

Cherny et al., <http://www.jgp.org/cgi/content/full/jgp.201511456/DC1>

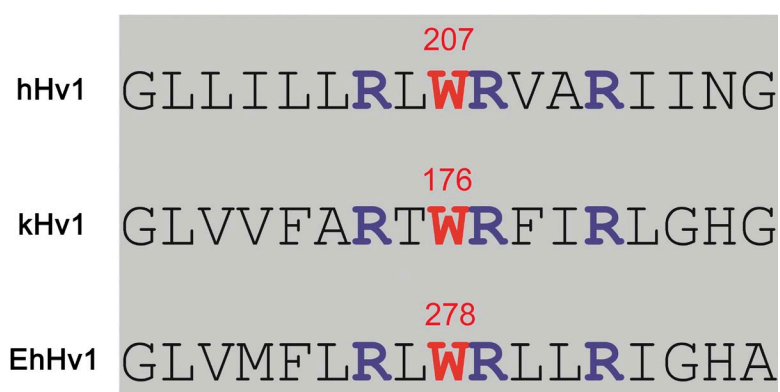


Figure S1. Sequence of the S4 segment in hH_v1, kH_v1, and EhH_v1. The signature sequence that defines H_v1 (together with Asp in the S1 helix) encompasses RxWRxxR. The three species studied are *Homo sapiens* (hH_v1), *Karlodinium veneficum* (kH_v1), and *Emiliana huxleyi* (EhH_v1).

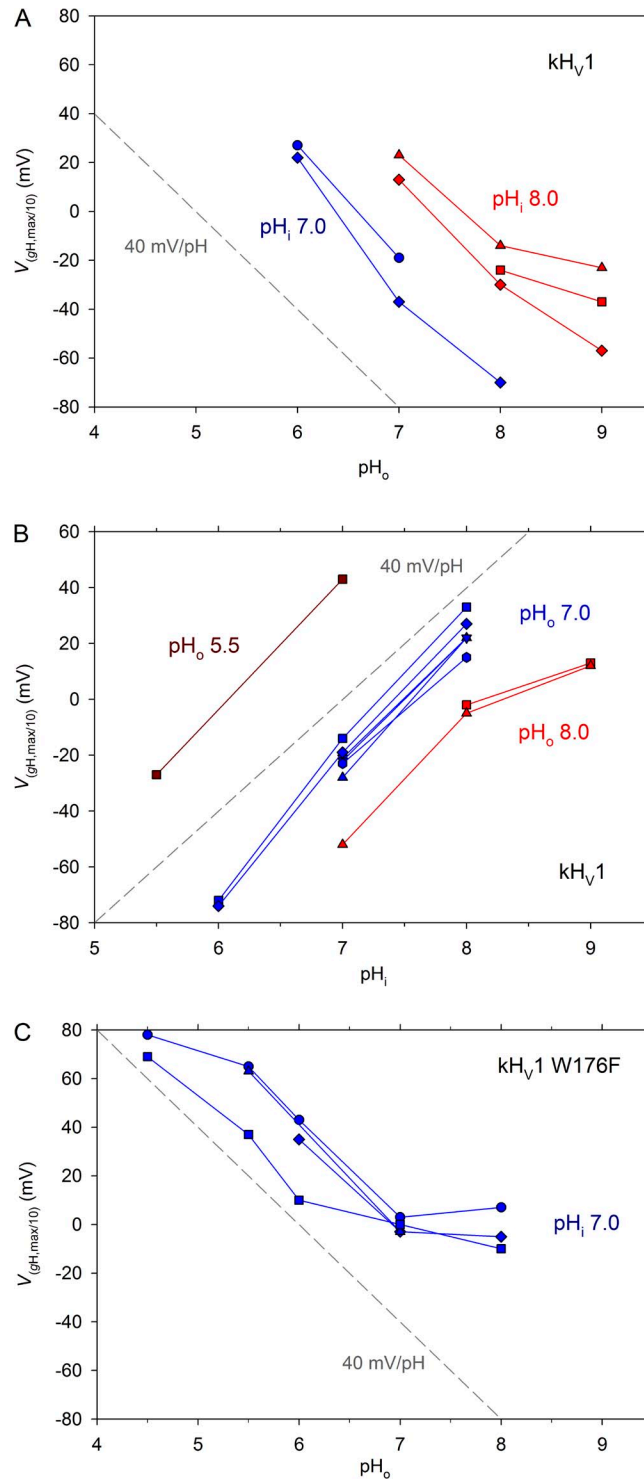


Figure S2. Saturation of the ΔpH dependence of WT kH_v1 and of W176F mutant of kH_v1 . The voltage at which g_H is 10% maximal is plotted as a function of pH_o (A and C) or pH_i (B), with lines connecting measurements in the same cell. In whole-cell measurements, pH_i is color coded, as indicated. In inside-out patches, pH_o is color coded, as indicated. For reference, the dashed gray line in each graph shows the slope of the ubiquitous 40-mV/U ΔpH shift in the g_H - V relationship; the position of this line is arbitrary. C illustrates that saturation occurs at lower pH_o in W176F.

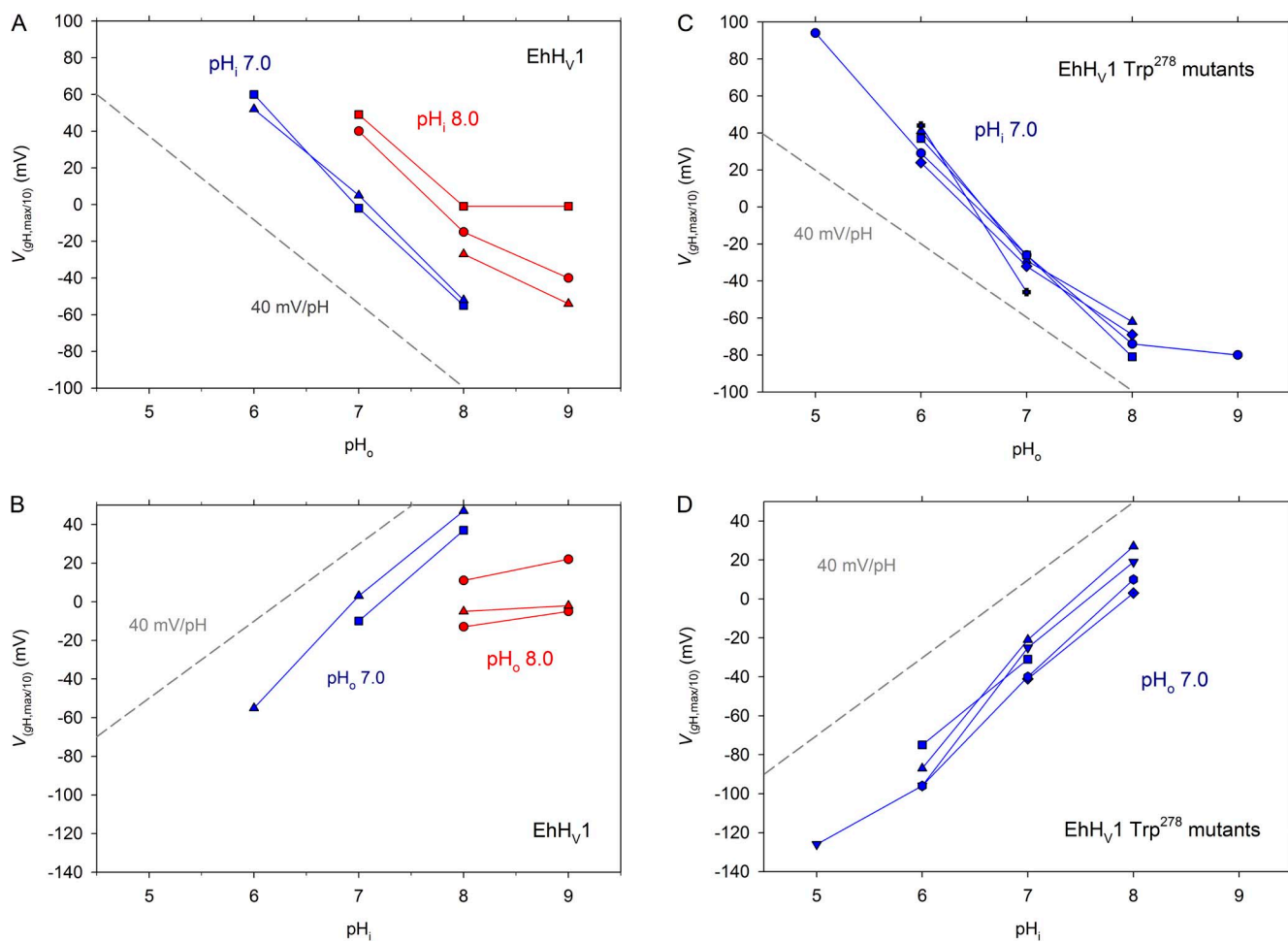


Figure S3. Saturation of the ΔpH dependence of WT EhH_v1 and of W278X mutants of EhH_v1. The voltage at which g_{H^+} is 10% maximal is plotted as a function of pH_o (A and C) or pH_i (B and D), with lines connecting measurements in the same cell. In whole-cell measurements, pH_i is color coded, as indicated. C includes three W278A, one W278E, and one W278S; D includes one W278A, one W278E, and three W278S. In inside-out patches, pH_o is color coded, as indicated. For reference, the dashed gray line in each graph shows the slope of the 40-mV/U ΔpH shift in the g_{H^+} - V relationship; the position of this line is arbitrary.