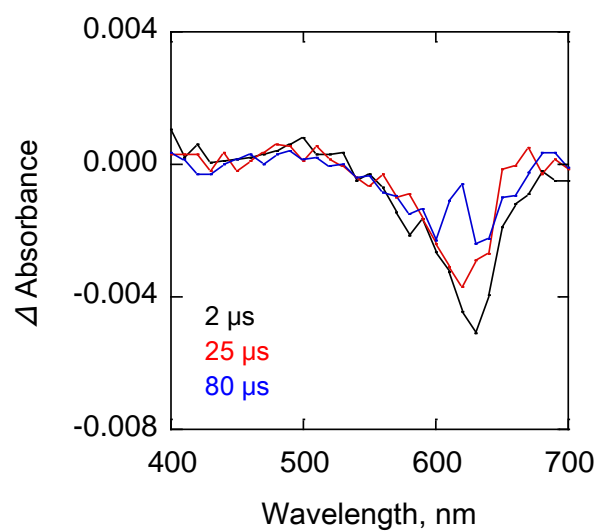


Figure S6. (a) Nanosecond transient absorption spectra of Nile-DiPy in N₂-saturated H₂O at 298 K after 627 nm laser excitation

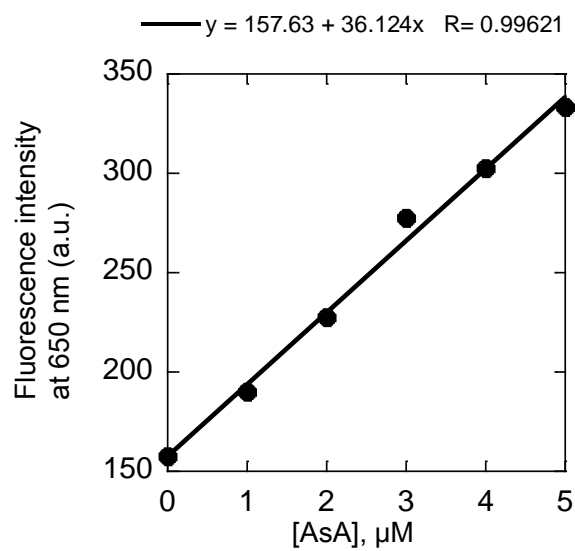


Figure S7. Standard curve constructed using 0, 1, 2, 3, 4 and 5 μ M ascorbic acid and 20 μ M Nile-DiPy