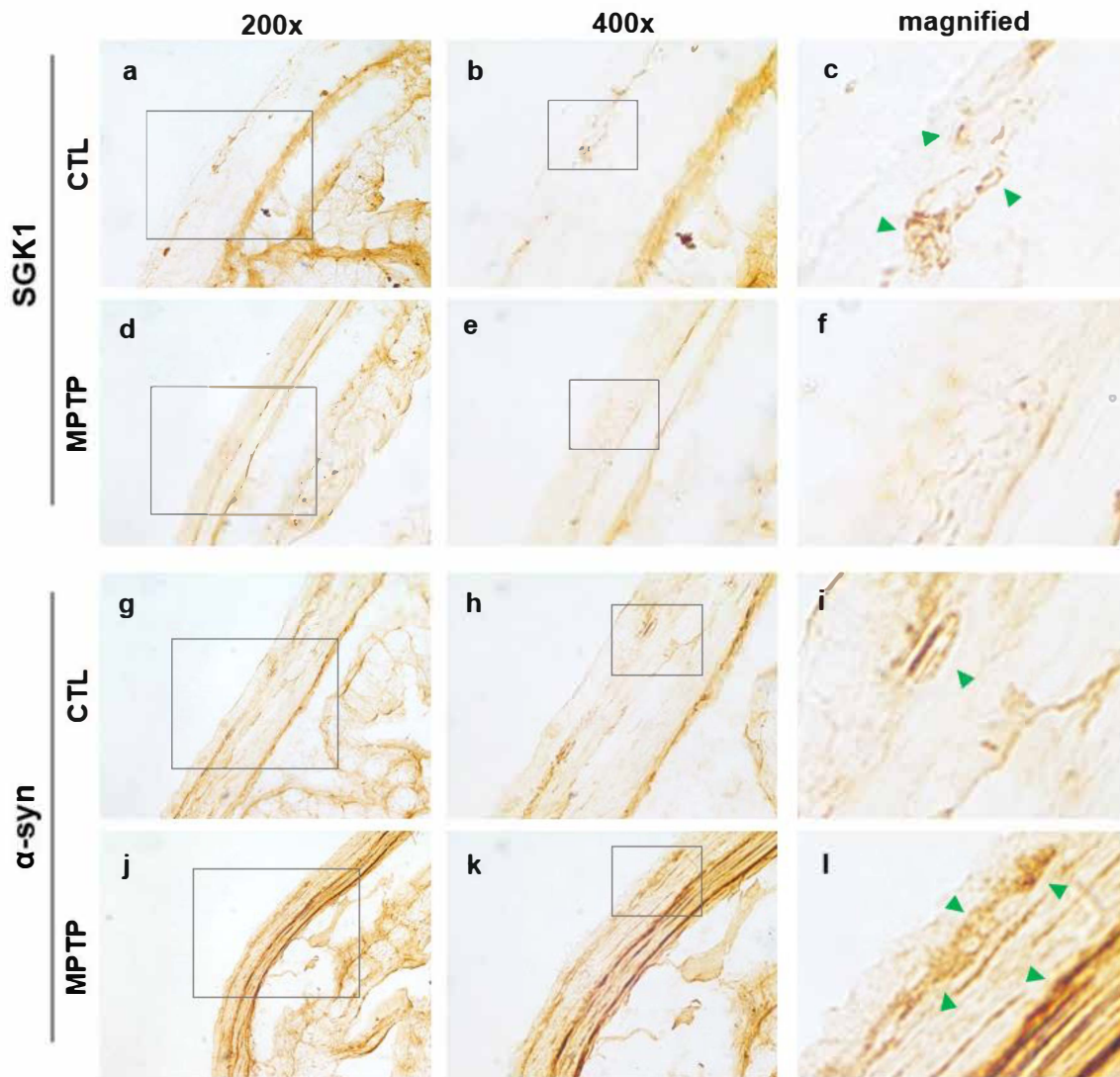


**Supplementary figure S1. The serum/glucocorticoid-related kinase 1 (SGK1) and alpha-synuclein ( $\alpha$ -syn) expression pattern changes in colon in 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) induced Parkinson's disease (PD) model.** Immunohistochemistry analyses of SGK1 (a-h) show the decreasing SGK1 in MPTP group (e-h) comparing in control (CTL) group (a-d). On the other hand, immunohistochemistry analyses of  $\alpha$ -syn (i-p) show the increasing  $\alpha$ -syn in MPTP group (m-p) comparing in control (CTL) group (i-l). The SGK1 and  $\alpha$ -syn were indicated by blue arrows in magnified panels (d, h, l and p).



**Supplementary figure S2.** Changes in the expression pattern of serum/glucocorticoid-related kinase 1 (SGK1) and  $\alpha$ -synuclein ( $\alpha$ -syn) in the colon in 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)-induced Parkinson's disease model. Immunohistochemistry analyses of SGK1 (a–f) showing decreased SGK1 expression in the MPTP group (d–f) compared with that in the control (CTL) group (a–c). Immunohistochemistry analyses of  $\alpha$ -syn (g–i) showing increased  $\alpha$ -syn expression in the MPTP group (m–p) compared with that in the control (CTL) group (g–i). SGK1 and  $\alpha$ -syn are indicated by black arrows in panels showing magnified images (c, f, and l). CTL, intraperitoneally injected with 100  $\mu$ L 0.9% saline daily for 4 weeks; MPTP, intraperitoneally injected with MPTP-HCl (20 mg/kg) daily for 4 weeks.