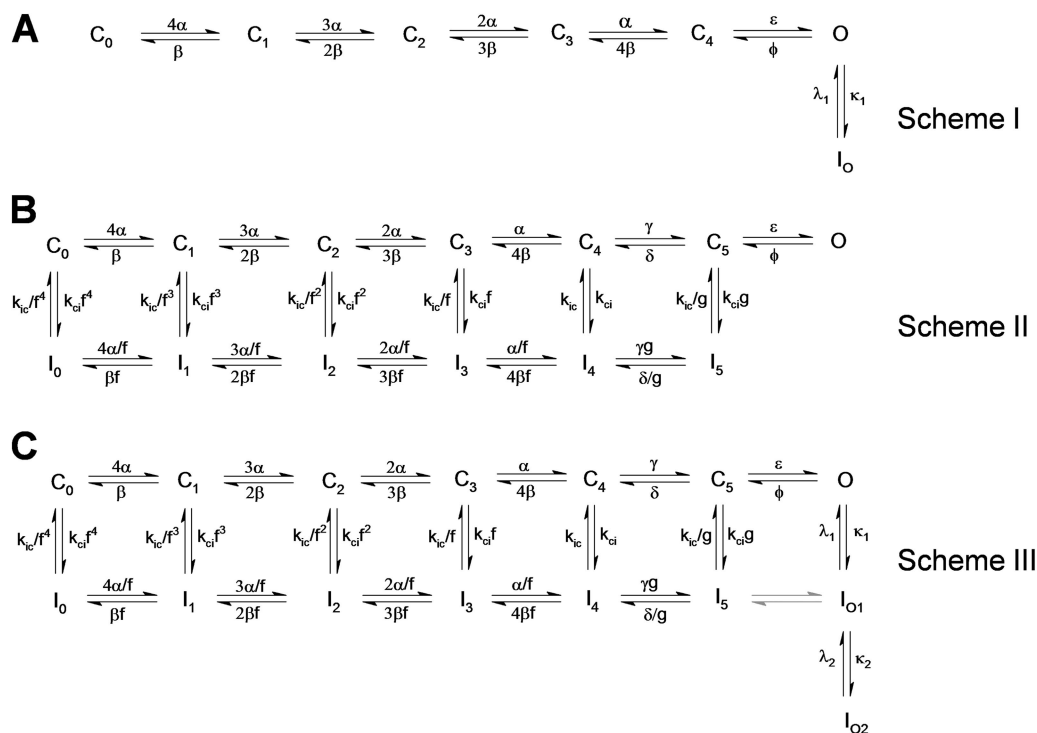
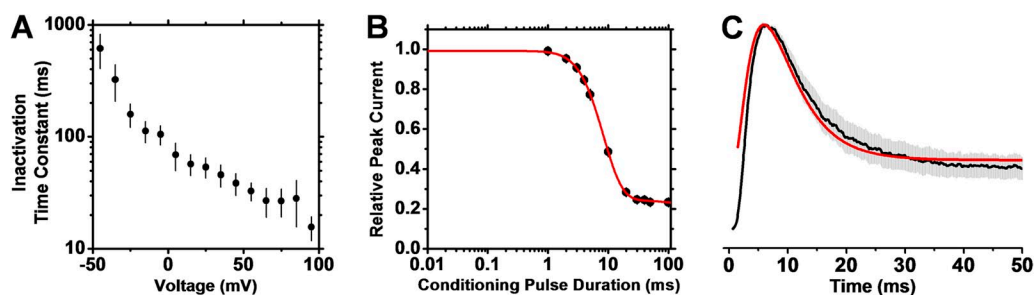


Fineberg et al., <http://www.jgp.org/cgi/content/full/jgp.201210869/DC1>



**Figure S1.** Kinetic schemes depicting plausible pathways of inactivation in voltage-gated ion channels. (A) Strict OSI. (B) Strict CSI. (C) Hybrid, CSI + OSI. Gray arrows indicate a subset of this scheme in which interconversion between closed-inactivated and open-inactivated is allowed.



**Figure S2.** The recombinant ShakerB channel expressed in tsA-201 cells undergoes OSI. A–C are analogous to C, E, and F in Figs. 3–10, and details are as described in the Fig. 5 legend. The conditioning pulse activated 32% of the maximum peak conductance. The solid red line in E represents the following empirical best-fit sum of exponential terms:  $I/I_0(t) = 0.86 - 0.75(1 - e^{-t/5})^{2.7} + 0.13e^{-t/858}$ .

*Table S1*  
*Simulation parameters of the kinetic schemes*

Parameter	OSI	CSI	<sup>a</sup> CSI	CSI + OSI
	Scheme I	Scheme II	Scheme II	Scheme III
$\alpha$ (s <sup>-1</sup> )	3,352	7,000	2,577	7,000
$z\alpha$ (e <sub>0</sub> )	0.06	0.32	0.64	0.32
$\beta$ (s <sup>-1</sup> )	3,230	90	2.8	90
$z\beta$ (e <sub>0</sub> )	-0.80	-2.06	-1.31	-2.06
$\gamma$ (s <sup>-1</sup> )	—	1,012	4,318	1,012
$z\gamma$ (e <sub>0</sub> )	—	0.50	0.15	0.50
$\delta$ (s <sup>-1</sup> )	—	2,499	380	2,499
$z\delta$ (e <sub>0</sub> )	—	-1.15	-1.21	-1.15
$\varepsilon$ (s <sup>-1</sup> )	434	7,690	466	7,690
$z\varepsilon$ (e <sub>0</sub> )	0.52	0.06	0.07	0.06
$\phi$ (s <sup>-1</sup> )	70	4,386	277	4,386
$z\phi$ (e <sub>0</sub> )	-0.37	-0.07	-0.25	-0.07
$k_{ci}$ (s <sup>-1</sup> )	—	122	54	122
$k_{ic}$ (s <sup>-1</sup> )	—	1.79	0.44	1.79
$\kappa 1$ (s <sup>-1</sup> )	55	—	—	515
$\lambda 1$ (s <sup>-1</sup> )	0.80	—	—	44
$\kappa 2$ (s <sup>-1</sup> )	—	—	—	150
$\lambda 2$ (s <sup>-1</sup> )	—	—	—	33
$f$	—	0.28	0.45	0.28
$g$	—	1.01	1.03	1.01

Fig. S1 depicts the diagrams of the kinetic schemes.

<sup>a</sup>Original CSI simulations parameters from Amarillo et al. (2008. *J. Physiol.* 586:2093–2106).