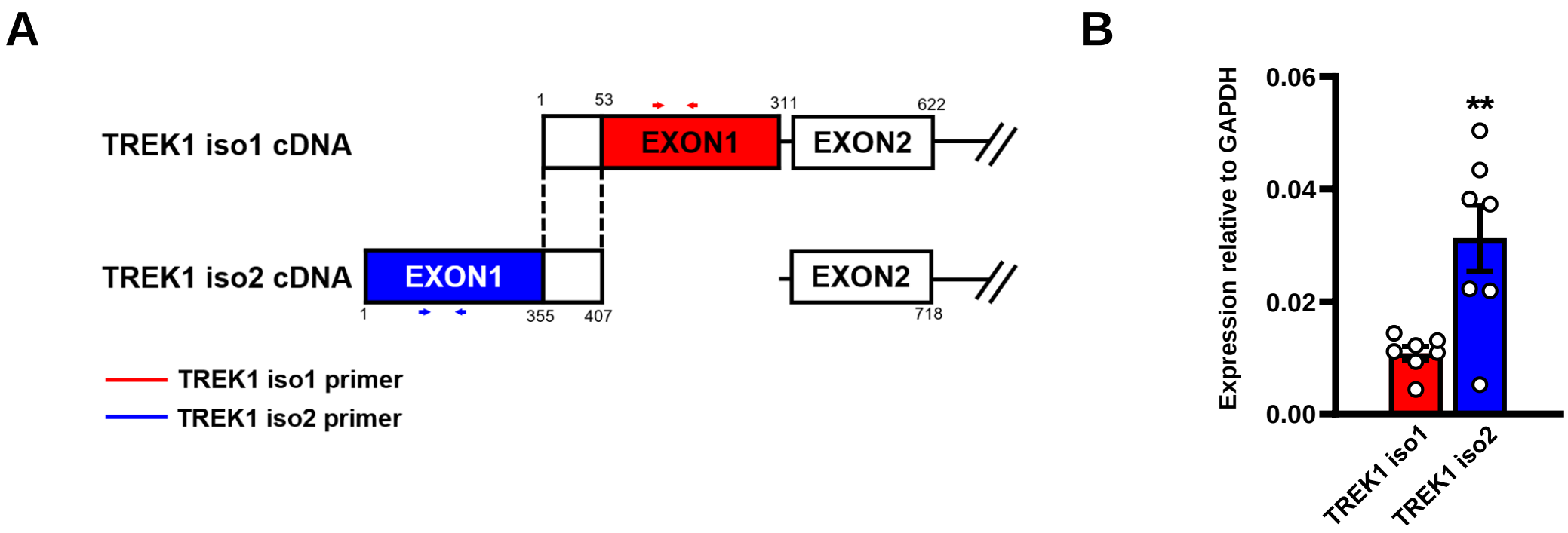
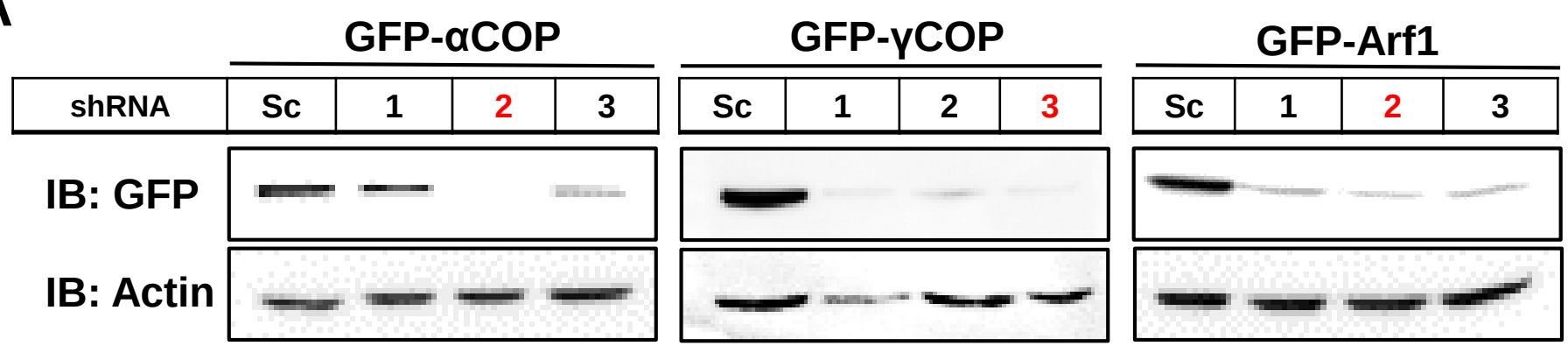
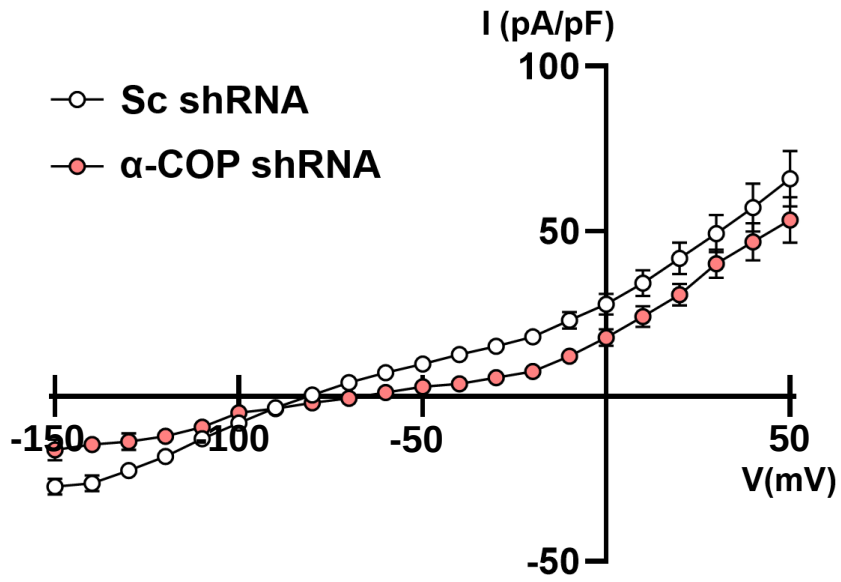


Figure S1. Relative expression of TREK1 isoforms in Astrocytes. (A) Schematic diagram of the cDNA for each TREK1 isoform. Primers for qRT-PCR, indicated by small arrows, were designed in exon1 of each isoform. (B) Bar graphs are qRT-PCR results using each primer. Normalized with GAPDH(n=7). All values are mean ± SEM (**p < 0.01). qRT-PCR, quantitative reverse transcription polymerase chain reaction; SEM, standard error of the mean; TWIK1, tandem of pore domains in a weak inward rectifying K^+ channel; TREK1, TWIK-related K^+ channel 1; GAPDH, glyceraldehyde 3-phosphate dehydrogenase.

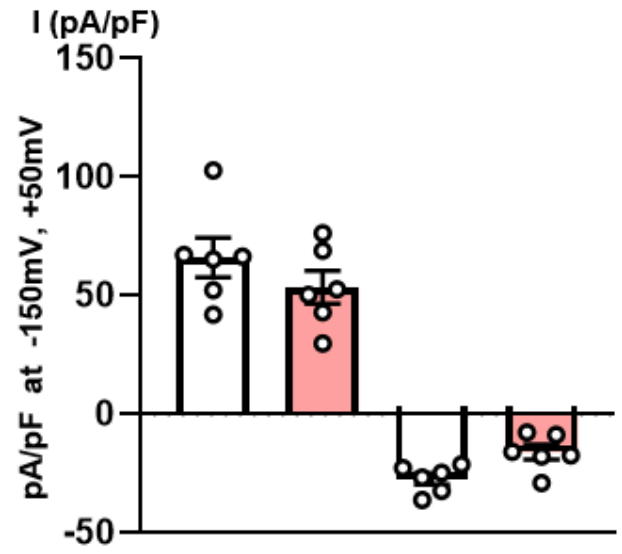
A


GFP-αCOP
GFP-γCOP
GFP-Arf1
shRNA
Sc
1
2
3
IB: GFP
IB: Actin

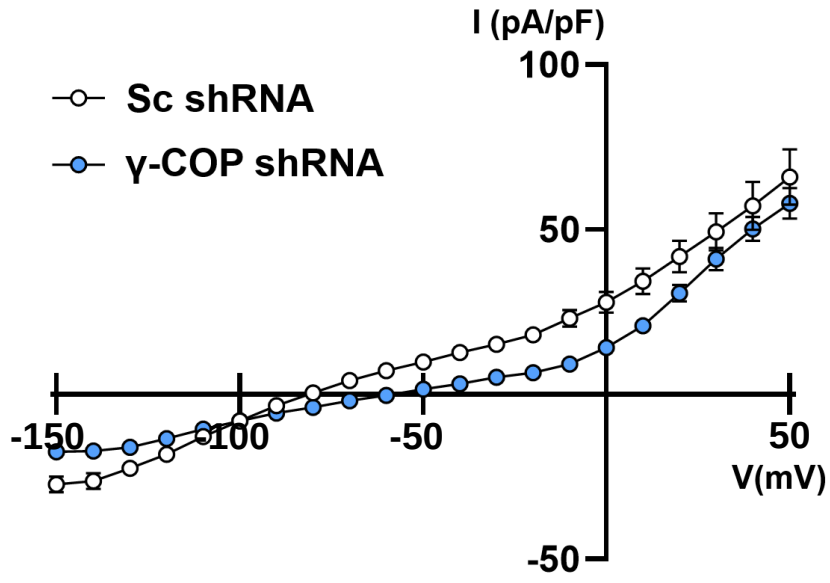
B


I (pA/pF)
Sc shRNA
α-COP shRNA
100
50
-50
-150
-100
-50
50
V(mV)

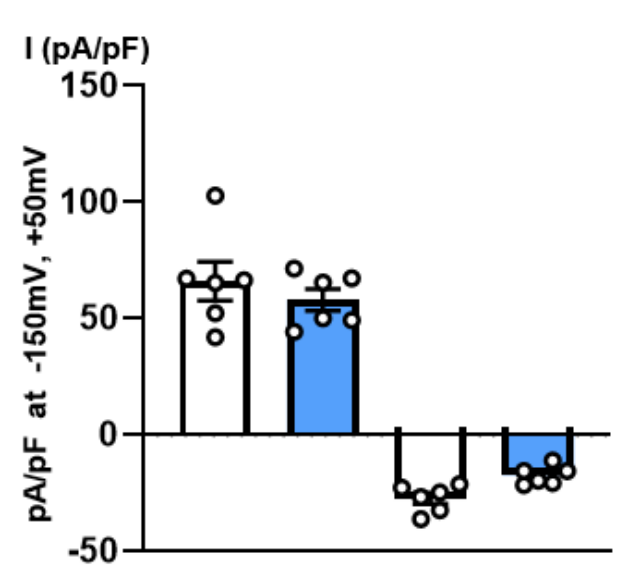
C


I (pA/pF)
150
100
50
0
-50
pA/pF at -150mV, +50mV

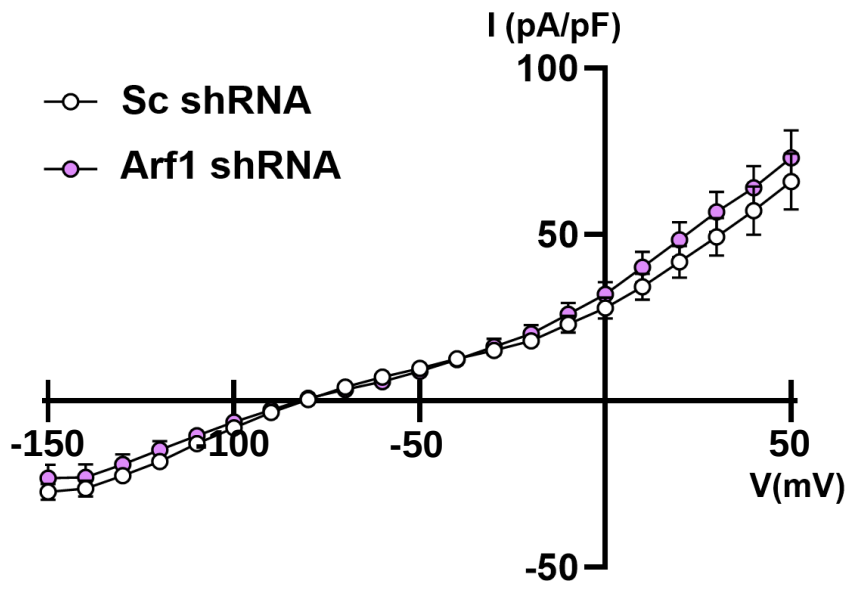
D


I (pA/pF)
Sc shRNA
γ-COP shRNA
100
50
-50
-150
-100
-50
50
V(mV)

E


I (pA/pF)
150
100
50
0
-50
pA/pF at -150mV, +50mV

F


I (pA/pF)
Sc shRNA
Arf1 shRNA
100
50
-50
-150
-100
-50
50
V(mV)

G

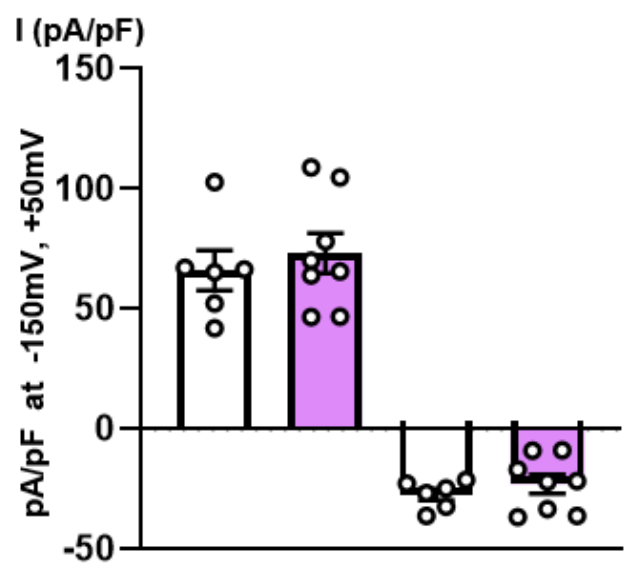

I (pA/pF)
150
100
50
0
-50
pA/pF at -150mV, +50mV

Figure S2. Other COP1 subunits do not affect the K^+ current in astrocytes. (A) α-COP, γ-COP, Arf1 shRNA validation test in HEK293T cells. GFP-tagged α-COP, γ-COP, and Arf1 were co-transfected with each of three specific shRNAs. The most efficient shRNA (red) was used in the experiment. (B), (D), (F) Average current-voltage (I-V) relationship of Sc shRNA (white), α-COP shRNA (light orange), γ-COP shRNA (light sky), and Arf1 shRNA (light violet) transfected astrocytes. The voltage ramp-induced whole-cell current traces were recorded from each cell. (C), (E), (G) Bar graph at -150 mV and +50 mV in (B), (D), (F). All values are mean ± SEM (***$p < 0.001$). SEM, standard error of the mean; COP, coat protein; COP1, coat protein complex 1; Arf1, ADP-ribosylation factor 1; TWIK1, tandem of pore domains in a weak inward rectifying K^+ channel; TREK1, TWIK-related K^+ channel 1; GFP, green fluorescent protein; Co-IP, co-immunoprecipitation; Sc, scrambled; HEK, human embryonic kidney.