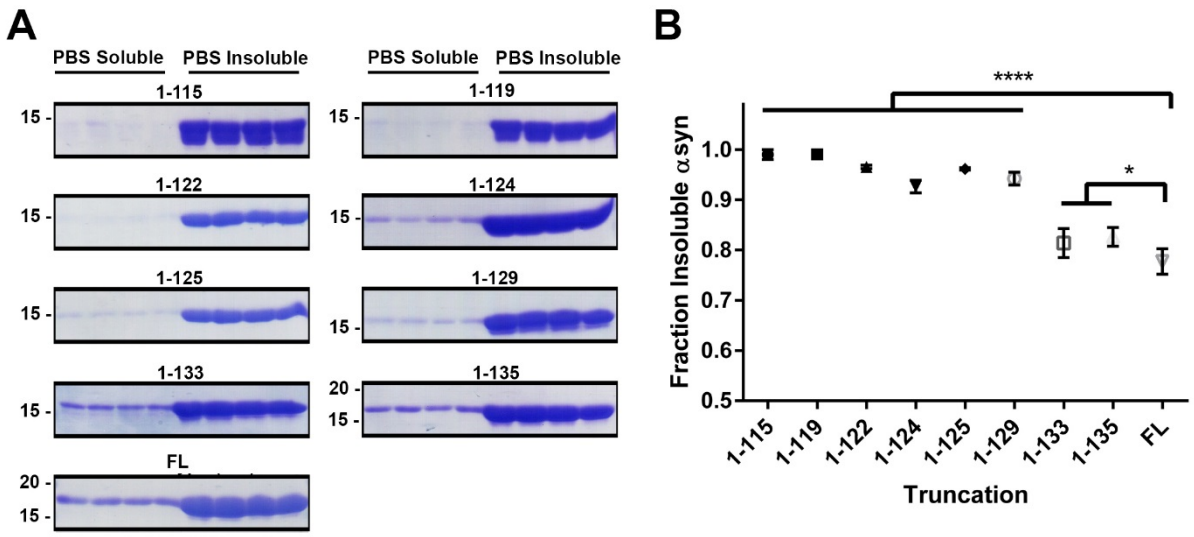
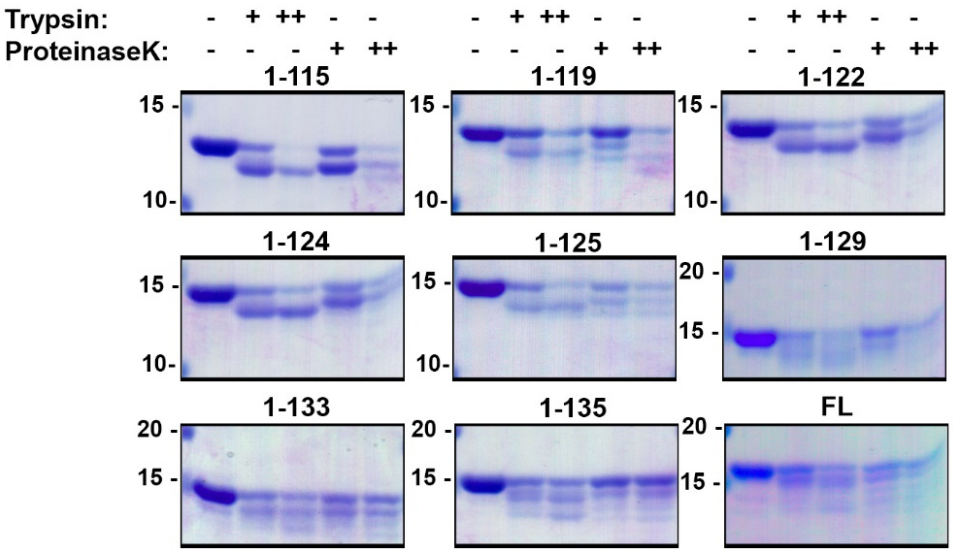
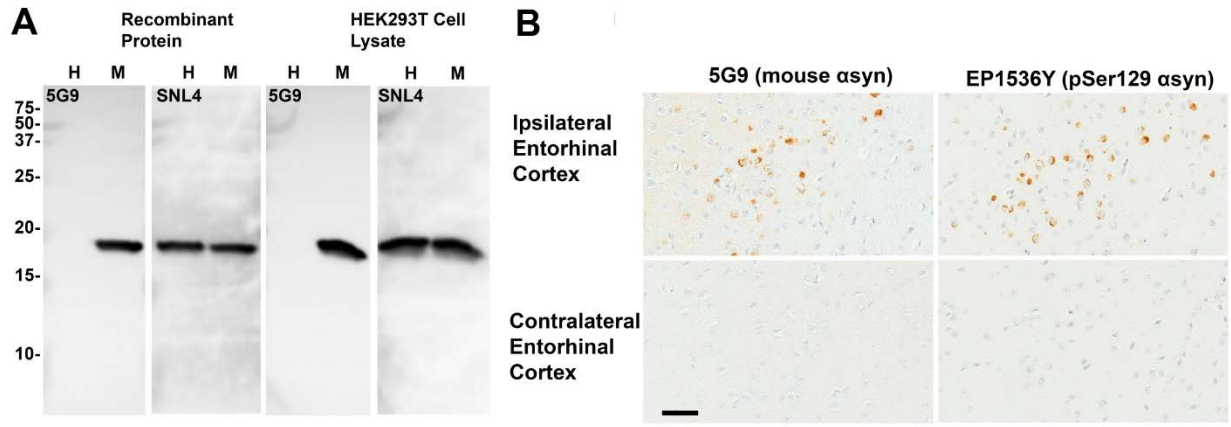


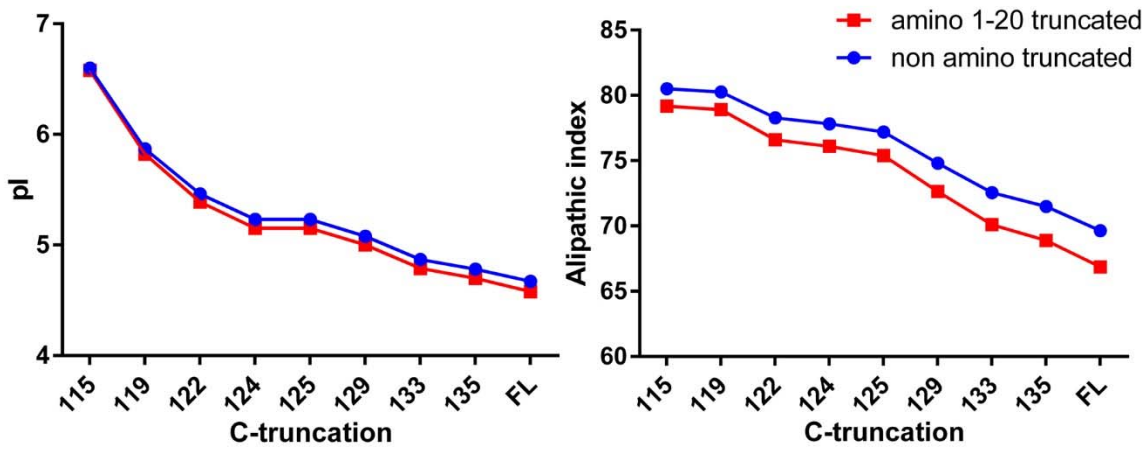
Supplemental Figure 1. C-truncated αsyn aggregates extensively *in-vitro*. (A) Coomasie stained SDS-PAGE gels showing the amount of soluble vs insoluble αsyn for each C-truncation of αsyn at the 96-hour time point of *in-vitro* incubation; C-truncated αsyn samples were prepared at 150 μM (n=4). Mobilities of molecular mass markers in kDa are indicated. (B) Densitometric analysis of the gels in A; one-way ANOVA with Dunnet's test determined a large significant increase in the final extent of aggregation for truncations 1-129 and shorter at 96 hours. Error bars = std. * = $p \leq 0.05$, **** = $p \leq 0.0001$.



Supplementary Figure 2. *In-vitro* proteolytic digestion profiles differ for fibrils comprised of different C-truncated forms of αsyn. (A) Coomasie stained SDS-PAGE gels showing for each truncation the undigested αsyn fibrils along with equal amounts of digested fibrils (1 mg/mL) using either trypsin or proteinase K at two concentrations (0.05 mg/mL or 0.025 mg/mL for trypsin and 0.005 mg/mL or 0.0025 mg/mL for proteinase K) for 30 minutes at 37 °C. Digestion profiles differed between the shorter and longer C-truncated forms of αsyn as well as FL αsyn, indicating differences in αsyn fibril structure.



Supplemental Figure 3. New 5G9 mouse monoclonal antibody is specific for mouse αsyn and preferentially binds aggregated αsyn. (A)Western blots loaded with 200 ng of recombinant mouse (M) and human (H) αsyn, or 25 µg of lysate from HEK293T cells transfected to expressed mouse or human αsyn. The 5G9 antibody detects only mouse αsyn and not human αsyn in both cases. (B) Immunohistochemical staining of a non-transgenic mouse induced to develop pathologic αsyn inclusions in the ipsilateral entorhinal cortex when intra-striatally injected with pre-formed mouse αsyn fibrils. The 5G9 antibody preferentially binds to mouse αsyn located within inclusions and not physiologic mouse αsyn as demonstrated by staining in the ipsilateral but not contralateral entorhinal cortex. The staining pattern of 5G9 paralleled that of antibody EP1536Y specific for pSer129 which is a marker of aggregated αsyn. Scale bar 50 µm.



Supplemental Figure 4. Predicted biochemical properties of C-truncated αsyn. The theoretical Alipathic index and protein isoelectric point of each carboxy-truncation and its 1-20 truncated counterpart. The biochemical properties of αsyn are dominated by carboxy and not amino truncation, as progressive C-truncation leads to a large increase in protein isoelectric point (pI) and related increase in alipathic index due to loss of acidic residues**.**