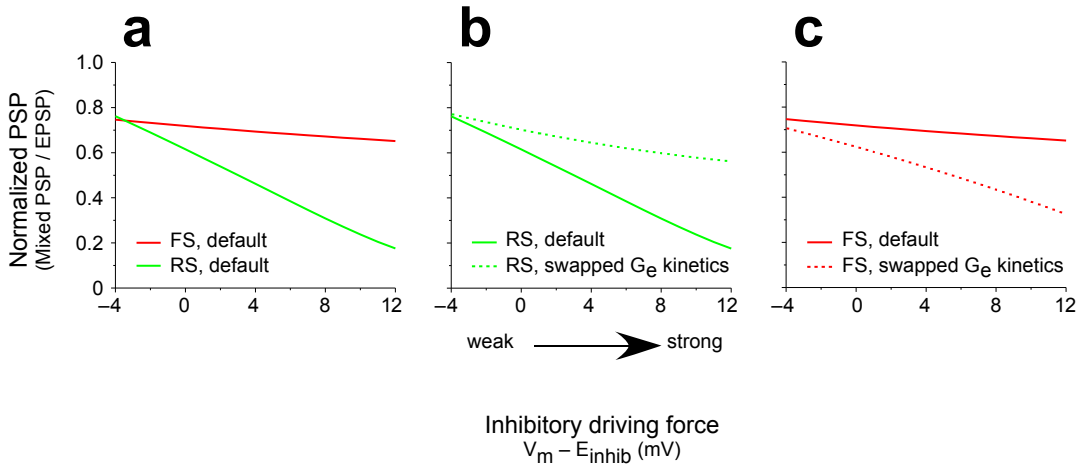

Supplementary Figure 3: The influence of G_e kinetics on functional inhibition depends on inhibitory driving force. **(a)** Effect of inhibitory driving force on normalized PSP size (i.e. Mixed PSP / EPSP) for the FS and RS model cells. Normalized PSP is an index of inhibitory function; a value of 1.0 would indicate no effect of inhibition (i.e. the mixed PSP = the pure EPSP), and values close to 0 would indicate nearly complete suppression of the PSP by inhibition. Inhibitory driving force equals the voltage difference between the membrane potential (V_m) and inhibitory reversal potential (E_{inhib}). We varied inhibitory driving force by changing the V_m, setting E_{inhib} to –91 mV. High values of inhibitory driving force would occur if V_m was depolarized compared with E_{inhib}, while low or negative values would occur if V_m was equal to, or more hyperpolarized than, E_{inhib}. Notice the sensitivity of the RS cell to inhibitory driving force. When the V_m was depolarized 12 mV above E_{inhib}, the PSP in the RS cell was suppressed approximately 80% (relative to the EPSP), but when the V_m was hyperpolarized 4 mV below E_{inhib}, suppression was only about 25% (green curve). In contrast the FS suppression was only slightly affected by inhibitory driving force (red curve). **(b)** The RS sensitivity to inhibitory driving force was strongly attenuated by speeding up the G_e kinetics to match the FS kinetics (RS, swapped G_e kinetics; see Supplementary Methods and Fig. 4E). Notice the similarity between the RS swapped function (dashed green curve) and the FS default function (panel A, solid red curve). **(c)** Sensitivity to inhibitory driving force could be induced in the FS cell by slowing the G_e kinetics to match the RS default kinetics (FS, swapped G_e kinetics, dashed red curve). Together, these data indicate that RS cells are more sensitive than FS cells to inhibitory driving force, and this is caused primarily by differences in G_e kinetics.

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