Supplemental Figure Legends

Figure S1: SNpc region of postmortem human PD and age matched control samples were analyzed and the expressions of individual proteins were analyzed. Quantification of GRP78 and CHOP as shown in (Fig. 1A) were given in (**A**). Optical density (OD) of individual proteins, GRP78 and CHOP, were normalized with β-actin OD. * indicates significance ($p<0.05$) versus control. (**B**) Thapsigargin (Tg) induced currents were evaluated in control calcium containing media prior to switching to DVF media. IV curves under these conditions are shown in (**C**). **D, E,** Currents and relative IV curves induced by Tg and without Tg. **F,** BAPTA induced a small current. **G,** IV curves of currents induced by Tg and BAPTA. **H,** indicates Tg- induced currents in control SH-SY5Y cells and in the presence of SKF 96365 (50μM). IV curves under these conditions are shown in (**I**). Thapsigargin induced currents were evaluated in control and MPP^+ treated (12h) differentiated SH-SY5Y cells. (**K**) Thapsigargin induced currents were evaluated in control, MPP^+ treated (1h) and MPP^+ introduced SH-SY5Y cells. 50μM of MPP^+ was introduced in SH-SY5Y cells via patch pipette. An IV curve under these conditions is shown in (**L**). The holding potential for current recordings was -80mV for all the recordings. MTT assays under various conditions are shown in (**M**). * indicates values that are significantly different from control $p<0.05$.

Figure S2: Quantification of TRPC1/Orai1 association with STIM1 in control and MPP+ treated cells (both control and stimulated conditions) in **A, B.** * indicates significance ($p<0.05$) versus untreated control. SNpc region of postmortem human PD and age matched control samples (4-5 samples) were analyzed and the expressions of individual proteins were analyzed. Quantification of TRPC1, and Orai1 and STIM1 as shown in (Fig. 2E) were given in **C**. The transfection efficiency of TRPC1siRNA was shown in (**C).** SH-SY5Y cells

were transfected with off-target control siRNA or TRPC1siRNA. Cells were lysed and subjected to SDS-PAGE and immunoblotted with the respective antibodies as labeled in the figure. **E**, indicates expression levels of GRP78, GRP94 and CHOP in control and TRPC1siRNA expressing cells as shown in (Fig. 3E, Left panel). **F**, indicates a representative TRPC1 staining in control and MPP+-treated primary dopaminergic neurons.

Figure S3: A-E indicate expression levels of GRP78, GRP94 and CHOP in control and 50μM or 100μM SKF96365 treated cells as described in (Fig. 3E, Right panel). Quantification (mean ± SD) shown here represent individual proteins from three or more independent experiments. Optical densities of each individual proteins were normalized with β-actin. * indicates significance ($p<0.05$) versus untreated control.

Figure S4: SH-SY5Y cells were transfected with off-target control siRNA or STIM1siRNA as described in Figure 3F in the main text. Optical densities of GRP78 (**A**), GRP94 (**B**) and CHOP (**C**) were normalized with β-actin. **D**, indicates quantification of expression levels of GRP78, GRP94 and CHOP in control and TRPC1$^{-/-}$ SNpc tissues as shown in Figure 3H. Quantification (mean ± SD) shown here represent individual proteins from three or more independent experiments. Optical densities of each individual proteins were normalized with β-actin. * indicates significance ($p<0.05$) versus respective controls. **E**, indicates endogenous current (at -70mV) in DA neurons in SNpc (brain slices), after the currents were developed SKF 96365 was perfused. **F**, evaluation of the GABA currents in the SNpc region was performed to determine the electrical signature of the dopaminergic neurons.

Figure S5: SH-SY5Y cells were infected with Ad.TRPC1 with different MOI or myc-TRPC3 (Origene Technologies, MD) for 36 h. Cells were lysed and subjected to SDS-PAGE and immunoblotted with the respective antibodies as shown in (**A**). MTT assays demonstrating cell survival under various conditions are shown in **B, C**. Expression levels of GRP78 (**D G, I**), GRP94 (**E, H, K**) and CHOP (**F, I, L**) were quantified under various conditions as described in the main figures (Fig. 4E, 4F and 4G respectively). Optical densities of GRP78, GRP94 and CHOP were normalized with β-actin. * indicates significance ($p<0.05$) versus respective controls.

Figure S6: Phospho-AKT (Ser^{473} and Thr^{308}), as shown in Figure 5A, quantification in SNpc region of postmortem human PD and age matched control samples are shown in **A, B** respectively. Quantification of p-AKT^{473}, as shown in Fig. 5D and 5E, were given in **C**, **D** respectively. Values represents mean ± SD of individual proteins from three or more independent experiments and were normalized to β-actin. * indicates significance ($p<0.05$) versus untreated control. **E,** SH-SY5Y cells were treated with MPP^+ for 12h in presence of OAG. Cells were harvested and immunoblotted with respective antibodies. **F**, SH-SY5Y cells were lysed and immunoblotted with respective antibodies upon MPP^+ treatment for 12h with or without TRPC1 overexpression.

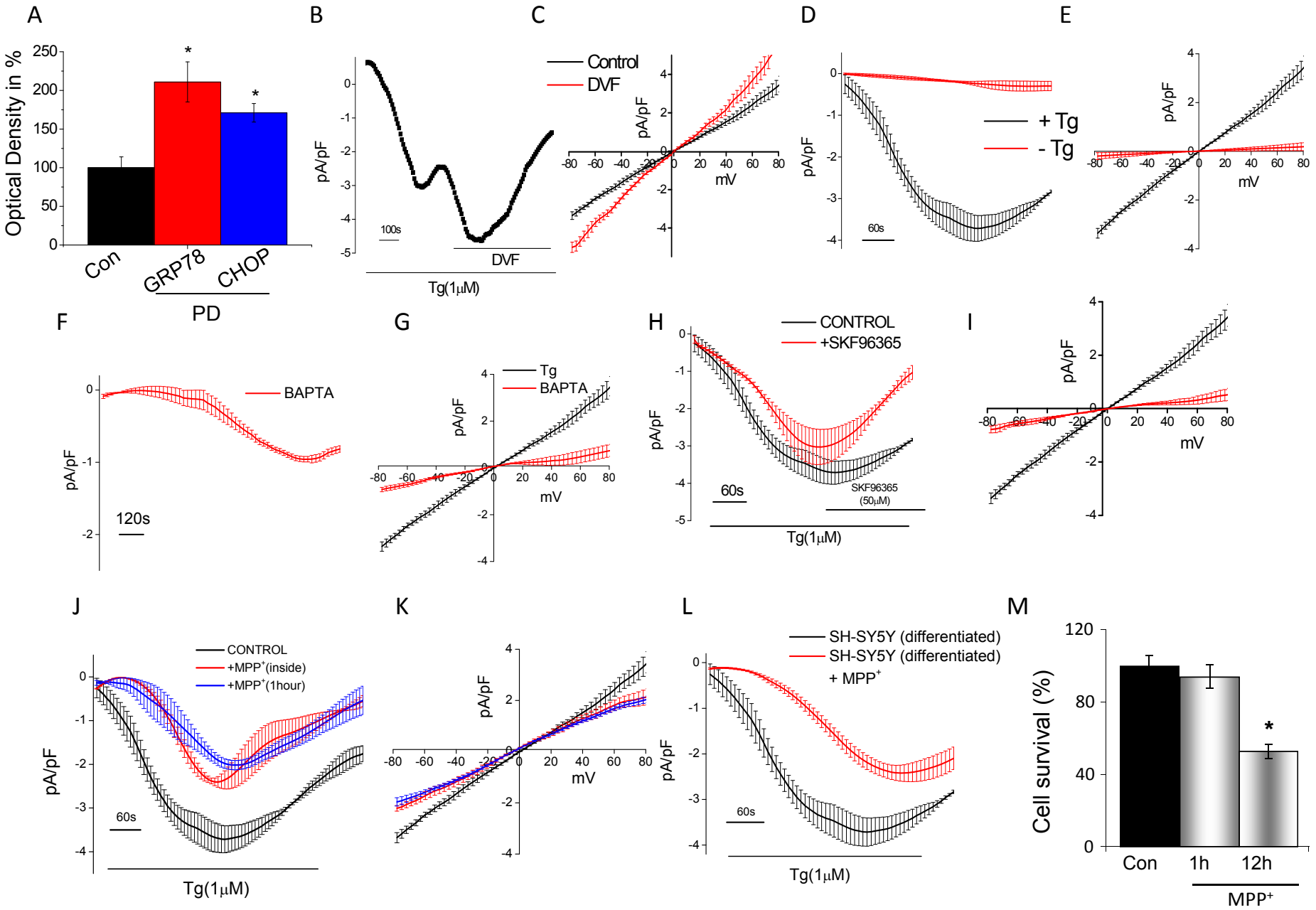
Figure S7: TRPC1 was overexpressed in mice SNpc by intranigral injection of Ad.TRPC1and then treated with MPTP. Mice were sacrificed and SNpc were removed and subjected to SDS-PAGE and immunoblotting with the respective antibodies as shown in (Fig 6D). Quantification of TRPC1 and TH from control and TRPC1 overexpressed mice with or without MPTP treatment (as described in Fig. 6D) were shown in (**A** and **B,** respectively).

Quantification of GRP78, GRP94 and CHOP were shown in (**C, D** and **E**) respectively. and the quantification of phospho-mTOR and phospho-AKT1 (Thr^{308} and Ser^{473}) (Fig. 7A, B) were shown in (**F, G** and **H**). Optical densities of individual proteins were obtained from three or more independent experiments and were normalized with β-actin or their respective total proteins. * indicates significance ($p<0.05$) versus untreated control.

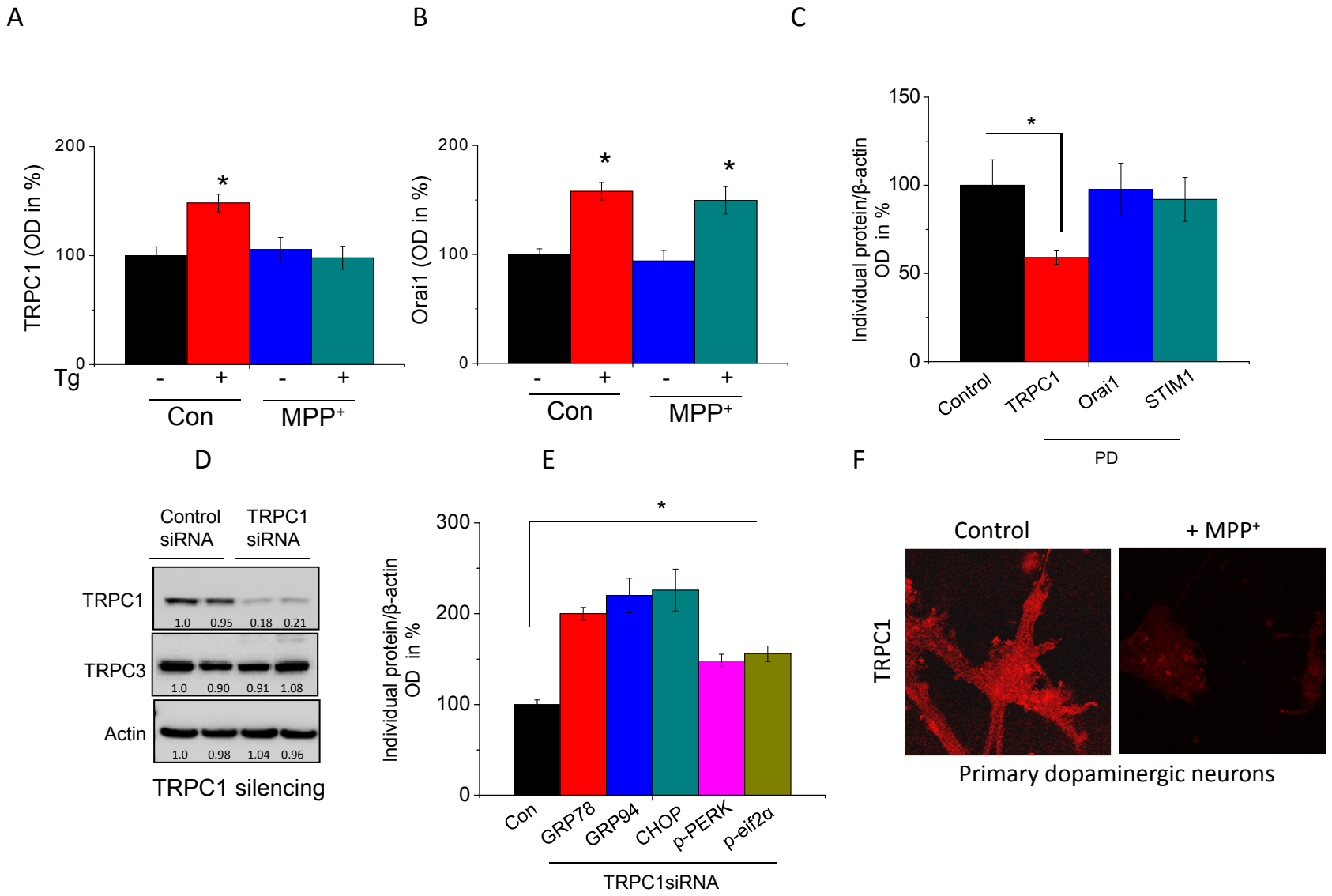
Supplemental Table 1: List of antibodies and suppliers

Antibody	Supplier
anti-TRPC1	Alomone lab, Sigma and Ong et al
anti-TRPC3	Alomone lab
anti-STIM1 and ORAI1	Cell Signaling Technology
anti-GRP78, GRP94 and CHOP	Cell Signaling Technology or Santa Cruz Biotechnology
anti-PERK and phospho-PERK	
anti-eif2α and peif2α	
anti-JNK and pJNK	
anti-AKT1, phospho-AKT1 (Thr^{308} & Ser^{473}) and BDNF	
Tyrosine hydroxylase	Cell Signaling Technology
anti-mTOR and phospho-mTOR (Ser^{2448})	
anti-phospho-4e-bp1 ($Thr^{37/46}$)	
anti-phospho-p70s6kinase (Thr^{389})	
Anti-actin and GAPDH	Calbiochem
Anti-HA and Myc	Sigma Aldrich
Conjugated Secondary antibodies	Pierce

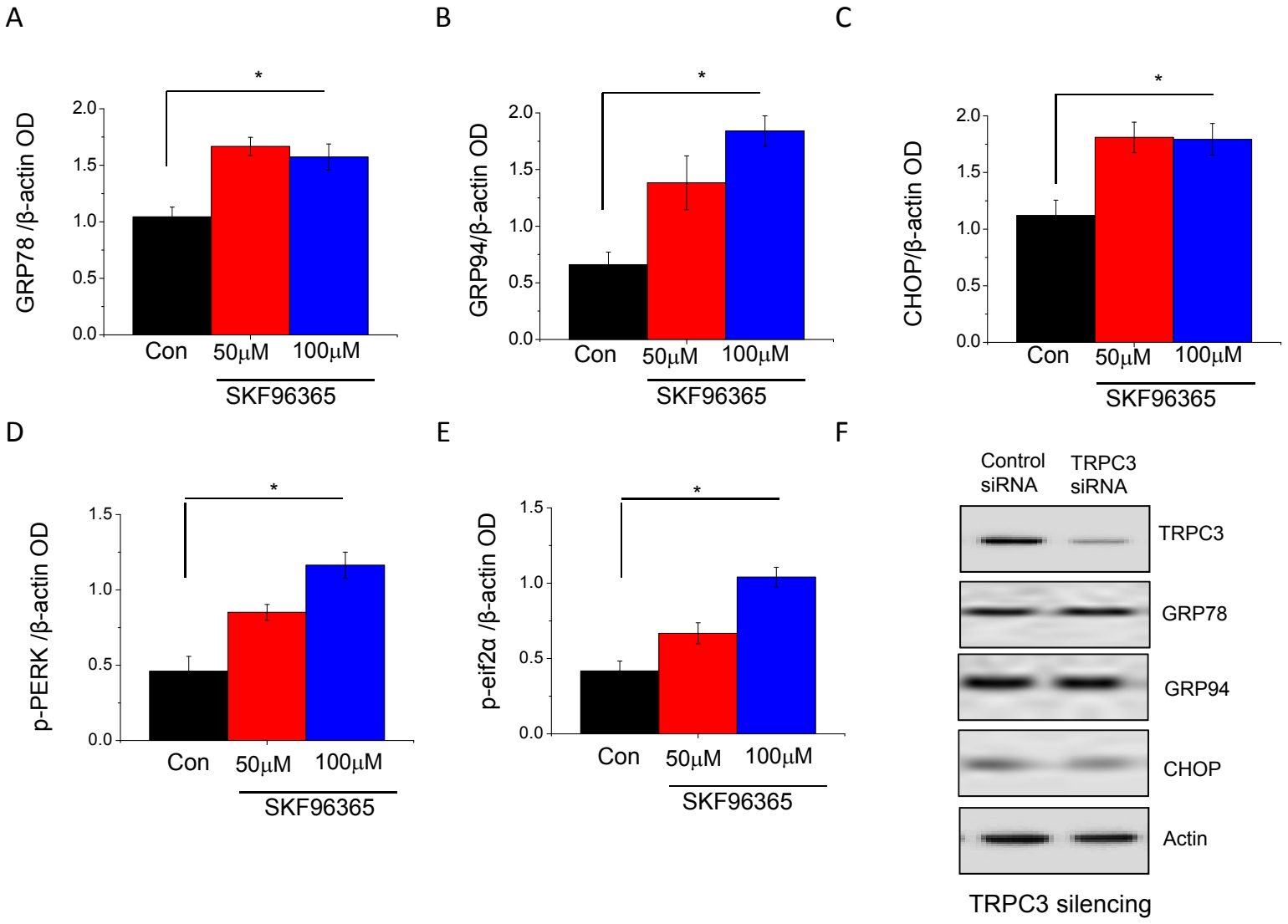
1. Ong HL, et al. Dynamic assembly of TRPC1-STIM1-Orai1 ternary complex is involved in store-operated calcium influx. Evidence for similarities in store-operated and calcium release-activated calcium channel components. J. Biol. Chem. **282**:9105–9116. (2007)



Selvaraj et al., (2011) Supplemental Figure S1



Selvaraj et al., (2011) Supplemental Figure S2



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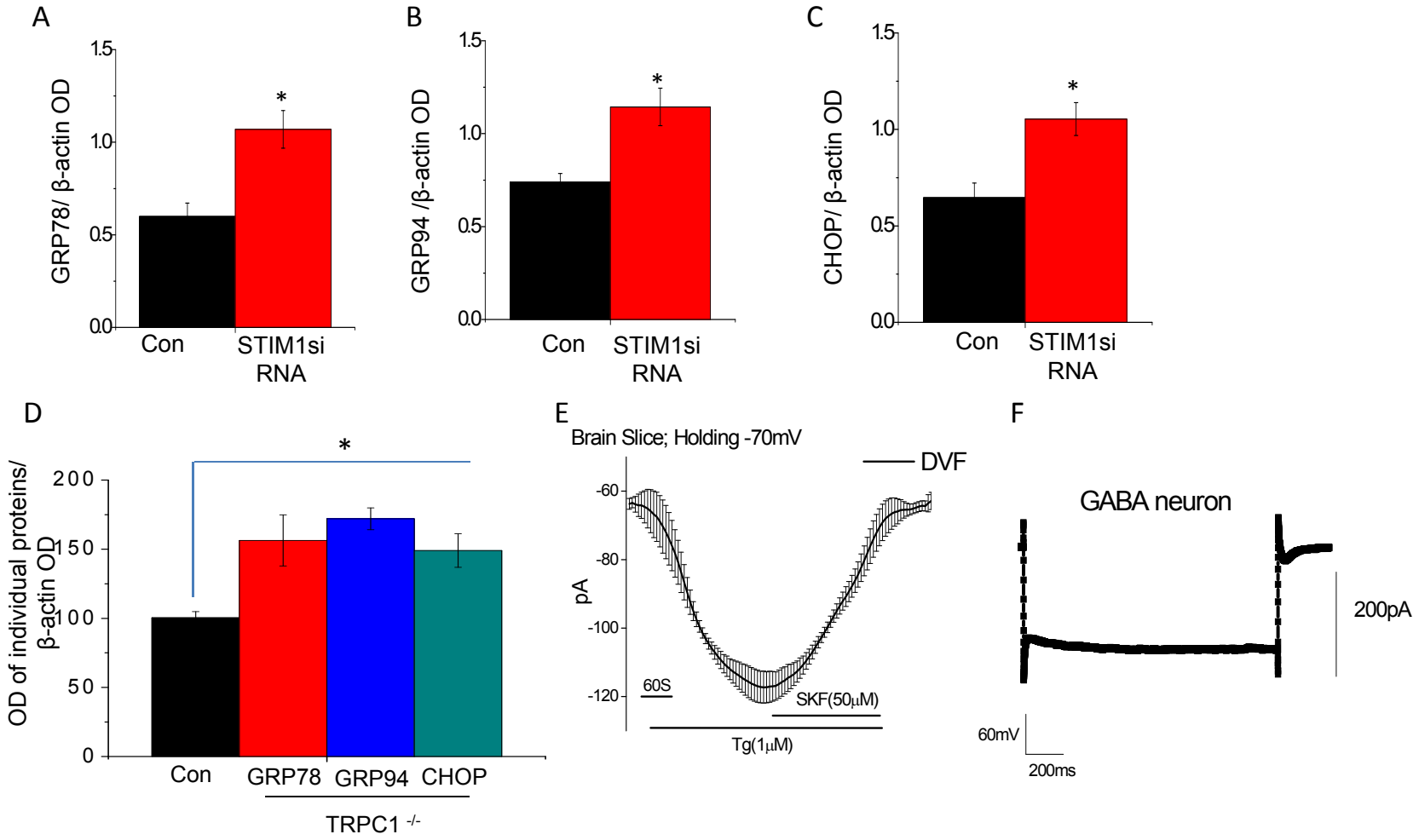
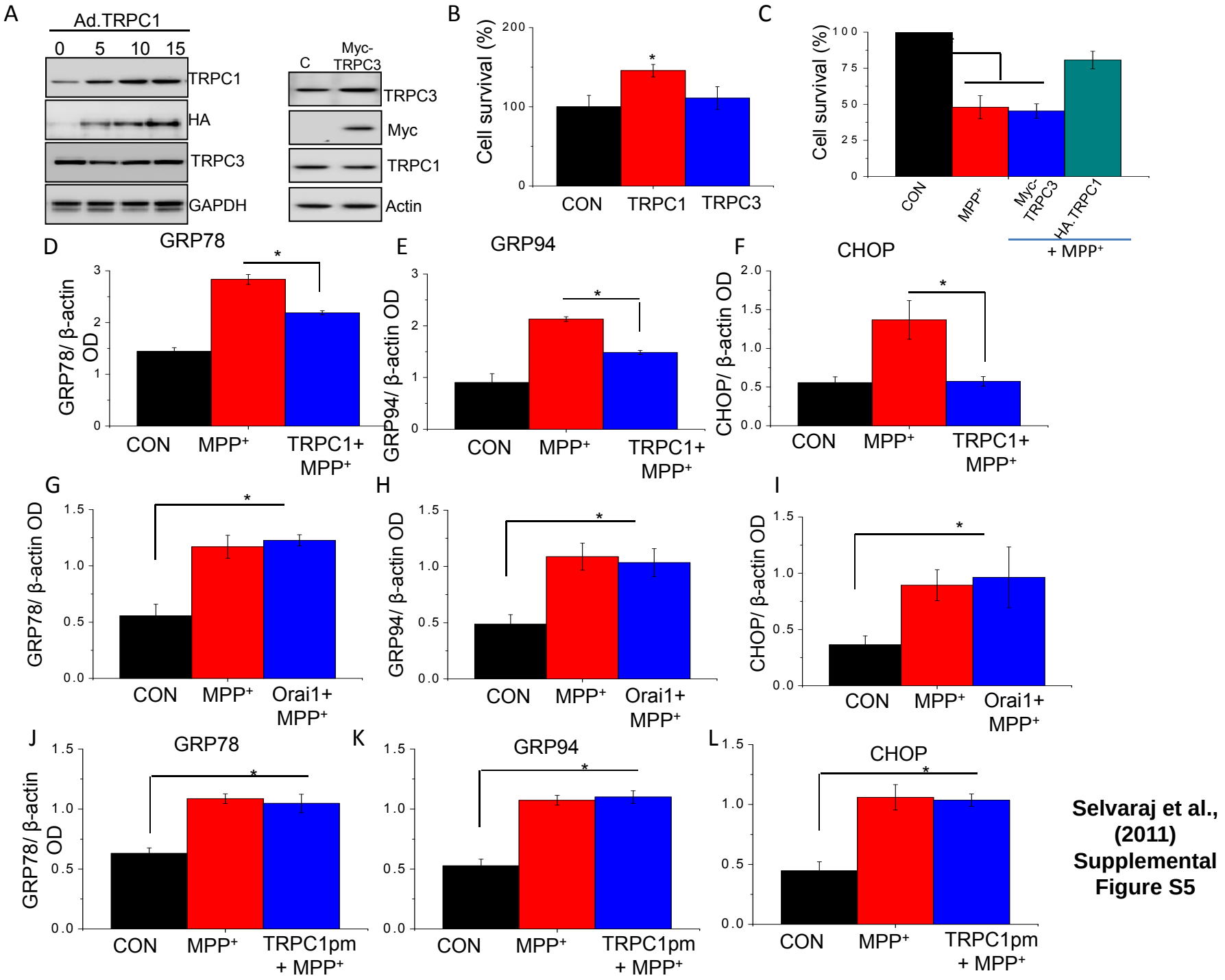
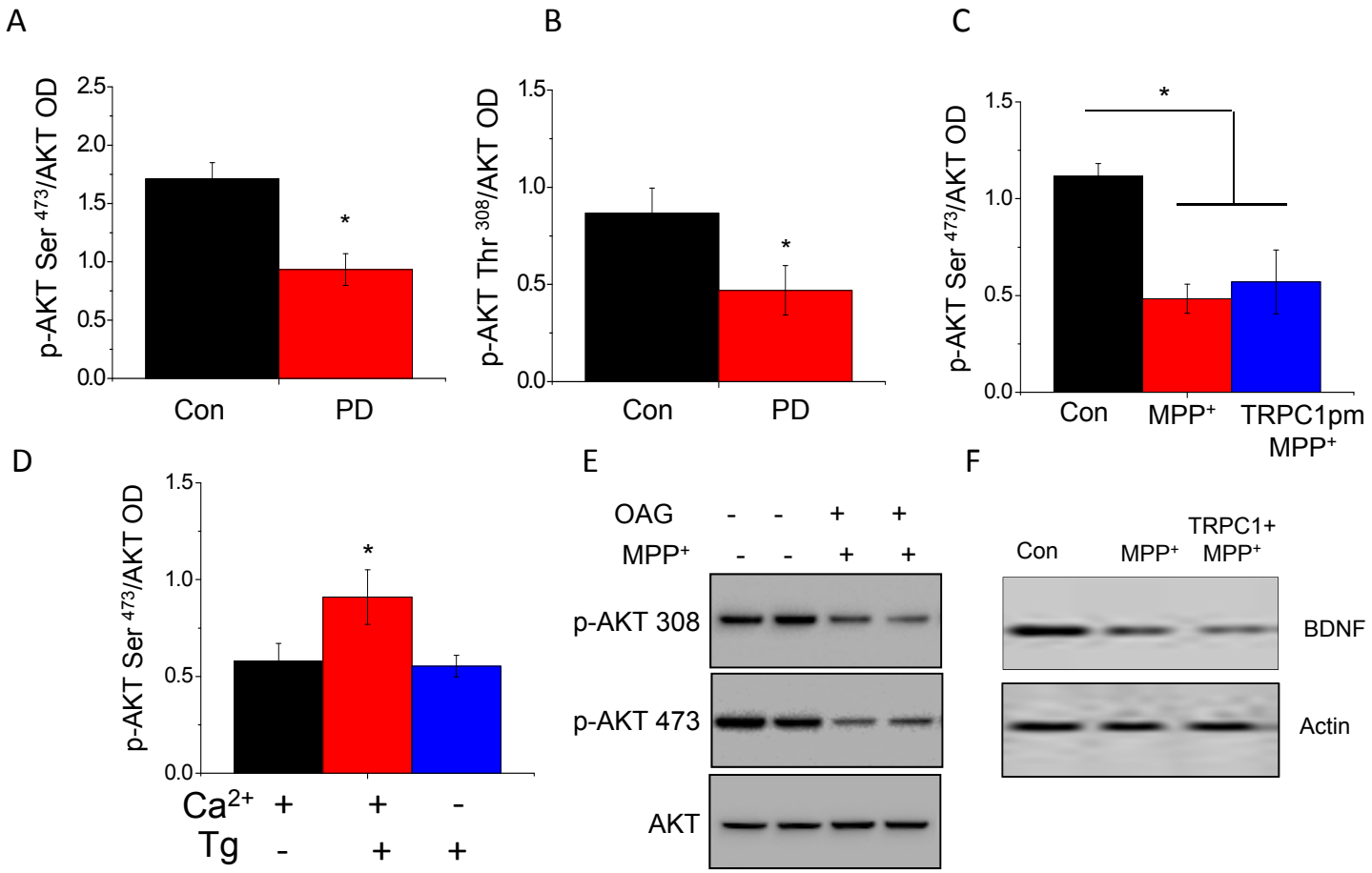


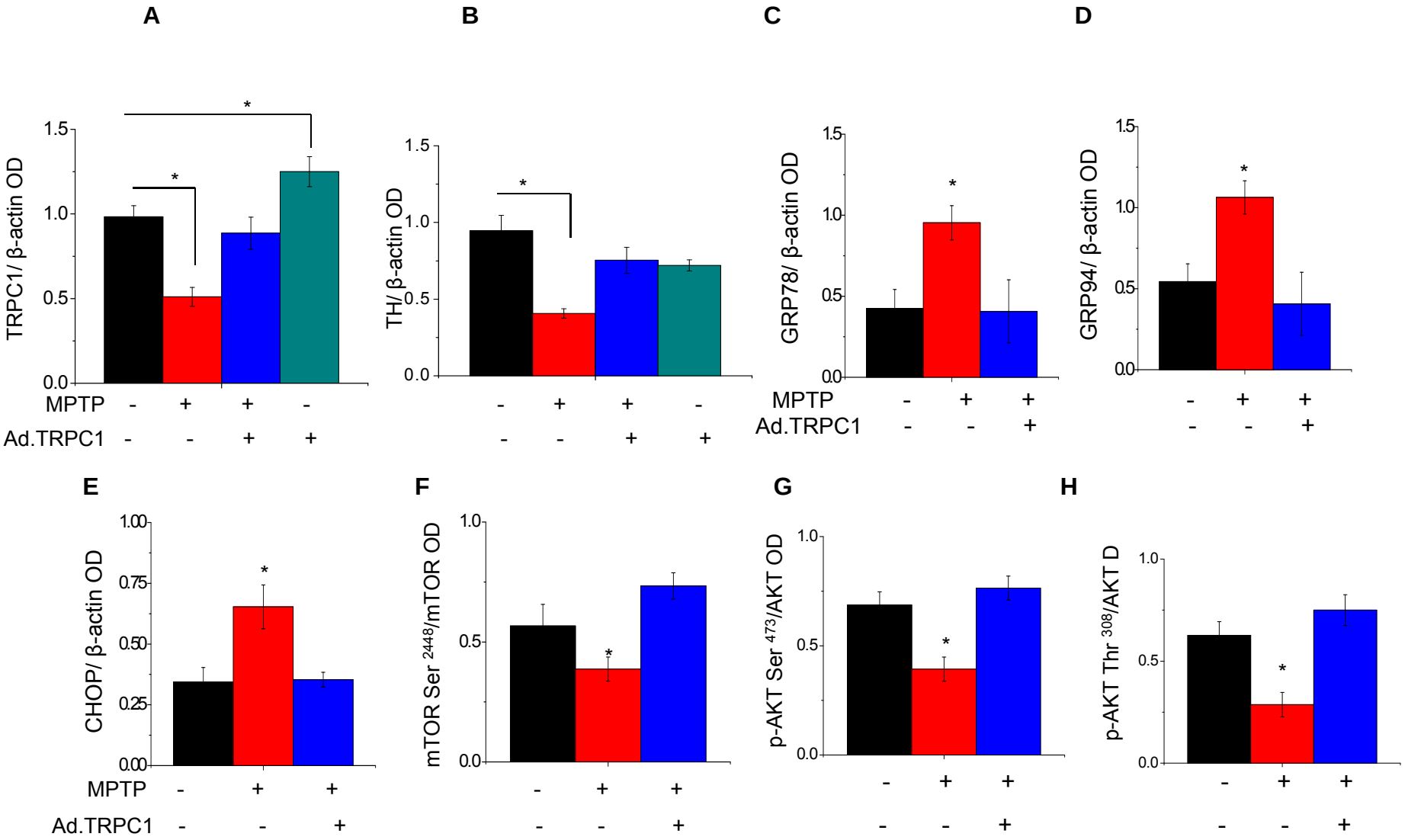
Selvaraj et al., (2011) supplemental Figure S4



Selvaraj et al., (2011) Supplemental Figure S5



Selvaraj et al., (2011) Supplemental Figure S6



Selvaraj et al., (2011) Supplemental Figure S7