Supplementary Table 1. Lag times, elongation rates and fibril yield for αSyn variants.

The rates of aggregation in each condition were measured in at least triplicate. The errors show the standard deviation of the mean of the replicates. No aggregation after 100 h incubation is indicated by “-“. Given errors in estimating fibril yields via SDS PAGE subsequent to centrifugation (see Methods) gels, the values were rounded to the nearest 10%.

| αSyn variant | WT | ΔP1 | ΔΔ |
|--------------|----|-----|----|
| pH 4.5       | 20 | 200 | 20 | 200 | 20 | 200 |
| Lag time [h] | 4.0 ± 0.5 | 11.4 ± 1.9 | 49.7 ± 7.2 | 61.3 ± 9.8 | 4.1 ± 0.5 | 19.5 ± 3.0 |
| Elongation rate [RFU/h] | 35.6 ± 4.8 | 33.2 ± 2.5 | 1.7 ± 0.2 | 3.6 ± 0.2 | 30.1 ± 9.4 | 16.4 ± 3.4 |
| Fibril yield [% insoluble] | 90 | 90 | 100 | 100 | 100 | 100 |

| αSyn variant | ΔP2 | ΔΔ |
|--------------|-----|----|
| pH 4.5       | 20 | 200 | 20 | 200 | 20 | 200 |
| Lag time [h] | 4.8 ± 0.4 | 14.2 ± 0.5 | 36.2 ± 1.7 | 45.4 ± 16.3 | 57.3 ± 3.6 | - |
| Elongation rate [RFU/h] | 44.2 ± 8.8 | 6.8 ± 1.8 | 2.3 ± 0.6 | 5.8 ± 0.7 | 22.9 ± 5.5 | - |
| Fibril yield [% insoluble] | 100 | 100 | 80 | 100 | 90 | 30 |

| αSyn variant | ΔC1 | P1P2-GS |
|--------------|-----|--------|
| pH 4.5       | 20 | 200 | 20 | 200 | 20 | 200 |
| Lag time [h] | 0.47 ± 0.07 | 3.1 ± 0.1 | 20.5 ± 0.7 | 43.2 ± 4.3 | 11.4 ± 3.0 | 82.8 ± 12.7 |
| Elongation rate [RFU/h] | 28.8 ± 11.0 | 38.3 ± 1.3 | 12.6 ± 1.4 | 19.6 ± 4.9 | 0.12 ± 0.03 | 0.06 ± 0.01 |
| Fibril yield [% insoluble] | 90 | 90 | 80 | 70 | 70 | 20 |

| αSyn variant | Seeding with WT | Liposome |
|--------------|----------------|----------|
| Condition    | pH 7.5, 200 mM NaCl | pH 6.5 |
| Monomer      | WT | ΔP1 | ΔP2 | ΔΔ | WT | ΔΔ | P1P2-GS |
| Lag time [h] | -0.89 ± 0.47 | - | 24.5 ± 1.8 | - | 4.9 ± 0.3 | 93.0 ± 2.6 | - |
| Elongation rate [RFU/h] | 24.0 ± 4.3 | - | 7.2 ± 0.7 | - | 5.7 ± 0.2 | 4.8 ± 0.3 | - |

| αSyn variant | V40C | V52C | A140C |
|--------------|------|------|-------|
| Condition    | pH 4.5, 200 mM NaCl | pH 4.5, 200 mM NaCl | pH 4.5, 200 mM NaCl |
| State        | monomer | dimer | monomer | dimer | monomer | dimer |
| Lag time [h] | 17.1 ± 0.9 | - | 6.9 ± 1.3 | 27.9 ± 2.7 | 12.7 ± 1.1 | 11.2 ± 2.0 |
| Elongation rate [RFU/h] | 18.1 ± 2.5 | - | 10.2 ± 0.4 | 5.7 ± 1.7 | 10.0 ± 1.4 | 9.0 ± 0.2 |