Supplementary Table 5. Dunn's Multiple Pairwise Comparison: Whole Cell Electrophysiology - pertaining to Figure 2, Supp. Figs. 1-3

Variable:	I_{max} (pA) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	2.589037	4.311441	1.150828
P.unadj	0.009624	0.000016	0.249803
P.adj	0.019249	0.000049	0.249803
Observations	45-14	45-18	18-14

Variable:	I_{max} (pA pF^{-1}) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	2.370173	4.254454	-1.294184
P.unadj	0.017780	0.000021	0.195602
P.adj	0.035560	0.000063	0.195602
Observations	45-14	45-18	18-14

Variable:	G_{max} (pA mV^{-1}) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	2.397531	4.261577	-1.276265
P.unadj	0.016506	0.000020	0.201862
P.adj	0.033012	0.000061	0.201862
Observations	45-14	45-18	18-14

Variable:	G_{max} (pA pF^{-1} mV^{-1}) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	2.28949000	4.14048000	-1.27427400
P.unadj	0.02205089	0.00003466	0.20256650
P.adj	0.04410178	0.00010397	0.20256649
Observations	45-14	45-18	18-14

Variable:	E_{rev} (mV)		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	1.0244053	-0.7185035	1.4462466
P.unadj	0.3056439	0.4724469	0.148108
P.adj	0.6112878	0.4724469	0.4443241
Observations	44-14	44-18	18-14

Variable:	E_m at I_{max} (pA pF^{-1}) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	1.297462	1.800234	-0.294674
P.unadj	0.19447217	0.07182363	0.76824294
P.adj	0.3889443	0.2154709	0.7682429
Observations	45-14	45-18	18-14

Variable:	E_m (mV) at $I_{window,peak}$ by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	1.1215877	-0.2683463	1.1753367
P.unadj	0.2620378	0.7884328	0.23986
P.adj	0.5240756	0.7884328	0.7195801
Observations	39-13	39-16	16-13

Variable:	Fraction $I_{window,peak}$ by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	1.413106	1.091119	0.3444583
P.unadj	0.1576246	0.2752205	0.7305017
P.adj	0.4728737	0.550441	0.7305017
Observations	39-13	39-16	16-13

Variable:	$V^{act}_{1/2}$ (mV) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	1.382631	1.19686	0.250384
P.unadj	0.1667779	0.2313609	0.8022904
P.adj	0.5003337	0.4627219	0.8022904
Observations	47-14	47-18	18-14

Variable:	k^{act} (mV) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	1.934205	1.709164	0.32317
P.unadj	0.05308792	0.08742065	0.74656649
P.adj	0.1592638	0.1748413	0.7465665
Observations	47-14	47-18	18-14

Variable:	$V^{inact}_{1/2}$ (mV) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	0.8733077	1.2202996	-0.2524394
P.unadj	0.3824954	0.2223513	0.8007015
P.adj	0.7649907	0.6670539	0.8007015
Observations	48-17	48-19	19-17

Variable:	k^{inact} (mV) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	1.1915862	0.4222456	0.6645542
P.unadj	0.2334235	0.6728458	0.5063356
P.adj	0.7002706	0.6728458	1
Observations	48-17	48-19	19-17

Variable:	RFI_{slope} (ms mV^{-1}) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	2.0510708	1.3222759	0.7223681
P.unadj	0.04026005	0.1860763	0.47006822
P.adj	0.1207801	0.3721526	0.4700682
Observations	32-13	32-16	16-13

Variable:	Tau_{oofi} (ms) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	-0.8885504	-2.841973	1.4662191
P.unadj	0.37424475	0.004483529	0.14258861
P.adj	0.37424475	0.01345059	0.28517722
Observations	31-11	31-15	15-11

Variable:	G_{slope} (pA pF^{-1} mV^{-1}) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	0.2251967	1.1435568	-0.703961
P.unadj	0.8218263	0.2528075	0.481457
P.adj	0.8218263	0.7584225	0.9629141
Observations	44-14	44-18	18-14

Variable:	Whole Cell Capacitance (pF) by Genotype		
Comparison	WT-EPN	WT-LVNV	LVNV-EPN
Z	0.2285556	-0.1361404	0.2938772
P.unadj	0.8192143	0.8917103	0.7688517
P.adj	1	0.8917103	1
Observations	73-20	73-22	22-20

Definitions:

I_{max} (pA)	Maximum macroscopic sodium current developed
I_{max} (pA pF^{-1})	Maximum current density developed, adjusted for capacitance
G_{max} (pA mV^{-1})	Maximum conductance developed, adjusted for driving force
G_{max} (pA pF^{-1} mV^{-1})	Maximum conductance density developed, adjusted for driving force and capacitance
E_{rev} (mV)	Observed reversal potential of the sodium current-voltage relationship
E_m at I_{max} (pA pF^{-1})	Membrane potential at which maximum current is developed
E_m (mV, $I_{window,peak}$)	Membrane potetial a which the peak window current is achieved
Fraction $I_{window,peak}$	The magnitude of the peak window current (fraction current developed)

Definitions:

$V^{act}_{1/2}$ (mV)	The voltage at which half-maximal steady-state activation is achieved
k^{act} (mV)	The rate of current development over the voltage range through $V^{act}_{1/2}$
$V^{inact}_{1/2}$ (mV)	The voltage at which half-maximal steady-state inactivation is achieved
k^{inact} (mV)	The rate of current decay over the voltage range through $V^{inact}_{1/2}$
RFI_{slope} (ms mV^{-1})	The rate of recovery from inactivation (RFI) over the voltage range -100 to -80mV
Tau_{oofi} (ms)	The time constant of onset of inactivation while exposed to near-peak window current potential
G_{slope} (pA pF^{-1} mV^{-1})	This is the slope of the linear portion of the macroscopic IV relationship through E_{rev}
Cell Capacitance (pF)	Whole cell capacitance calculated as the factor of peak instantaneous current and decay constant

*Note: Shaded values represent adjusted p-values falling below the predetermined cutoff ($\alpha = 0.05$).

*Note: "WT" refers to the ancestral, TTX-sensitive sodium channel; "EPN" refers to the 3-point mutant from *Thamnophis atratus* ; and "LVNV" refers to the 4-point TTX resistant mutant from *Thamnophis sirtalis* .