Photoinduced charge separation and charge recombination of fullerene bearing dendritic poly(amidoamine) with carboxylates at the terminal in aqueous media

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Experimental Section

Chemicals. [60] Fullerene (C₆₀) was obtained from MER Corporation, USA (99.5% purity). Aqua purification H₂O was purchased from Aldrich Chemicals (Milwaukee, WI).

Time-resolved Emission and Transient Absorption Measurements. Time-resolved fluorescence spectra were measured by a single-photon counting method using a second harmonic generation (SHG, 400 nm) of a Ti:sapphire laser [Spectra–Physics, Tsunami 3950-L2S, 150 fs full width at half-maximum (fwhm)] and a streak scope (Hamamatsu Photonics, C4334-01) equipped with a polychromator (Action Research, SpectraPro 150) as an excitation source and a detector, respectively.

Nanosecond transient absorption measurements were carried out using SHG (532 nm) of Nd:YAG laser (Spectra-Physics, Quanta-Ray GCR-130, fwhm 6 ns) as an excitation source. For transient absorption spectra in the near-IR region (600-1600 nm), monitoring light from a pulsed Xe lamp was detected with a Ge-avalanche photodiode (Hamamatsu Photonics, B2834). All the samples in a quartz cell (1 x 1 cm) were deaerated by bubbling argon through the solution for 15 min.
Figure S1. Long time-profiles of $\text{C}_6\text{O}^{\cdot-}$ of 0.1 mM (a) $\text{C}_6\text{O}(\text{G1.5-COOK})$ and (b) $\text{C}_6\text{O}(\text{G2.5-COOK})$ at 1020 nm in H$_2$O.
**Figure S2.** Transient absorption spectra at 50 ns (●) and 500 ns (○) observed after the 532-nm laser light irradiation of C_{60}(G1.5-COOK) (0.1 mM) in the presence of MV^{2+} (1 mM) and TEOA (1 mM) in deaerated aqueous solution. Inset: Time profiles at 620 nm and 1020 nm.
Figure S3. Long time-profiles of MV$^{2+}$ of 0.1 mM (a) $C_{60}$(G1.5-COOK) and (b) $C_{60}$(G2.5-COOK) in the presence of MV$^{2+}$ (5 mM) and TEOA (5 mM) in deaerated aqueous solution at 620 nm in H$_2$O.