

Supplemental Files

Functional and Conformational Plasticity of an Animal Group 1 LEA Protein

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Table S1: Both A/LEA1 elution fractions display a tendency to elute a lower sodium concentration with increasing amounts of protein loaded.

Elution Peak 1		Elution Peak 2	
Elution Peak Volume (ml)	Peak Height (amu)	Elution Peak Volume (ml)	Peak Height (amu)
30.52	19.14	34.69	45.45
30.49	16.98	34.69	44.90
30.37	21.63	34.56	47.88
30.33	19.44	34.47	50.19
30.09	23.92	34.45	50.10
30.09	23.92	34.45	50.10
30.04	23.92	34.44	50.09
29.75	24.16	34.02	59.06

Figure S1

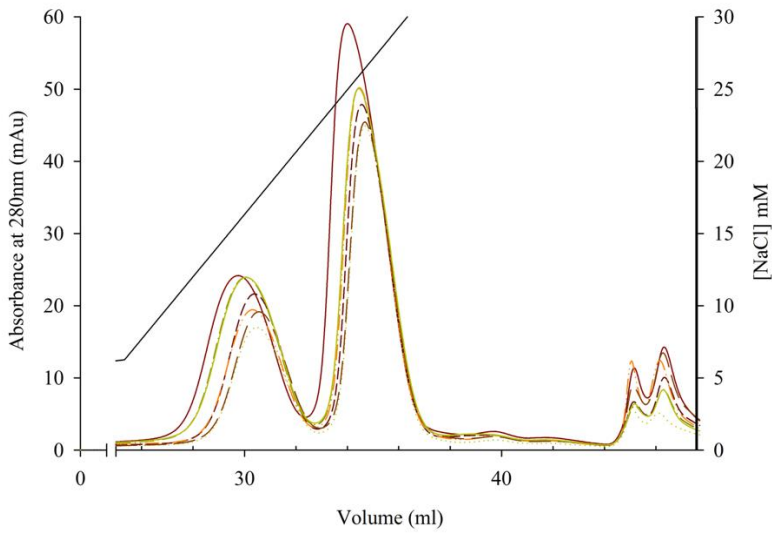


Figure S1: The elution maxima (retention time) of *AfLEA1* tends to correlate with the amount of loaded protein (peak height). The concentration of *AfLEA1* used on the column negatively correlates with the NaCl concentration required to reach peak elution. Both major elution fractions display a shift of the elution maximum to the left with increasing loading of *AfLEA1* onto the column (c.f., Supp. Tab. 1).

Figure S2

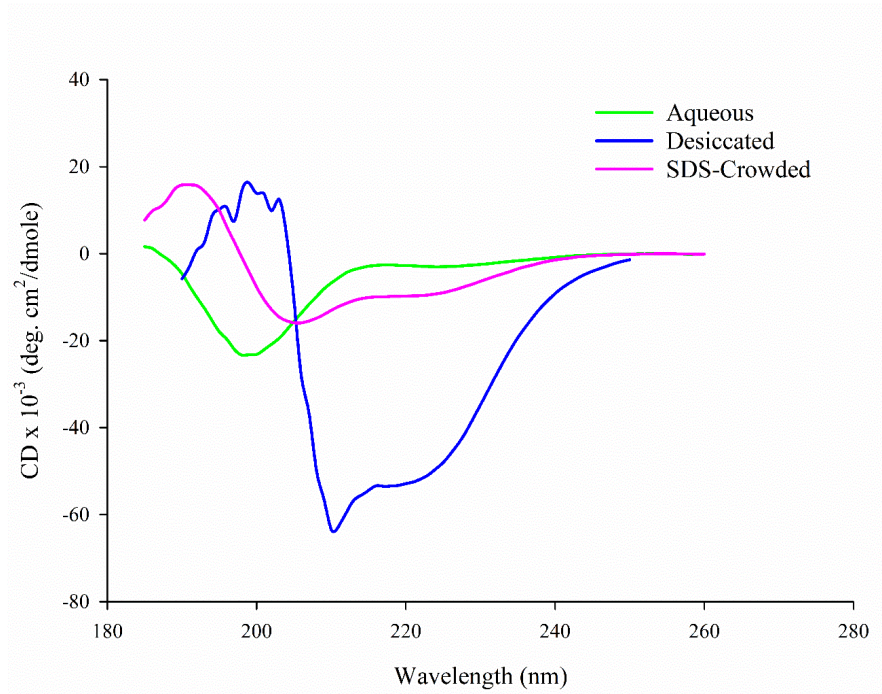


Figure S2: The CD spectra of AfLEA1 measured in solution (green), in the desiccated state (blue), and when crowded via 2% v/v SDS (magenta). Relevant buffer samples were subtracted from the spectra for hydrated protein samples, whereas an empty cuvette was measured as a blank for the desiccated sample.

Figure S3

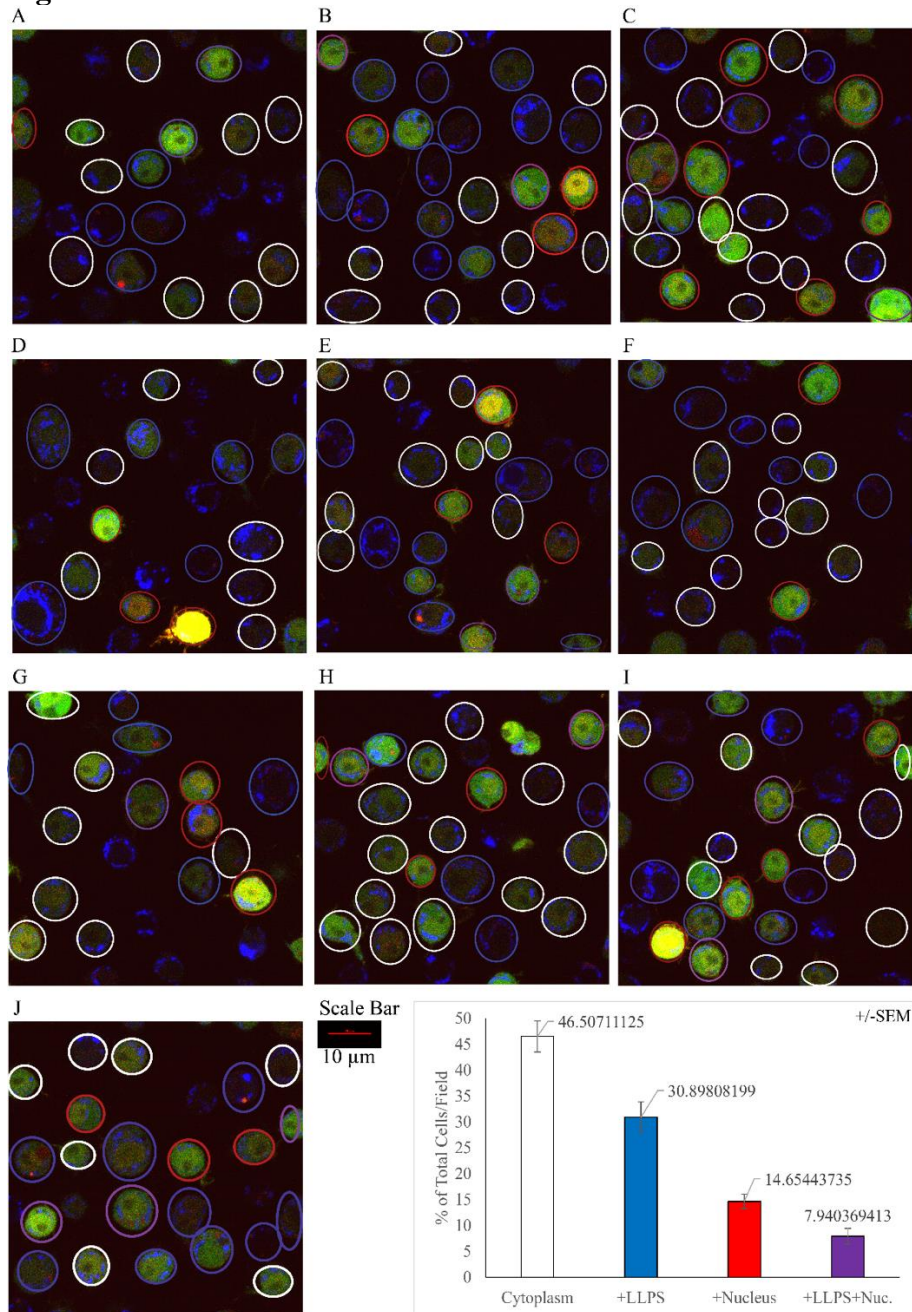


Figure S3: Relative frequencies of unique morphologies observed in Kc167 *Drosophila melanogaster* cells ectopically expressing AfLEA1-mCherry (A-J). AfLEA1-mCherry was found to localize to the cytosol in all cells, with ~46% of cells (white circles) showing no other localizations. In addition to remaining in the cytosol, AfLEA1-mCherry was observed in ~30% of cells (blue circles) to undergo a liquid-liquid phase separation (LLPS) without entering the nucleus. AfLEA1-mCherry was also observed in ~15% of cells (red circles) not to show any visible

LLPS, and instead, the protein accumulated in the nucleus. Lastly, ~8% of Kc167 cells (purple circles) showed both LLPS of *A/LEA1*-mCherry and accumulation of the protein in the nucleus. A total of 204 cells were qualitatively assessed. Cells with no detectible *A/LEA1*-mCherry fluorescence were not included in the evaluation. Fluorescence is relative among images.