

Cardiac Functional Release Unit Paper Errata

Equation 3 - There should be a negative sign on the right hand side and the factor A_{cap} in the numerator.

$$J_{DHPR} = -\frac{\bar{I}_{DHPR} DHPR_{open} A_{cap}}{2FV_{SS}}$$

Equation 6 - The last term should have a negative sign in front.

$$J_{RyR} = \sum_{i=1}^8 \bar{J}_{RyR} RyR_{open}^i ([Ca]_{JSR} - [Ca]_{SS})$$

Table 1 - alpha, beta, y, a, and b

$$\gamma = 0.1875 [Ca_{SS}] s^{-1}$$

$$\alpha = 400 .0 e^{(V+6)/25} s^{-1}$$

$$\beta = 50 .0 e^{-(V+6)/29} s^{-1}$$

$$\alpha' = \alpha a s^{-1}$$

$$\beta' = \frac{\beta}{b} s^{-1}$$

$$y_{\infty} = \frac{1}{1 + e^{(v+55)/7.5}} + \frac{0.1}{1 + e^{-(v-21)/6}}$$

$$\tau_y = 0.02 + \frac{0.04}{1 + e^{(V+30)/9.5}}$$

$$\omega = 10 .0 s^{-1}$$

$$a = 2.0$$

$$b = 2.0$$

$$f = 300 .0 s^{-1}$$

$$g = 2000 .0 s^{-1}$$

$$f' = 5.0 s^{-1}$$

$$g' = 7000 .0 s^{-1}$$

Table 2 -

$$k_{1,2} = \frac{3.0 \times 10^6 [Ca_{SS}]^4}{(7.66)^4 + [Ca_{SS}]^4} s^{-1}$$

$$k_{2,1} = 2.5 \times 10^5 s^{-1}$$

$$k_{2,3} = \frac{3.0 \times 10^7 [Ca_{SS}]^4}{(7.66)^4 + [Ca_{SS}]^4} s^{-1}$$

$$k_{3,2} = 9.6 \times 10^3 s^{-1}$$

$$k_{3,4} = \frac{3.0 \times 10^6 [Ca_{SS}]^4}{(7.66)^4 + [Ca_{SS}]^4} s^{-1}$$

$$k_{4,3} = 1.3 \times 10^4 s^{-1}$$

$$k_{5,4} = \frac{198.0 [Ca_{SS}]^4}{(7.66)^4 + [Ca_{SS}]^4} s^{-1}$$

$$k_{4,5} = 66.67 s^{-1}$$

$$k_{2,5} = \frac{3.0 \times 10^5 [Ca_{SS}]^4}{(7.66)^4 + [Ca_{SS}]^4} s^{-1}$$

$$k_{5,2} = 1.235 s^{-1}$$

$$k_{5,6} = \frac{3.0 \times 10^6 [Ca_{SS}]^4}{(7.66)^4 + [Ca_{SS}]^4} s^{-1}$$

$$k_{6,5} = 3.0 \times 10^6 s^{-1}$$

Table 3 – Vmyo, PCa, and Acap

$$V_{SS} = 2.03 \times 10^{-12} \mu L$$

$$V_{JSR} = 1.05 \times 10^{-10} \mu L$$

$$V_{myo} = 4.7 \times 10^{-9} \mu L$$

$$[Ca^{2+}]_{Myo} = 0.1 \mu M$$

$$[Ca^{2+}]_{NSR} = 800 \mu M$$

$$[Ca^{2+}]_o = 1.8 mM$$

$$\tau_{tr} = 5.0 ms$$

$$\tau_{xfer} = 0.0007 ms$$

$$[B_{SR}] = 47.0 \mu M$$

$$K_{BSR} = 0.87 \mu M$$

$$[B_{SL}] = 1124.0 \mu M$$

$$K_{BSL} = 8.7 \mu M$$

$$[CSQN_{total}] = 15.0 mM$$

$$K_{CSQN} = 0.8 mM$$

$$F = 96500 \text{ coul } (mol e^{-})^{-1}$$

$$T = 310 K$$

$$R = 8.314 J mol^{-1} K^{-1}$$

$$\bar{J}_{RyR} = 3960.0 s^{-1}$$

$$\bar{P}_{Ca} = 33.75 \times 10^{-4} cm s^{-1}$$

$$A_{cap} = 4.47 \times 10^{-9} cm^2$$