

Supporting information for:

HUMAN CYSTATIN C INDUCES DISAGREGATION PROCESS OF SELECTED AMYLOID BETA PEPTIDES – A STRUCTURAL AND KINETIC VIEW

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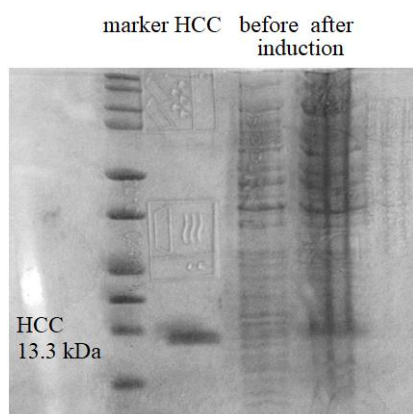
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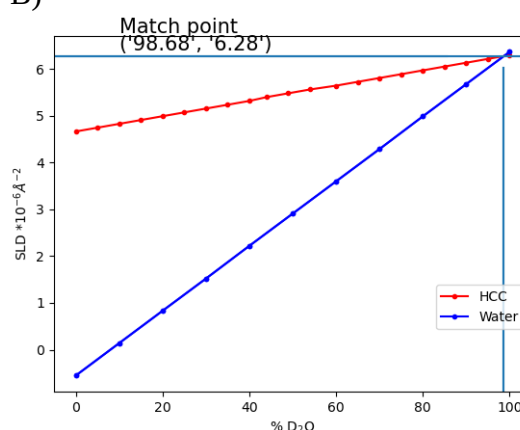
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A)



B)



C)

sample	Observed mass (Da)	Expected mass (Da)	Mass deviation (Da)	Mass accuracy (ppm)	interpretation
D-Human Cystatin C	13898 Da	H: 13347.18; D-protein in H ₂ O 14044.53	-	-	Using the following formula %D (H ₂ O)=100*(M _{exp} H-MHH)/(M _{DH} -MHH), the sample is deuterated at 79%

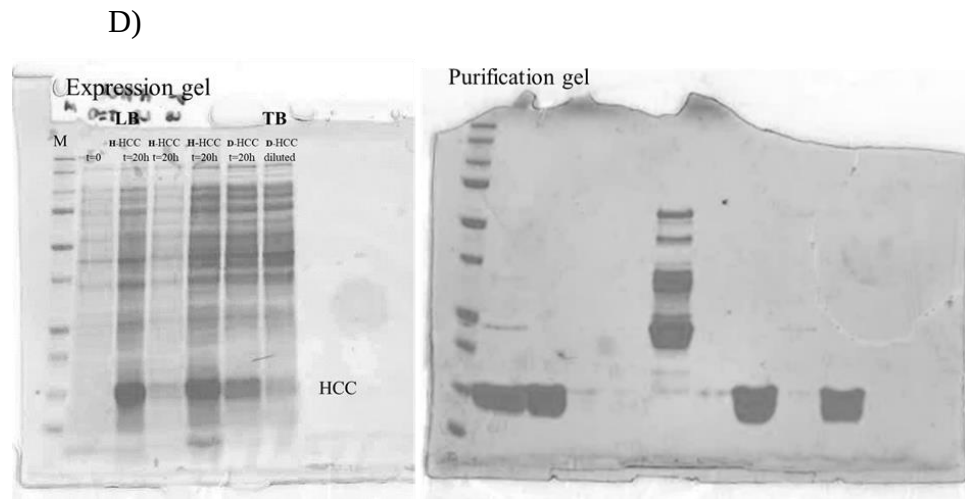


Figure S1. Overexpression of deuterium-labeled Human Cystatin C in LB. A) Overnight growth of bacteria at D₂O media: SDS page analysis of bacteria protein composition before and after induction. As a control pure HCC B) Theoretical contrast match for 79% Deuterated Human Cystatin C (D-HCC) (Biomolecular Scattering Length Density Calculator) C) Mass spectroscopy report indicating the level of deuteration produced D-HCC. D) Original gels from expression and purification.

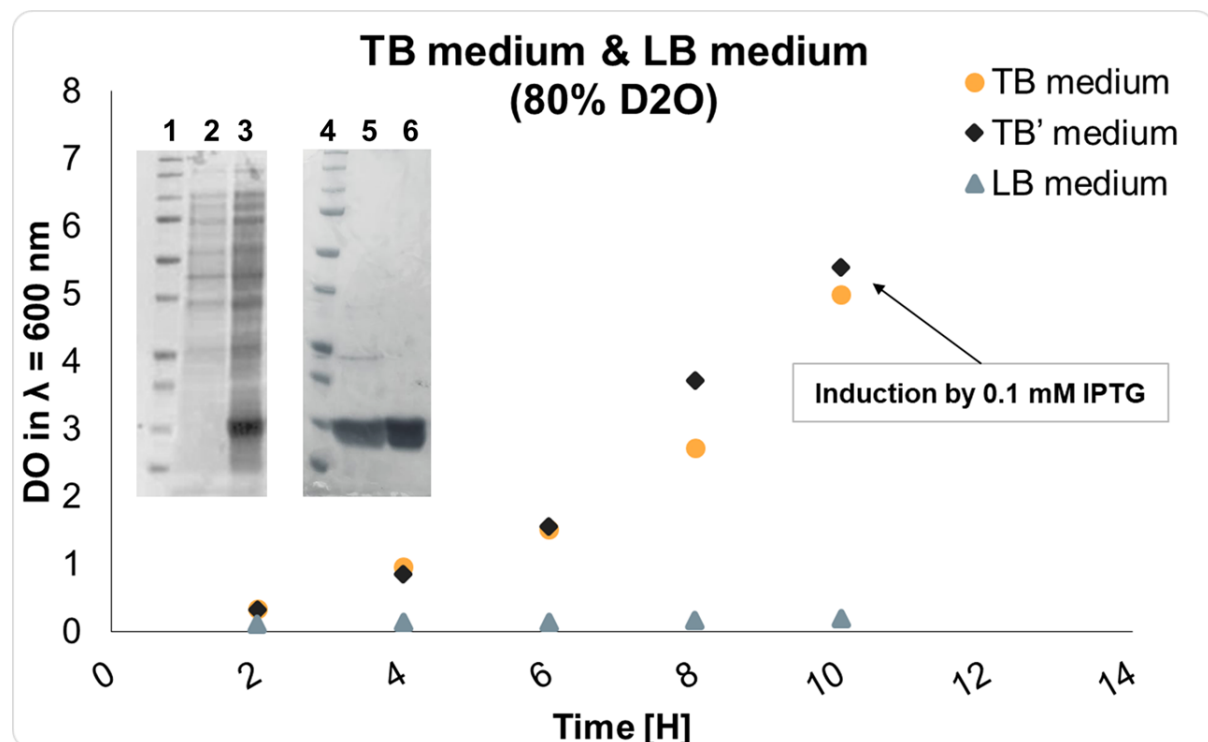


Figure S2. The plot shows a Shuffle T7B cell grows at LB media and TB media. The cells grow much faster in TB medium than in LB. The DO 5 was reached after around 10 hours of growth time at 30 °C. The SDS page analysis: 1) Marker 2) fraction before induction 3) fraction after IPTG induction 4) Fraction after IEX chromatography 5) Pure protein after SEC chromatography

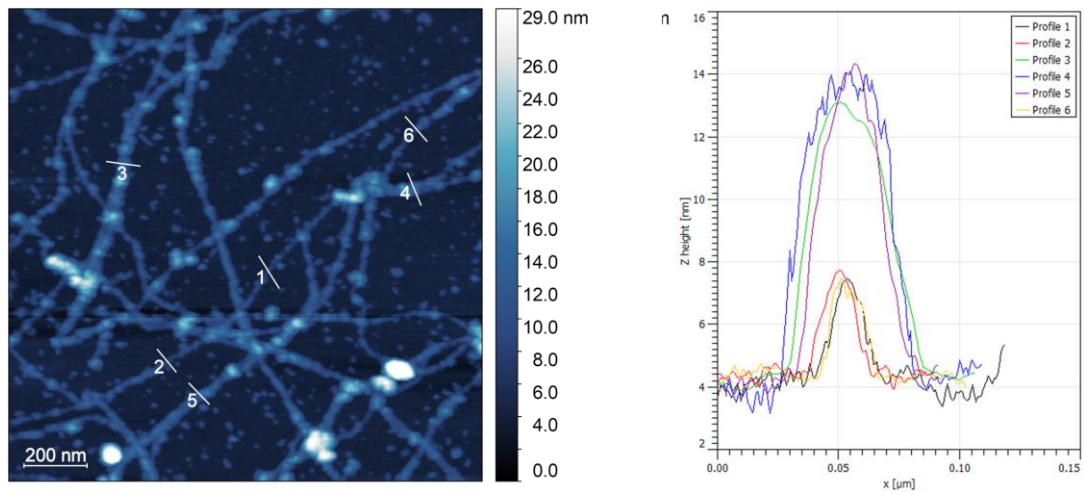


Figure S3. AFM profile of fibrils A β 1-42.

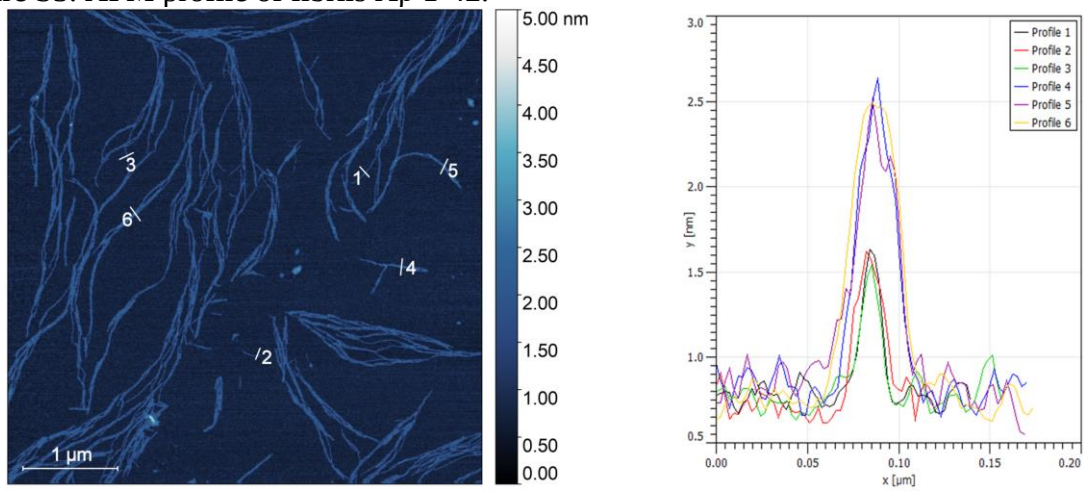


Figure S4. AFM profile of fibrils A β 3-28.

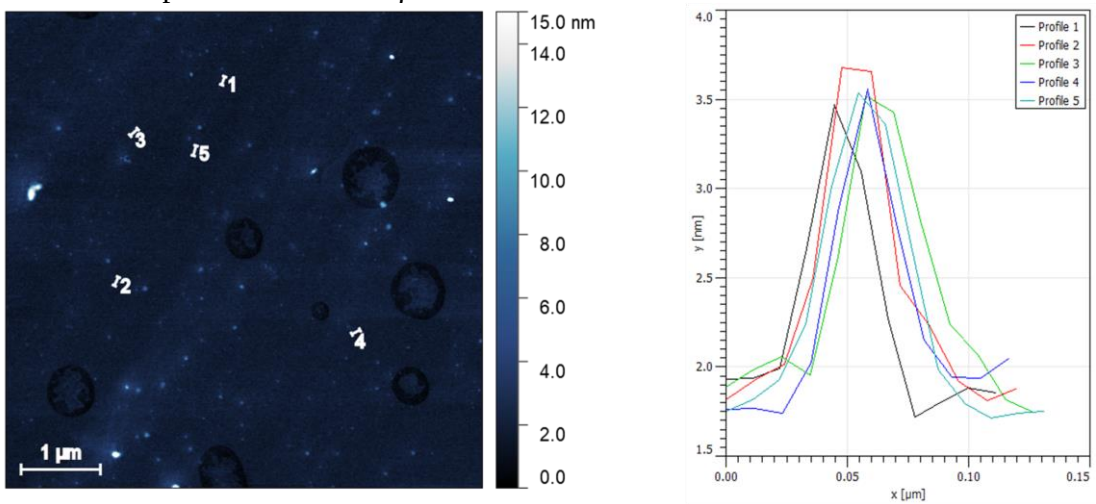


Figure S5. AFM profile of HCC alone.

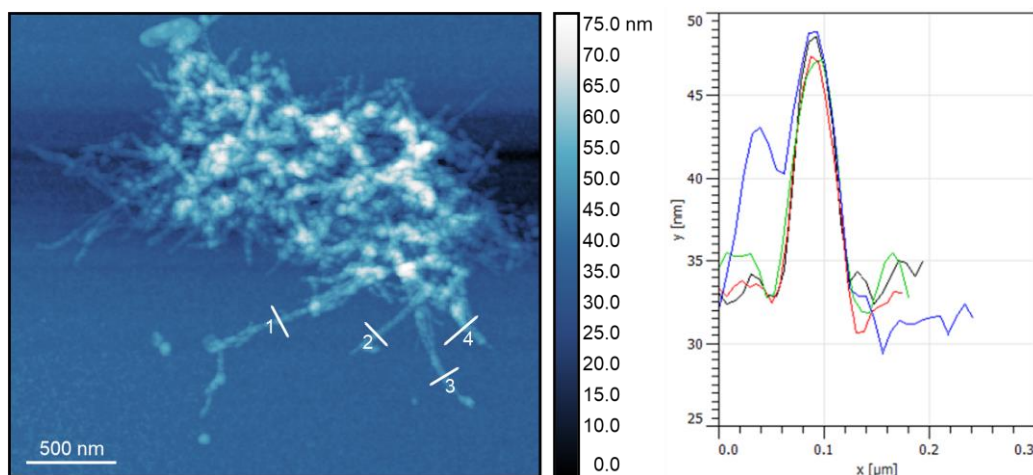


Figure S6. AFM image of Aβ1-42 fibrils in the presence of cystatin and selected profiles.

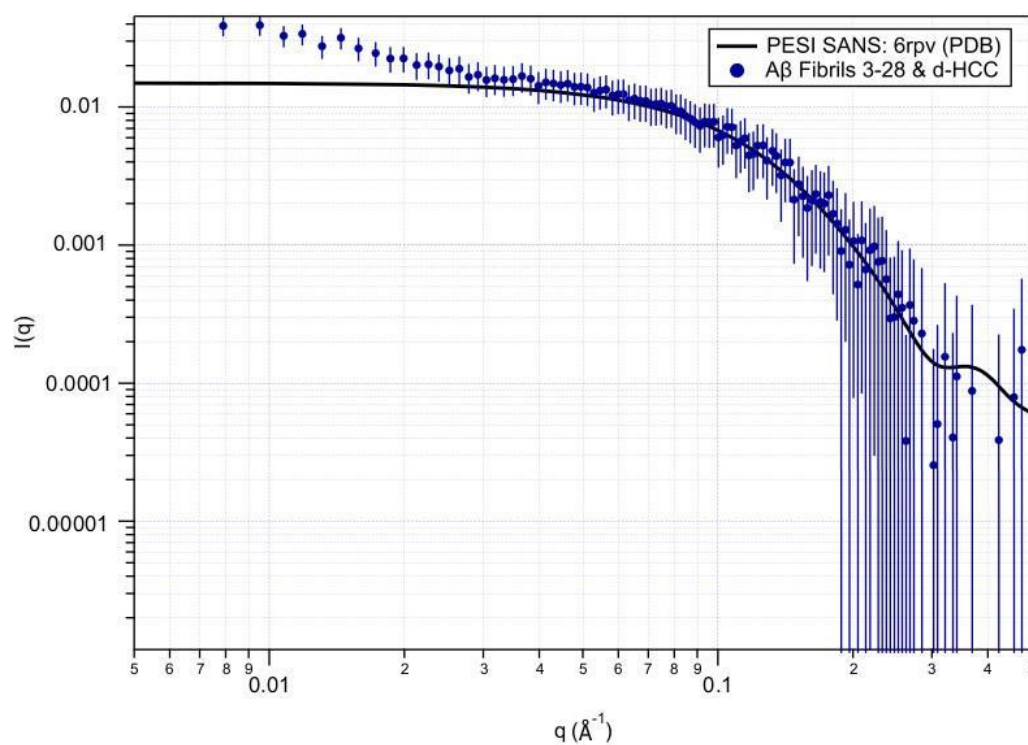


Figure S7. The small-angle neutron scattering curve of 3-28 fibrils (matched out) and D-HCC at 45% D₂O (contrast point for proteins).

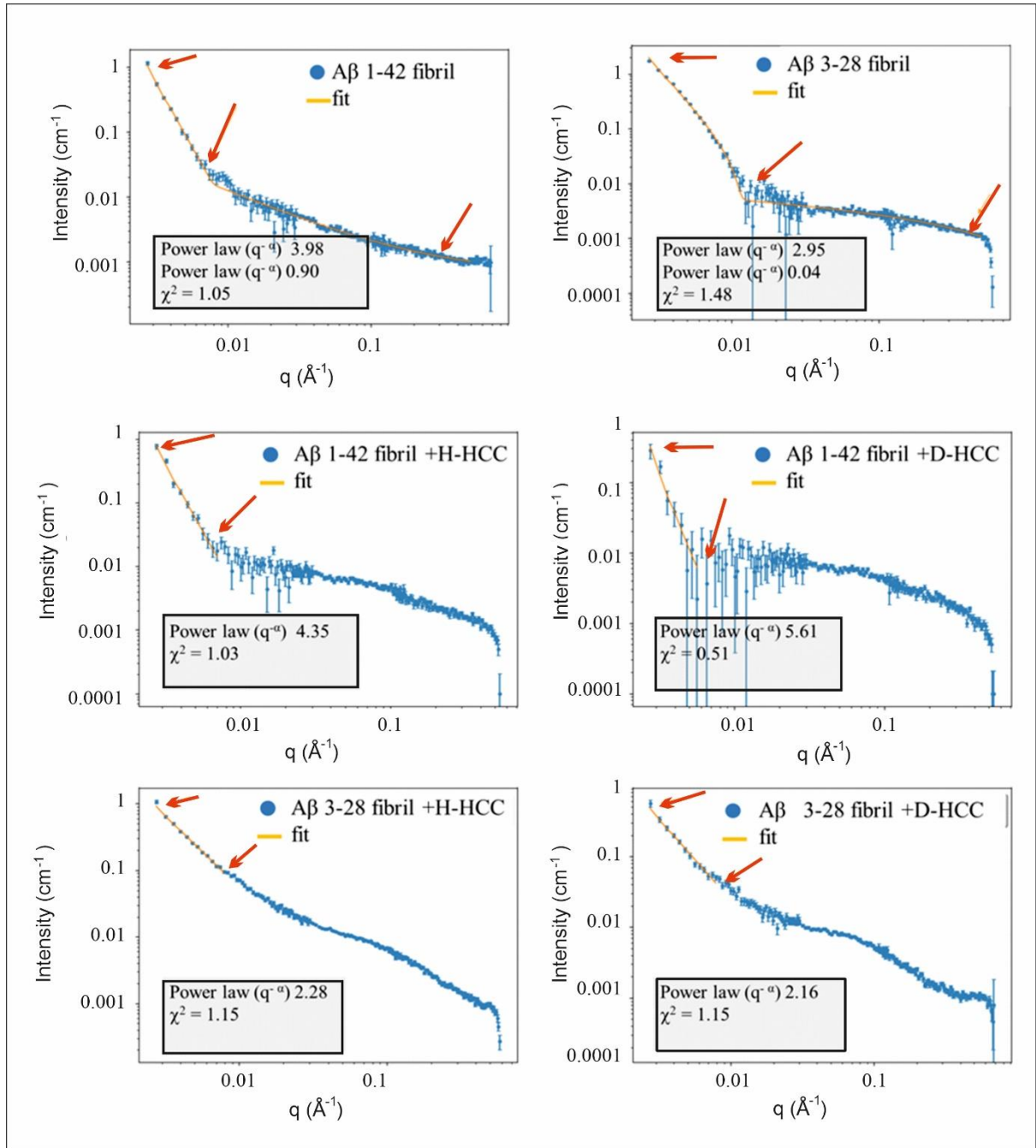


Figure S8. Fitting a slope with power law for small-angle neutron scattering (SANS) experiment curves from amyloid fibrils in presence of H-HCC and D-HCC up: A β 1-42; down: A β 3-28 fibrils

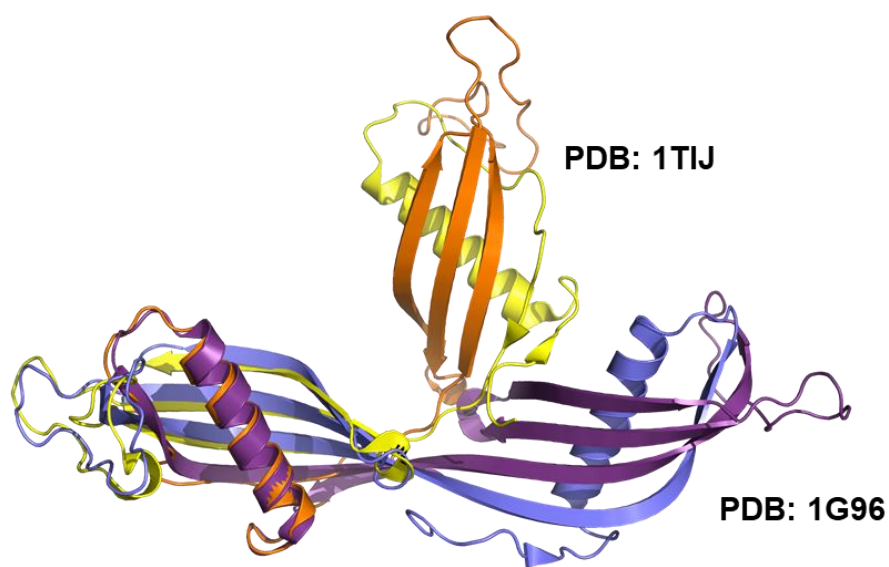


Figure S9. HCC domain swapping structures: superposition of two dimeric structures of HCC. 1TIJ: yellow – chain A, orange – chain B; 1G96: violet – chain A, blue – chain B