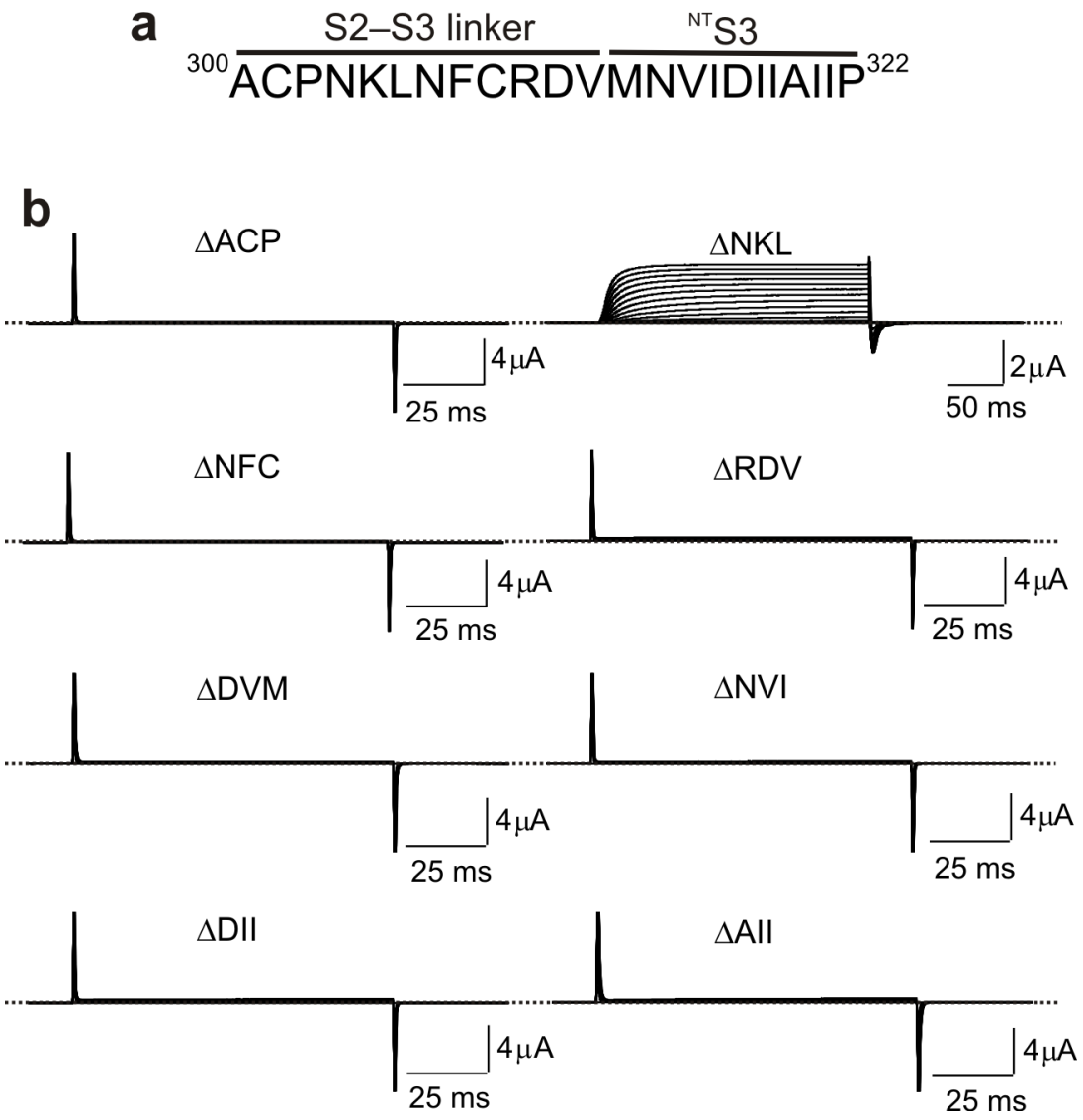
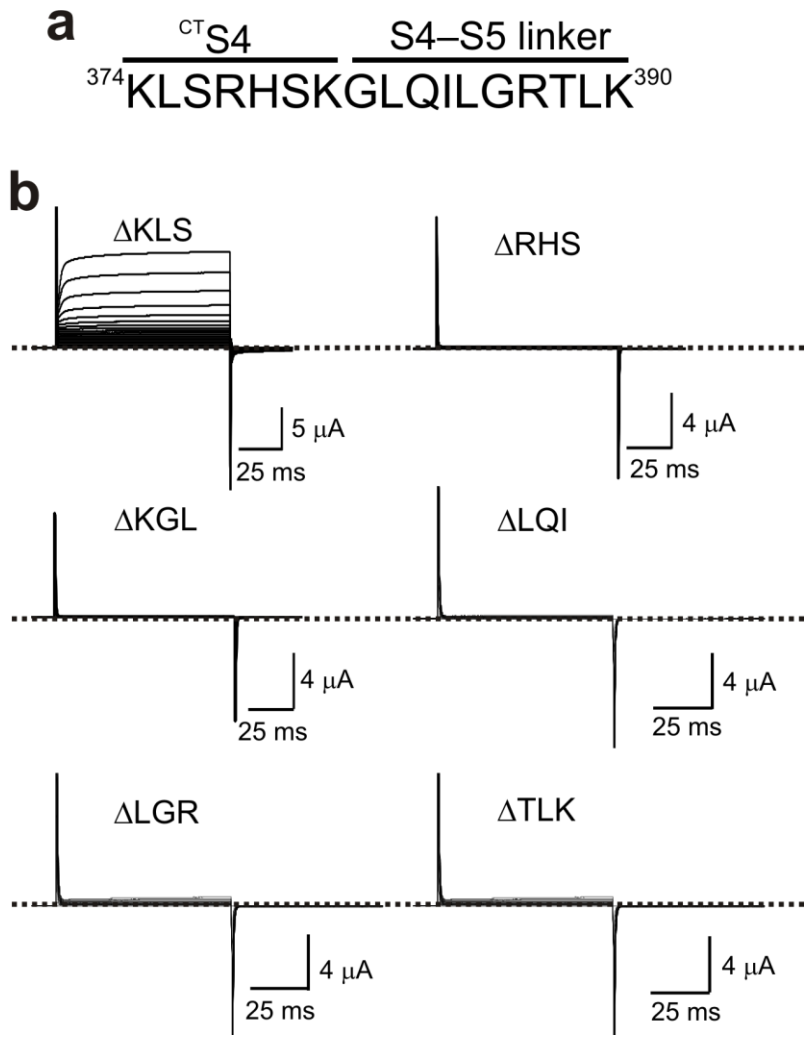
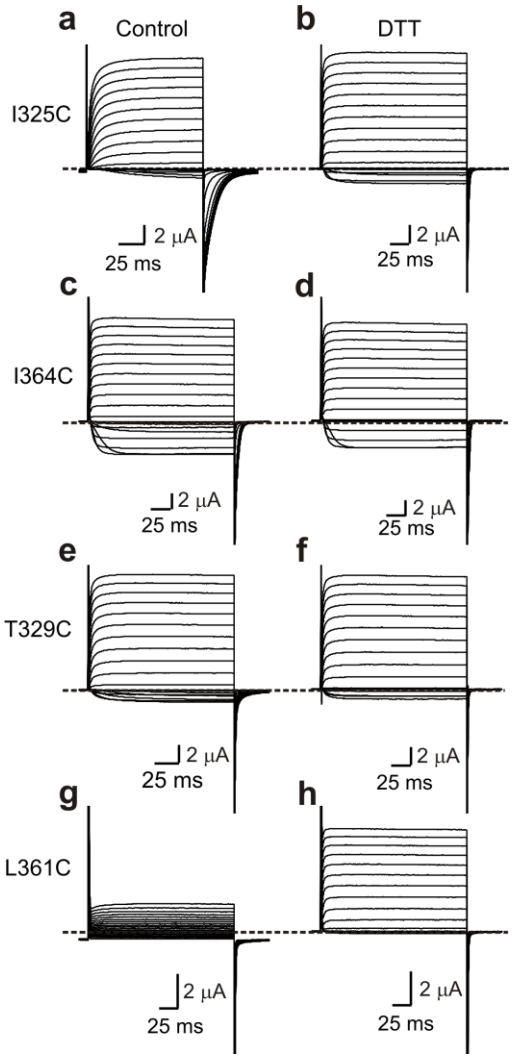
Supplementary figures



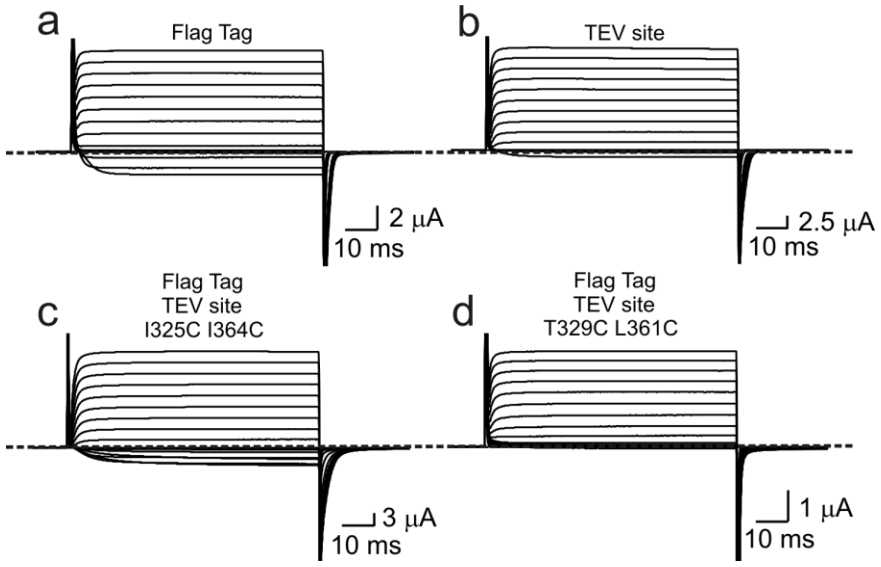
Supplementary Figure 1. Deletion analysis of the S2–S3 linker and ^{NT}S3. (**a**) Sequence of the S2–S3 linker through ^{NT}S3. (**b**) Mutant channel currents elicited by stepping from the -100 mV holding potential to 120 mV in 10 mV increments. In each of the eight mutants, three residues were deleted at a time within the S2–S3 linker or ^{NT}S3, as indicated.



Supplementary Figure 2. Deletion analysis of ^{CT}S4 and the S4–S5 linker helix. (**a**) Sequence of ^{CT}S4 through the S4–S5 linker helix. (**b**) Current of mutant channels elicited by stepping from the -100 mV holding potential to 120 mV in 10 mV increments. In each of the six mutants, three residues were deleted at a time within ^{CT}S4 or the S4–S5 linker helix, as indicated.



Supplementary Figure 3. Effect of DTT on channels containing a single cysteine mutation in the paddle motif. (**a**–**h**) Currents of mutants in 100 mM extracellular K^+, without (control; **a**, **c**, **e** and **g**) or with (**b**, **d**, **f** and **h**) 1mM DTT treatment, elicited by stepping membrane voltage from the -80 mV (-120 mV for **g**) holding potential to between -80 mV (-120 mV for **g**) and 80 mV, in 10-mV increments.



Supplementary Figure 4. Currents of mutant channels with a Flag epitope, TEV site and double cysteine mutation. (**a**–**d**) Currents of mutants elicited by stepping membrane voltage from the -80 mV holding potential to between -80 mV and 80 mV, in 10-mV increments. Mutant channels contained an N-terminal Flag epitope (**a**), a TEV site in the S3–S4 linker (**b**), or both an N-terminal Flag epitope and a TEV site, in addition to one of two pairs of cysteine mutations (after exposure to DTT) (**c** and **d**), as indicated.