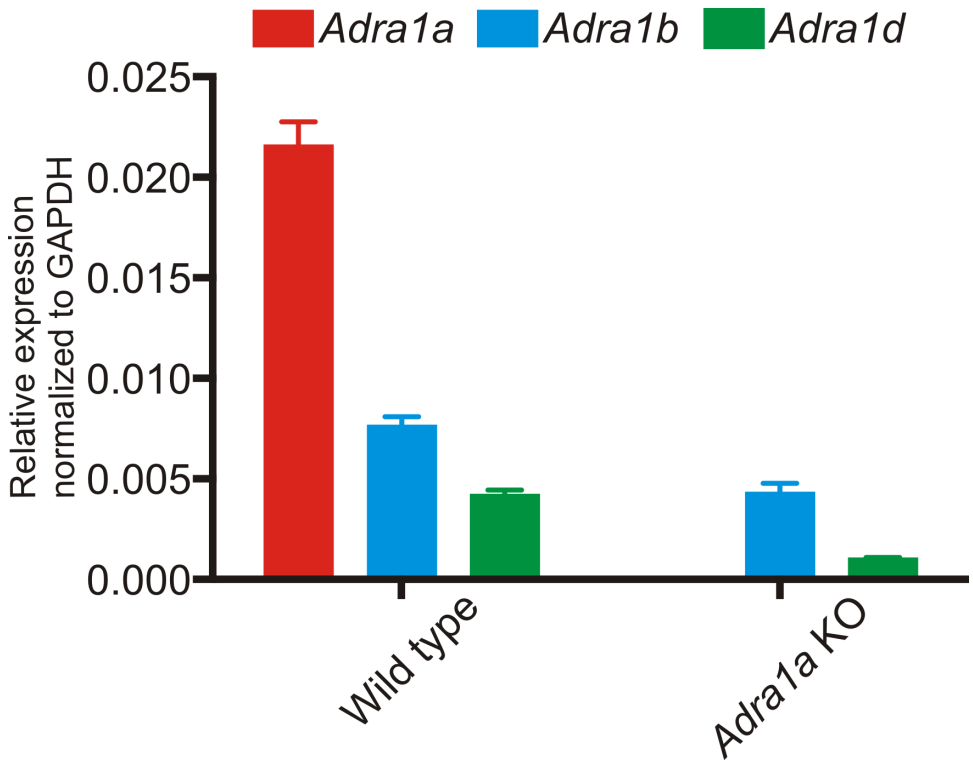
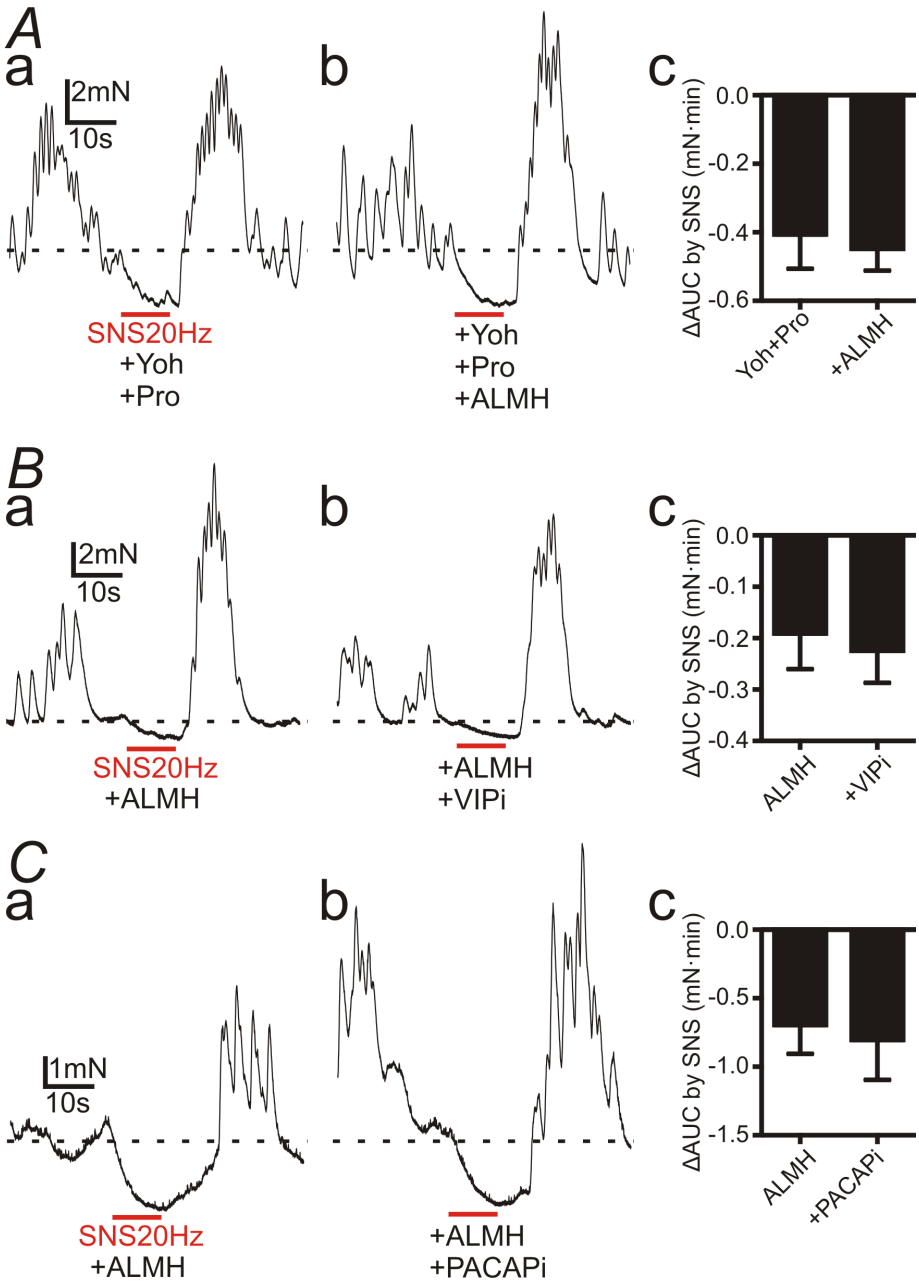
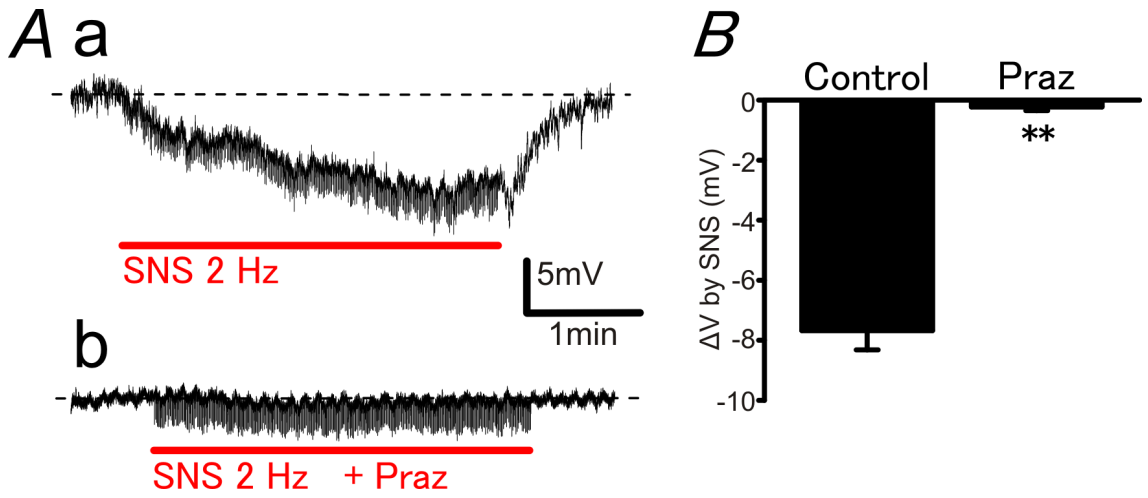


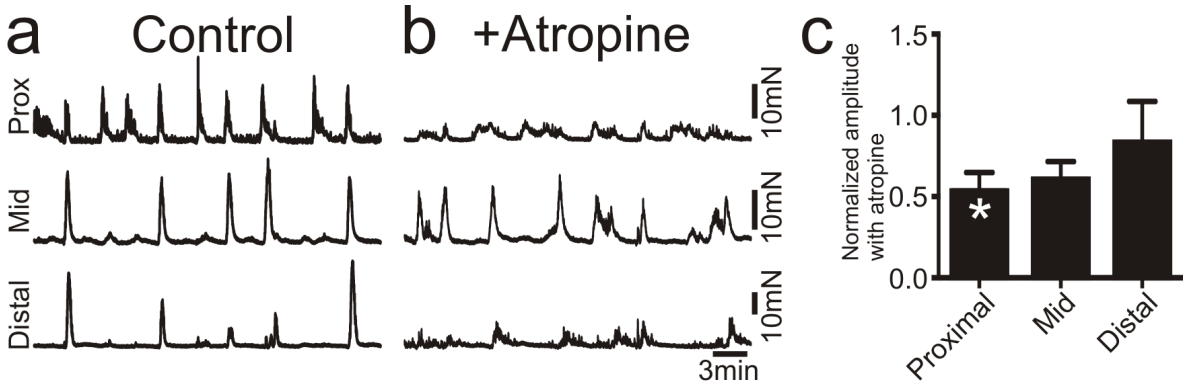
Supplementary Figure 1: The gene expression profile of all members of α1 adrenoceptors (ARs) (*Adra1a, Adra1b and Adra1d*) in the colonic musculature of wild type and Adra1a$^{-/-}$ mice acquired by qPCR from 3 mice of each group. The colonic musculature of *Adra1a*$^{-/-}$ mice don't express the gene of α1A ARs (*Adra1a*) and have no compensatory over expressions of the other members of α1 ARs.



Supplementary Figure 2: Contractile experiments at distal colon of WT mouse in the preparation shown in Figure 4A. All red bars in this figure represent SNS at 20 Hz at 150 V for 10 s. All black lines represent the control baseline of contractions. A: In the presence of α-Yohimbine 100 nM (Yoh) and propranolol 10 μM (Pro), the inhibitory responses of contractions induced by sympathetic nerve stimulation (SNS) at 20 Hz at 150 V for 10s were not affected by the absence or presence of atropine 1 μM (A), L-NNA 100 μM (L), MRS2500 1 μM (M), and hexamethonium 100 μM (H) (ALMH) in the bath solution (Aa and Ab). Ac depicts summary of ΔAUC by SNS (AUC during SNS - the 10s average of AUC for 1 min before SNS). There are no significant differences between ΔAUC with or without ALMH (P = 0.57). The actual values of ΔAUC (mN•min) with Yoh + Pro and Yoh + Pro + ALMH were -0.41 ± 0.10 and -0.45 ± 0.063, respectively (n = 5). B: In the presence of ALMH, the responses of distal colon induced by SNS at 20 Hz at 150 V for 10s were not affected by the absence or presence of VIP inhibitor, [D-p-Cl-Phe^{6},Leu^{17}]-VIP 1 μM (VIPi) (Ba and Bb). Bc depicts summary of ΔAUC by SNS. There are no significant differences between ΔAUC without and with VIPi (P = 0.41). The actual values of ΔAUC (mN•min) without or with VIPi were -0.19 ± 0.070 and -0.22 ± 0.062, respectively (n = 4). C: In the presence of ALMH, the responses of distal colon induced by SNS at 20 Hz at 150 V for 10s were not affected by the absence or presence of PACAP inhibitor, PACAP 6-38 2 μM (PACAPi) (Ca and Cb). Cc depicts summary of ΔAUC by SNS. There are no significant differences between ΔAUC without and with PACAPi (P = 0.41). The actual values of ΔAUC (mN•min) without or with PACAPi were -0.70 ± 0.21 and -0.80 ± 0.29, respectively (n = 5).



Supplementary Figure 3: The effects of sympathetic nerve stimulation (SNS) at 2 Hz for 3 min on membrane potentials of distal colon circular smooth muscle cells (CSMCs) in WT mouse in the presence of A, L, M and H as described in Supplementary Fig. 3. All red bars in this figure represent SNS at 2 Hz at 150 V for 3 min . A: SNS (2 Hz) induced a slow hyperpolarization (Aa), which was inhibited by pretreatment of prazosin (Praz) 1 μM (Ab). B: Summary showing the effects of Praz on SNS (2 Hz) induced hyperpolarization (n = 5). The values of ΔV (mV) by SNS of the control and with prazosin are -7.63 ± 0.66 and -0.23 ± 0.06, respectively. $^{**}P < 0.01$, significant difference from control responses. The resting membrane potentials was −48 mV. Aa and Ab were obtained from the same tissue.



Supplementary Figure 4: Tension recordings at proximal (Prox), mid and distal colon in the preparation shown in Figure 4A. a and b show spontaneous CMMC with or without atropine 1 μM respectively. c: Summary of normalized amplitude of CMMC with atropine (n = 5). The actual value of normalized amplitude with atropine at proximal, mid and distal colon were 0.53 ± 0.11, 0.61 ± 0.11 and 0.83 ± 0.25, respectively. White asterisks mean statistically significant difference of the values against controls. * $P = 0.048$.