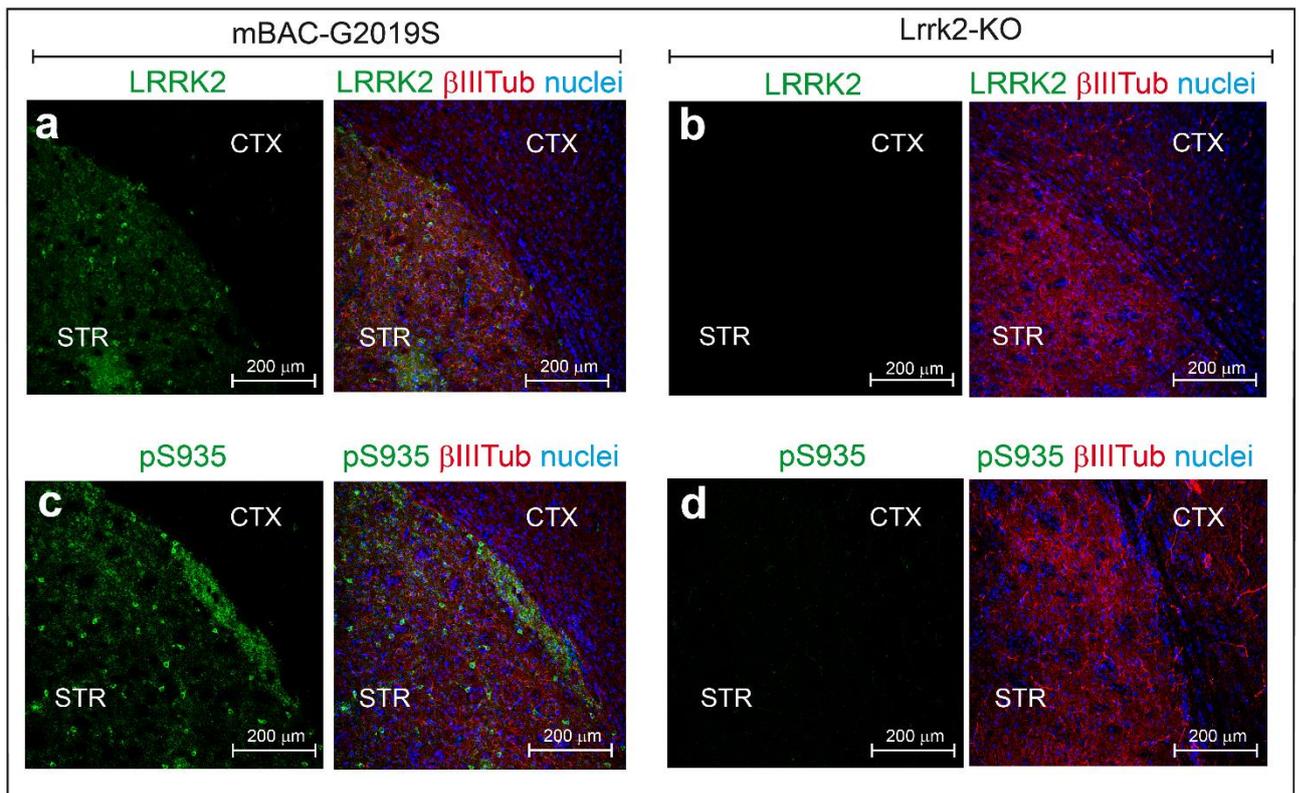
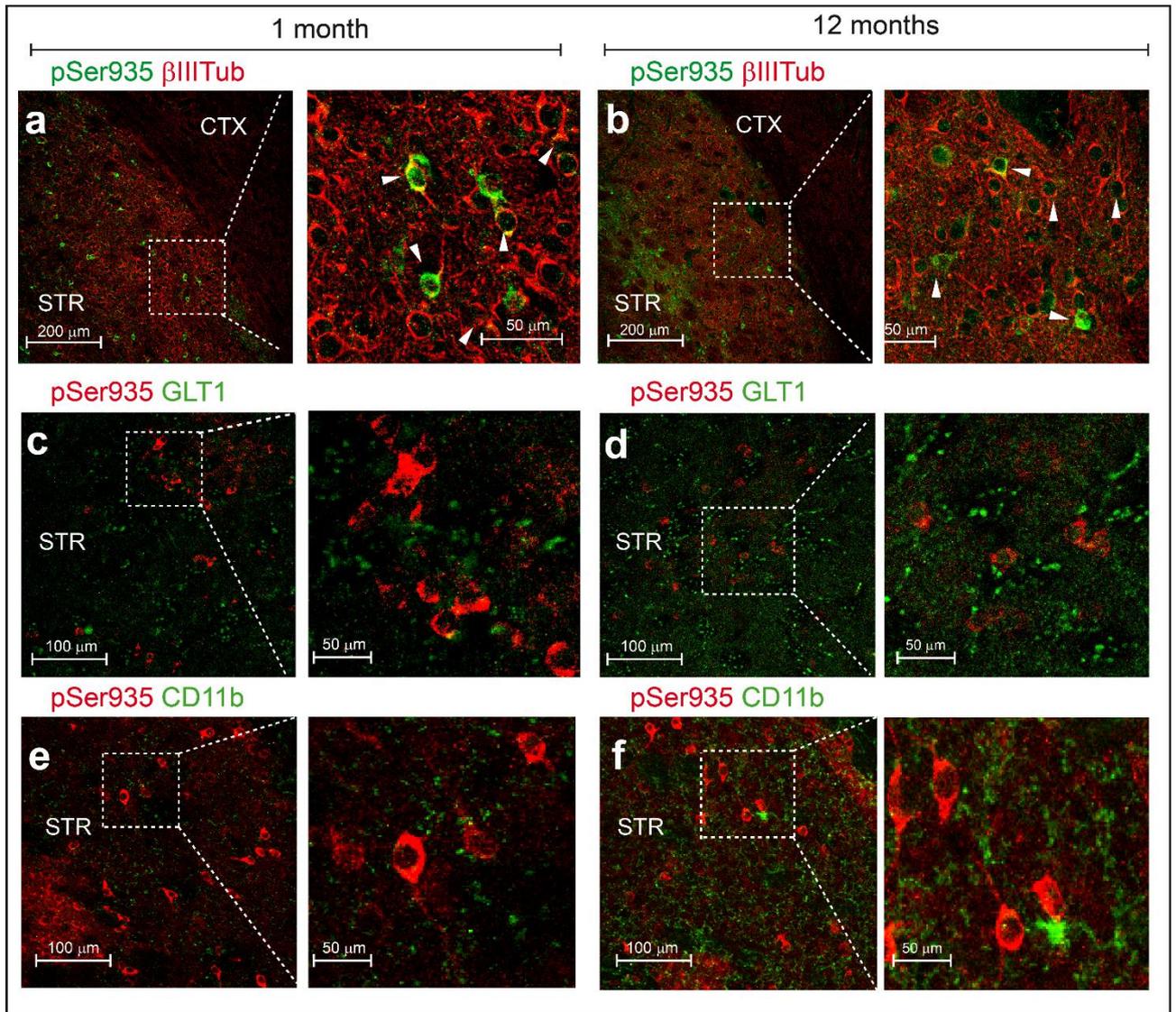


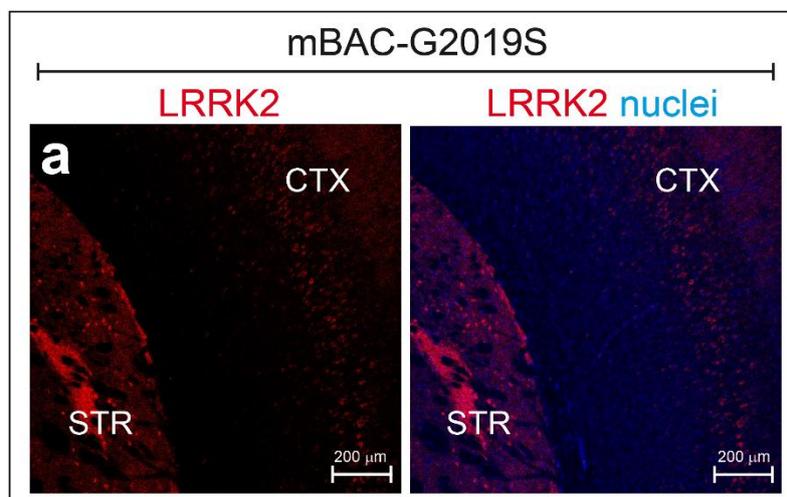
**Figure S1.** Total LRRK2 steady-state levels in mBAC-G2019S PD-relevant brain areas. Representative Western Blot showing Lrrk2 steady state levels in midbrain, striatum and cortex at 1, 6 and 12-month-old mice.



**Figure S2.** Immunofluorescent staining of brain slices from hemizygous transgenic mice overexpressing murine BAC-Lrrk2-G2019S and Lrrk2-KO mice. (a,b) Representative staining of brain slices from BAC-Lrrk2-G2019S mice or (b,d) Lrrk2-KO mice with MJFF2(c41-2) and UDD210(12) antibodies showing the specificity of the staining.



**Figure S3.** Immunofluorescent staining of brain slices from hemizygous transgenic mice overexpressing murine BAC-Lrrk2-G2019S mice. (a–f) Representative staining of brain slices from BAC-Lrrk2-G2019S mice with anti-phosphoSer935 of LRRK2 antibody showing co-localization only in b-III-tubulin-positive cells.



**Figure S4.** Immunofluorescent staining of brain slices from hemizygous transgenic mice overexpressing murine BAC-Lrrk2-G2019S mice. Representative staining of brain slice from BAC-

Lrrk2-G2019S mice with anti-LRRK2 MJFF2(c41-2) antibody showing the differential expression of Lrrk2 in the cortex.