**Table 3. Statistics: Whole Cell Electrophysiology - pertaining to Figure 2.**

| Test: | Kruskal-Wallis (Non-Parametric ANOVA) | | | |
|---|---|---|---|---|
| Variable | $I_{max}$ (pA) by Genotype | $I_{max}$ (pA $pF^{-1}$) by Genotype | $G_{max}$ (pA $mV^{-1}$) by Genotype | $G_{max}$ (pA $pF^{-1}$ $mV^{-1}$) by Genotype |
| chi-squared | 20.895 | 19.81 | 19.94 | 18.718 |
| df | 2 | 2 | 2 | 2 |
| p-value | 0.000029 | 0.00004993 | 0.00004677 | 0.0000862 |
| Observations | 77 | 77 | 76 | 76 |

| Variable | $E_{rev}$ (mV) | $E_m$ at $I_{max}$ (pA $pF^{-1}$) by Genotype | $E_m$ (mV, $I_{window,peak}$) by Genotype | Fraction $I_{window,peak}$ by Genotype |
|---|---|---|---|---|
| chi-squared | 2.1027 | 3.9776 | 1.6093 | 2.5406 |
| df | 2 | 2 | 2 | 2 |
| p-value | 0.349500 | 0.1369 | 0.4472 | 0.2808 |
| Observations | 77 | 77 | 68 | 68 |

| Variable | $V^{act}_{1/2}$ (mV) by Genotype | $k^{act}$ (mV) by Genotype | $V^{inact}_{1/2}$ (mV) by Genotype | $k^{inact}$ (mV) by Genotype |
|---|---|---|---|---|
| chi-squared | 2.6801 | 5.3346 | 1.8052 | 1.4302 |
| df | 2 | 2 | 2 | 2 |
| p-value | 0.261800 | 0.06944 | 0.4055 | 0.4891 |
| Observations | 79 | 79 | 84 | 84 |

| Variable | $RFI_{slope}$ (ms $mV^{-1}$) by Genotype | $Tau_{oofi}$ (ms) by Genotype | $G_{slope}$ (pA $pF^{-1}$ $mV^{-1}$) by Genotype | Cell Capacitance (pF) by Genotype |
|---|---|---|---|---|
| chi-squared | 4.7273 | 8.0805 | 1.3142 | 0.089097 |
| df | 2 | 2 | 2 | 2 |
| p-value | 0.094080 | 0.01759 | 0.5184 | 0.9564 |
| Observations | 61 | 57 | 77 | 115 |

| Definitions: | | Definitions: | |
|---|---|---|---|
| $I_{max}$ (pA) | Max. macroscopic sodium current developed | $V^{act}_{1/2}$ (mV) | The voltage at which half-maximal steady-state activation is achieved |
| $I_{max}$ (pA $pF^{-1}$) | Max. current density developed, adjusted for capacitance | $k^{act}$ (mV) | The rate of current development over the voltage range through $V^{act}_{1/2}$ |
| $G_{max}$ (pA $mV^{-1}$) | Max. conductance developed, adjusted for driving force | $V^{inact}_{1/2}$ (mV) | The voltage at which half-maximal steady-state inactivation is achieved |
| $G_{max}$ (pA $pF^{-1}$ $mV^{-1}$) | Max. conductance density developed, adjusted for driving force & capacitance | $k^{inact}$ (mV) | The rate of current decay over the voltage range through $V^{inact}_{1/2}$ |
| $E_{rev}$ (mV) | Observed reversal potential of the sodium current-voltage relationship | $RFI_{slope}$ (ms $mV^{-1}$) | The rate of recovery from inactivation (RFI) over the voltage range -100 to -80mV |
| $E_m$ at $I_{max}$ (pA $pF^{-1}$) | Membrane potential at which Max. current is developed | $Tau_{oofi}$ (ms) | The time constant of onset of inactivation while exposed to near-peak window current potential |
| $E_m$ (mV, $I_{window,peak}$) | Membrane potetial a which the peak window current is achieved | $G_{slope}$ (pA $pF^{-1}$ $mV^{-1}$) | This is the slope of the linear portion of the macroscopic IV relationship through $E_{rev}$ |
| Fraction $I_{window,peak}$ | The magnitude of the peak window current (fraction current developed) | 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 ( $\alpha = 0.05$).