Supplemental information

Monitoring hydroquinone/quinone redox cycling by single molecule fluorescence spectroscopy

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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 cysteine (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)$_2$Cu]$^{2+}$ 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)$_2$Cu]$^{2+}$. λex = 567 nm. Quantum yield of the benzoquinone form 1-BQ is 0.18 relative to hydroquinone 1.