O'Leary *et al*. Supplemental Figure 1

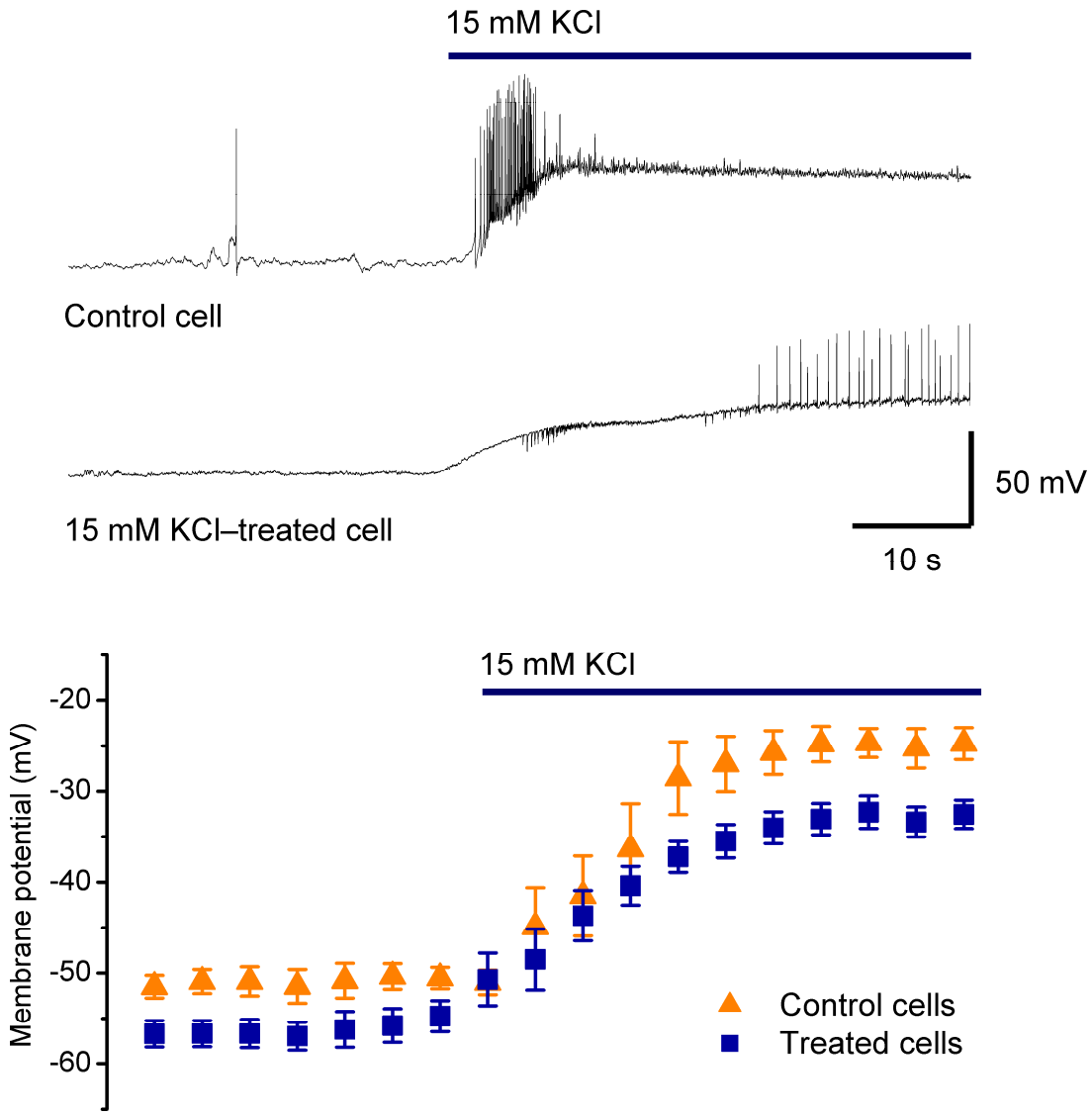

Figure S1. Bath-applied KCl: control and treated cells.
(*Top*) example recordings of cells in current-clamp showing the effect of acute bath application of 15 mM KCl after a baseline period in external solution containing 5.4 mM KCl. These KCl concentrations are chosen to match those in the culture media during incubation. Both cells are recorded at 11 DIV. (*Bottom*) quantification of the average membrane potential of 6 cells (8-11 DIV) in each condition, averaged at 5-second intervals. The final membrane potential for each group is −24.7 ± 1.6 mV (control) and −32.3 ± 1.7 mV (15 mM KCl treated cells, $p < 0.01$).

O'Leary *et al*. Supplemental Figure 2

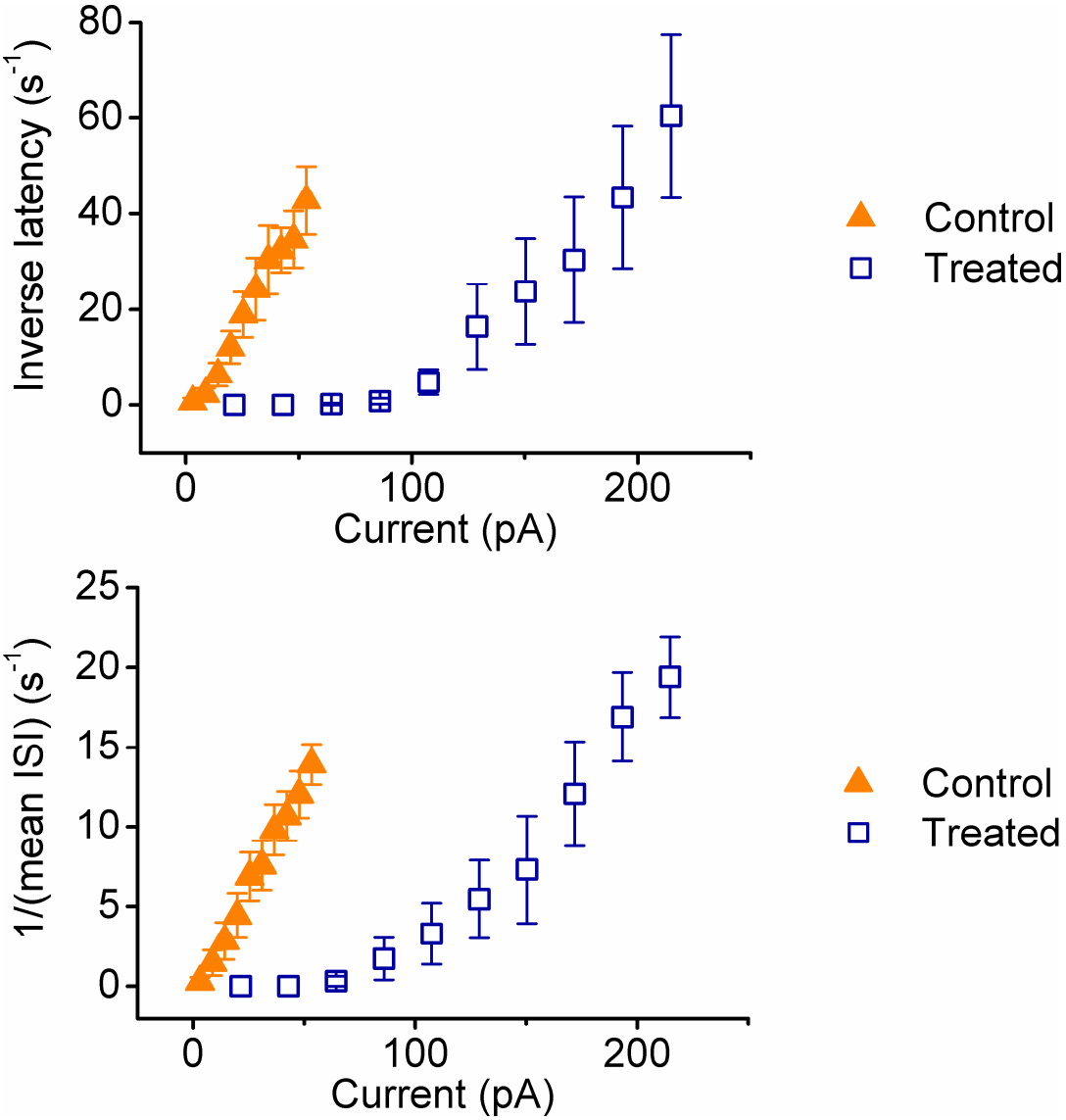

Figure S2. First spike latency and mean inter-spike-interval (ISI) measures in control and treated cells

(Top) inverse spike latency, defined as the reciprocal of the time delay (in ms) to first spike from the onset of stimulation, or zero if the cell does not spike. All recordings were performed at 8-11 DIV. (*Bottom*) reciprocal mean inter-spike-interval for spike trains comprising two or more action potentials, set to zero otherwise.

O'Leary *et al*. Supplemental Figure 3

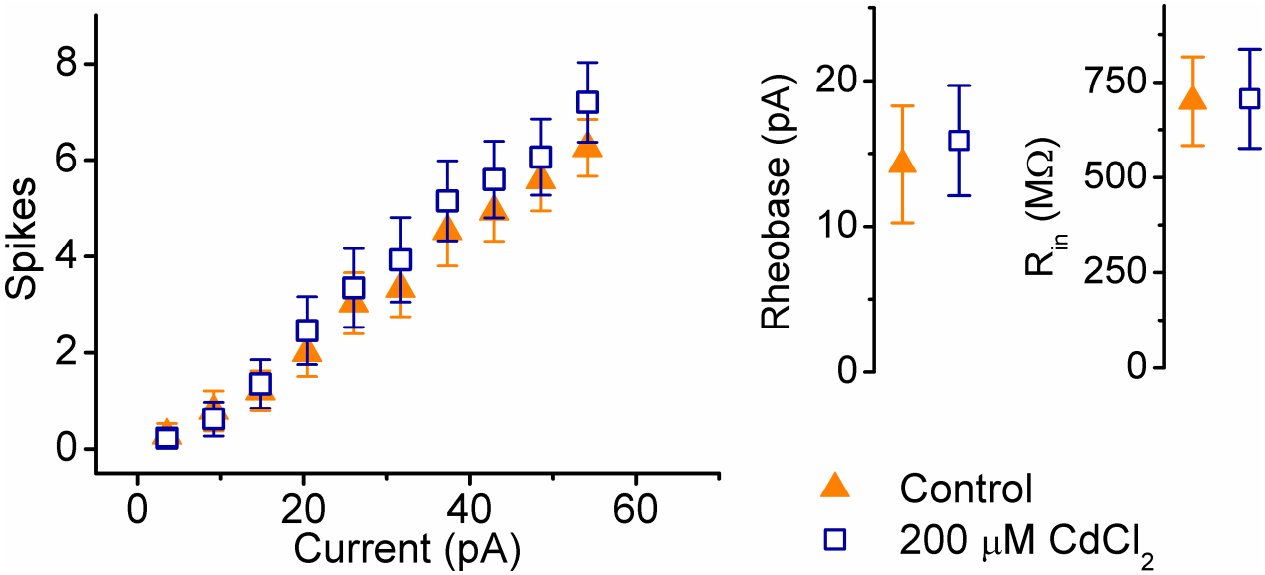

Figure S3. Effect of calcium conductance blockade on intrinsic properties of control cells

Pooled FI curves for control cells (n = 11) recorded in the absence and presence of 200 μM $CdCl_2$, with mean rheobase current threshold (right) and input resistance estimates (far right).

O'Leary *et al*. Supplemental Figure 4

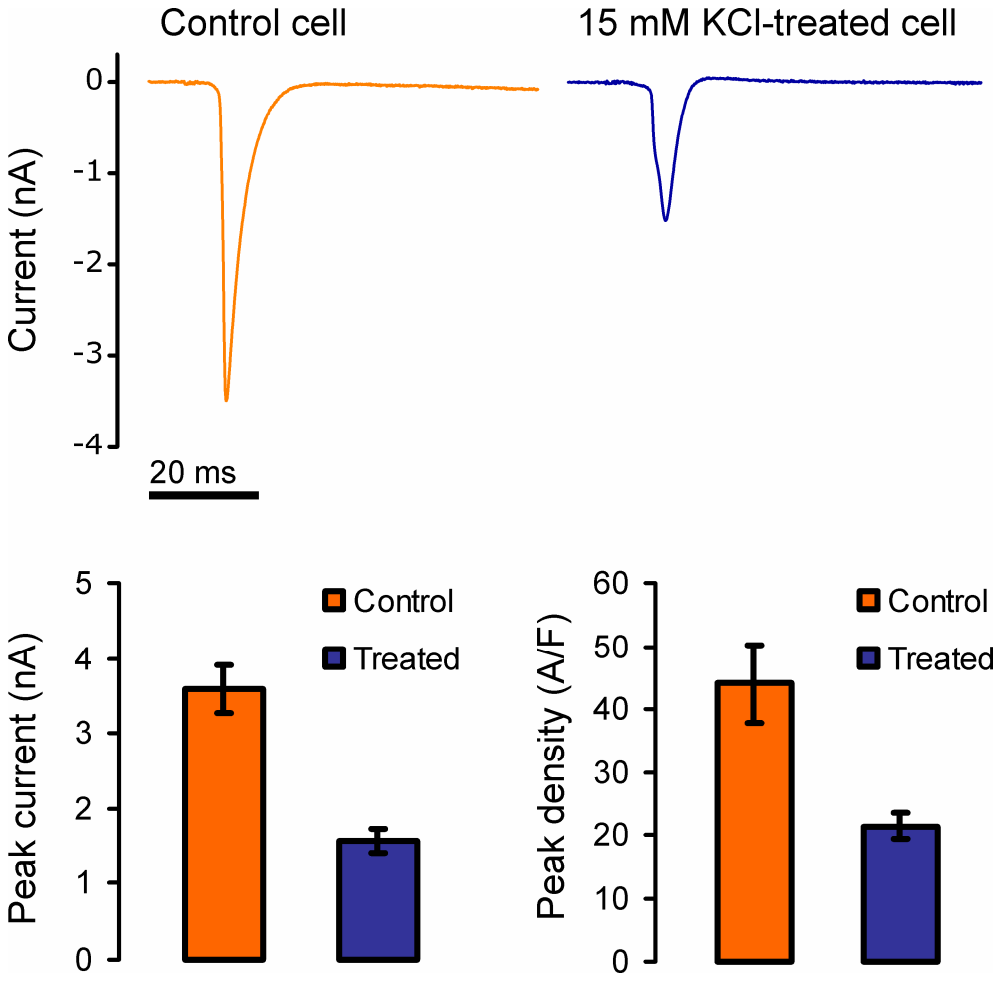

Figure S4. TTX-sensitive inward currents in treated and control cells
(Top) Example inward current traces for a treated and control cell step-depolarized in voltage-clamp from a holding potential of –80 mV to –30 mV in the presence and absence of TTX (1 μM). The traces shown are the result of subtracting membrane current recorded in the presence of TTX from that recorded in its absence in the same cell. *(Bottom left)* mean of the peak inward TTX-sensitive current in control (n = 15) and treated (n = 17) cells recorded at 8-11 DIV. Maximum values (at a step potential of −30 mV) are significantly different between conditions: −3777 ± 321 pA for control and −1537 ± 190 pA for treated cells, ($p = 2\times10^{-5}$, t-test). *(Bottom right)* current amplitude normalised to cell capacitance. Peak density amplitudes are also significantly different between groups ($p = 3.5\times10^{-3}$, t-test). Mean access resistance values for both groups were not statistically significantly different (control: 21.5 ± 1.4 MΩ, treated: 21.7 ± 1.6 MΩ; p = 0.9, t-test).