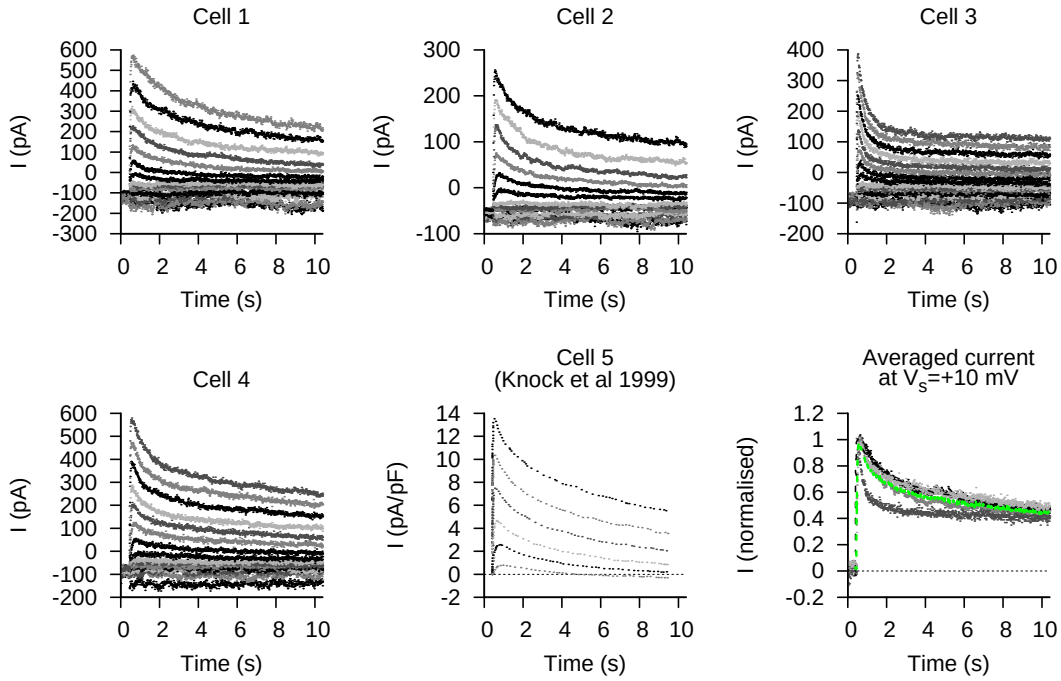

Figure S4. Experimental current tracings of I_{K1} from five cells and an example of extrapolated I_{K1} at the voltage step (V_s) +10 mV averaged from these five cells. The data for *Cell 1-4* are unpublished data provided by Knock G & Aaronson P (personal communication); data for the fifth cell is from Knock *et al.*, [19]. I_{K1} currents were induced in these cells during a 10 s voltage-clamp at different V_s from a holding potential (V_h) of −80 mV. The membrane potentials were increment every 10 mV steps from −100 mV to: +40 mV (*Cell 1*), +30 mV (*Cell 2*), +50 mV (*Cell 3, Cell 4*), and from −40 mV to +10 mV in Knock *et al.*, [19]; each V_s is separated by a different shade of gray. The steps taken to produce the averaged current tracings for I_{K1} from −40 mV to +30 mV were as follows. For each current tracing in *Cell 1-5*, the values are first offset to zero (so that the current tracing is at zero during V_h), then normalized to the peak value at V_s= +10 mV. At each V_s, the current values at each time instant from different cells were summed and divided by the total number of cells (for −40 mV to +10 mV, n=5; for +20 mV to +30 mV, n=4); this gave an averaged current tracing for a specific V_s. The example shows an extrapolated I_{K1} at V_s= +10 mV (*green*), superimposed with the tracings from the five cells at the same V_s (*different shade of gray*). The averaged current tracings were used for extracting activation and inactivation time constants and for validation of I_{K1} under voltage-clamp conditions.