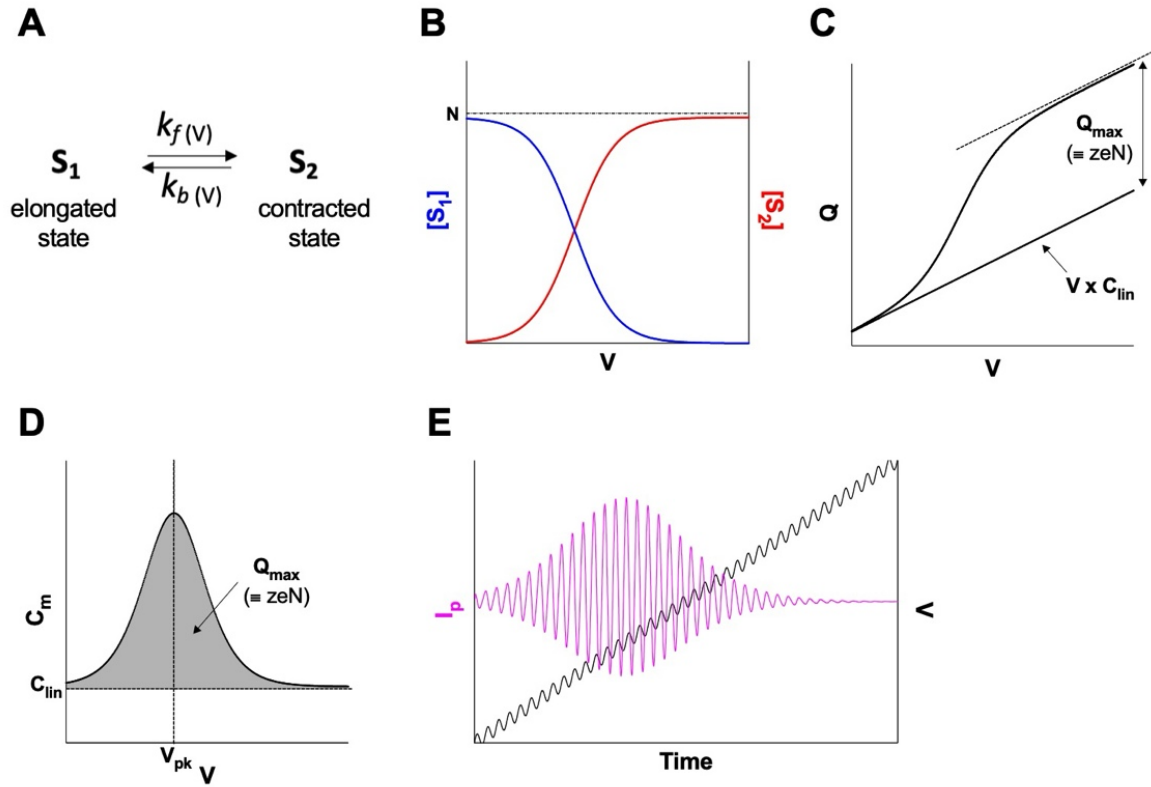


**Figure S2. The V393R missense change does not confer HCO<sub>3</sub><sup>-</sup>/Cl<sup>-</sup> antiport activity on SLC26A9.** HCO<sub>3</sub><sup>-</sup>/Cl<sup>-</sup> antiport rates were measured as in Fig. 6 using HEK293T cells expressing hA4-WT (positive control), hA9-WT, or hA9-V393R in a doxycycline (Dox)-dependent manner and plotted against Dox concentrations used. A horizontal dashed line indicates the basal transport rate of non-induced cells (negative control). Error bars indicate standard deviation. Solid lines indicate linear regressions (log<sub>10</sub>[Dox] vs. transport rates). *F*-tests found a Dox-dependent increase in the anion transport activity for hA4-WT ( $p < 0.0001$ ) but not for hA9-WT ( $p = 0.078$ ) or hA9-V393R ( $p = 0.91$ ), indicating that V393R does not confer HCO<sub>3</sub><sup>-</sup>/Cl<sup>-</sup> antiport activity on SLC26A9.



**Figure S3. Nonlinear capacitance of prestin.** (A)  $S_1$  and  $S_2$  represent voltage-dependent conformational states of prestin. Transitions between these two states are governed by the two voltage-dependent rate constants,  $k_f(V)$  (Eq. 4) and  $k_b(V)$  (Eq. 5). (B) A graphical representation of Eqs. 9 and 10. (C) A graphical representation of Eq. 11. (D) A graphical representation of Eq. 1. (E) A prestin-associated current,  $I_p$  (magenta), elicited by a ramped sinusoidal voltage stimulus (black).