

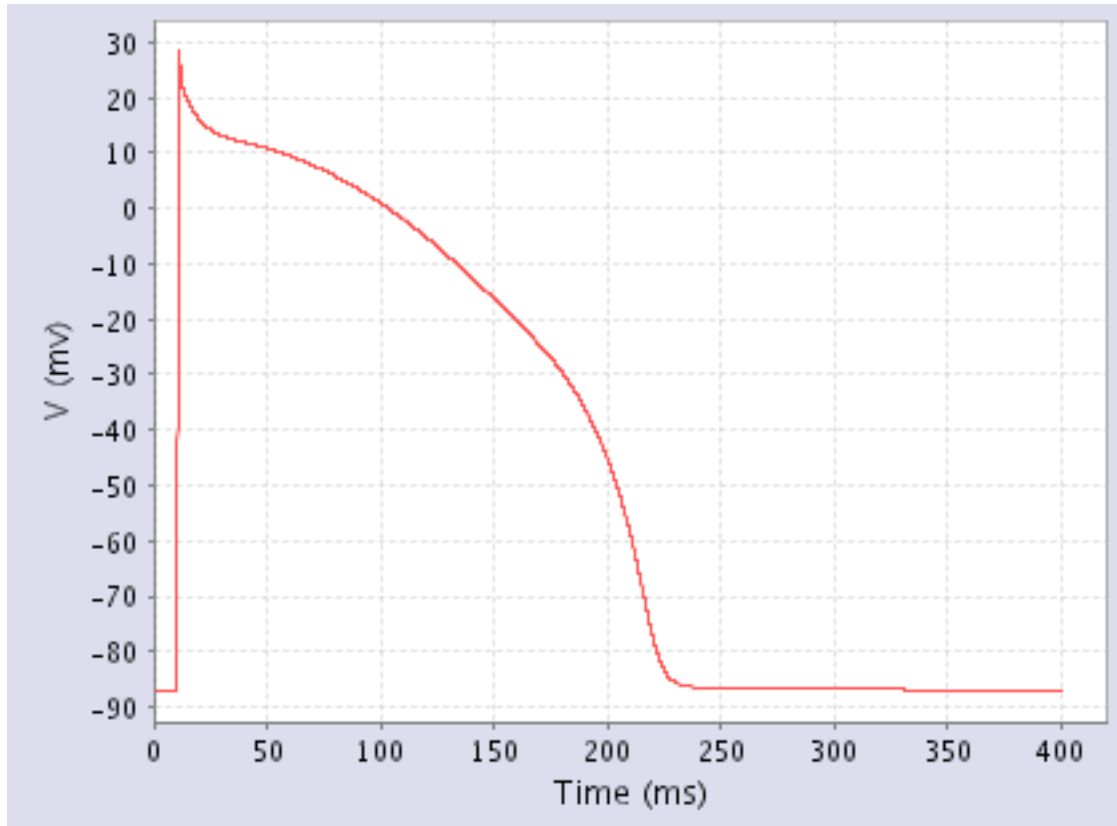
# Canine Ventricular HR04-ESM

## Enhanced Simucore Model Based Upon: Hund-Rudy Model of Canine Ventricular Cardiac Action Potentials, 2004; v. 2.0

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## 1 Description



The model is used to simulate canine ventricular action potentials. It is similar to Luo-Rudy II guinea-pig ventricular model but includes two transient-outward currents ( $I_{to1}$  and  $I_{to2}$ ), late  $Na^+$  current ( $I_{NaL}$ ), and  $Cl^-$ -dependent background current and transporters. The  $Ca^{2+}$  handling was updated and includes  $Ca^{2+}$ /calmodulin dependent protein kinase (CaMKII)  $Ca^{2+}$  binding and restricted  $Ca^{2+}$  subspace formulation.

*Abstract excerpt: "A novel theoretical model of the canine ventricular epicardial action potential and calcium cycling was developed and used to investigate ionic mechanisms underlying  $Ca^{2+}$  transient (CaT) and action potential duration (APD) rate dependence. The  $Ca^{2+}$ /calmodulin-dependent protein kinase (CaMKII) regulatory pathway was integrated into the model, which included a novel  $Ca^{2+}$ -release formulation,  $Ca^{2+}$  subspace, dynamic chloride handling, and formulations for major ion currents based on canine ventricular data."*

## 2 References

- Hund TJ, Rudy Y.  
Rate dependence and regulation of action potential and calcium transient in a canine cardiac ventricular cell model.  
Circulation. 2004 Nov 16;110(20):3168-74.  
PMID: [15505083](#)

## 3 Ordering

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