Supplemental information

Monitoring hydroquinone/quinone redox cycling by single molecule fluorescence spectroscopy

A. Rybina,[a] B. Thaler[b], R. Krämer[b] and D.-P. Herten[a,*]

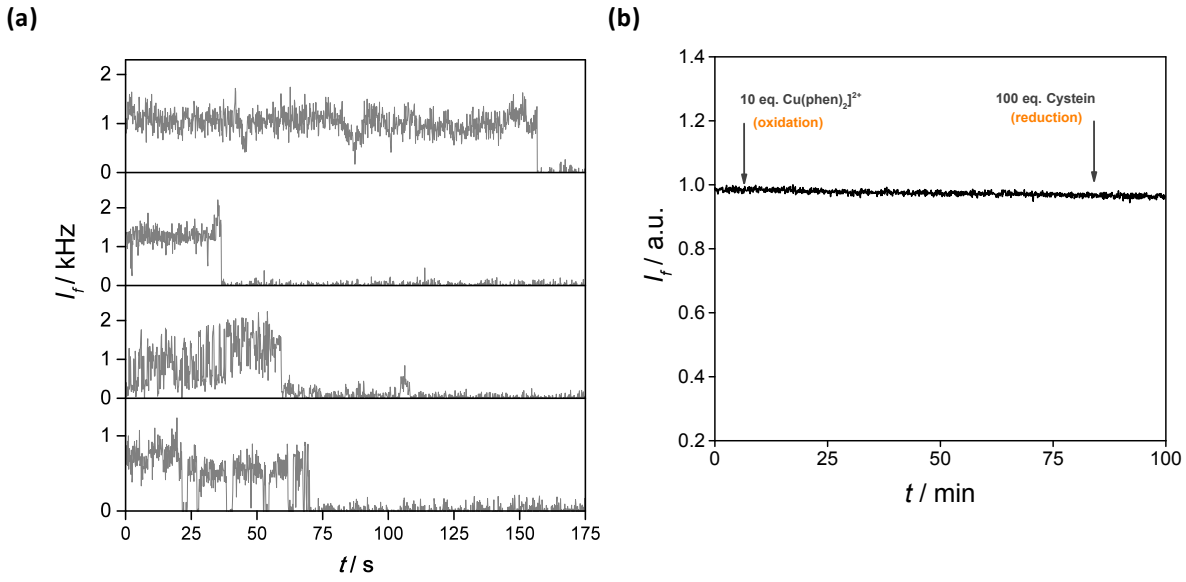

Figure S1 (a) Typical background corrected single-molecule fluorescence trajectories extracted from the experiment with immobilized substrate **4** in 10 mM MOPS buffer (pH=7.4) in absence of $[Cu(phen)_2]^{2+}$ and cysteine , (λex = 532 nm (300 µW), emission: 555 - 615 nm, exposure time: 100 ms, frame rate: 7.4 Hz, RT. (b) Control experiment (bulk) with the bare Rhodamine derivative (R = H) upon successive addition of $[Cu(phen)_2]^{2+}$ and cystein (10 mM MOPS buffer ,pH=7.4, RT).

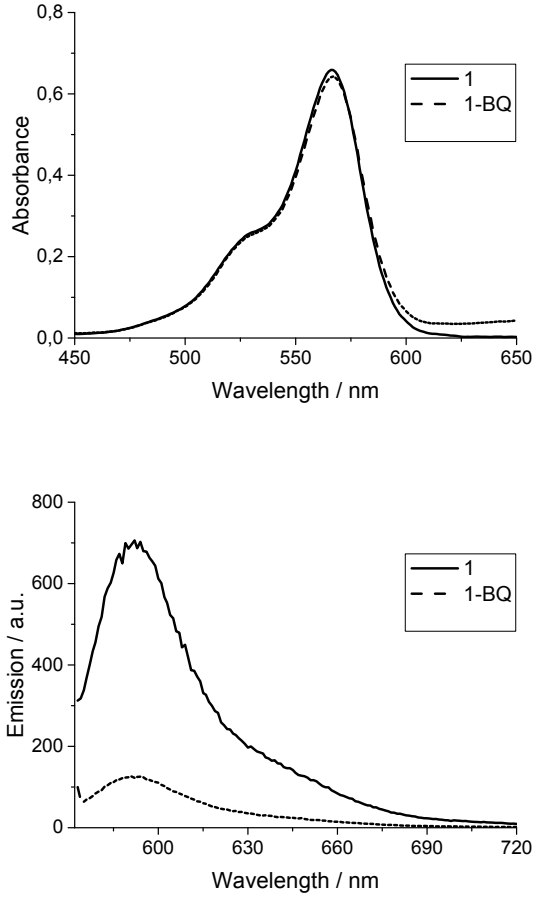

Figure S2 Top: Absorbance spectra of **1** (solid line, 10 μM in water pH 7, buffer 10 mM MOPS) and of **1-BQ** the benzoquinone form of **1** (dashed line), prepared in situ by oxidation with 1 mM $[(phen)_2Cu]^{2+}$ as described in reference [22]. Bottom: Fluorescence spectra of **1** (solid line, 10 μM in water pH 7, buffer 10 mM MOPS) and of **1-BQ**, the benzoquinone form of **1**, prepared in situ by oxidation with 1 mM $[(phen)_2Cu]^{2+}$. λex = 567 nm. Quantum yield of the benzoquinone form **1-BQ** is 0.18 relative to hydroquinone **1**.