

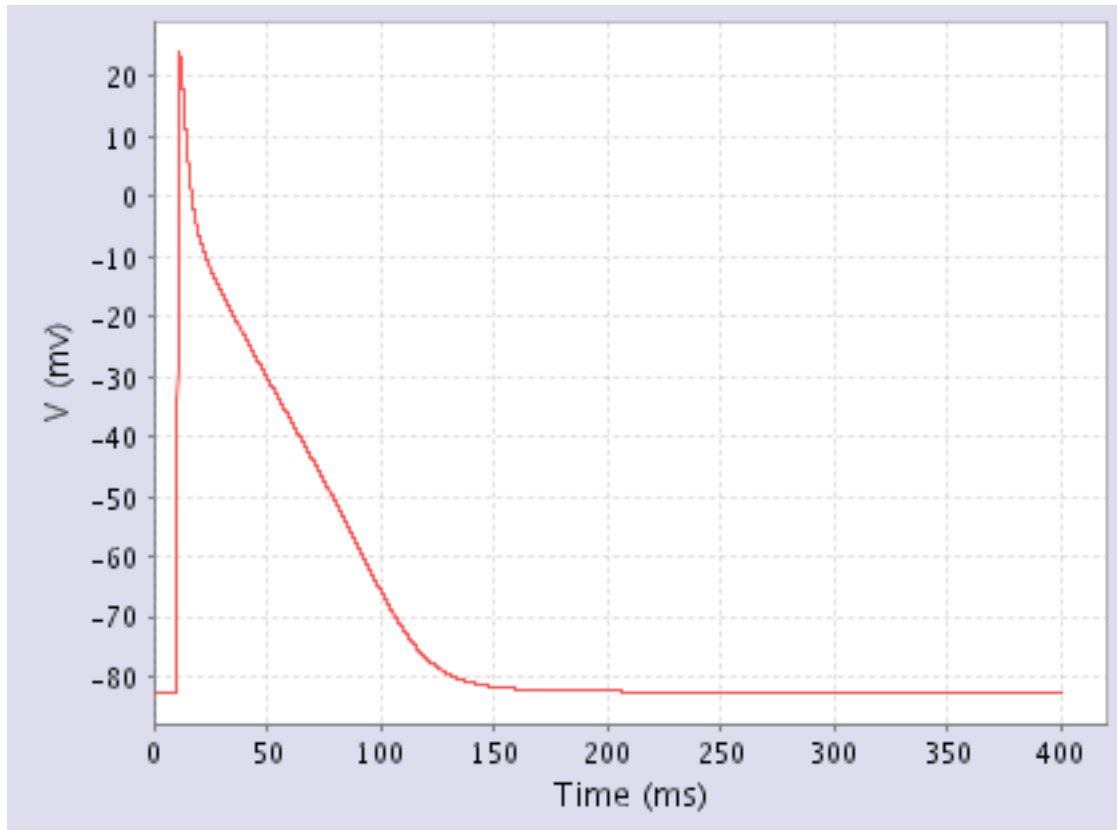
# Canine Atrial KRCCN02-ESM

**Enhanced Simucore Model Based Upon: Kneller, Ramirez, Chartier, Courtemanche, Nattel Model of Canine Atrial Cardiac Action Potentials, 2002; v. 2.0**

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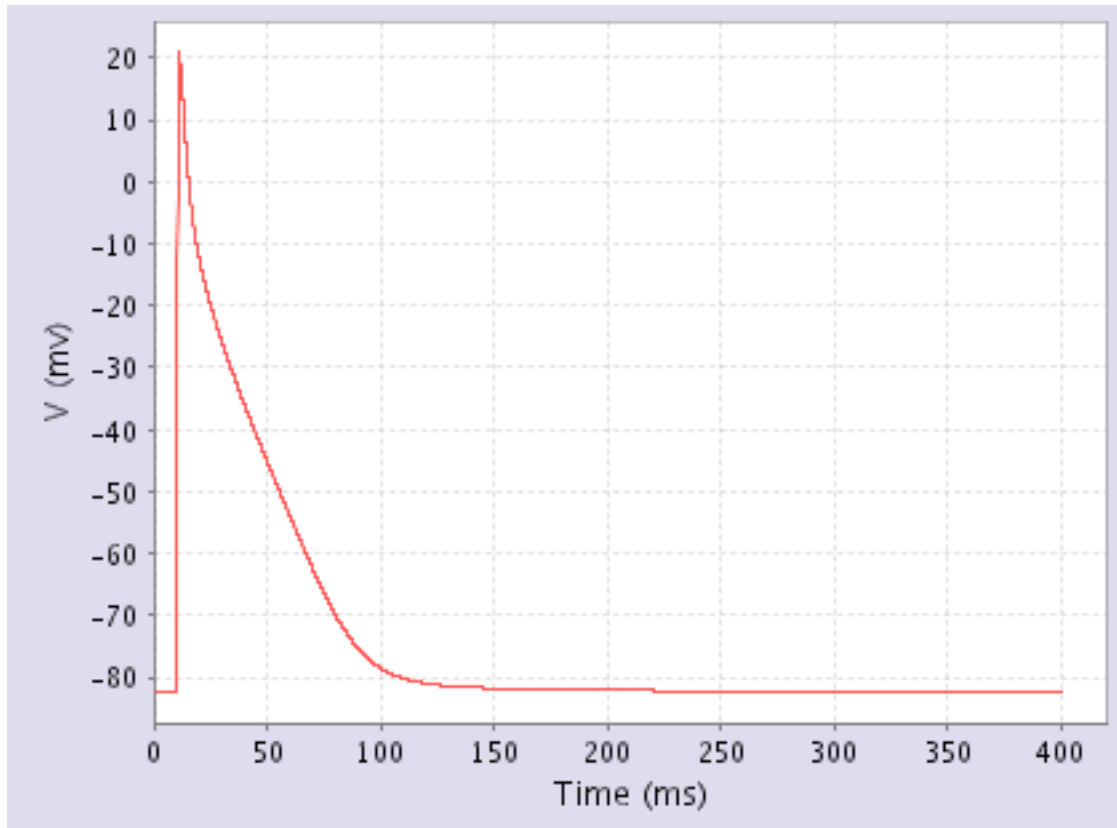
## 1. Description



Example action potential after 10 iterations (BCL = 400 ms).

This model improves long-term stability of Ramirez, Nattel, Courtemanche Canine model by adding background  $\text{Cl}^-$  current and  $\text{Na}^+/\text{Cl}^-$  cotransporter formulations. Maximal conductances of  $I_{\text{Ca}}$ ,  $I_{\text{L}}$ ,  $I_{\text{to}}$  and  $I_{\text{ur}}$  were also adjusted to stabilize action potential configurations during long runs.

The example action potential below was recorded after 50,000 model pacings at BCL=400 ms. The action potential configuration after this >5.5h long run is very similar to the action potential recorded after only 10 iterations (above). This model is therefore suitable for simulations where long-term ionic concentration stability is required over prolonged periods of time.



Example action potential after 50,000 iterations (BCL = 400 ms).

Abstract excerpt: *"The present study evaluated transients during long-term simulated activity in a mathematical model of the canine atrial AP."*

## 2. References

- Kneller J, Ramirez RJ, Chartier D, Courtemanche M, Nattel S. Time-dependent transients in an ionically based mathematical model of the canine atrial action potential. Am J Physiol Heart Circ Physiol. 2002 Apr;282(4):H1437-51. PMID: [11893581](https://pubmed.ncbi.nlm.nih.gov/11893581/)

## 3. Ordering

- [Order this model](#) or [request further information](#).