Supplemental Information

Regulatory Role of Serine59 in the Oligomeric Dynamics and Chaperone Function of αB-Crystallin

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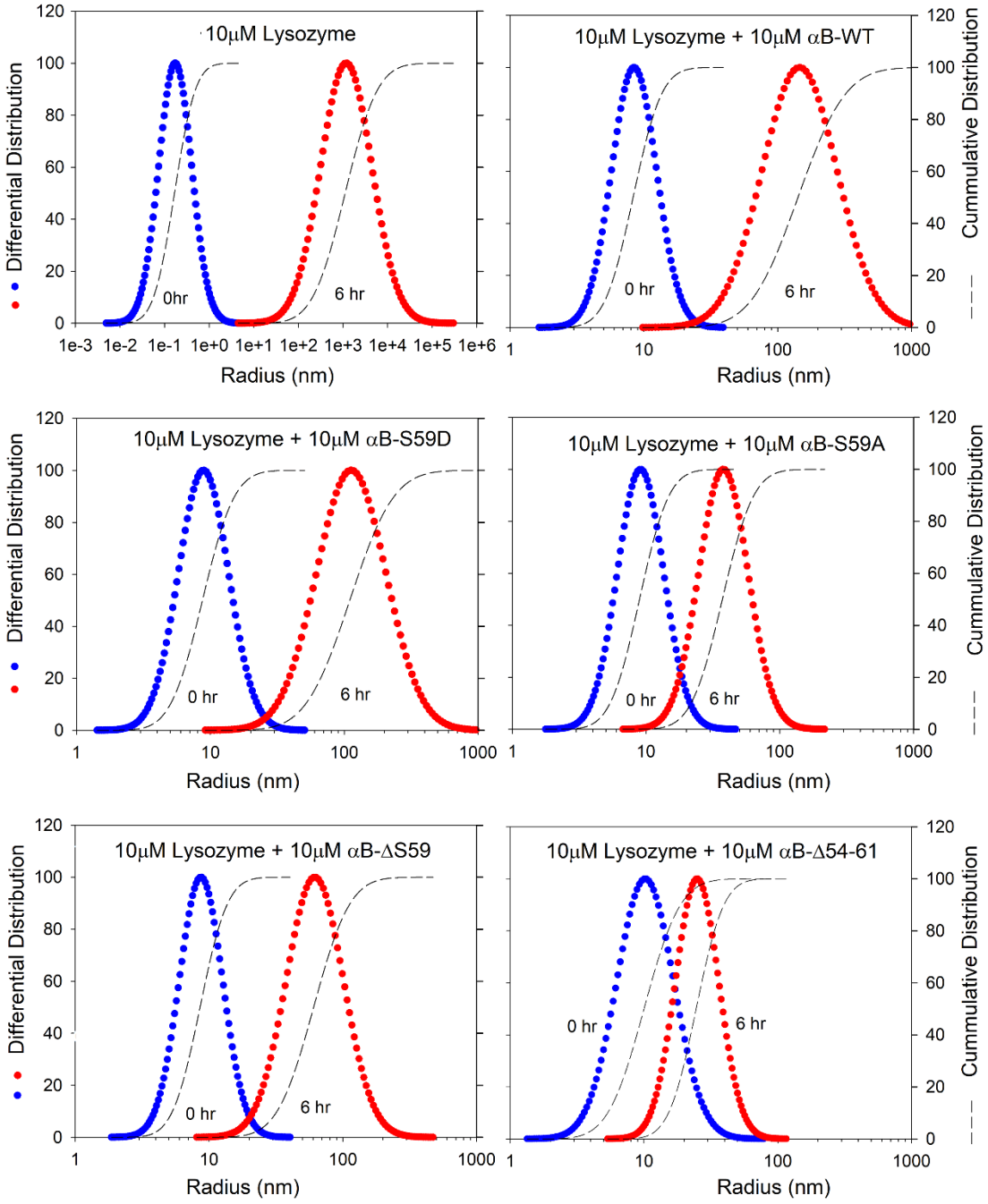

Figure 1S. Dynamic light scattering analysis of lysozyme and αB-WT and its mutants - The graph shows the radius (nm) of chaperone-substrate complexes formed between lysozyme and αB-WT or its mutants at 0 hours (blue) and 6 hours (red). The data represent the differential distribution of particle sizes at these time points, highlighting the changes in complex size over the incubation period. Additionally, the cumulative distribution of the particle sizes is represented by dotted

lines, providing an overview of the overall size distribution and the extent of aggregation at 0 and 6 hours. The analysis demonstrates how the interaction of lysozyme with αB-WT and its mutants influences the formation and size of chaperone-substrate complexes over time. The broader peak indicates the presence of more polydisperse complexes, suggesting a heterogeneous population of particle sizes and a greater variation in complex formation. This typically reflects the formation of multiple oligomeric species or the aggregation of partially unfolded substrates. In contrast, the narrow peak represents more monodisperse complexes, indicating a homogeneous population of particles with consistent size, suggesting the formation of uniform and stable chaperone-substrate complexes with minimal aggregation.