

## Dataset S1

Here we include the dataset compiled for the analysis of this paper.

The first column lists the citation from which the data was extracted.

The second column lists the channel type  $xNa_v1.y$ ; the first variable ‘x’ is either ‘r, h, m’ for rat, human or mouse. The second variable ‘y’ is a number 1 . . . 9 denoting the specific channel type.

The third column lists whether the channel expressed is wild type or mutant. The mutant channels are characterized in the fashion they are described in the correspondingly cited paper: DX denotes that there is a mutation in domain ‘X’; IFMQ3 denotes a mutation in the inactivation sequence; other notations specify the amino acid substitution directly.

The fourth column specifies the conditions under which the channel is expressed, as characterized in the correspondingly cited paper. The conditions include with or without  $\beta$  subunits, or other external conditions. It should not be assumed that the descriptor here is a full summary of the conditions under which the channel was expressed: for example unless we explicitly state that no  $\beta$  subunits are expressed, they may or may not be expressed.

Finally the next four columns denote the  $V_{1/2}^{\text{act}}, k^{\text{act}}, V_{1/2}^{\text{inact}}, k^{\text{inact}}$ . If the column is blank there was no measurement of this quantity reported.

We note that for publications [9-21], we digitized and fit the data to a Boltzmann curve ourselves; the error bars in these cases reflect 95% confidence intervals with respect to our fits. For the remaining publications [22-48] we report the fits (and error bars) given by the authors of the corresponding publication.

Citation	Channel	WT/mutant	Conditions	$V_{1/2}^{\text{act}}$ (mV)	$k^{\text{act}}$ (mV)	$V_{1/2}^{\text{inact}}$ (mV)	$k^{\text{inact}}$ (mV)
[1]	rNav1.2	WT	no $\beta$	—	—	-38.31 $\pm$ 0.04	8.08 $\pm$ 0.03
[1]	rNav1.2	WT	$\beta$ 1	—	—	-44.96 $\pm$ 0.08	6.68 $\pm$ 0.07
[1]	rNav1.2	WT	P0	—	—	-40.78 $\pm$ 0.06	9.22 $\pm$ 0.04
[1]	rNav1.2	WT	$\beta$ 1P0 $\beta$ 1	—	—	-48.73 $\pm$ 0.06	7.86 $\pm$ 0.06
[1]	rNav1.2	WT	P0 $\beta$ 1P0	—	—	-39.63 $\pm$ 0.05	8.61 $\pm$ 0.04
[1]	rNav1.2	WT	$\beta$ 1P0P0	—	—	-49.84 $\pm$ 0.06	7.18 $\pm$ 0.05
[1]	rNav1.2	WT	P0 $\beta$ 1 $\beta$ 1	—	—	-35.38 $\pm$ 0.04	8.31 $\pm$ 0.03
[2]	rNav1.1	WT	no $\beta$	-16.82 $\pm$ 0.21	5.66 $\pm$ 0.12	-34.93 $\pm$ 0.10	5.58 $\pm$ 0.08
[2]	rNav1.2	WT	no $\beta$	-18.38 $\pm$ 0.27	5.56 $\pm$ 0.20	-41.80 $\pm$ 0.14	7.22 $\pm$ 0.08
[2]	rNav1.1	WT	$\beta$ 1 + $\beta$ 2	-15.17 $\pm$ 0.08	6.50 $\pm$ 0.08	-40.96 $\pm$ 0.09	5.28 $\pm$ 0.08
[2]	rNav1.2	WT	$\beta$ 1 + $\beta$ 2	-21.60 $\pm$ 0.15	6.08 $\pm$ 0.10	-57.24 $\pm$ 0.13	5.29 $\pm$ 0.09
[3]	rNav1.1	WT	no $\beta$	-14.96 $\pm$ 0.14	6.30 $\pm$ 0.08	-31.75 $\pm$ 0.11	7.09 $\pm$ 0.07
[3]	rNav1.1	WT	$\beta$ 1	-14.7 $\pm$ 0.14	6.44 $\pm$ 0.09	-33.98 $\pm$ 0.13	8.22 $\pm$ 0.08
[3]	rNav1.1	DII	no $\beta$	-19.49 $\pm$ 0.11	5.76 $\pm$ 0.07	-32.37 $\pm$ 0.09	8.22 $\pm$ 0.09
[3]	rNav1.1	DII	$\beta$ 1	-15.17 $\pm$ 0.14	6.18 $\pm$ 0.09	-34.19 $\pm$ 0.12	7.96 $\pm$ 0.07
[3]	rNav1.1	DIV	no $\beta$	-16.87 $\pm$ 0.18	5.70 $\pm$ 0.09	-38.04 $\pm$ 0.10	8.79 $\pm$ 0.06
[3]	rNav1.1	DIV	$\beta$ 1	-16.23 $\pm$ 0.16	6.37 $\pm$ 0.10	-33.98 $\pm$ 0.13	8.22 $\pm$ 0.08
[4]	rNav1.2	IFMQ3	no $\beta$	-24.71 $\pm$ 0.07	4.01 $\pm$ 0.06	—	—
[4]	rNav1.2	IFMQ3	$\beta$ 1	-26.00 $\pm$ 0.06	3.71 $\pm$ 0.05	—	—
[4]	rNav1.3	WT	no $\beta$	—	—	-22.5 $\pm$ 0.08	6.15 $\pm$ 0.07
[4]	rNav1.3	WT	$\beta$ 1	—	—	-32.23 $\pm$ 0.10	7.92 $\pm$ 0.09
[5]	mNav1.6	WT	no $\beta$	-8.49 $\pm$ 0.14	6.70 $\pm$ 0.08	-54.72 $\pm$ 0.13	7.28 $\pm$ 0.08

Citation	Channel	WT/mutant	Conditions	$V_{1/2}^{\text{act}}$ (mV)	$k^{\text{act}}$ (mV)	$V_{1/2}^{\text{inact}}$ (mV)	$k^{\text{inact}}$ (mV)
[5]	mNav1.6	WT	$\beta 1 + \beta 2$	$-17.05 \pm 0.17$	$6.29 \pm 0.10$	$-50.89 \pm 0.07$	$4.76 \pm 0.05$
[5]	rNav1.1	WT	no $\beta$	$-16.58 \pm 0.18$	$5.56 \pm 0.11$	$-35.96 \pm 0.10$	$5.08 \pm 0.06$
[5]	rNav1.1	WT	$\beta 1 + \beta 2$	$-15.36 \pm 0.10$	$6.73 \pm 0.09$	$-40.70 \pm 0.08$	$5.00 \pm 0.06$
[5]	rNav1.2	WT	no $\beta$	$-17.99 \pm 0.20$	$5.52 \pm 0.11$	$-42.71 \pm 0.14$	$7.04 \pm 0.10$
[5]	rNav1.2	WT	$\beta 1 + \beta 2$	$-21.42 \pm 0.15$	$5.71 \pm 0.1$	$-57.34 \pm 0.14$	$5.21 \pm 0.1$
[6]	rNav1.2	WT	no $\beta$	$-15.12 \pm 0.34$	$4.77 \pm 0.44$	$-25.28 \pm 0.06$	$7.28 \pm 0.06$
[6]	rNav1.2	WT	$\beta 1$	$-23.19 \pm 0.61$	$4.03 \pm 0.43$	$-43.92 \pm 0.08$	$7.69 \pm 0.07$
[7]	rNav1.3	WT	no $\beta$	$-31.83 \pm 0.09$	$5.15 \pm 0.07$	$-64.9 \pm 0.09$	$8.30 \pm 0.08$
[7]	rNav1.3	WT	$\beta 3$	$-24.20 \pm 0.05$	$5.76 \pm 0.04$	$-56.99 \pm 0.07$	$6.19 \pm 0.08$
[8]	hNav1.6	WT	no $\beta$	$-28.69 \pm 0.10$	$6.77 \pm 0.06$	$-71.87 \pm 0.10$	$7.65 \pm 0.06$
[9]	hNav1.7	WT	$\beta 1 + \beta 2$	$-28.94 \pm 0.05$	$5.35 \pm 0.04$	—	—
[9]	hNav1.7	I848T	$\beta 1 + \beta 2$	$-40.86 \pm 0.05$	$4.83 \pm 0.05$	—	—
[9]	hNav1.7	L858H	$\beta 1 + \beta 2$	$-43.63 \pm 0.04$	$5.99 \pm 0.04$	—	—
[10]	hNav1.3	WT	no $\beta$	—	—	$-61.99 \pm 0.15$	$5.06 \pm 0.07$
[11]	hNav1.4	WT	no $\beta$	$-42.49 \pm 0.05$	$4.34 \pm 0.05$	$-80.15 \pm 0.08$	$5.96 \pm 0.06$
[11]	hNav1.4	R672G	no $\beta$	$-42.33 \pm 0.06$	$6.00 \pm 0.05$	$-90.17 \pm 0.07$	$5.73 \pm 0.06$
[11]	hNav1.4	R672H	no $\beta$	$-45.99 \pm 0.06$	$5.93 \pm 0.05$	$-87.58 \pm 0.07$	$6.60 \pm 0.06$
[12]	hNav1.5	WT	$\beta 1$	$-41.80 \pm 0.05$	$6.77 \pm 0.04$	—	—
[12]	hNav1.5	MUTANT	$\beta 1$	$-50.25 \pm 0.06$	$5.96 \pm 0.04$	—	—
[13]	mNav1.6	WT		$-27.15 \pm 0.06$	$7.06 \pm 0.05$	$-65.71 \pm 0.10$	$7.99 \pm 0.08$
[13]	mNav1.7	WT		$-33.34 \pm 0.09$	$6.79 \pm 0.07$	$-73.53 \pm 0.14$	$8.11 \pm 0.12$
[14]	hNav1.1	WT	$\beta 1 + \beta 2$	$-26.4 \pm 2.3$	$7.1 \pm 0.2$	$-67.5 \pm 2.3$	$6.2 \pm 0.3$

Citation	Channel	WT/mutant	Conditions	$V_{1/2}^{\text{act}}$ (mV)	$k^{\text{act}}$ (mV)	$V_{1/2}^{\text{inact}}$ (mV)	$k^{\text{inact}}$ (mV)
[14]	hNav1.1	R1648H	$\beta 1 + \beta 2$	$-25.9 \pm 1.0$	$7.1 \pm 0.2$	$-69.1 \pm 2.1$	$6.5 \pm 0.4$
[14]	hNav1.1	T875M	$\beta 1 + \beta 2$	$-26.1 \pm 1.2$	$7.1 \pm 0.2$	$-60.7 \pm 1.1$	$5.9 \pm 0.6$
[14]	hNav1.1	W1204R	$\beta 1 + \beta 2$	$-29.6 \pm 1.2$	$7.1 \pm 0.2$	$-72.0 \pm 2.0$	$6.9 \pm 0.4$
[15]	hNav1.1	WT	$\beta 1 + \beta 2$	$-23.6 \pm 1.2$	$7.4 \pm 0.3$	$-64.2 \pm 1.1$	$5.8 \pm 0.1$
[15]	hNav1.1	R1648C	$\beta 1 + \beta 2$	$-19.7 \pm 0.6$	$9.2 \pm 0.6$	$-71.3 \pm 0.2$	$7.7 \pm 0.2$
[15]	hNav1.1	F1661S	$\beta 1 + \beta 2$	$-23.5 \pm 0.4$	$7.5 \pm 0.3$	$-52.0 \pm 0.4$	$7.1 \pm 0.4$
[15]	hNav1.1	G1749E	$\beta 1 + \beta 2$	$-22.0 \pm 1.6$	$7.6 \pm 0.3$	$-66.4 \pm 1.1$	$6.0 \pm 0.3$
[16]	hNav1.5	WT	$\beta 1$	$-48.6 \pm 1.2$	$6.1 \pm 0.8$	$-92.0 \pm 1.7$	$5.4 \pm 0.3$
[16]	hNav1.5	G514C	$\beta 1$	$-38.5 \pm 1.4$	$6.1 \pm 0.3$	$-85.1 \pm 0.9$	$5.2 \pm 0.3$
[17]	rNav1.2	WT	no $\beta$	—	—	$-45.1 \pm 0.3$	$9.8 \pm 0.2$
[17]	rNav1.2	WT	$\beta 1$	—	—	$-49.1 \pm 0.3$	$5.9 \pm 0.2$
[17]	rNav1.2	WT	$\beta 3$	—	—	$-49.3 \pm 0.2$	$6.1 \pm 0.1$
[18]	hNav1.5	WT	no $\beta$	$-50.1 \pm 0.7$	$5.5 \pm 0.6$	$-97.0 \pm 2.3$	$6.7 \pm 0.8$
[18]	hNav1.5	WT	$\beta 1$	$-42.2 \pm 0.8$	$5.3 \pm 0.2$	$-75.0 \pm 2.7$	$5.5 \pm 0.5$
[19]	hNav1.2	WT		$-24.2 \pm 2.0$	$7.8 \pm 0.5$	$-63.1 \pm 1.0$	$4.4 \pm 0.2$
[20]	rNav1.8	WT		-23.8	6.8	—	—
[21]	hNav1.5	WT	cocaethylene (10 $\mu\text{M}$ )	—	—	$-78.6 \pm 0.1$	$4.8 \pm 0.1$
[21]	hNav1.5	WT	cocaethylene (25 $\mu\text{M}$ )	—	—	$-80.8 \pm 0.1$	$5.0 \pm 0.1$
[21]	hNav1.5	WT	cocaethylene (50 $\mu\text{M}$ )	—	—	$-82.1 \pm 0.2$	$4.9 \pm 0.1$
[21]	hNav1.5	WT	cocaethylene (150 $\mu\text{M}$ )	—	—	$-84.1 \pm 0.1$	$5.0 \pm 0.1$
[22]	rNav1.8	WT		$10.3 \pm 1.2$	$6.6 \pm 0.4$	$-52.9 \pm 0.8$	$8.9 \pm 0.2$

Citation	Channel	WT/mutant	Conditions	$V_{1/2}^{\text{act}}$ (mV)	$k^{\text{act}}$ (mV)	$V_{1/2}^{\text{inact}}$ (mV)	$k^{\text{inact}}$ (mV)
[22]	rNav1.8	WT	$\beta 1$	$1.6 \pm 0.7$	$6.3 \pm 0.1$	$-58.4 \pm 1.5$	$7.1 \pm 0.4$
[22]	rNav1.8	WT	$\beta 2$	$9.5 \pm 0.8$	$5.7 \pm 0.7$	$-49.0 \pm 0.2$	$9.9 \pm 0.5$
[22]	rNav1.8	WT	$\beta 3$	$11.5 \pm 1.1$	$6.0 \pm 0.5$	$-47.9 \pm 0.6$	$9.0 \pm 0.5$
[22]	rNav1.8	WT	$\beta 1 + \beta 2$	$1.7 \pm 0.4$	$6.7 \pm 0.2$	$-46.6 \pm 0.9$	$10.3 \pm 0.5$
[22]	rNav1.8	WT	$\beta 1 + \beta 3$	$2.9 \pm 0.9$	$6.6 \pm 0.2$	$-55.1 \pm 0.9$	$8.7 \pm 0.4$
[22]	rNav1.8	WT	$\beta 2 + \beta 3$	$7.2 \pm 1.0$	$8.0 \pm 0.6$	$-51.3 \pm 1.2$	$10.0 \pm 0.5$
[22]	rNav1.8	WT	$\beta 1 + \beta 2 + \beta 3$	$1.7 \pm 1.1$	$6.6 \pm 0.3$	$-54.4 \pm 1$	$8.9 \pm 0.4$
[23]	rNav1.7	WT	$\beta 1$	$-25.6 \pm 1.5$	$3.8 \pm 0.2$	$-68.4 \pm 0.4$	$4.4 \pm 0.1$
[23]	rNav1.7	WT	$\beta 1, \text{lidocaine (100 } \mu\text{M)}$	$-23.9 \pm 1.9$	$3.9 \pm 0.2$	$-79.0 \pm 1.5$	$5.5 \pm 0.2$
[23]	rNav1.8	WT	$\beta 1$	$6.2 \pm 0.7$	$5.7 \pm 0.2$	$-42.7 \pm 1.2$	$9.1 \pm 0.1$
[23]	rNav1.8	WT	$\beta 1, \text{lidocaine (100 } \mu\text{M)}$	$12.3 \pm 1.8$	$6.6 \pm 0.3$	$-46.8 \pm 0.6$	$8.1 \pm 0.2$
[24]	rNav1.7	WT	$\beta 1$	$-27.9 \pm 0.8$	$4.4 \pm 0.3$	$-67.7 \pm 2.5$	$6.4 \pm 0.6$
[24]	rNav1.7	WT	$\beta 1, \text{forskolin (1 } \mu\text{M)}$	$-25.7 \pm 0.4$	$4.3 \pm 0.3$	$-68.3 \pm 3.3$	$6.3 \pm 0.6$
[24]	rNav1.8	WT	$\beta 1$	$-1.2 \pm 1.0$	$5.2 \pm 0.1$	$-60.5 \pm 2.7$	$8.4 \pm 0.9$
[24]	rNav1.8	WT	$\beta 1, \text{forskolin (50 } \mu\text{M)}$	$-0.3 \pm 1.9$	$4.8 \pm 0.2$	$-57.4 \pm 2.3$	$9.2 \pm 0.6$
[24]	rNav1.7	WT	$\beta 1$	$-27.5 \pm 1.3$	$4.1 \pm 0.4$	$-67.3 \pm 0.8$	$5.5 \pm 0.2$
[24]	rNav1.7	WT	$\beta 1, \text{PMA (10 nM)}$	$-21.0 \pm 2.3$	$4.0 \pm 0.2$	$-66.1 \pm 1.4$	$5.8 \pm 0.2$
[24]	rNav1.7	WT	$\beta 1$	$-27.3 \pm 0.6$	$4.3 \pm 0.1$	$-61.9 \pm 0.9$	$6.3 \pm 0.2$
[24]	rNav1.7	WT	$\beta 1, \text{PDBu (20 nM)}$	$-18.4 \pm 0.8$	$5.0 \pm 0.1$	$-63.8 \pm 2.9$	$7.7 \pm 1.0$
[24]	rNav1.8	WT	$\beta 1$	$-4.6 \pm 3.6$	$6.4 \pm 0.5$	$-63.6 \pm 1.4$	$7.3 \pm 0.5$
[24]	rNav1.8	WT	$\beta 1, \text{PMA (2 nM)}$	$10.1 \pm 3.5$	$6.9 \pm 0.2$	$-57.6 \pm 3.0$	$8.1 \pm 0.3$
[24]	rNav1.8	WT	$\beta 1$	$-2.8 \pm 1.2$	$6.2 \pm 0.2$	$-61.1 \pm 0.7$	$7.5 \pm 0.4$
[24]	rNav1.8	WT	$\beta 1, \text{PDBu (2 nM)}$	$14.3 \pm 2.1$	$6.6 \pm 0.3$	$-57.0 \pm 1.2$	$8.7 \pm 0.3$

Citation	Channel	WT/mutant	Conditions	$V_{1/2}^{\text{act}}$ (mV)	$k^{\text{act}}$ (mV)	$V_{1/2}^{\text{inact}}$ (mV)	$k^{\text{inact}}$ (mV)
[25]	rNav1.9	WT	SNS, CsCl	-21.4 ± 0.8	6.7 ± 0.7	-28.5 ± 0.6	7.4 ± 0.5
[25]	rNav1.9	WT	SNS, CSF	-22.0 ± 0.3	6.2 ± 0.2	-27.1 ± 0.2	6.9 ± 0.2
[25]	rNav1.9	WT	NaN, CsCl	-36.3 ± 0.2	5.0 ± 0.1	-43.0 ± 0.5	7.3 ± 0.5
[25]	rNav1.9	WT	NaN, CsF	-53.3 ± 0.3	4.3 ± 0.2	-58.5 ± 0.4	7.7 ± 0.4
[25]	rNav1.9	WT	SNaC, CsCl	-34.6 ± 0.4	4.4 ± 0.2	-40.5 ± 0.5	7.8 ± 0.5
[25]	rNav1.9	WT	SNaC, CsF	-54.5 ± 0.3	4.5 ± 0.2	-57.2 ± 0.7	7.6 ± 0.6
[26]	hNav1.5	WT		-50.4 ± 1.3	5.6 ± 0.5	-76.4 ± 1.2	8.4 ± 0.5
[26]	hNav1.5	WT	FHF1B	-46.2 ± 1.1	5.8 ± 0.4	-85.7 ± 1.4	9.1 ± 0.2
[26]	hNav1.5	D1790G		-40.3 ± 3.2	8.7 ± 0.6	-98.7 ± 2.8	10.8 ± 1.1
[26]	hNav1.5	D1790G	FHF1B	-41.9 ± 3.5	10.6 ± 1.3	-98.4 ± 2.9	10.3 ± 1.7
[27]	hNav1.5	WT		—	—	-73	5.6
[27]	hNav1.5	WT	0.1 $\mu$ M TTX	—	—	-74	5.8
[27]	hNav1.5	WT	3 $\mu$ M TTX	—	—	-81	5.8
[27]	hNav1.5	WT	10 $\mu$ M TTX	—	—	-79	5.8
[27]	hNav1.5	WT	30 $\mu$ M TTX	—	—	-81	5.7
[28]	hNav1.5	WT		-50.6 ± 1.3	5.6 ± 0.3	-93.1 ± 1.7	5.0 ± 0.2
[28]	hNav1.4	WT		-29.6 ± 1.6	6.1 ± 0.4	-72.8 ± 2.1	5.9 ± 0.3
[28]	hNav1.2	WT		-17.6 ± 2.9	6.9 ± 0.7	-58.9 ± 1.7	5.5 ± 0.5
[28]	hNav1.7	WT		-24.3 ± 3.0	5.2 ± 0.2	-78.4 ± 1.0	5.4 ± 0.3
[29]	hNav1.5	WT	$\beta$	-29.8 ± 0.4	5.6 ± 0.4	-64.0 ± 0.8	5.6 ± 0.2
[29]	hNav1.5	L619F	$\beta$	-29.9 ± 0.4	4.7 ± 0.1	-58.2 ± 1.1	5.3 ± 0.2
[30]	rNav1.4	WT		-22.8 ± 0.9	6.4 ± 0.2	-66.1 ± 0.6	6.4 ± 0.2

Citation	Channel	WT/mutant	Conditions	$V_{1/2}^{\text{act}}$ (mV)	$k^{\text{act}}$ (mV)	$V_{1/2}^{\text{inact}}$ (mV)	$k^{\text{inact}}$ (mV)
[30]	rNav1.4	WT	$\beta$ 1	$-23.9 \pm 1.2$	$6.3 \pm 0.3$	$-66.5 \pm 0.5$	$6.3 \pm 0.2$
[31]	rNav1.4	WT	$V_{\text{hold}} = -60$ mV	$-25.7 \pm 1.4$	$7.8 \pm 0.9$	$-58.3 \pm 1.7$	$7.9 \pm 0.7$
[31]	rNav1.4	WT	$V_{\text{hold}} = -70$ mV	$-30.9 \pm 1.0$	$6.8 \pm 0.4$	$-62.4 \pm 0.6$	$10.1 \pm 0.8$
[31]	rNav1.4	WT	$V_{\text{hold}} = -85$ mV	$-32.8 \pm 0.4$	$7.0 \pm 0.4$	$-68.9 \pm 0.7$	$6.3 \pm 0.3$
[31]	rNav1.4	WT	$V_{\text{hold}} = -110$ mV	$-41.7 \pm 1.9$	$7.6 \pm 0.3$	$-74.3 \pm 0.8$	$5.3 \pm 0.2$
[31]	rNav1.4	WT	$V_{\text{hold}} = -130$ mV	$-46.6 \pm 1.6$	$7.0 \pm 0.4$	$-79.2 \pm 1.0$	$5.6 \pm 0.2$
[32]	rNav1.4	WT	—	—	—	$-72.6 \pm 1.0$	$6.2 \pm 0.4$
[32]	rNav1.4	WT	steroid-treated	—	—	$-72.4 \pm 1.2$	$5.7 \pm 1.0$
[32]	rNav1.4	WT	denervated	—	—	$-76.4 \pm 1.2$	$6.5 \pm 0.4$
[32]	rNav1.4	WT	steroid-denervated	—	—	$-80.0 \pm 1.1$	$5.0 \pm 0.9$
[32]	rNav1.5	WT	denervated	—	—	$-79.3 \pm 1.6$	$9.5 \pm 0.7$
[32]	rNav1.5	WT	steroid-denervated	—	—	$-82.3 \pm 1.1$	$11.8 \pm 0.7$
[33]	hNav1.3	12v1	—	$-12.1 \pm 0.9$	$3.9 \pm 0.2$	$-49.4 \pm 0.3$	6.6
[33]	hNav1.3	12v2	—	$-12.8 \pm 0.7$	$4.2 \pm 0.1$	$-48.5 \pm 0.5$	6.4
[33]	hNav1.3	12v3	—	$-11.7 \pm 0.7$	$3.8 \pm 0.1$	$-47.3 \pm 0.5$	6.4
[33]	hNav1.3	12v4	—	$-9.8 \pm 0.6$	$3.7 \pm 0.1$	$-47.3 \pm 0.3$	6.4
[34]	rNav1.4	WT	$\beta$ 1	$-32.7 \pm 1.0$	$5.4 \pm 0.2$	$-76.8 \pm 0.7$	$5.6 \pm 0.1$
[34]	rNav1.4	I424C	$\beta$ 1	$-31.2 \pm 1.5$	$4.6 \pm 0.4$	$-73.1 \pm 1.3$	$5.5 \pm 0.3$
[34]	rNav1.4	I425C	$\beta$ 1	$-26.1 \pm 0.7$	$7.6 \pm 0.2$	$-74.4 \pm 0.6$	$5.9 \pm 0.3$
[34]	rNav1.4	F426C	$\beta$ 1	$-33.6 \pm 1.7$	$4.9 \pm 0.3$	$-82.8 \pm 1.2$	$6.1 \pm 0.3$
[34]	rNav1.4	L427C	$\beta$ 1	$-34.6 \pm 1.0$	$5.2 \pm 0.3$	$-74.0 \pm 1.8$	$5.1 \pm 0.2$
[34]	rNav1.4	G428C	$\beta$ 1	$-32.3 \pm 1.0$	$6.1 \pm 0.4$	$-75.9 \pm 0.6$	$5.3 \pm 0.1$
[34]	rNav1.4	S429C	$\beta$ 1	$-32.4 \pm 2.6$	$4.5 \pm 0.3$	$-74.0 \pm 1.1$	$5.8 \pm 0.4$

Citation	Channel	WT/mutant	Conditions	$V_{1/2}^{\text{act}}$ (mV)	$k^{\text{act}}$ (mV)	$V_{1/2}^{\text{inact}}$ (mV)	$k^{\text{inact}}$ (mV)
[34]	rNav1.4	F430C	$\beta 1$	$-31.2 \pm 1.7$	$5.1 \pm 0.4$	$-81.2 \pm 1.1$	$5.9 \pm 0.3$
[34]	rNav1.4	Y431C	$\beta 1$	$-31.8 \pm 1.4$	$4.2 \pm 0.5$	$-70.8 \pm 1.1$	$5.7 \pm 0.1$
[34]	rNav1.4	L432C	$\beta 1$	$-29.5 \pm 1.7$	$6.5 \pm 0.4$	$-73.0 \pm 0.9$	$6.0 \pm 0.2$
[34]	rNav1.4	I433C	$\beta 1$	$-30.2 \pm 1.2$	$6.3 \pm 0.4$	$-74.7 \pm 1.2$	$5.6 \pm 0.2$
[34]	rNav1.4	N434C	$\beta 1$	$-30.2 \pm 1.1$	$6.3 \pm 0.2$	$-82.0 \pm 0.7$	$6.1 \pm 0.2$
[34]	rNav1.4	L435C	$\beta 1$	$-33.9 \pm 1.6$	$4.5 \pm 0.3$	$-77.8 \pm 1.7$	$5.8 \pm 0.3$
[34]	rNav1.4	I436C	$\beta 1$	$-24.9 \pm 1.2$	$5.5 \pm 0.5$	$-71.9 \pm 0.7$	$5.1 \pm 0.3$
[34]	rNav1.4	V779C	$\beta 1$	$-36.6 \pm 1.1$	$4.6 \pm 0.2$	$-82.5 \pm 1.5$	$5.6 \pm 0.1$
[34]	rNav1.4	M780C	$\beta 1$	$-29.1 \pm 2.0$	$4.2 \pm 0.2$	$-76.5 \pm 1.9$	$6.3 \pm 0.2$
[34]	rNav1.4	V781C	$\beta 1$	$-34.3 \pm 1.9$	$4.5 \pm 0.3$	$-74.9 \pm 1.8$	$5.5 \pm 0.3$
[34]	rNav1.4	I782C	$\beta 1$	$-33.5 \pm 2.0$	$4.5 \pm 0.6$	$-68.6 \pm 0.6$	$5.1 \pm 0.3$
[34]	rNav1.4	G783C	$\beta 1$	$-34.2 \pm 1.4$	$4.1 \pm 0.2$	$-79.4 \pm 2.7$	$6.2 \pm 0.2$
[34]	rNav1.4	N784C	$\beta 1$	$-33.8 \pm 1.0$	$4.5 \pm 0.4$	$-74.1 \pm 1.1$	$6.0 \pm 0.3$
[34]	rNav1.4	L785C	$\beta 1$	$-26.0 \pm 1.4$	$4.0 \pm 0.2$	$-74.3 \pm 0.8$	$5.4 \pm 0.1$
[34]	rNav1.4	V786C	$\beta 1$	$-35.9 \pm 1.6$	$4.1 \pm 0.7$	$-69.1 \pm 1.6$	$4.4 \pm 0.2$
[34]	rNav1.4	V787C	$\beta 1$	$-27.3 \pm 1.2$	$6.5 \pm 0.5$	$-76.3 \pm 0.6$	$5.5 \pm 0.1$
[34]	rNav1.4	L788C	$\beta 1$	$-33.4 \pm 1.8$	$4.3 \pm 0.3$	$-77.4 \pm 0.8$	$5.7 \pm 0.2$
[34]	rNav1.4	N789C	$\beta 1$	$-28.5 \pm 1.0$	$4.2 \pm 0.2$	$-74.3 \pm 0.9$	$5.9 \pm 0.2$
[34]	rNav1.4	L790C	$\beta 1$	$-33.1 \pm 1.7$	$5.0 \pm 0.5$	$-72.6 \pm 1.0$	$5.3 \pm 0.2$
[34]	rNav1.4	F791C	$\beta 1$	$-35.0 \pm 0.9$	$5.4 \pm 0.5$	$-74.1 \pm 1.0$	$5.1 \pm 0.1$
[35]	rNav1.4	WT		$-32.1 \pm 0.8$	$11.5 \pm 0.7$	$-88.5 \pm 2.4$	$6.5 \pm 0.3$
[35]	rNav1.4	I687M		$-49.2 \pm 1.0$	$9.6 \pm 0.9$	$-89.2 \pm 2.1$	$7.1 \pm 0.2$



Citation	Channel	WT/mutant	Conditions	$V_{1/2}^{\text{act}}$ (mV)	$k^{\text{act}}$ (mV)	$V_{1/2}^{\text{inact}}$ (mV)	$k^{\text{inact}}$ (mV)
[35]	rNav1.4	I689T		$-41.6 \pm 1.7$	$10.5 \pm 1.6$	$-82.1 \pm 2.1$	$6.9 \pm 0.5$
[35]	rNav1.4	I687M/N784K		$-54.2 \pm 1.7$	$10.8 \pm 1.6$	$-90.8 \pm 1.8$	$5.6 \pm 0.1$
[35]	rNav1.4	I687M/F1278I		$-40.2 \pm 1.5$	$8.9 \pm 1.4$	$-85.1 \pm 4.6$	$6.4 \pm 0.3$
[36]	rNav1.4	WT	$\beta 1$	$-31.4 \pm 1.0$	$9.4 \pm 0.8$	$-73.3 \pm 0.1$	$5.0 \pm 0.1$
[36]	rNav1.4	3-C	$\beta 1$	$-14.5 \pm 1.2$	$11.7 \pm 1.0$	$-77.0 \pm 0.1$	$5.2 \pm 0.1$
[37]	hNav1.5	WT		$-53.3 \pm 2.7$	$6.7 \pm 0.9$	$-90.0 \pm 2.4$	$7.1 \pm 0.3$
[37]	hNav1.5	WT	UVA irradiated	$-35.3 \pm 4.9$	$13.8 \pm 1.9$	$-86.8 \pm 2.3$	$12.3 \pm 0.7$
[38]	rNav1.5	WT		—	—	$-72.7 \pm 1.1$	$5.3 \pm 0.3$
[38]	rNav1.5	WT	ATX-II (10 nM)	—	—	$-76.1 \pm 1.3$	$8.2 \pm 0.4$
[38]	rNav1.5	WT	ATX-II (50 nM)	—	—	$-79.1 \pm 0.9$	$7.2 \pm 0.4$
[38]	rNav1.5	WT	ATX-II (200 nM)	—	—	$-84.4 \pm 2.1$	$8.9 \pm 0.6$
[39]	mNav1.9	WT		$-56.1 \pm 1.8$	$5.3 \pm 0.2$	$-71.1 \pm 2.8$	$8.6 \pm 1.2$
[39]	mNav1.9	WT	PGE2	$-64.0 \pm 1.8$	$4.8 \pm 0.4$	$-82.6 \pm 2.8$	$11.3 \pm 1.5$
[40]	rNav1.8	shRNA	EGFP	$-20.4 \pm 8.3$	$6.4 \pm 1.9$	—	—
[40]	rNav1.8	WT	EGFP	$-23.2 \pm 2.6$	$5.3 \pm 0.6$	—	—
[40]	rNav1.8	WT		$-24.1 \pm 2.5$	$4.9 \pm 1.1$	—	—

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