**SUPPLEMENTARY FIGURES**

**Supplementary Figure 1. SOCS3 expression and IDH1 mutations in GBM.** (A) Boxplot analysis of SOCS3 expression in IDH mutant and wildtype glioma samples was based on CGGA dataset (mRNAseq_325). (B) Heatmap analysis of SOCS3 gene expression and methylation, and IDH1 mutation status was based on UCSC Xena based on TCGA-GBM dataset. The blue box encompasses all the patient’s samples (n=7) that carry mutated IDH1 with SOCS3 expression data available (n=166). (C) 7 out of 16 IDH1 mutant patients have SOCS3 methylation data available (top panel). SOCS3 methylation status of 7 random GBM patients with unknown SOCS3 expressions (bottom panel). Gray area indicates SOCS3 methylation data is not available for that specific patient’s sample.

**Supplementary Figure 2.** Proteomic and immunohistochemistry (IHC) study of cullin5 (A) The protein quantification data was derived from CPTAC-GBM dataset (n = 99). GBM cases were aligned with decreasing cullin5 protein levels. Corresponding protein levels of vHL, RelA, FAK and JAK2 of those aligned cases were color coded. (B) Presentative cullin5 immunostaining slides derived from 6 HGG patients. Magnification scale: 50 μm. Image credit: Human Protein Atlas. Images available from v19.proteinatlas.org.