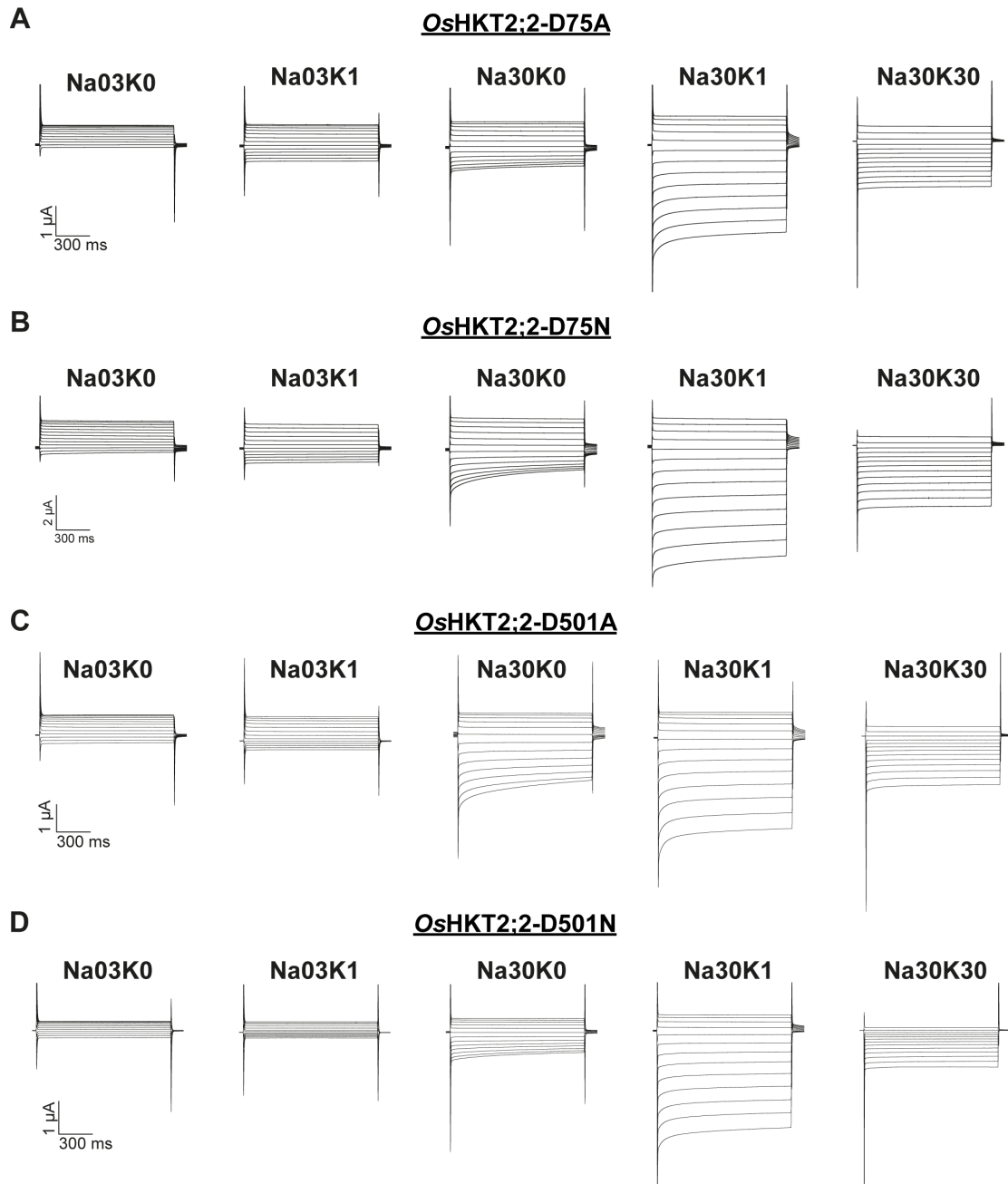
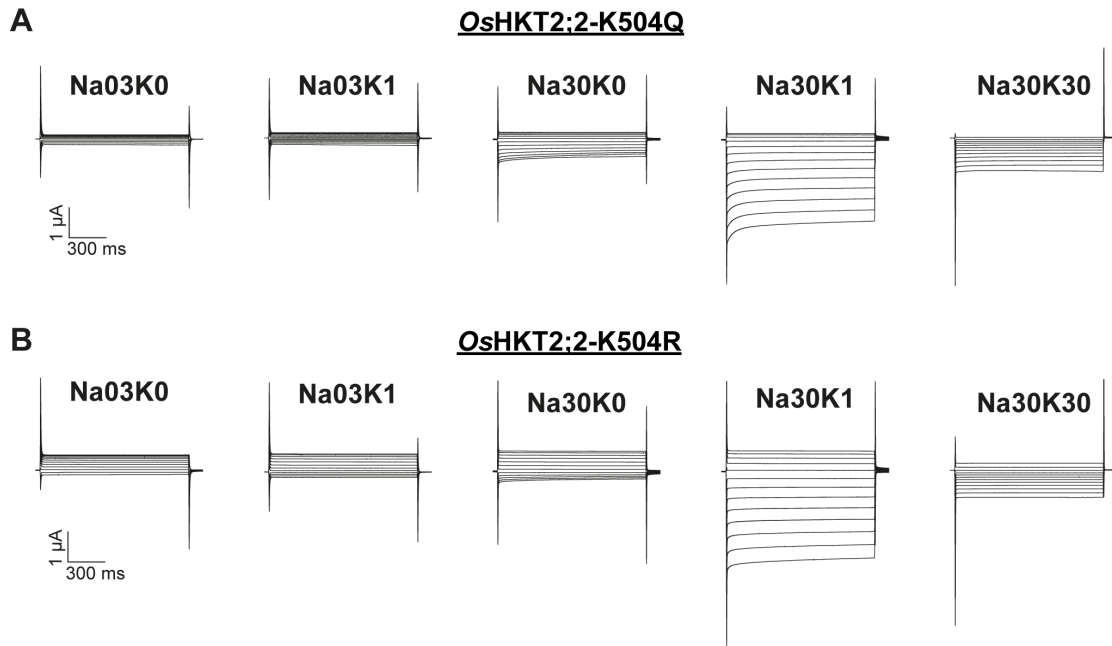


Supporting Figure 1: D75A, D75N, D501A and D501N mutants behave comparable to *OsHKT2;2*-wt. Representative currents recorded in *Xenopus* oocytes two days after cRNA injection at indicated Na⁺ and K⁺ concentrations: Na03K0 - 0.3mM NaCl without KCl, Na03K1 - 0.3mM NaCl and 1mM KCl, Na30K0 - 30mM NaCl without KCl, Na30K1 - 30mM NaCl and 1mM KCl, Na30K30 - 30mM NaCl and 30mM KCl. A pulse at holding potential (zero current level) was followed by 1s voltage pulses from +20 to -160mV in -15mV decrements and continued with a final pulse at holding potential for 1.5s.



Supporting Figure 2: Mutants K504R and K504Q show altered kinetic characteristics in comparison to *OsHKT2;2*-wt. Representative currents recorded in *Xenopus* oocytes two days after cRNA injection at indicated Na⁺ and K⁺ concentrations: Na03K0 - 0.3mM NaCl without KCl, Na03K1 - 0.3mM NaCl and 1mM KCl, Na30K0 - 30mM NaCl without KCl, Na30K1 - 30mM NaCl and 1mM KCl, Na30K30 - 30mM NaCl and 30mM KCl. A pulse at holding potential (zero current level) was followed by 1s voltage pulses from +20 to -160mV in -15mV decrements and continued with a final pulse at holding potential for 1.5s.



Supporting Figure 3: Currents elicited in control cells. (A) Representative currents recorded in *Xenopus* oocytes at indicated Na⁺ and K⁺ concentrations: Na03K0 - 0.3mM NaCl without KCl, Na03K1 - 0.3mM NaCl and 1mM KCl, Na30K0 - 30mM NaCl without KCl, Na30K1 - 30mM NaCl and 1mM KCl, Na30K30 - 30mM NaCl and 30mM KCl. Control oocytes underwent the same handling and incubation procedure as injected oocytes and were measured on the same day as cRNA injected oocytes. A pulse at holding potential (zero current level) was followed by 1s voltage pulses from +20 to -160mV in -15mV decrements and continued with a final pulse at holding potential for 1.5s. (B) Representative current-voltage (IV) curves extracted from current traces shown in (A). For comparison the mean IV curve of *OsHKT2;2-wt* from Figure 1G is presented (x).

