



Supplementary Figure 3. Permeation properties of the endogenous Ca^{2+} -activated cation current in BMMCs. **(a)** Whole cell current traces from a *Trpm4*^{+/+} BMMC in response to linear voltage ramps from -100 to +100 mV ($V_h = 0\text{mV}$), dialyzed with $10\mu\text{M}$ Ca^{2+} pipette solution, in an extracellular solution containing 156mM Na^+ , Li^+ , Cs^+ or NMDG^+ as indicated. **(b)** Current traces as in panel **a**, in an extracellular solution containing 156mM Na^+ , 156mM NMDG^+ or 100mM Ca^{2+} as indicated. **(c)** Permeability ratios for different cations calculated after correction of the reversal potential of currents as in panel **a** for the liquid junction potential, as described in². ($n=6-8$). **(d)** Current traces from *Trpm4*^{-/-} BMMCs in response to a voltage protocol as in panel **a**. Colors are the same as in panel **a**. **(e)** Normalized current values for different cation-containing extracellular solutions from *Trpm4*^{+/+} and *Trpm4*^{-/-} cells (as in panels **a-d**), measured at -80mV . Currents were normalized to the value in 156mM Na^+ -containing solution (*Trpm4*^{+/+}, $n=6$; *Trpm4*^{-/-}, $n=8$).