Supplementary Data

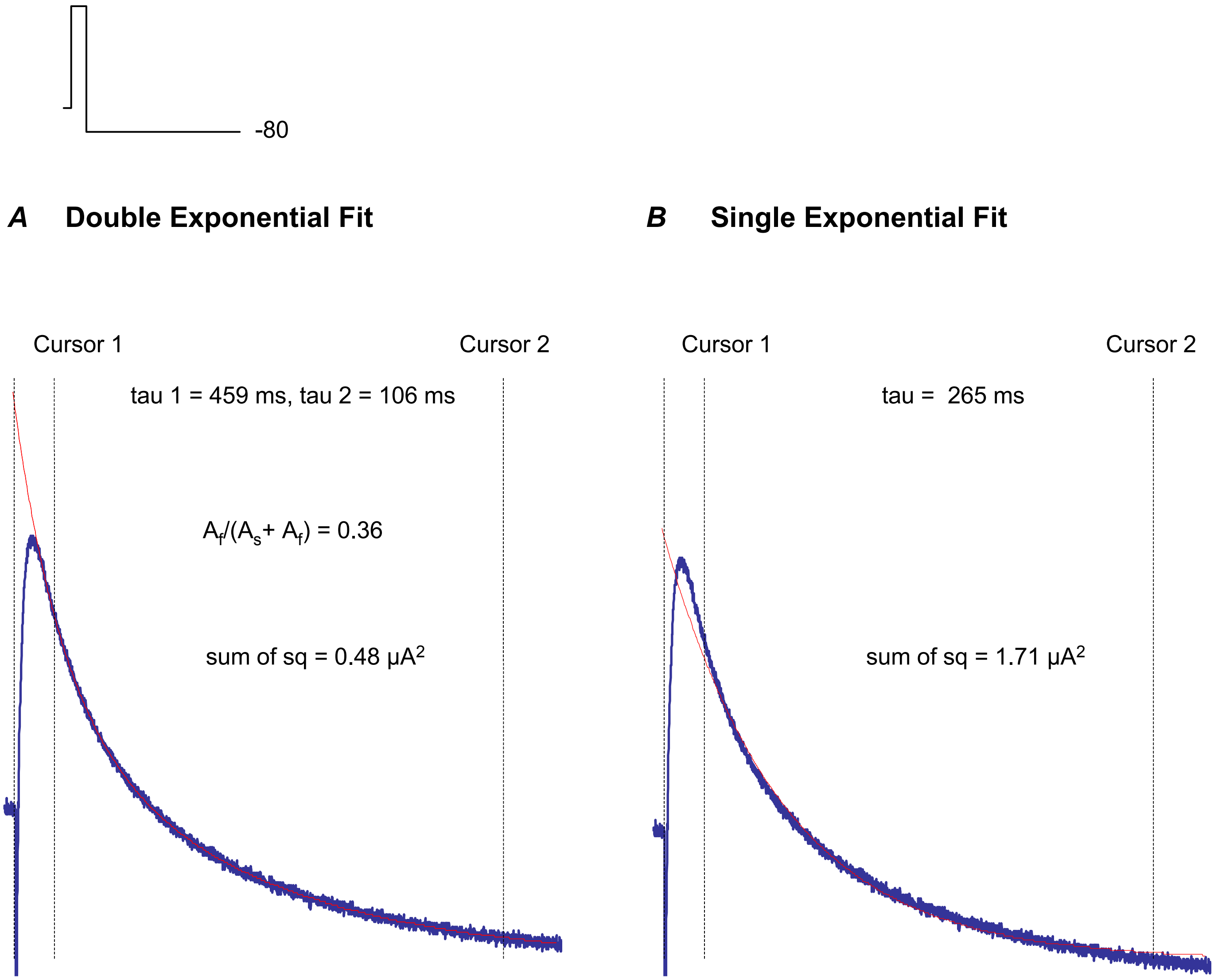

Figure S1: Comparison of bi-exponential and single exponential fits to R528Q deactivation tail currents recorded at -80 mV

Typical example of a tail current (blue) recorded from R528Q channels at -80 mV following a step to +40 mV to activate the channel with (A) a bi-exponential fit (red line) and (B) a single exponential fit (red line) interpolated to the data between cursors 1 and 2. The bi-exponential fit to the data has a much lower deviation from the raw current trace trace with the sum of squares (SSq) of the difference between the data and the fit 0.48 μA^2 compared to 1.71 μA^2 for the single exponential fit. The ratio of the SSq for the bi-exponential fit compared to a single exponential fit are summarised in Table S1.

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Table S1: Ratio SSq double exp fit / single exp fit

Voltage	WT	R528Q
-80 mV	0.43 ± 0.03	0.25 ± 0.04
-120 mV	0.97 ± 0.02	0.87 ± 0.01

Summary of the ratio of the SSq for a bi-exponential fit compared to a single exponential fit to deactivation current traces for both WT and R528Q HERG channel. A double exponential fit will always provide a smaller deviation from the raw data, however this difference is clearly very small for WT at -120 mV. It is therefore reasonable to infer that a single exponential provides a good fit to the data for WT at -120 mV and a reasonable fit for R528Q at -120 mV. However, at -80 mV a bi-exponential fit is clearly much better for both WT and R528Q, as indicated by the much lower ratio values.