SUPPLEMENTARY INFORMATION

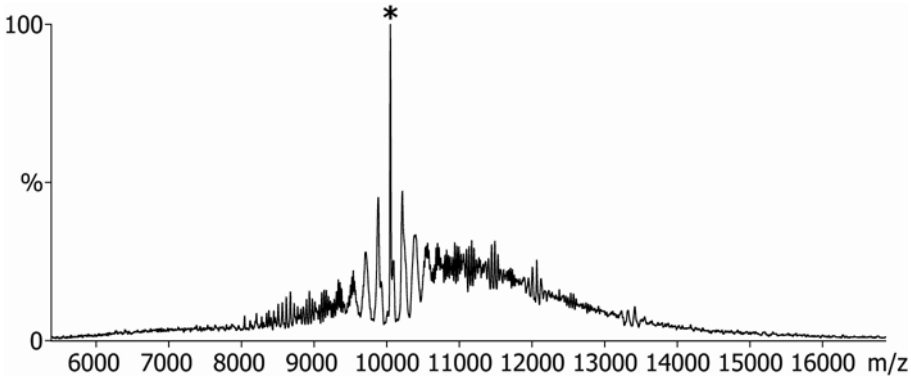

Figure S1: NanoESI mass spectrum of αB_R. Signal is observed between 7000 and 16000 m/z, with the most intense peaks at around 10000 m/z. These peaks are not due to a charge state series of a single oligomer, but rather the overlap of several such series from different sized oligomers. The peak marked with an asterisk at 10080 m/z corresponds to all oligomers carrying twice as many charges as subunits. This peak was isolated in the quadrupole region of the instrument for subsequent collision-induced dissociation experiments.

αA			**αB**		
Protein	Even/Odd	Turning point (eV)	Protein	Even/Odd	Turning point (eV)
αA	Even	6535**	αB	Even	8093**
αA	Odd	5890	αB	Odd	7390
αA_R	Even	6157	αB_R	Even	6936
αA_R	Odd	6068	αB_R	Odd	7003

** >2 standard deviations from the mean

Table S1 : Average initial kinetic energy turning points (c.f. Fig 3B) for the dissociation of a second monomer from α-crystallin parent oligomers. The even oligomers of both αA and αB undergo their second dissociation step at a higher energy than their odd, and *in vitro* refolded counterparts, indicating their different substructure.