Supporting Information

Hoshi et al. 10.1073/pnas.1222003110

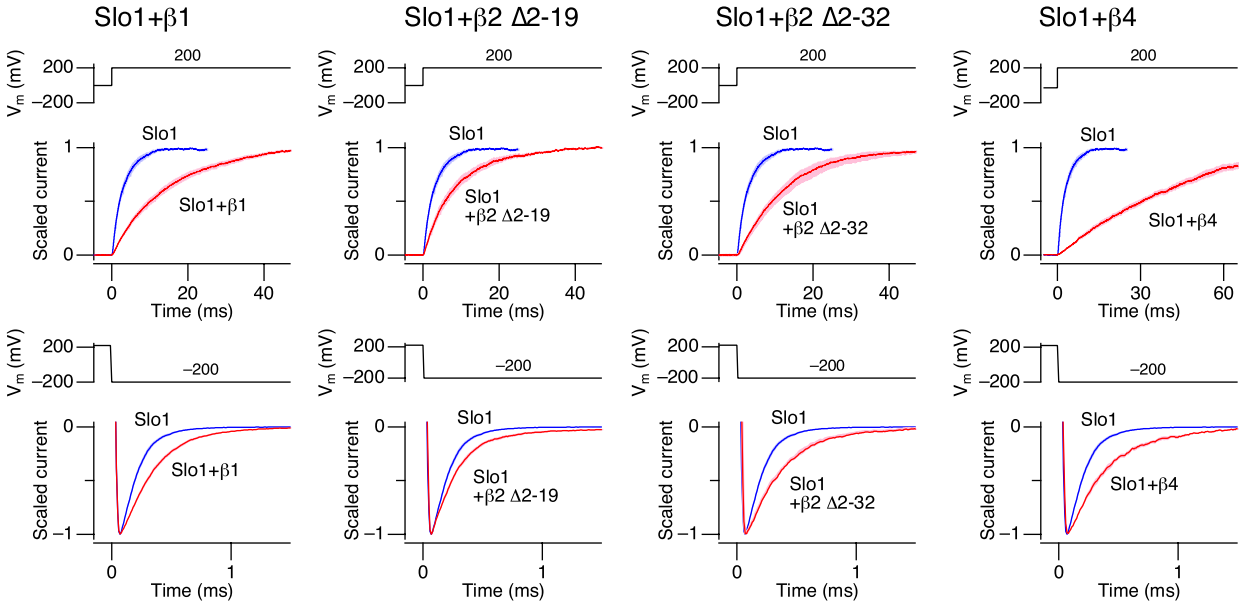

Fig. S1. Characteristic changes in activation and deactivation kinetics induced by β1, β2 Δ2–19, β2 Δ2–32, and β4. For each channel type, scaled mean currents at 200 (*Upper*) and −200 mV (*Lower*) are shown in red and the currents obtained from Slo1 alone shown in blue. Trace width represents mean ± SEM, $n = 4–12$. All results shown were obtained in the virtual absence of Ca^{2+}.

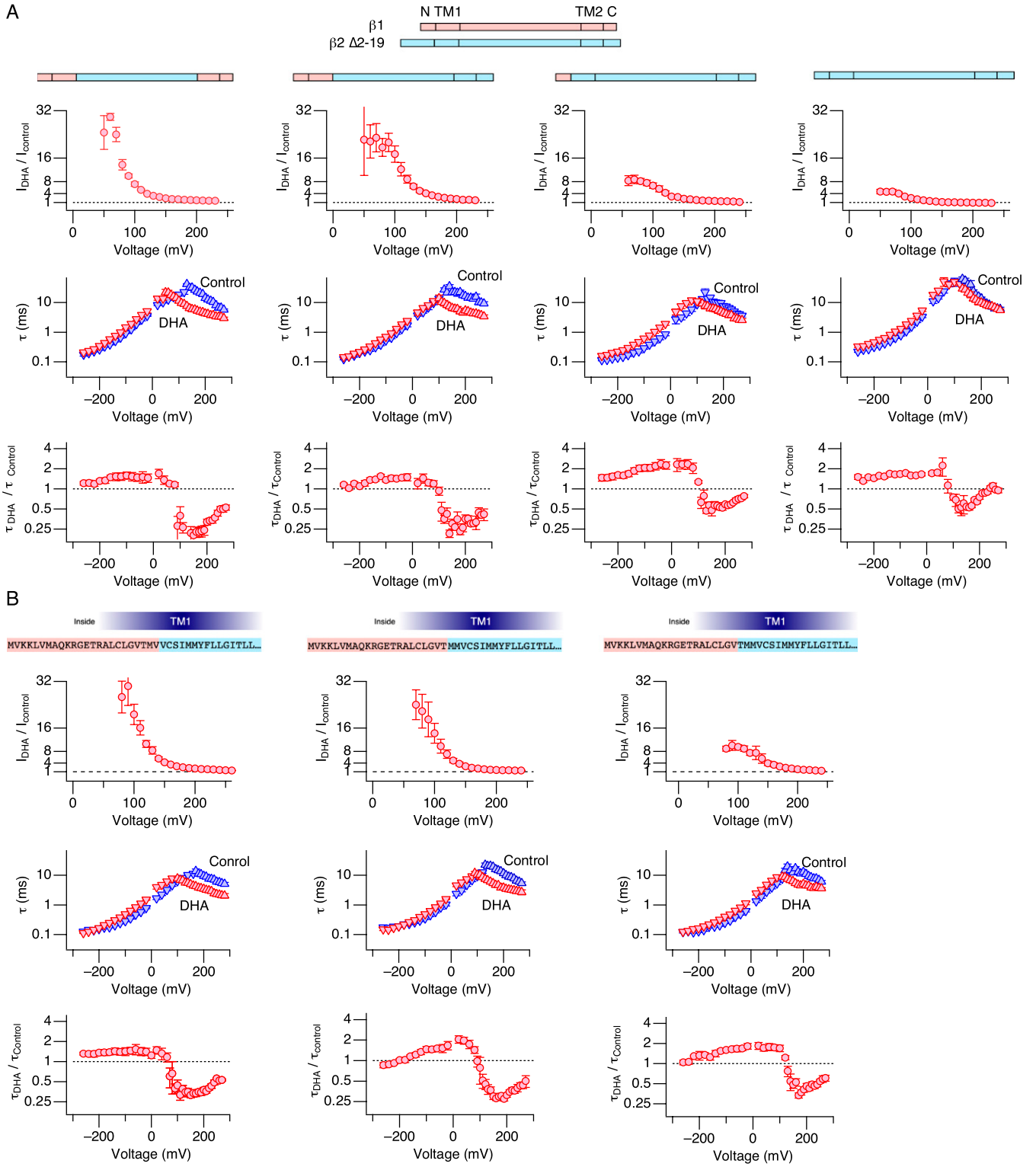

Fig. S2. Gating changes by docosahexaenoic acid (DHA) in Slo1 channel complexes containing β1–β2 chimeric constructs. Fractional increases in peak current size (*Top*), time constants of current relaxation (*Middle*), and fractional increases in time constant of current relaxation (*Bottom*) by DHA (3 μM) are depicted for various chimeric constructs covering whole β1 and β2 (*A*) and the N terminus and TM1 (*B*). Structural organizations of the chimeric constructs are schematically illustrated at the *Top* in each panel. Pink segments are from β1 and the light blue segments are from β2. $n = 4–10$. All results shown were obtained in the virtual absence of Ca^{2+}.

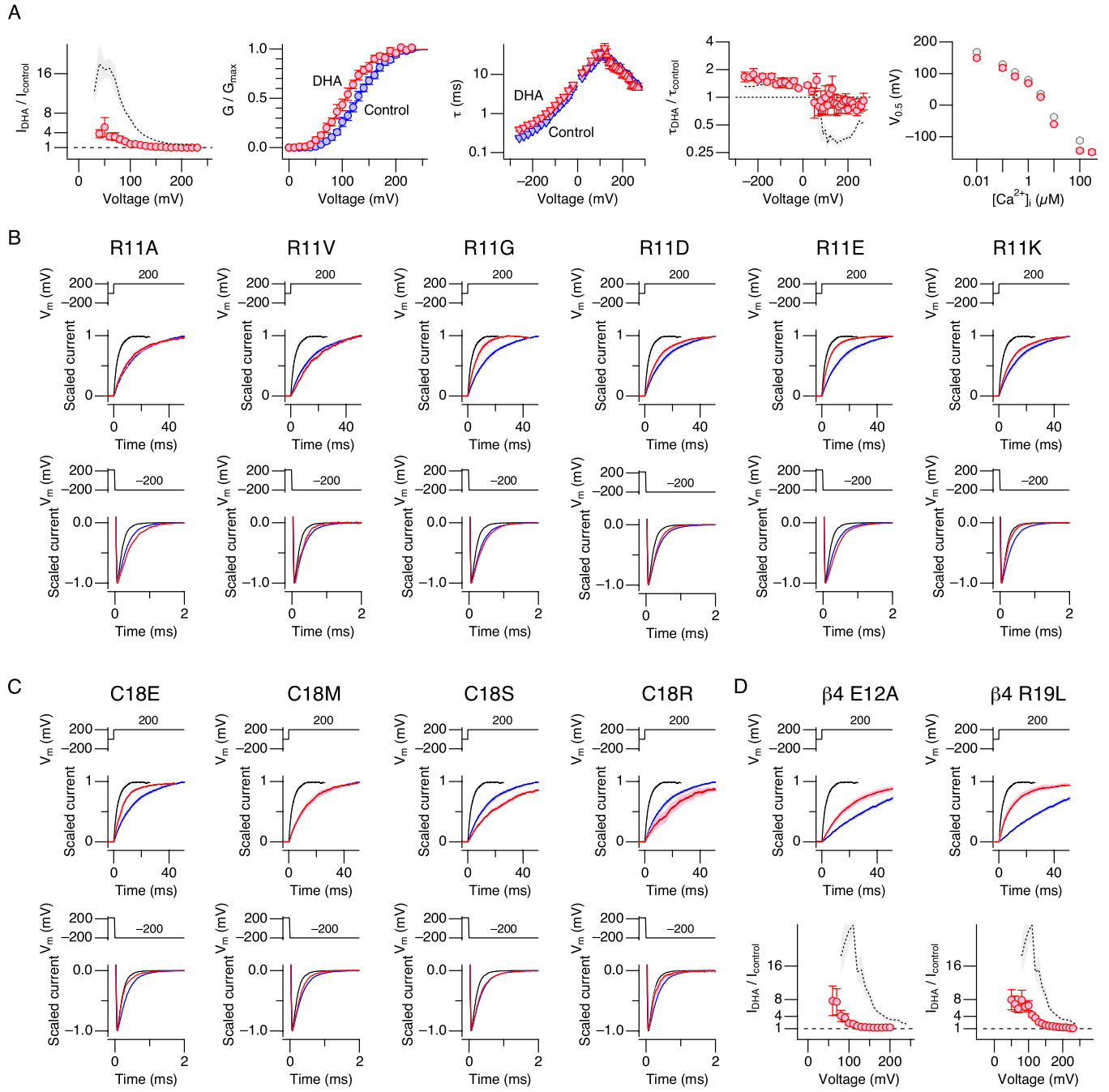

Fig. S3. Gating characteristics of Slo1+β1 and Slo1+β4 channels with point mutations. (*A*) Changes in gating of Slo1+β1 R11A. From *Left* to *Right*, fractional increases in peak current size, *GV* curves, time constants of current relaxation, fractional increases in time constant of current relaxation, and the Ca^{2+} dependence of $V_{0.5}$ are shown. Gray areas, when present, represent results (mean ± SEM) obtained from Slo1+β1 for comparison. $n = 7$ except for the Ca^{2+} dependence results, where $n = 4$. (*B*) Scaled currents at 200 (*Upper*) and −200 mV (*Lower*) in Slo1+β1 with mutations at position 11 (red). For each mutant, the currents obtained from Slo1 alone (black) and Slo1+wild-type β1 (blue) are also shown for comparison. The data sweep width represents mean ± SEM, $n = 4$–16. (*C*) Scaled currents at 200 (*Upper*) and −200 mV (*Lower*) in Slo1+β1 with mutations at position 18 (red). $n = 4$–7. (*D*) Scaled currents at 200 mV in Slo1+mutant β4 are indicated (red; *Upper*). For comparison, scaled currents from Slo1 alone (black) and Slo1+wild-type β4 (blue) are shown. Fractional increases in peak current size by DHA (3 μM) are also shown (*Lower*). Gray areas represent the results obtained with Slo1+wild-type β4 (mean ± SEM) for comparison. $n = 4$ and 7 for E12A and R19L, respectively. Except for the Ca^{2+} dependence results show in *A*, all results were obtained in the virtual absence of Ca^{2+}.