SUPPLEMENTARY FIGURES

Figure S1. Kinetics of AS fibrillation in the presence of different seeding conditions. 100 μM AS in buffer A in the absence (blue) and presence of seeds [PcTS[Al(III)]-generated AS fibrils (dark red), sonicated AS fibrils (orange), PcTS-generated AS aggregates (dark yellow), PcTS[Zn(II)]-induced AS aggregates (dark green), and PcTS[Ni(II)]-generated AS aggregates (dark cyan)]. Samples were incubated at 37 ºC under constant stirring. The formation of fibrils was estimated from aliquots (5 μl) taken at different time points by use of the Thioflavin-T fluorescence assay. Aggregation yields were normalized to the final values and the averaged data points were fitted according to ref. 11. No major changes were observed in the rate of aggregation growth (k_{app}) between the seeding experiments using phthalocyanines-generated AS aggregates (k_{app} AS:PcTS = 0.47 +/- 0.05 h^{-1}; k_{app} AS:PcTS[Ni(II)] = 0.46 +/- 0.05 h^{-1}; k_{app} AS: PcTS[Zn(II)] = 0.45 +/- 0.05 h^{-1}; k_{app} AS: PcTS[Al(III)] = 0.50 +/- 0.02 h^{-1}) or sonicated mature AS fibrils (k_{app} = 0.51 +/- 0.03 h^{-1}) and those corresponding to the spontaneous fibril formation of AS (k_{app} = 0.49 +/- 0.01 h^{-1}). In all cases, the reported values correspond to the average of at least five independent aggregation measurements.

Figure S2. Analysis of PcTS[Zn(II)] and PcTS[Ni(II)] binding to different AS variants by NMR. I/I_0 profiles of the backbone amide groups of 100 μM AS (green), Y39A AS (red), and H50A AS (blue) mutants in the presence of 100 μM PcTS[Zn(II)] (A and B). I/I_0 profiles of the backbone amide groups of 100 μM AS (green) and H50A AS (blue) species in the presence of 100 μM PcTS[Ni(II)] (C).

Figure S3. Analysis of the binding of Zn(II) metal ions to AS by NMR. (A) Differences in the mean weighted chemical shifts displacements (MW^{1}H-^{15}NΔCS) of backbone amide groups of AS in the absence and presence of 100 μM (green) or 500 μM (black) Zn(II). Inset represents the I/I_0 profiles of the backbone amide groups of 100 μM AS in the presence of 500 μM Zn(II) metal ions. (B) ^{1}H NMR of aromatic side chains of 1-108 AS in the presence of Zn(II) metal ions. Spectra were registered at 15 ºC in deuterated buffer A of samples containing 100 μM 1-108 AS in the absence and presence of 1.0, 2.5, or 5.0 equivalents of Zn(II).

Figure S4. Fibrillation kinetics of different AS species. AS (black), F4A AS (blue), H50A AS (red), and Y39A AS (green). Aggregation kinetics measurements were performed with 100 μM protein samples dissolved in buffer A. Samples were incubated at 37 ºC under constant stirring. The formation of fibrils was estimated from aliquots (5 μl) taken at different time points by use of Thioflavin-T fluorescence assay. Aggregation yields were normalized to the final values and the averaged data points were fitted according to ref. 11. In all cases, the reported values correspond to the average of at least five independent aggregation measurements.

Figure S1

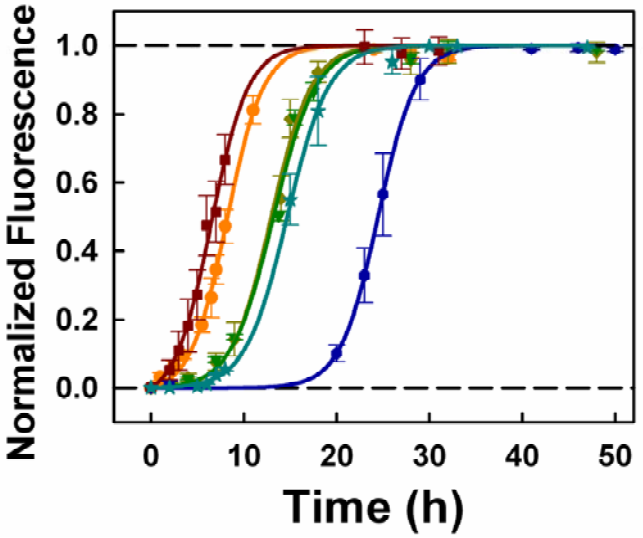

Normalized Fluorescence
1.0
0.8
0.6
0.4
0.2
0.0
0
10
20
30
40
50
Time (h)

Figure S2

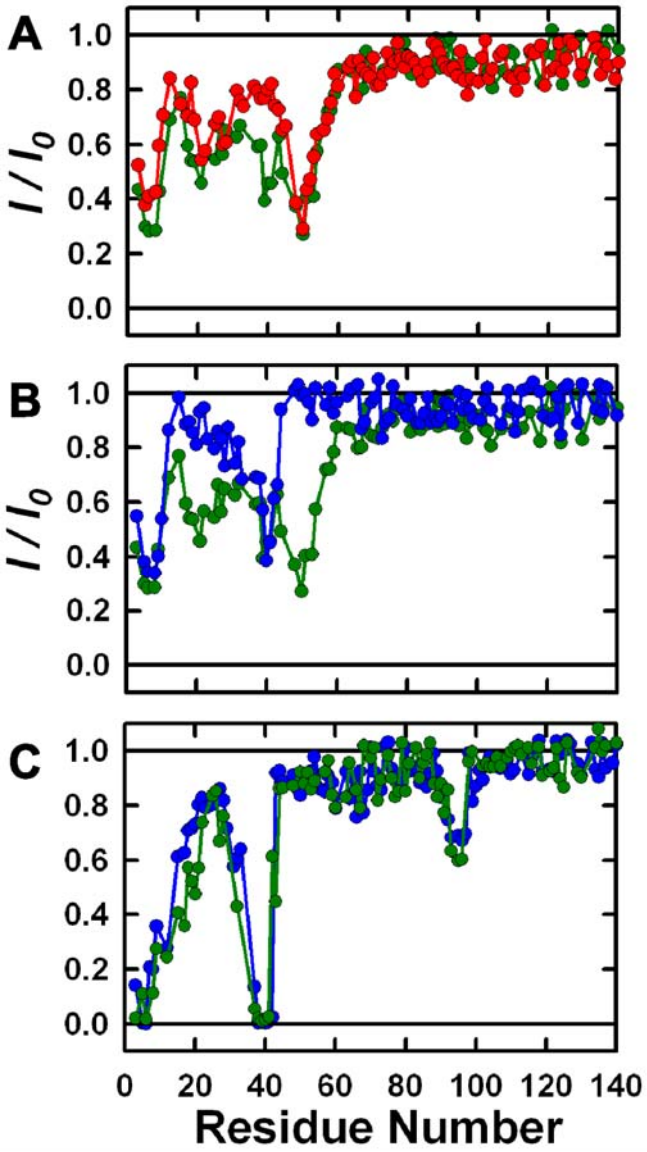


Figure S3

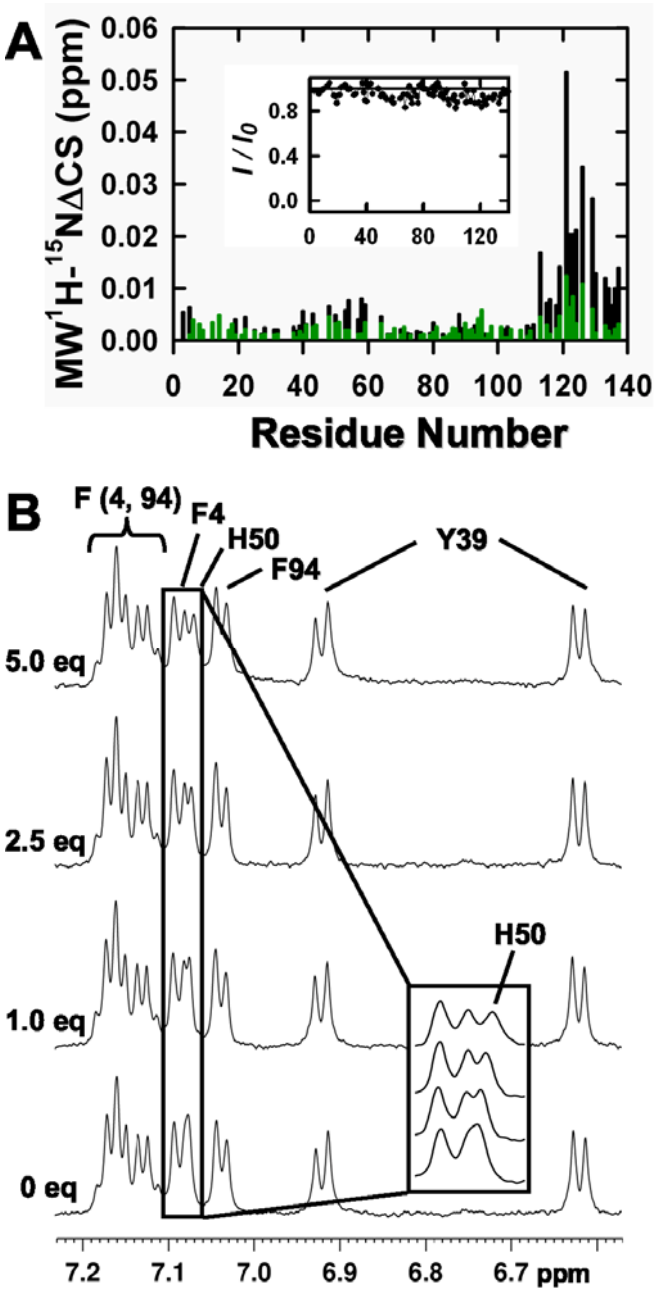
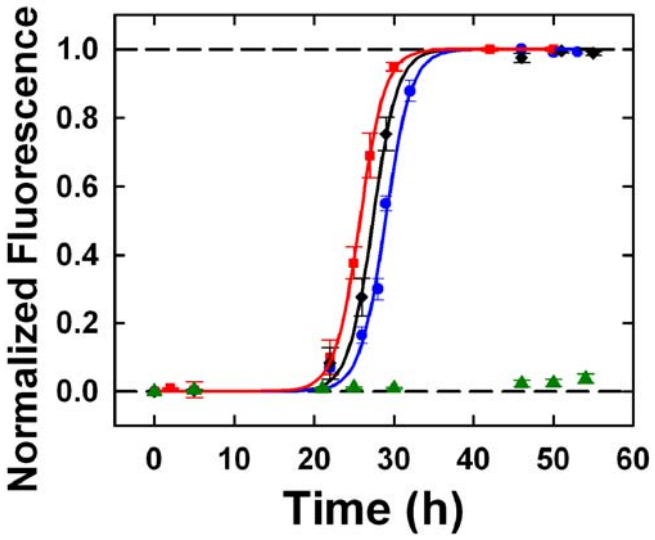

A
MW^{1}H-^{15}NΔCS (ppm)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0
20
40
60
80
100
120
140
Residue Number
I / I0
0.8
0.4
0.0
0
40
80
120
B
F (4, 94)
F4
H50
F94
Y39
5.0 eq
2.5 eq
1.0 eq
0 eq
H50
7.2
7.1
7.0
6.9
6.8
6.7 ppm

Figure S4


Normalized Fluorescence
1.0
0.8
0.6
0.4
0.2
0.0
0
10
20
30
40
50
60
Time (h)