Title of Dataset: SUMOylation of NaV1.2 channels regulates the velocity of backpropagating action potentials in cortical pyramidal neurons

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The data set includes experimental data obtained in whole-cell recordings from L5 mouse pyramidal neurons in cortical brain slices. The recordings were done in current clamp or voltage clamp mode, using hardware and software from Molecular Devices.
In part of the experiments, fast fluorescence imaging of Na+ indicator, SBFI, was performed along with the electrical recording. Fluorescence data were obtained and analyzed using hardware and software from RedShirtImaging.
Compartmental modeling was done using Neuron simulation environment.

Description of the data and file structure

Data for Figures 1,2,3 are in the "CC electrical data" folder. The folder contains the following sub-folders:

1. Mutant SENP1 recordings – recordings in slices from NaV1.2-Lys38Gln mutant mice, with SENP1-containing intracellular solution - five folders containing recordings named by date
    a. 05.09.2018
        i. cellA - 97 .abf electrophysiology recordings (189050*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    b. 07.11.2018
        i. cell D - 38 .abf electrophysiology recordings (17n080*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    c. 10.07.2018
        i. cellC - 63 .abf electrophysiology recordings (187100*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    d. 22.11.2018
        i. cellB - 152 .abf electrophysiology recordings (18n220*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
        ii. cellD - 189 .abf electrophysiology recordings (18n220*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    e. 26.07.2018
        i. cellB - 71 .abf electrophysiology recordings (187260*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
        ii. cellE - 46 .abf electrophysiology recordings (191230*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
2. Mutant SUMO1 recordings – recordings in slices from NaV1.2-Lys38Gln mutant mice, with SUMO1-containing intracellular solution - five folders containing recordings named by date
    a. 12.01.2020
        i. cellA - 70 .abf electrophysiology recordings (201120*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    b. 13.01.2020
        i. cellB - 38 .abf electrophysiology recordings (201130*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    c. 14.01.2020
        i. cellB - 57 .abf electrophysiology recordings (201140*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
        ii. cellE - 60 .abf electrophysiology recordings (201140*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    d. 15.01.2020
        i. cellE - 29 .abf electrophysiology recordings (201150*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    e. 16.01.2020
        i. cellF - 30 .abf electrophysiology recordings (201160*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

3. WT control recordings – recordings in slices from WT mice, with control intracellular solution - four folders containing recordings named by date
    a. 06.11.2017
        i. cellF - 21 .abf electrophysiology recordings (17n060*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    b. 07.11.2017
        i. cellA - 40 .abf electrophysiology recordings (17n070*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    c. 17.10.2017
        i. cellB - 28 .abf electrophysiology recordings (17o170*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    d. 26.11.2020
        i. cellA - 16 .abf electrophysiology recordings (20n260*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
        ii. cellB - 14 .abf electrophysiology recordings (20n260*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

4. WT SENP1 recordings – recordings in slices from WT mice, with SENP1-containing intracellular solution - eight folders containing recordings named by date
    a. 03.01.2018
        i. cellI - 50 .abf electrophysiology recordings (1830100*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    b. 05.04.2017
        i. cellA - 30 .abf electrophysiology recordings (174050*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    c. 07.11.2018
        i. cellA - 27 .abf electrophysiology recordings (17n080*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    d. 13.11.2017
        i. cellD - 52 .abf electrophysiology recordings (17n130*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    e. 16.03.2017
        i. cellA - 77 .abf electrophysiology recordings (173160*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    f. 22.02.2018
        i. cellA - 53 .abf electrophysiology recordings (182220*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    g. 22.09.2016
        i. cellB - 80 .abf electrophysiology recordings (169221*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    h. 29.05.2017
        i. cellA - 58 .abf electrophysiology recordings (175290*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

5. WT SUMO1 recordings – recordings in slices from WT mice, with SUMO1-containing intracellular solution - six folders containing recordings named by date
    a. 01.10.2017
        i. cellB - 37 .abf electrophysiology recordings (17o010*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    b. 02.08.2017
        i. cellA - 35 .abf electrophysiology recordings (178030*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
        ii. cellB - 29 .abf electrophysiology recordings (178030*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
    c. 17.01.2018

i. cellC - 35 .abf electrophysiology recordings (181170*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

d. 18.10.2017
   i. cellB - 23 .abf electrophysiology recordings (17o180*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

e. 24.07.2017
   i. cellA - 22 .abf electrophysiology recordings (177240*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

f. 25.07.2017
   i. cellD - 16 .abf electrophysiology recordings (177251*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
   ii. cellF - 20 .abf electrophysiology recordings (177251*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

To open the files, use Axon PClamp 11 software (Molecular Devices).

Data for Figures 4, 4-1, 4-2, and 5 are in the " VC Electrical data and fluorescence imaging" folder. The folder contains the following sub-folders:

1. VC recordings WT SUMO1 – recordings in slices from WT mice, with SUMO1-containing intracellular solution - ten folders containing recordings named by date
   a. 08.04.2019
      i. cellB - 13 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   b. 08.05.2019
      i. cellC - 15 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   c. 11.03.2019
      i. cellA - 16 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   d. 13.03.2019
      i. cellC - 15 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   e. 14.03.2019
      i. cellA - 12 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   f. 21.05.2019
      i. cellB - 15 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   g. 21.11.2019
      i. cellB - 24 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   h. 24.11.2019

i. cellE - 27 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

i. 26.11.2019
   i. cellB - 29 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

j. 27.11.2019
   i. cellB - 36 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

2. VC recordings WT SENP1 – recordings in slices from WT mice, with SENP1-containing intracellular solution - five folders containing recordings named by date
   a. 01.12.2019
      i. cellE - 27 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   b. 03.12.2019
      i. cellB - 15 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   c. 17.11.2019
      i. cellA - 33 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
      ii. cellB - 27 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   d. 20.11.2019
      i. cellA - 27 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
      ii. cellB - 27 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
      iii. cellC - 18 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
      iv. cellD - 27 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
   e. 30.04.2019
      i. cellB - 18 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are

saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

3. VC recordings MUTANT SUMO1– recordings in slices from NaV1.2-Lys38Gln mutant mice, with SUMO1-containing intracellular solution - five folders containing recordings named by date
    a. 07.05.2019
        i. cellA - 15 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    b. 10.04.2019
        i. cellC - 16 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    c. 25.03.2019
        i. cellA - 18 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    d. 27.03.2019
        i. cellB - 15 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
        ii. cellC - 16 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    e. 27.05.2019
        i. cellD - 12 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

4. VC recordings MUTANT SENP1 recordings – recordings in slices from NaV1.2-Lys38Gln mutant mice, with SENP1-containing intracellular solution - four folders containing recordings named by date

    a. 01.05.2019
        i. cellD - 18 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    b. 08.11.2019
        i. cellC - 27 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
        ii. cellD - 21 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    c. 21.04.2019
        i. cellB - 16 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are

saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

d. 23.04.2019
    i. cellA - 10 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    ii. cellB - 12 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

5. VC recordings MUTANT control – recordings in slices from NaV1.2-Lys38Gln mutant mice, with control intracellular solution -- three folders containing recordings named by date
    a. 10.02.2019
        i. cellD - 17 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
        ii. cellE - 14 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    b. 13.11.2019
        i. cellA - 31 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
        ii. cellC - 24 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    c. 18.02.2019
        i. cellA - 13 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
        ii. cellC - 12 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

The data files are *.da files. To open the files, use Neuroplex 10.2.2 software (RedShirt Imaging) which runs within the IDL 8.3 environment (Exelis). Each file contains both electrical (Im and 10x Vm) and fluorescence imaging data obtained using an 80x80 NeuroCCD-SMQ camera, typically at 500 frames/s rate.

Data for Figure 6 are in the "Synaptic boosting" Folder. The folder contains the following sub-folders:

1. Mutant – recordings in slices from NaV1.2-Lys38Gln mutant mice, with SUMO1-containing intracellular solution solution -- three folders containing recordings named by date
    a. 02.02.2020
        i. cellE - 51 .abf electrophysiology recordings (202020*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

ii. cellF - 27 .abf electrophysiology recordings (202020*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

b. 03.02.2020
   i. cellA - 31 .abf electrophysiology recordings (202030*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
   ii. cellB - 28 .abf electrophysiology recordings (202030*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
   iii. cellC - 21 .abf electrophysiology recordings (202030*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

c. 29.01.2020
   i. cellB - 55 .abf electrophysiology recordings (201290*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

2. WT - recordings in slices from WT mice, with SUMO1-containing intracellular solution solution -- two folders containing recordings named by date
   a. 24.02.2020
      i. cellB - 14 .abf electrophysiology recordings (202240*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
      ii. cellC – 17 .abf electrophysiology recordings (202240*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
   b. 26.02.2020
      i. cellA - 25 .abf electrophysiology recordings (202260*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
      ii. cellB – 9 .abf electrophysiology recordings (202260*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
      iii. cellC - 13 .abf electrophysiology recordings (202260*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
      iv. cellD – 7 .abf electrophysiology recordings (202260*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
      v. cellE – 5 .abf electrophysiology recordings (202260*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

For each date, the files are separated by the individual cell classifier (A, B, C, etc.). The data files are *.abf files. To open the files, use Axon PClamp 11 software (Molecular Devices).

Data for Figure 7 are in the "Propagation velocity" Folder. The folder contains the following sub-folders:

1. Mutant SUMO1 recordings - recordings in slices from NaV1.2-Lys38Gln mutant mice, with SUMO1-containing intracellular solution in the whole cell pipette -- two folders containing electrical and fluorescence data classified by date:
   a. electrical data
      i. 12.8.2020
         1. cellC - 10 .abf electrophysiology recordings (208120*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
         2. cellE - 11 .abf electrophysiology recordings (208120*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
      ii. 13.8.2020
         1. cellB - 10 .abf electrophysiology recordings (208130*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

2. cellC - 8 .abf electrophysiology recordings (208130*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
3. cellD - 9 .abf electrophysiology recordings (208130*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

b. fluorescence data. Here and elsewhere, the 80x80μm *.da files show the dye-filled neuron under study along with somatic whole cell and axonal loose patch pipettes. The files are named 01.da, 02.da, etc., with each individual file corresponding to a certain axonal pipette position. If the distance between the pipettes was over 80 μm, multiple *.da files were taken and named 08partA.da, 08partB.da, 08partC.da (see examples exported as tiff files - 08partA.tif, 08partB.tif, and 08partC.tif in the folder “Example PrintScreen 12-08-2020cellE”)

i. 12.8.2020

1. cellC - 5 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

2. cellE - 16 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

ii. 13.8.2020

1. cellB - 7 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
2. cellC - 6 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
3. cellD - 8 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

2. WT SUMO1 recordings - recordings in slices from WT mice, with SUMO1-containing intracellular solution in the whole cell pipette -- two folders containing electrical and fluorescence data classified by date:

a. electrical data

i. 7.7.2020

1. cellA - 15 .abf electrophysiology recordings (207070*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
2. cellD - 28 .abf electrophysiology recordings (207070*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
3. cellE - 18 .abf electrophysiology recordings (207070*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

ii. 18.8.2020

1. cellB - 11 .abf electrophysiology recordings (208180*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

iii. 19.7.2020
    1. cellC - 17 .abf electrophysiology recordings (207190*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
iv. 21.7.2020
    1. cellD - 14 .abf electrophysiology recordings (207210*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

b. fluorescence data
i. 07.07.2020
    1. cellA - 13 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    2. cellD - 9 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
    3. cellE - 6 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

ii. 18.8.2020
    1. cellB - 5 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
iii. 19.7.2020
    1. cellC - 8 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
iv. 21.7.2020
    1. cellD - 7 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

3. WT control recordings - recordings in slices from WT mice, with control intracellular solution in the whole cell pipette -- two folders containing electrical and fluorescence data classified by date:
    a. electrical data
        i. 6.7.2020
            1. cellE - 12 .abf electrophysiology recordings (207060*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
        ii. 12.5.2020
            1. cellB - 17 .abf electrophysiology recordings (205120*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

2. cellD - 14 .abf electrophysiology recordings (205120*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

iii. 13.5.2020
1. cellC - 11 .abf electrophysiology recordings (205130*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

iv. 14.5.2020
1. cellA - 11 .abf electrophysiology recordings (205140*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)
2. cellD - 16 .abf electrophysiology recordings (205140*.abf) - can be viewed with Molecular Devices pCLAMP software (see Usage Notes)

b. fluorescence data
i. 06.07.2020
1. cellE - 9 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

ii. 12.05.2020
1. cellB - 5 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).
2. cellD - 5 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

iii. 13.05.2020
1. cellC - 7 .da electrophysiology and imaging recordings (0*.da) - can be viewed with Neuroplex software (see Usage Notes). Camera settings are saved to camsetup.out file which can be viewed with Neuroplex software (see Usage Notes).

“Electrical data” folders contain data files obtained at the indicated recording date. For each date, the files are separated by the individual cell classifier (A, B, C, etc.). The data files are *.abf files. To open the files, use Axon PClamp 11 software (Molecular Devices). “Fluorescence data” folders contain data files obtained at the indicated recording date. For each date, the files are separated by the individual cell classifier (A, B, C, etc.). The data files are *.da files. To open the files, use Neuroplex 10.2.2 software (RedShirt Imaging) which runs within the IDL 8.3 environment (Exelis). The images of the whole cell and axonal recording pipette were used to measure the distances between them, based on calibration 1 pixel width=1 μm.

The model used to generate data for Figure 7-1 will be deposited at ModelDB (https://senselab.med.yale.edu/ModelDB/).

Sharing/Access information

Code/Software
Electrical recording and analysis software (PClamp 9-11, Microcal Origin 6) can be downloaded from:
https://support.moleculardevices.com/s/article/Axon-pCLAMP-11-Electrophysiology-Data-Acquisition-Analysis-Software-Download-Page

https://www.originlab.com/
Fast fluorescence imaging (Neuroplex, RedShirt Imaging):
First install IDL 8.3 from Exelis Visual Information Solutions site
Then install Neuroplex 10.2.2 from:
http://www.redshirtimaging.com/redshirt_neuro/neuro_downloads.php
Compartmental modeling (Neuron(Yale) and python)
https://www.neuron.yale.edu/neuron/
https://www.python.org/downloads/
https://pypi.org/project/NEURON/
The best tutorial for the Neuron python interface is by Dr. O. Amsalem:
https://github.com/orena1/NEURON_tutorial