

## SUPPORTING INFORMATION

### **NAD<sup>+</sup> Promotes Assembly of the Active Tetramer of Aldehyde Dehydrogenase 7A1**

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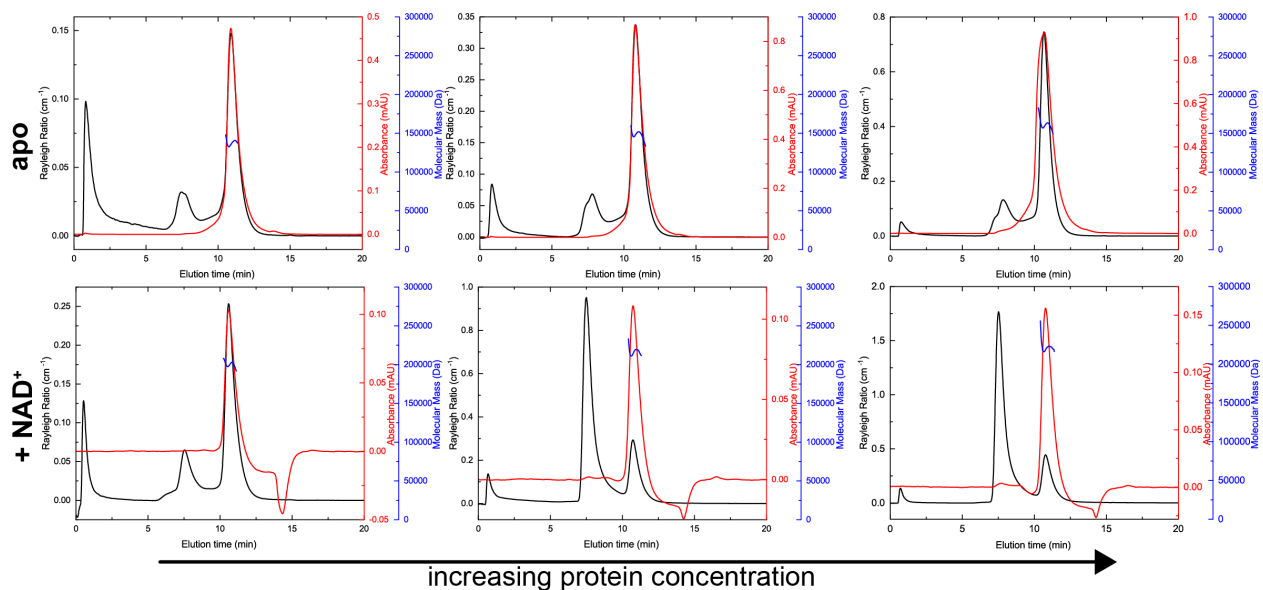
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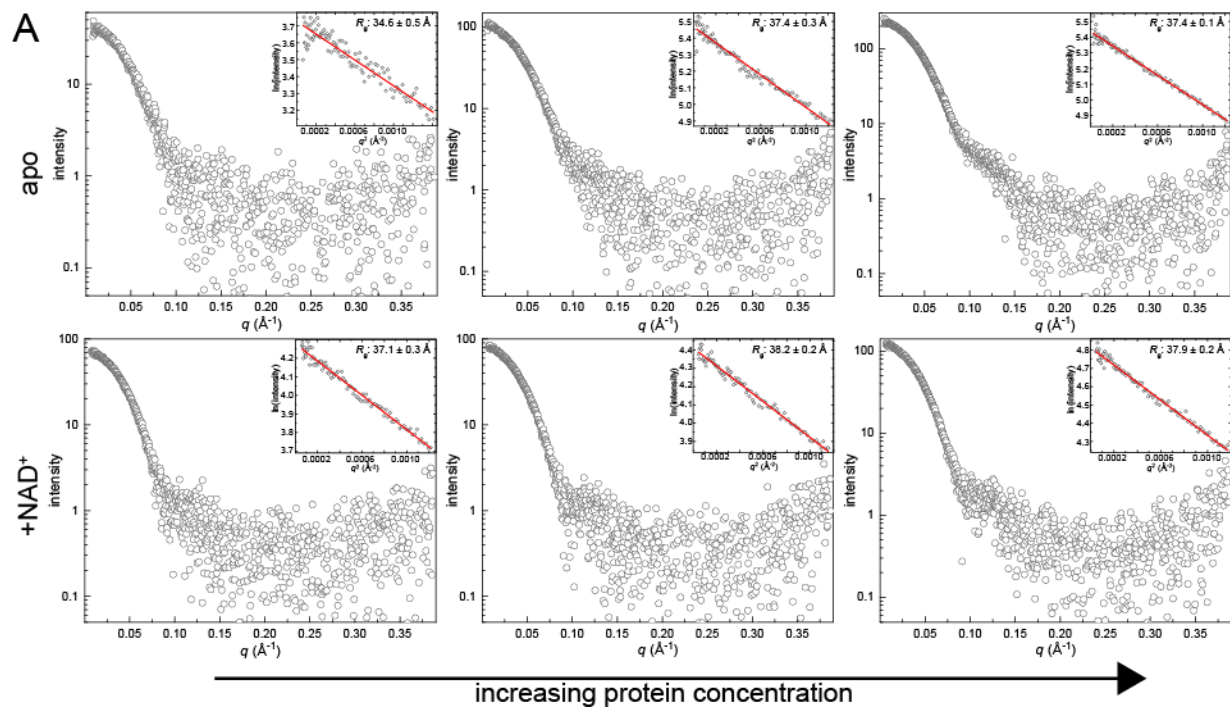
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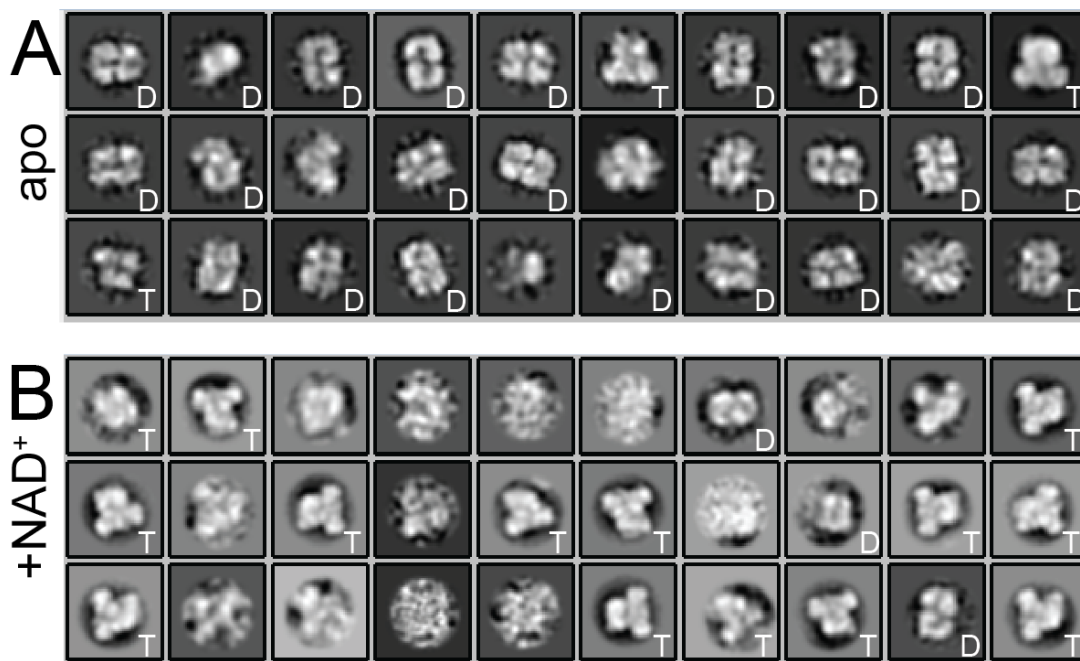
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**Fig. S1.** SEC-MALS experimental data. The panels show the experimental SEC-MALS data collected from apo ALDH7A1 (top) and ALDH7A1 incubated with 1 mM  $\text{NAD}^+$  (bottom). Each plot depicts light scattering data from  $90^\circ$  (black), UV absorbance data (red), and the molecular mass from MALS from the analyzed peak. We note the peak at elution time  $\sim 7.5$  min corresponds to the void volume of the column.



**Fig. S2.** Experimental SEC-SAXS data and Guinier plots. The panels show the entire  $q$ -range of data collected from apo ALDH7A1 (top) and ALDH7A1 incubated with 1 mM NAD<sup>+</sup> (bottom). The inset shows the Guinier plot for each dataset.



**Fig. S3.** Negative-stain EM of ALDH7A1 using an alternative particle picking strategy. (A) Two-dimensional class averages for apo ALDH7A1 at 90 nM autopicked using the template particles obtained from the  $\text{NAD}^+$  treated sample. (B) Two-dimensional class averages for 90 nM ALDH7A1 in the presence of 1 mM  $\text{NAD}^+$  autopicked using the template particles obtained from the apo sample. The letters 'D' or 'T' in the inset of each class average indicate classes that visually resemble the dimer or tetramer, respectively. Classes that lack a letter in the inset were not clearly dimeric or tetrameric.