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* You should state whether an appropriate sample size was computed when the study was being designed
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* If no explicit power analysis was used, you should describe how you decided what sample (replicate) size (number) to use

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Information on sample-size calculations can be found in the **Materials and Methods** section.

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* You should report how often each experiment was performed
* You should include a definition of biological versus technical replication
* The data obtained should be provided and sufficient information should be provided to indicate the number of independent biological and/or technical replicates
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Information on technical replicates (referred to as trials) can be found in the **Materials and Methods** section. Biological replicates (*n*) can be found in the **source data files** and are stated in **Results** or **Figure Legends**. Criteria for exclusion/ inclusion of cells and the treatment of outliers can be found in **Materials and Methods**.

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* Statistical analysis methods should be described and justified
* Raw data should be presented in figures whenever informative to do so (typically when N per group is less than 10)
* For each experiment, you should identify the statistical tests used, exact values of N, definitions of center, methods of multiple test correction, and dispersion and precision measures (e.g., mean, median, SD, SEM, confidence intervals; and, for the major substantive results, a measure of effect size (e.g., Pearson's r, Cohen's d)
* Report exact p-values wherever possible alongside the summary statistics and 95% confidence intervals. These should be reported for all key questions and not only when the p-value is less than 0.05.

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Within the **Materials and Methods** section, a paragraph on all statistics analyses and justification can be found. **Source data files** containing detailed account of individual data points, mean, SEM and statistical tests are available as **supplementary information**.

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**Group allocation**

* Indicate how samples were allocated into experimental groups (in the case of clinical studies, please specify allocation to treatment method); if randomization was used, please also state if restricted randomization was applied
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Group allocation was not applicable to this study.

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* Include model definition files including the full list of parameters used
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Please indicate the figures or tables for which source data files have been provided:

The NEURON model morphology is available at NeuroMorpho.Org ID: NMO\_75667, Neuron Name 2014-04-01\_1 and the mod file used to model Ca2+ diffusion and buffering is available at ModelDB, accession 125745 (<https://senselab.med.yale.edu/ModelDB/>), with adjustments described in ‘Model simulations with a multicompartmental model’ within **Materials and Methods**.