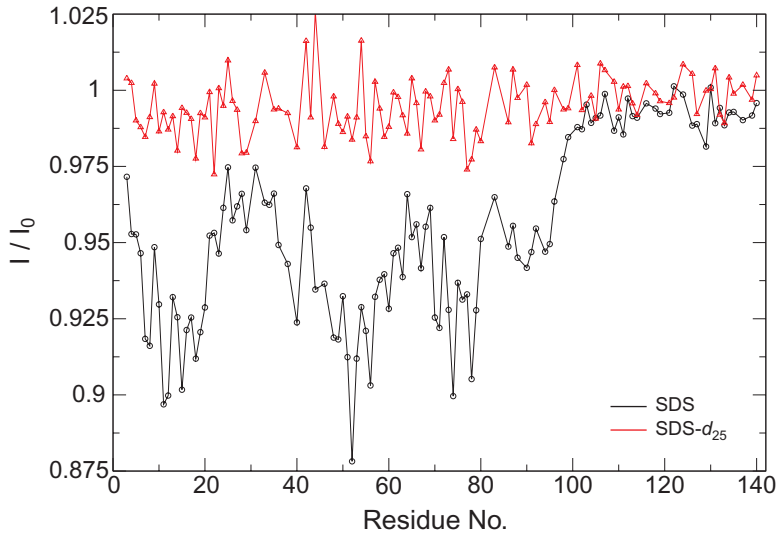
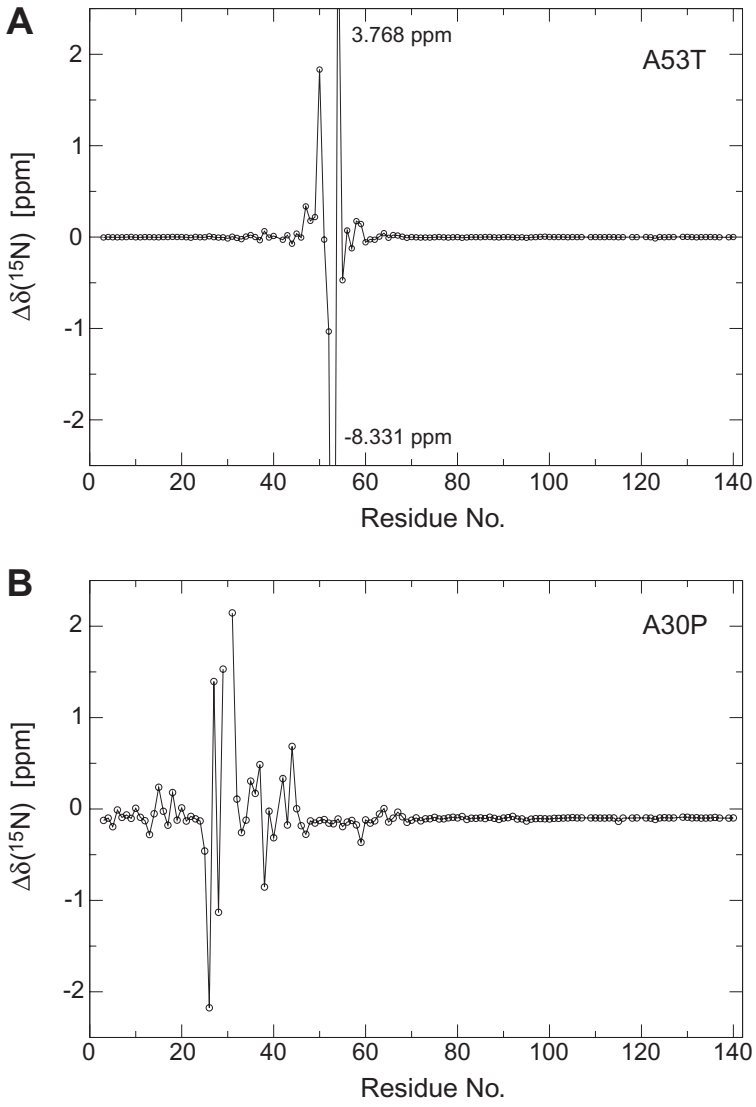
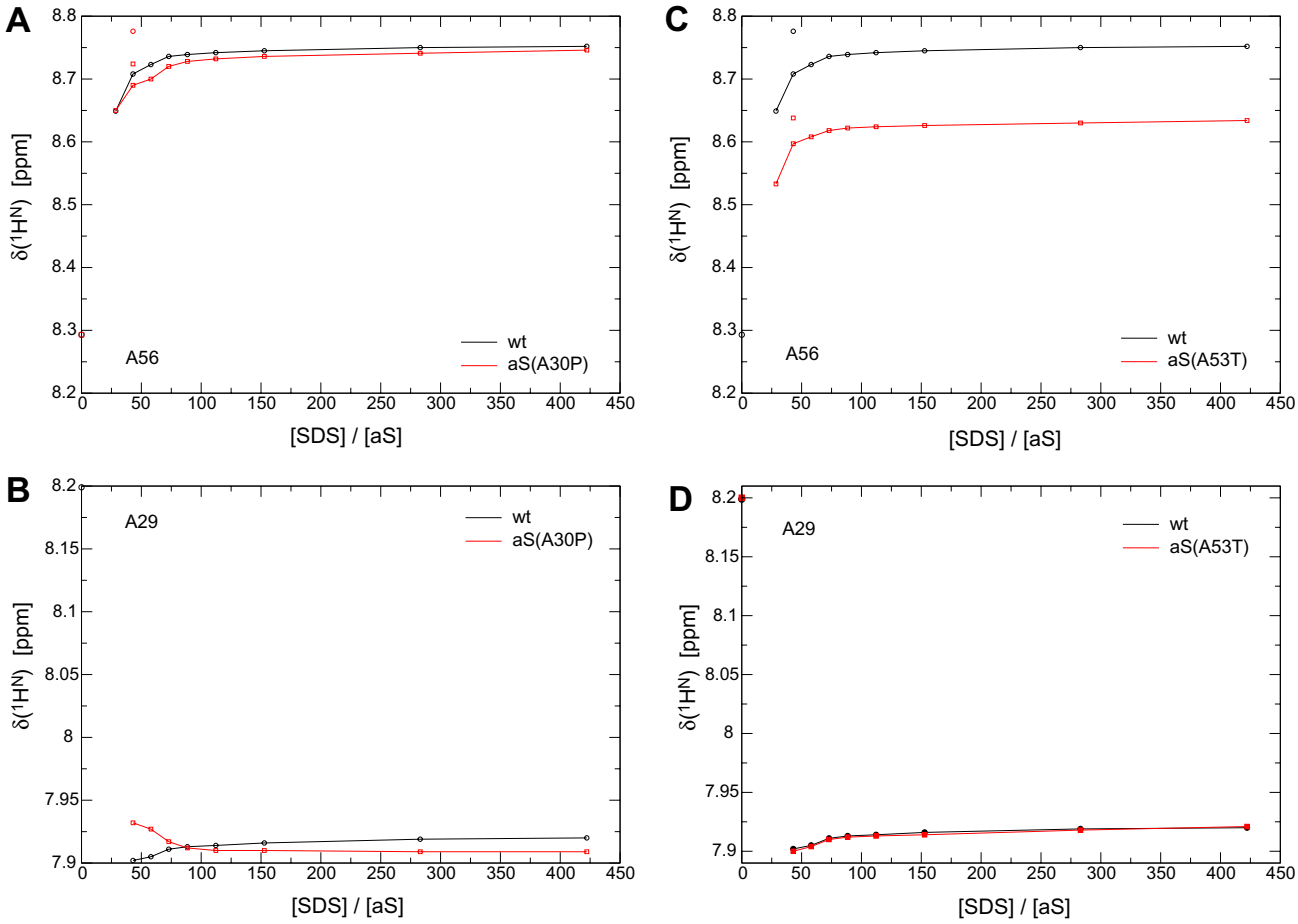


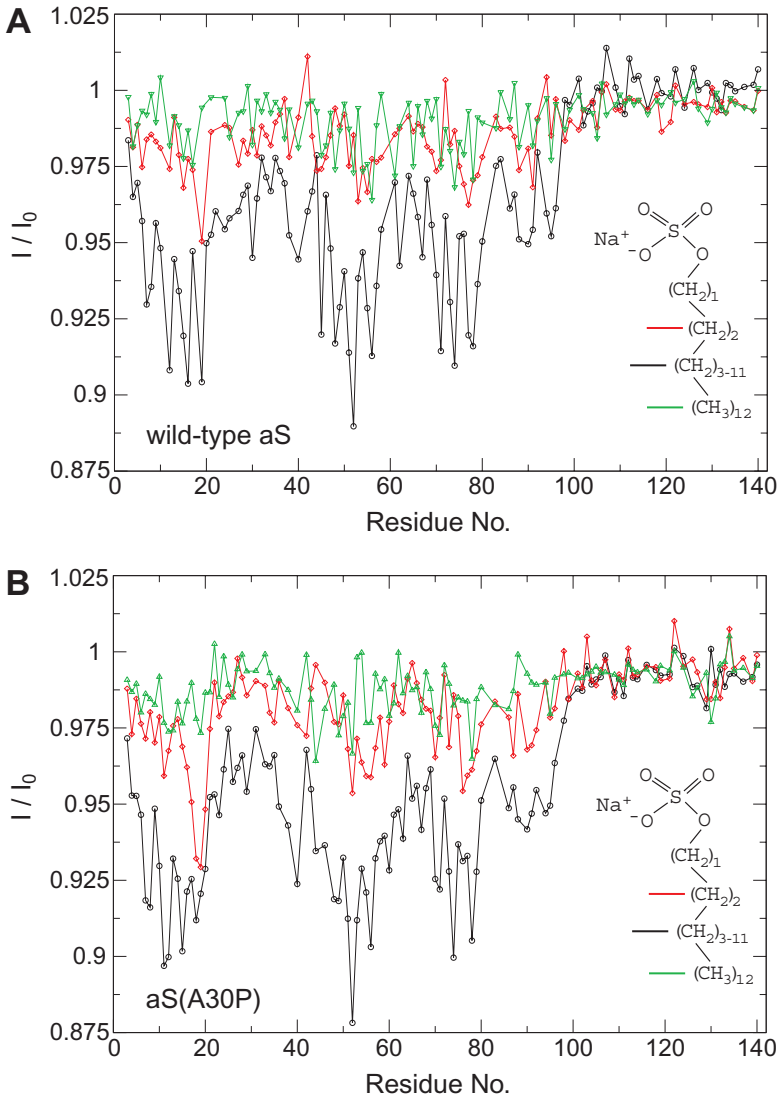
Supplementary Figure 1. Signal intensity ratios of aS(A30P) H-N TROSY resonances recorded with and without presaturation, I/I_0, of resonance $(CH_2)_{3\text{-}11}$ of SDS. In the presence of deuterated SDS an essentially random fluctuation of I/I_0 with $\langle I/I_0 \rangle = 0.995 \pm 0.009$ is obtained.



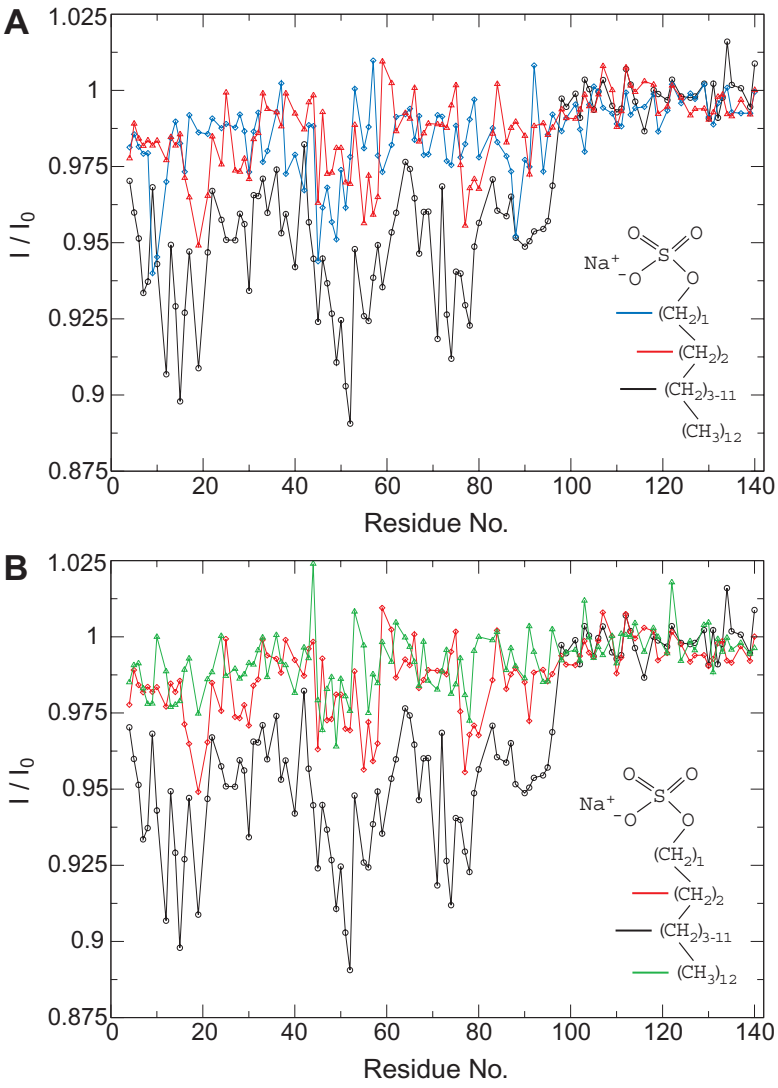
Supplementary Figure 2. ^{15}N Chemical shift changes between (A) A53T and w.t. synuclein (A53T-wt), and (B) A30P and w.t. synuclein (A30P-wt).



Supplementary Figure 3. $^{1}H^{N}$ chemical shift changes of A29 and A56 for the aS variants indicated in the figure during a titration with SDS. Chemical shift offsets of the PD variants compared to the wild type occur in *A* and *C*, but no change in the titration profile is visible. A sign change of the chemical shift changes occurs in *B*, but the magnitude of changes is essentially the same for the wild type and aS(A30P). The data points at aS:SDS=1:0 are not connected to the other points as complex behavior was obtained during the initial points of the titration, which are not shown. Likewise, for aS:SDS=1:43 two resonances per residue are obtained for A56 of which one falls on the curve leading to the titration endpoint.



Supplementary Figure 4. Signal intensity ratios of H-N TROSY resonances of aS variants recorded with and without presaturation, I/I_0, of selected SDS resonances, as indicated in the figure.



Supplementary Figure 5. Signal intensity ratios of H-N TROSY resonances of aS(A53T) recorded with and without presaturation, I/I_0, of selected SDS resonances, as indicated in the figure.