



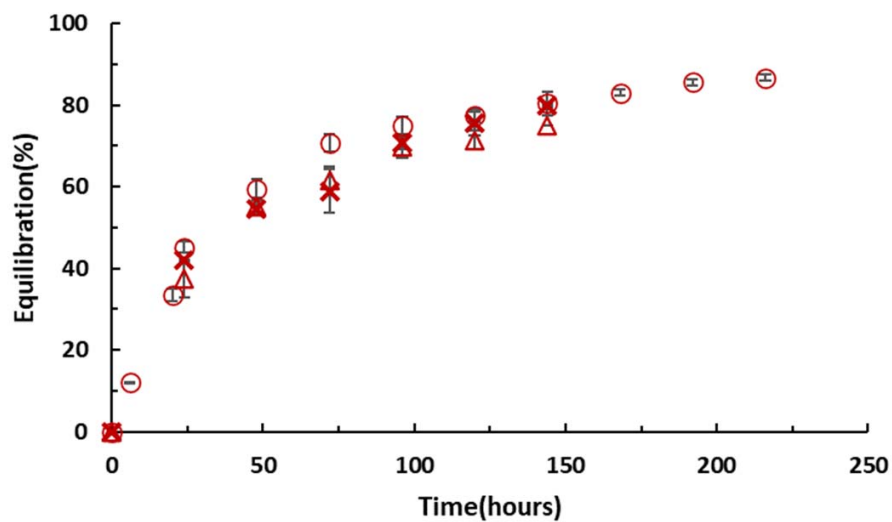
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**Supporting information for article:**

**Equilibration of precipitants in a counter diffusion apparatus for protein crystallization**

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**S1. Effect of membrane molecular weight cut off (MWCO) on equilibration rate of PEG 8000**

**Figure S1.1.** Equilibration as a function of time using membrane MWCO of 8 to 10kDa ( $\Delta$ ), 12kDa ( $\circ$ ), 20kDa ( $\times$ ) for PEG 8000 at room temperature in the horizontal orientation.

**S2. Diffusion coefficients of hydrated inorganic cations and anions****Table S2.1** Values of diffusion coefficients of hydrated inorganic cations and anions in water, at T=298.15 °K and infinite dilution. †

Hydrated metal ion	$D (10^{-10} \text{ m}^2 \cdot \text{s}^{-1})$	Hydrated anion	$D (10^{-10} \text{ m}^2 \cdot \text{s}^{-1})$
$\text{K}^+$	19.57	$\text{OH}^-$	52.7
$\text{Li}^+$	10.29	$\text{Cl}^-$	20.3
$\text{Na}^+$	13.34	$\text{PO}_4^{3-}$	6.1
$\text{NH}_4^+$	19.57	$\text{SO}_4^{2-}$	10.7

**Table S2.2** Values of diffusion coefficients of Carboxylic acids in water, at T=298.15 °K and infinite dilution. †

Carboxylic acids	$D (10^{-10} \text{ m}^2 \cdot \text{s}^{-1})$
Malonate <sup>2-</sup>	8.45 <sup>a,b</sup>
Tartrate <sup>2-</sup>	7.94 <sup>a,b</sup>

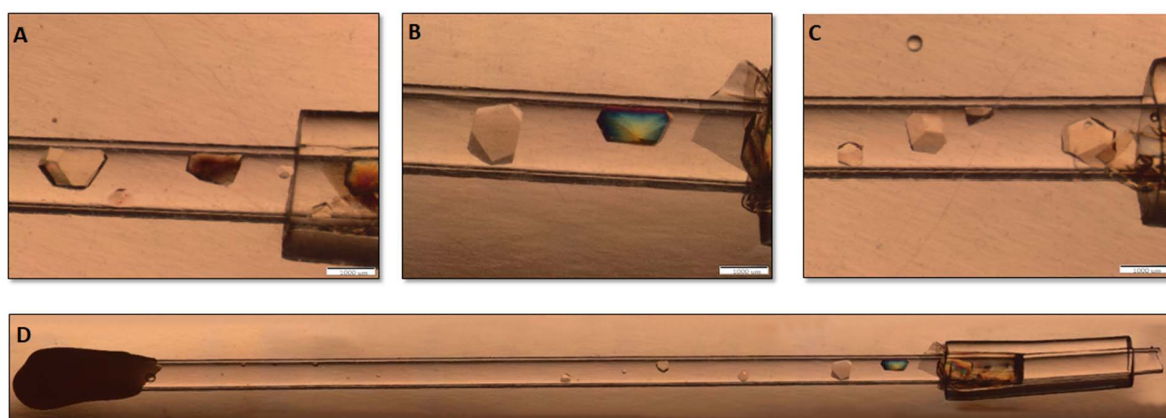
† Henry V. K. (Ed.) *CRC Handbook of Thermophysical and Thermochemical Data*. CRC press Inc. Boca Raton, 1994.

**S3. Measured crystal areas.**

**Table S3.1** Areas of three largest XI crystals observed in each capillary after 28 days incubation at 4 °C using conditions outlined in Table 1. Average area and one standard deviation in each capillary are also tabulated.

Condition	Crystal Area (mm <sup>2</sup> )			Average Area (mm <sup>2</sup> )
40-0	0.61	0.4	0.24	0.42 ± 0.19
	0.44	0.26	0.44	0.38 ± 0.10
	0.76	0.74	0.45	0.65 ± 0.17
	1.22	0.27	0.18	0.56 ± 0.58
	1.27	1.12	0.79	1.06 ± 0.25
40-1	1.66	1.57	1.26	1.50 ± 0.21
	1.73	0.91	0.67	1.10 ± 0.56
	2.03	1.55	1.24	1.61 ± 0.40
	1.36	1.00	0.89	1.08 ± 0.25
	2.84	1.29	1.24	1.79 ± 0.91
40-2	2.07	0.67	0.52	1.09 ± 0.85
	0.84	0.57	0.31	0.57 ± 0.27
	1.19	0.99	0.98	1.05 ± 0.12
	2.23	1.74	1.10	1.69 ± 0.57
	2.05	1.45	0.82	1.44 ± 0.62
60-0	0.83	0.49	0.33	0.55 ± 0.25
	1.96	0.91	0.43	1.10 ± 0.78
	1.47	1.37	1.30	1.38 ± 0.08
	1.88	1.13	0.78	1.26 ± 0.56
	1.52	1.09	0.96	1.19 ± 0.29
60-1	1.97	1.63	1.45	1.68 ± 0.26
	1.22	0.67	0.65	0.84 ± 0.32
	2.99	2.62	1.20	2.27 ± 0.94
	2.44	1.23	1.00	1.56 ± 1.77
	2.45	2.41	1.31	2.06 ± 0.64
60-2	1.93	1.83	1.18	1.64 ± 0.40

1.72	1.65	1.08	$1.48 \pm 0.35$
3.13	2.52	0.84	$2.16 \pm 1.18$
2.29	1.88	1.85	$2.01 \pm 0.24$
2.65	1.11	1.71	$1.82 \pm 0.77$

**S4. Images of the capillaries with crystals.**

**Figure S4.1** Representative image of crystallized XI, with initial protein concentration of 40 mg/ml, incubated at 4°C, (A) without a gel plug (B) with a 1 cm gel plug (C) with a 2 cm gel plug and (D) a representative image of the entire capillary with a 1 cm gel plug. The white scale in A to C is 1mm.