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### Title

Apo States of Calmodulin and CaBP1 Control CaV1 Voltage-Gated Calcium Channel Function through Direct Competition for the IQ Domain

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**Supplementary material for:**

**Apo-states of calmodulin and CaBP1 control Ca<sub>v</sub>1 voltage-gated calcium channel function through direct competition for the IQ domain**

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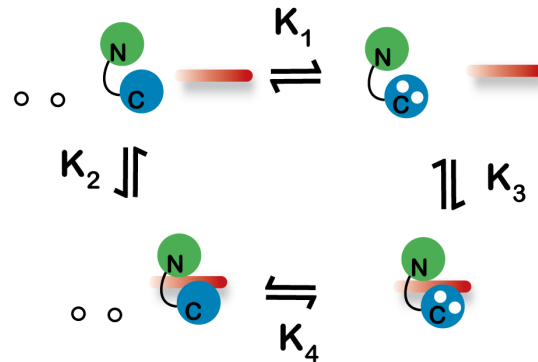
Berkeley, CA 94720 USA

**Inventory of Supplementary Material:**

Supplementary Figures S1-S2

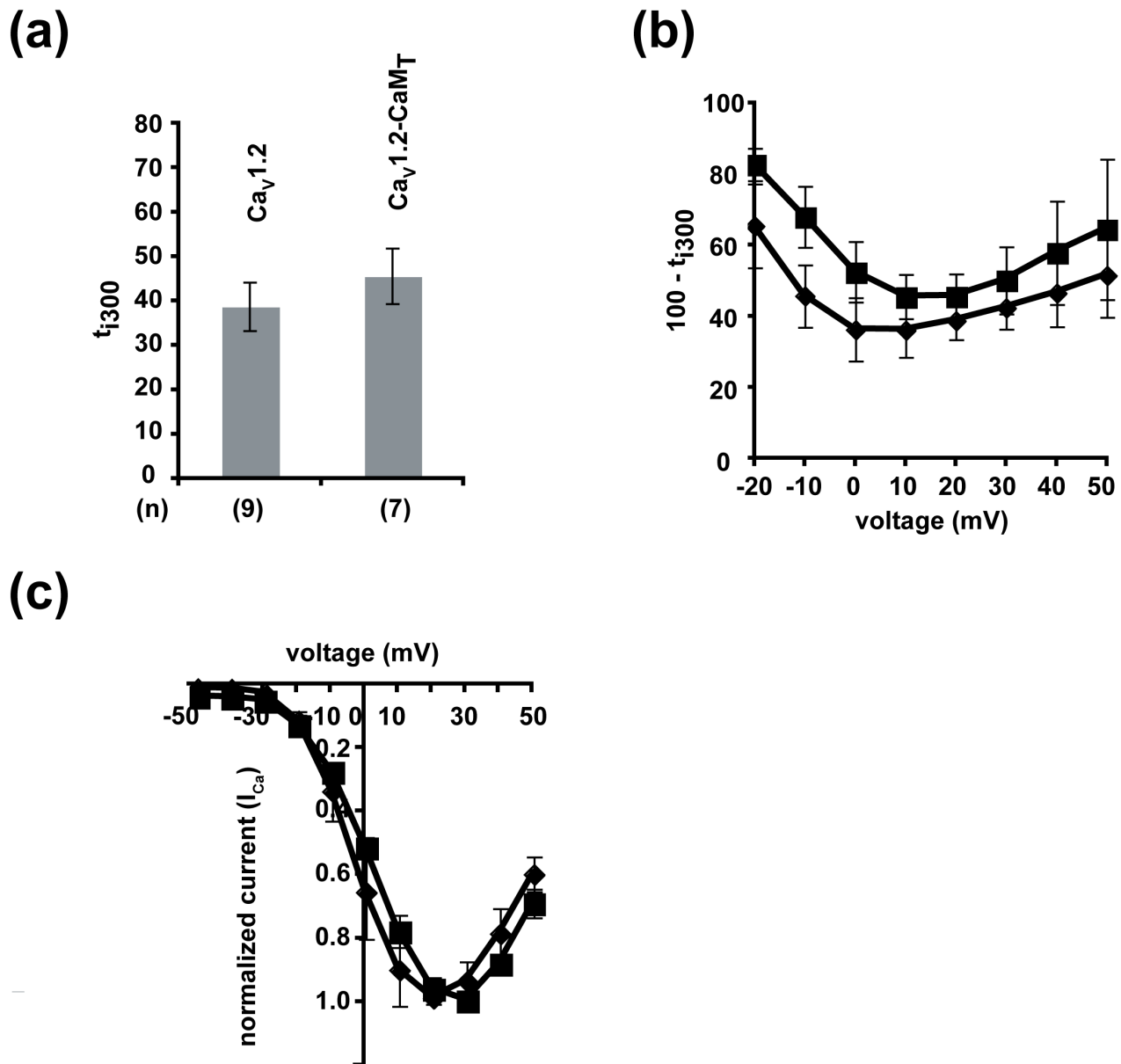
# Supplementary Fig. S1

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**Supplementary Fig. S1 Thermodynamic analysis of CaM, Ca<sup>2+</sup>, and IQ domain binding**  
 Macroscopic thermodynamic cycle for CaBP1, Ca<sup>2+</sup> and Ca<sub>v</sub>1.2 IQ domain. K<sub>1</sub> and K<sub>4</sub> describe Ca<sup>2+</sup> binding to CaBP1 and the CaBP1/IQ complex, respectively. K<sub>2</sub> and K<sub>3</sub> describe IQ domain binding to calcium-free CaBP1 and Ca<sup>2+</sup>/CaBP1, respectively.

## Supplementary Fig. S2

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**Supplementary Fig. S2 Functional properties of  $Ca_v1.2-CaM_T$  are similar to the parent channel**

**a**, Averaged  $t_{i300}$  from normalized  $I_{Ca}$  traces at a test potential of +20 mV from *Xenopus* oocytes expressing  $Ca_v1.2$  or  $Ca_v1.2-CaM_T$ . In all experiments mRNA for  $Ca_v\beta_{2a}$  and  $Ca_v\alpha_{2\delta-1}$  were injected at equimolar concentrations to  $Ca_v1.2$ . (n) indicates the number of experiments. **b**, Averaged remaining normalized current after 300 ms ( $100 - t_{i300}$ ) at different test voltages from oocytes expressing  $Ca_v1.2$  (◆) or  $Ca_v1.2-CaM_T$  (■). **c**, Averaged normalized  $I_{Ca}$  as a function of voltage. Symbols are the same as in 'b'.