

TF3, XB2, or XB3 as cooperative sources
 (i.e. RU-RU, XB-RU, and XB-XB cooperativity)

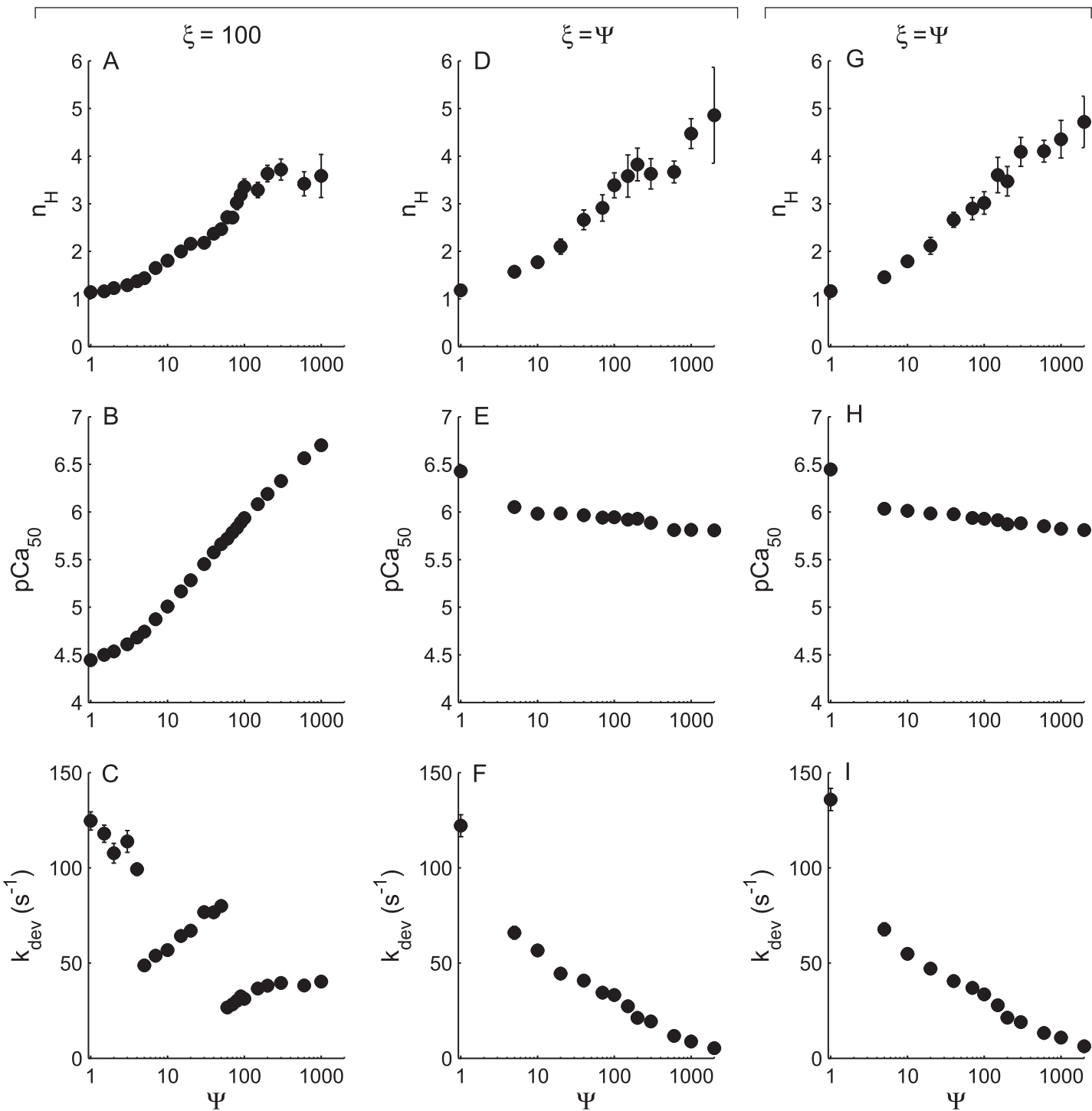
 Only TF3 as a cooperative source
 (i.e. RU-RU and XB-XB cooperativity)


Figure S4: Model sensitivities to cooperative parameters Ψ and ξ . Values from 3 parameter Hill fits to steady-state force-pCa relationships demonstrate the influence of Ψ and ξ on cooperativity (n_H , top panels), Ca^{2+} sensitivity ($p\text{Ca}_{50}$, middle panels), and the maximal rate of force development (k_{dev} , bottom panels). All possible forms of cooperativity were implemented as Ψ varied from 1 to 1000, with ξ fixed at 100 (A-C). All possible forms of cooperativity were implemented as Ψ varied from 1 to 2000, with $\xi = \Psi$ for each simulation (D-F). RU-RU and XB-XB cooperativity were implemented as Ψ varied from 1 to 2000, with $\xi = \Psi$ for each simulation (G-I). Simulations used standard parameter values: $k_{xb} = 3 \text{ pN nm}^{-1}$, $k_{fil} = k_m = k_a = 1X$, and $RU_{span} = 9$ actins. Error bars represent 95% confidence intervals for n_H and $p\text{Ca}_{50}$, and SE for k_{dev} .