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| Supplementary File 2. Activation kinetics for Ca2+-currents measured from wild type and *Ribeye-*ko rods filled with 0.5 or 10 mM EGTA.Comparison of different intracellular concentrations of EGTA (within each genotype) |
| Vstep | -40mV | -30mV | -20mV | -10mV | 0mV |
|  | peak-ICa (pA) | peak-ICa (pA) | tau (µs) | peak-ICa (pA) | tau (µs) | peak-ICa (pA) | tau (µs) | peak-ICa (pA) | tau (µs) |
| wt, 10 EGTA9 cells | -0.9 ± 0.3 | -6.2 ± 0.6 | 1090 ± 151 | -12.1 ± 0.7 | 489 ± 42 | -14.1 ± 0.7 | 274 ± 36 | -13.0±0.7 | 184 ± 27 |
| wt 0.5 EGTA8 cells | -0.9 ± 0.1 | -6.1 ± 0.3 | 545 ± 30**p: 0.006** | -12.2 ± 0.4 | 309 ± 29**p: 0.003** | -14.1 ± 0.6 | 202 ± 22p: 0.09 | -13.5±0.4p: 0.52 | 155 ± 34p: 0.51 |
| ko, 10 EGTA5 cells | -0.5 ± 0.1 | -3.7 ± 0.7 | 671 ± 65 | -7.7 ± 0.8 | 363 ± 27 | -9.3 ± 0.7 | 255± 36 | -9.8 ± 0.7 | 261 ± 35 |
| ko, 0.5 EGTA7 cells | -1.0 ± 0.1**p: 0.006** | -6.0 ± 0.5**p: 0.028** | 649 ± 67**p: 0.82** | -9.4 ± 0.7p: 0.13 | 254 ± 42**p: 0.05** | -11.3 ± 0.9p: 0.10 | 194± 17p: 0.18 | -9.7 ± 0.7 | 140 ± 18**p: 0.02** |
| Comparison of wild type versus *Ribeye-*ko  |
| Vstep | -40mV | -30mV | -20mV | -10mV | 0mV |
|  | peak-ICa (pA) | peak-ICa (pA) | tau (µs) | peak-ICa (pA) | tau (µs) | peak-ICa (pA) | tau (µs) | peak-ICa (pA) | tau (µs) |
| 10 EGTA wt | -0.9 ± 0.3 | -6.2 ± 0.6 | 1090 ± 151 | -12.1 ± 0.7 | 489 ± 42 | -14.1 ± 0.7 | 274 ± 36 | -13.0 ± 0.7 | 184± 27 |
| 10 EGTAko | -0.5 ± 0.1p: 0.34 | -3.7 ± 0.7**p:0.023** | 671 ± 65**p: 0.03** | -7.7 ± 0.8**p:0.002** | 363 ± 27**p: 0.03** | -9.3 ± 0.7**p: 0.0008** | 255± 36p: 0.7 | -9.8 ± 0.7**p: 0.03** | 261± 35p: 0.12 |
| 0.5 EGTAwt | -0.9 ± 0.1 | -6.1 ± 0.3 | 545 ± 30 | -12.2 ± 0.4 | 309 ± 29 | -14.1 ± 0.6 | 202 ± 22 | -13.5 ± 0.4 | 155± 34 |
| 0.5 EGTAko | -1.0 ± 0.1p: 0.47 | -6.0 ± 0.5 | 649 ± 67p: 0.19 | -9.4 ± 0.7**p: 0.005** | 254 ± 42p: 0.3 | -11.3±0.9**p: 0.02** | 194± 17p: 0.78 | -9.7 ± 0.7**p: 0.0002** | 140± 18p: 0.7 |

**Note:** Average peak-ICa and activation τ's were made by fitting current responses with a single exponential decay function (see Materials and methods). The voltage-step protocol started at Vrest: −70 mV, stepped to the test voltage (Vstep) for 10 ms, and a 3 s rest period was given before the next test pulse. The protocol started with a Vstep to +30 mV, advanced in 10 mV decrements, and ended with a step to −80 mV. The liquid junction potentials (*E*lj) was *not* subtracted from the voltage values presented above. The *E*lj created with the intracellular solutions used to make 0.5 and 10 mM EGTA are estimated to shift the membrane voltages negatively by 10 and 9 mV, respectively (see Materials and methods).