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Supporting information for article:

A SAXS based approach to rationally evaluate radical scavengers – toward eliminating radiation damage in solution and crystallographic studies

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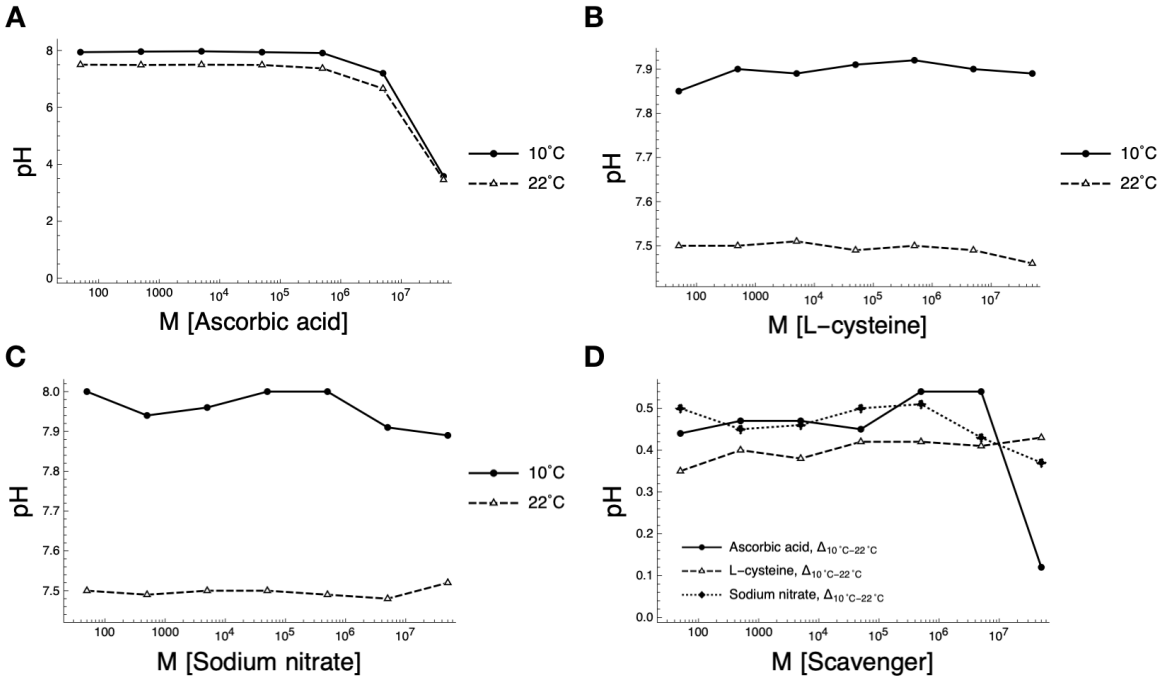

Figure S1 pH values of buffers used with increasing concentrations of (a) ascorbic acid, (b) L-cysteine, and (c) sodium nitrate. pH measurements were taken at 10˚C (solid line) and 22˚C (dotted line). (d) The difference between measurements taken at 10˚C and 22˚C for each concentration of a particular scavenger.

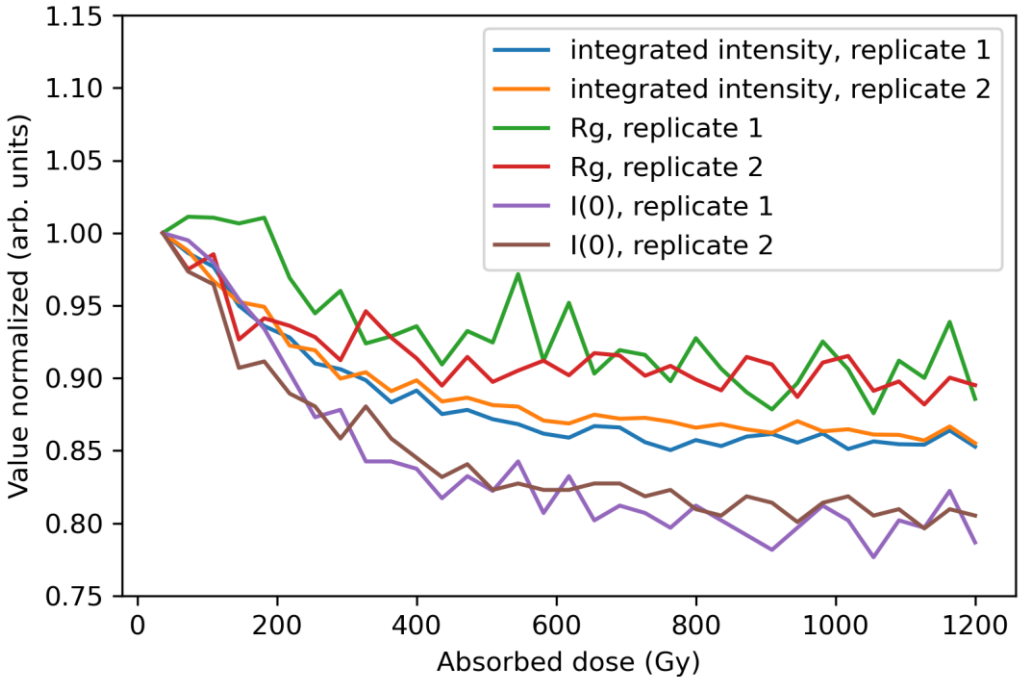

Figure S2 . In the Stachowski et al. (2020) study, two replicates were collected at pH 7.5 and 5.0 mg/ml, close to the conditions reported in this study. The error in integrated intensity is estimated at less than 1% across the dose series and follows a similar dose-dependent decay as I(0) and Rg. Relative changes in integrated intensity provide a proxy for following the fragmentation process.

Table S1 SAXS data collection parameters

Instrument	SIBYLS SAXS Beamline with 2M Detector (Dyer *et al.*, 2014)
Wavelength (Å)	1.216
Camera length (m)	1.4 m
q measurement ($Å^{-1}$)	0.01-0.374
Sample configuration	Static
Temperature	10°C

Table S2 Parameters for X-ray diffraction weighted dose calculations for SAXS experiments using RADDOSE-3D

Unattenuated flux (ph/s)	$1.13x10^{12}$
Sample container window (μm)	20
Sample container material	mica
Attenuation by sample container (%)	12
Beam type	Top-hat
Beam area (mm^2)	3.4
Energy (keV)	10.2