



Comprehensive in vitro Proarrhythmia Assay (CiPA) Services



ICE Bioscience INC

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Targets	Function	Positive control	Method
hERG (GLP available)	IKr, rapid repolarisation (phase 3)	cisapride	MPC, APC
NaV1.5	INa, depolarisation (phase 0)	TTX, flecainide	MPC, APC
CaV1.2	ICa-L, depolarization (phase 2)	nifedipine	MPC, APC
Kv7.1/minK	IKs/KvLQT, slow repolarization (phase 3)	chromanol 293B	MPC, APC
KV1.5	IKur, repolarization (atrial)	4-AP	MPC, APC
Kv4.3	Ito, repolarization (phase 1)	4-AP	MPC, APC
Kir2.1	IK1, repolarization (phase 4)	BaCl2	MPC, APC
Kir3.1/3.4	KAch, repolarization (atrial)	BaCl2	MPC
Kir6.2/sur2	KATP	glibenclamide	MPC
CaV3.2	ICa-T, pacemaker current	NiCl2	MPC, APC
HCN2	If, pacemaker current	ivabradine	MPC
HCN4	If, pacemaker current	ivabradine	MPC

*MPC= Manual patch clamp, APC= Automated patch clamp (Nanion Patchliner® /Qpatch HTX48)

hERG Assay Data Sheet

Channel	KV11.1,hERG,IKr
Assay	IC50
Expression system	HEK293 or CHO
Method	whole cell patch clamp
Standard time	1-2 weeks
Reference compound	E4031, cisapride
Target	QT-prolongation, Torsade de Pointe(TdP)

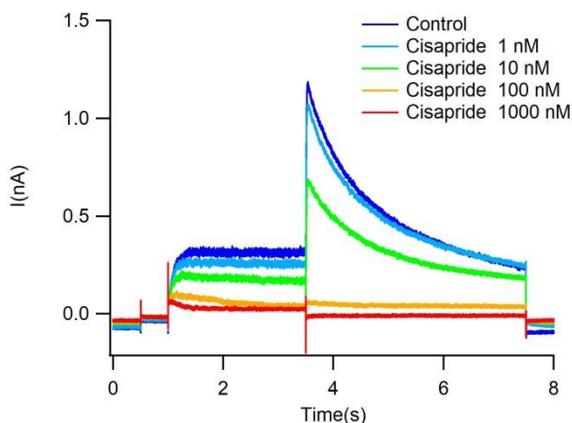


Figure 1. Representative traces of hERG currents, before and after Casapride application at different concentrations

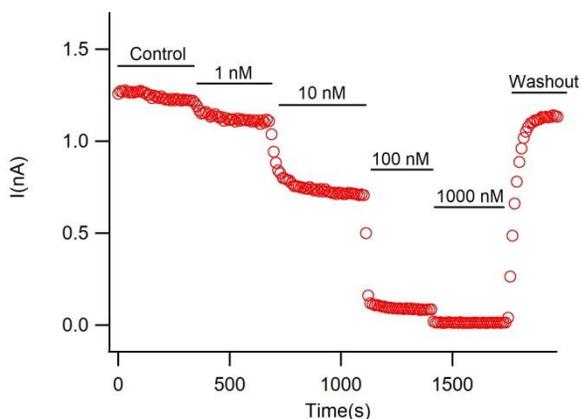


Figure 2. The time course of hERG currents after application of different Casapride concentrations

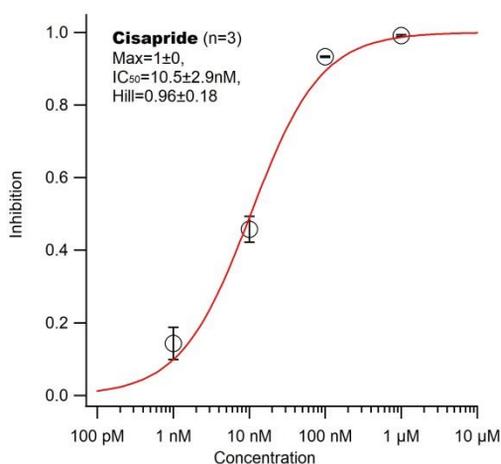


Figure 3. Concentration-dependent effect of hERG on Casapride currents

Figure 4. Expression of Casapride mRNA in the stable cell line

Further validation data available on request.

Nav1.5 Assay Data Sheet

Channel	NaV1.5
Gene	SCN5A
Catalog Ref.	ICE-HEK-Nav1.5
Sources	Human
Expression system	HEK293
Method	whole cell patch clamp
Standard time	2-4 weeks
Reference inhibitor	TTX
Target	Brugada syndrome, long QT syndrome, progressive cardiac conduction disease ,dilated cardiomyopathy, sick sinus syndrome, Atrial Fibrillation

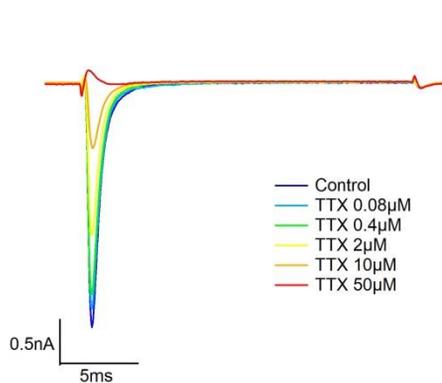


Figure 1. Representative traces of Nav1.5 currents, before and after TTX application at different concentrations

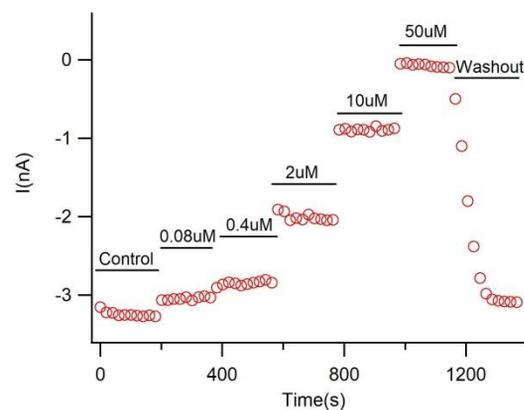


Figure 2. The time course of Nav1.5 currents after application of different TTX concentrations

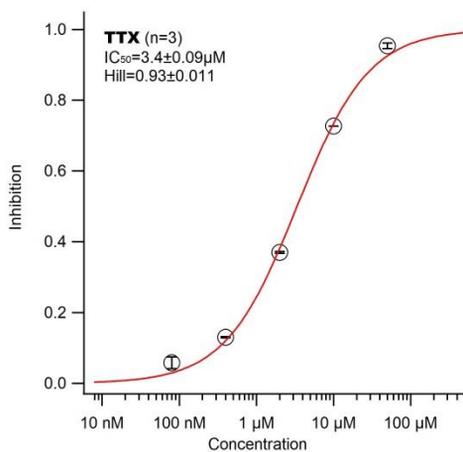


Figure 3. Concentration-dependent effect of TTX on Nav1.5 currents

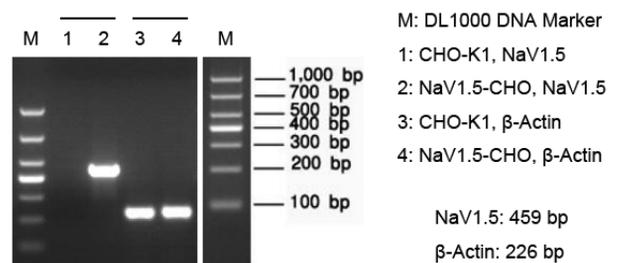


Figure 4. Expression of Nav1.5 mRNA in the stable cell line

Further validation data available on request.

Cav1.2 Assay Data Sheet

Channel	Cav1.2/ β 2/ α 2/ δ 1, L-type
Catalog Ref.	ICE-CHO-Cav1.2
Gene	CACNA1C/CACNB2/CACNA2D1
Sources	human
Expression system	CHO
Method	whole cell patch clamp
Standard time	2-4 weeks
Reference Inhibitor	Nifedipine, verapamil
Target	Timothy syndrome, long QT syndrome, Pain, epilepsy, hypertension, stroke, arrhythmia, Autism

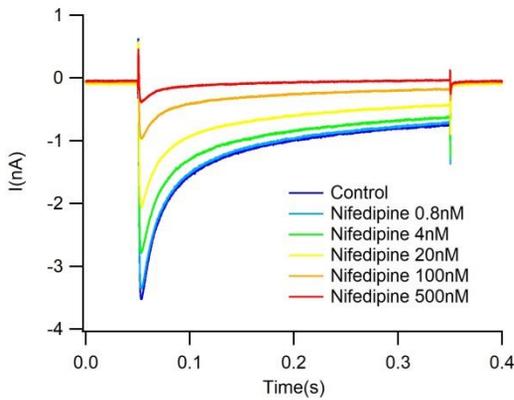


Figure 1. Representative traces of Cav1.2 currents, before and after Nifedipine application at different concentrations

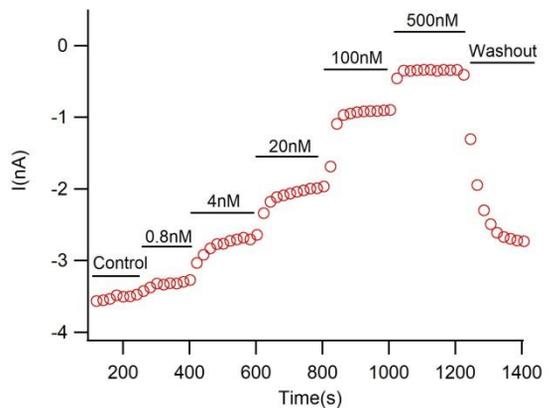


Figure 2. The time course of Cav1.2 currents after application of different Nifedipine concentrations

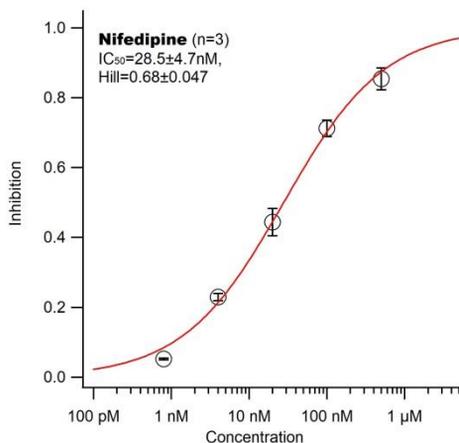


Figure 3. Concentration-dependent effect of Nifedipine on Cav1.2 currents

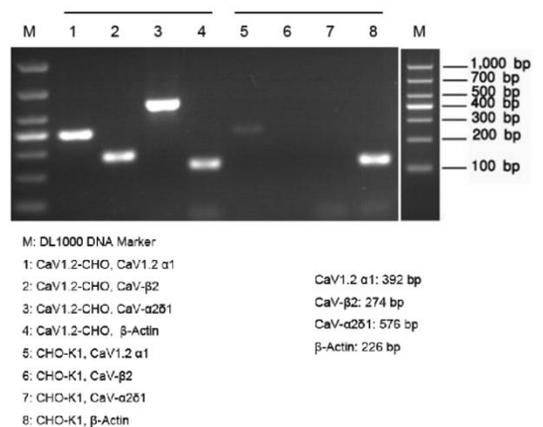


Figure 4. Expression of Cav2.1 mRNA in the stable cell line

Further validation data available on request.

Kv1.5 Assay Data Sheet

Channel	Kv1.5
Gene	KCNA5
Sources	Human
Catalog Reference	ICE-HEK-Kv1.5
Expression system	HEK293
Method	whole cell patch clamp
Standard time	2-4 weeks
Reference compound	4-AP
Target	Atrial fibrillation

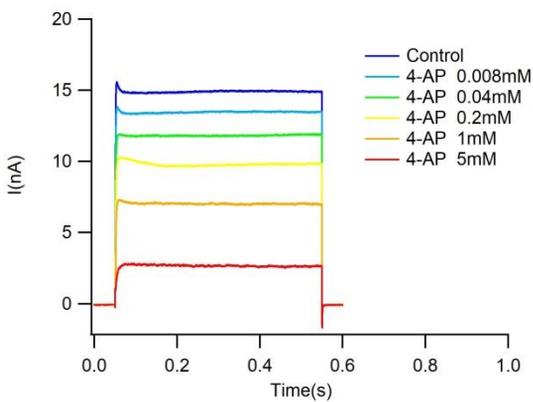


Figure 1. Representative traces of Kv1.5 currents, before and after 4-AP application at different concentrations

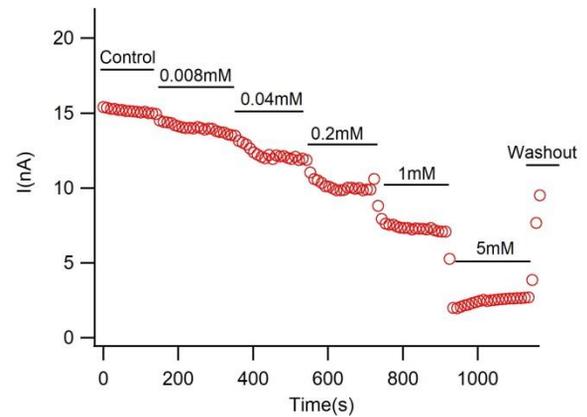


Figure 2. The time course of Kv1.5 currents after application of different 4-AP concentrations

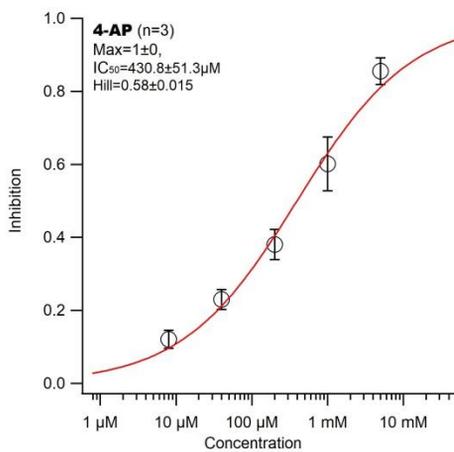


Figure 3. Concentration-dependent effect of 4-AP on Kv1.5 currents

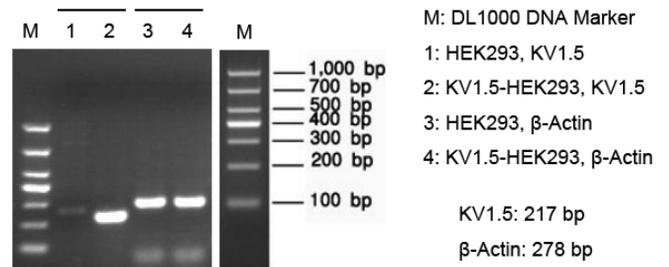


Figure 4. Expression of Kv1.5 mRNA in the stable cell line

Further validation data available on request.

Kv4.3 Assay Data Sheet

Channel	Kv4.3
Catalog Reference	ICE-HEK-Kv4.3
Gene	KCND3
Sources	Human
Expression system	HEK293
Method	whole cell patch clamp
Standard time	2 weeks
Reference compound	TEA or 4-AP
Target	migraine, seizure and ataxia syndromes

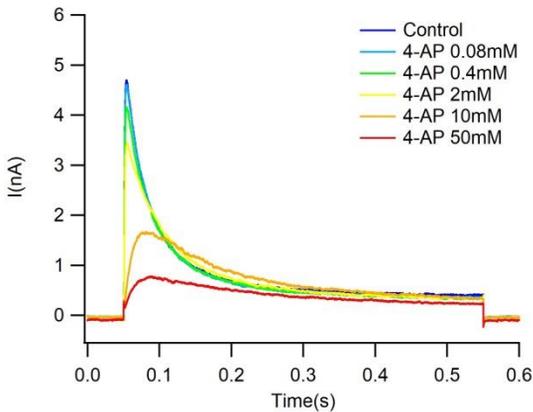


Figure 1. Representative traces of Kv4.3 currents, before and after 4-AP application at different concentrations

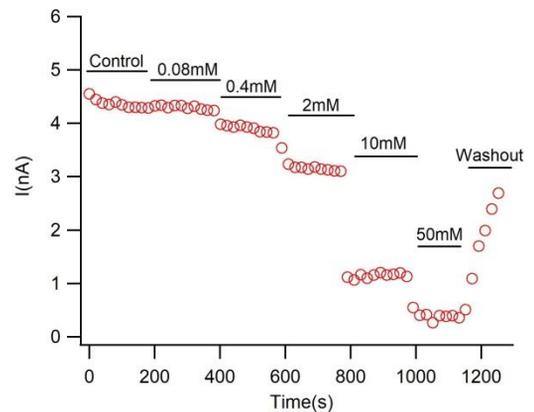


Figure 2. The time course of Kv4.3 currents after application of different 4-AP concentrations

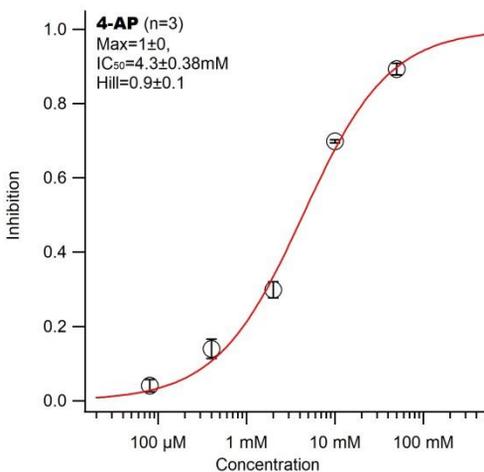


Figure 3. Concentration-dependent effect of 4-AP on Kv4.3 currents

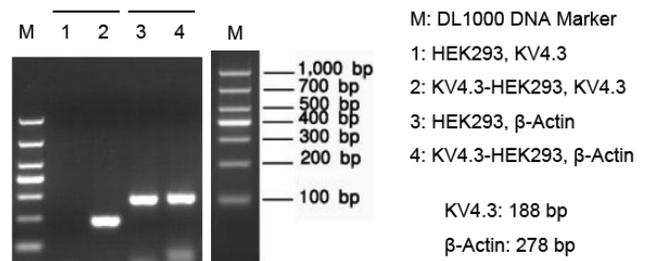


Figure 4. Expression of Kv4.3 mRNA in the stable cell line

Further validation data available on request.

KCNQ1/KCNE Assay Data Sheet

Channel	Kv1.5
Gene	KCNA5
Sources	Human
Catalog Reference	ICE-HEK-Kv1.5
Expression system	HEK293
Method	whole cell patch clamp
Standard time	2-4 weeks
Reference compound	4-AP
Target	Atrial fibrillation

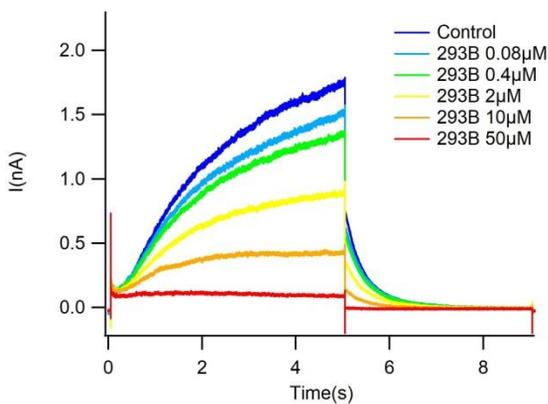


Figure 1. Representative traces of KCNQ1 currents, before and after chromanol 293B application at different concentrations

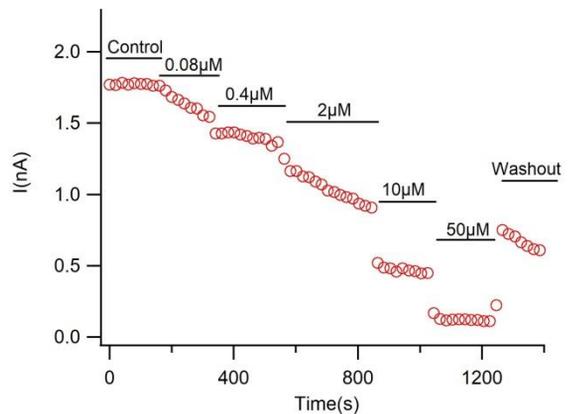


Figure 2. The time course of KCNQ1 currents after application of different chromanol 293B concentrations

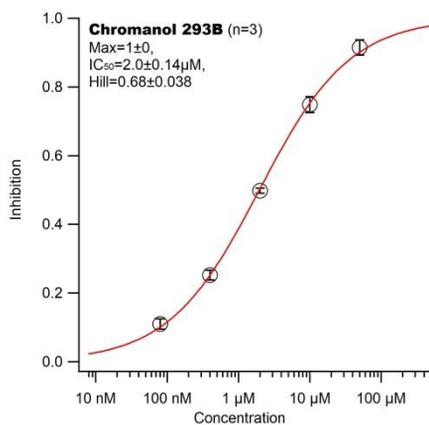


Figure 3. Concentration-dependent effect of chromanol 293B on KCNQ1 currents

Figure 4. Expression of KCNQ1 mRNA in the stable cell line

Further validation data available on request.

Kir2.1 Assay Data Sheet

Channel	Kv1.5
Gene	KCNA5
Sources	Human
Catalog Reference	ICE-HEK-Kv1.5
Expression system	HEK293
Method	whole cell patch clamp
Standard time	2-4 weeks
Reference compound	4-AP
Target	Atrial fibrillation

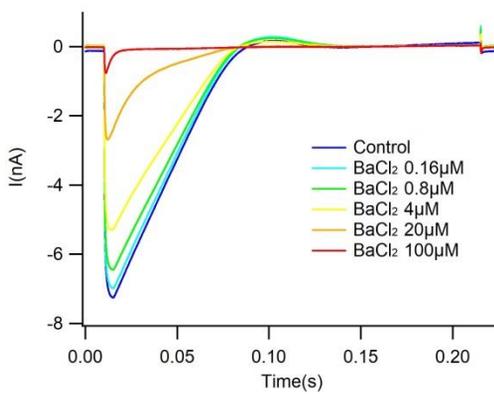


Figure 1. Representative traces of Kir2.1 currents, before and after BaCl₂ application at different concentrations

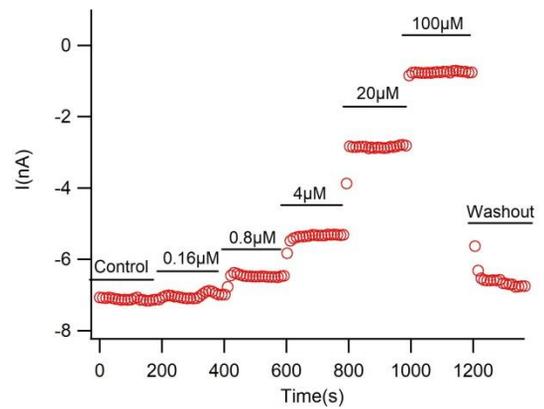


Figure 2. The time course of BaCl₂ currents after application of different BaCl₂ concentrations

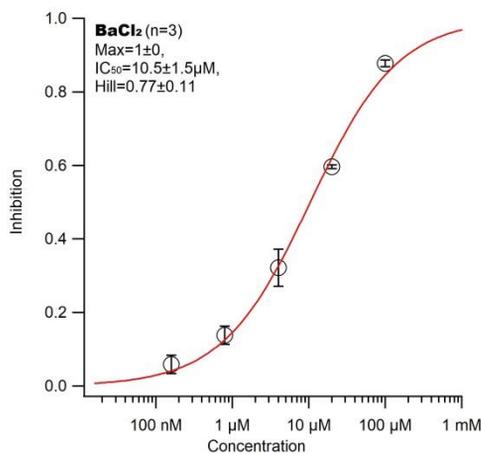


Figure 3. Concentration-dependent effect of BaCl₂ on BaCl₂ currents

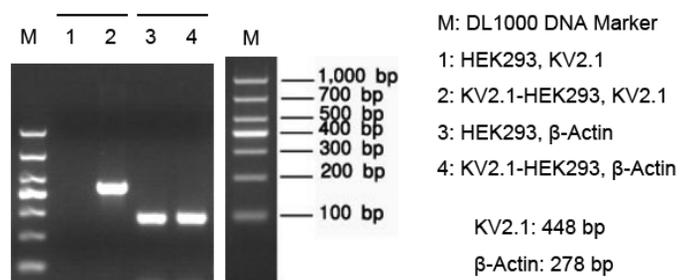
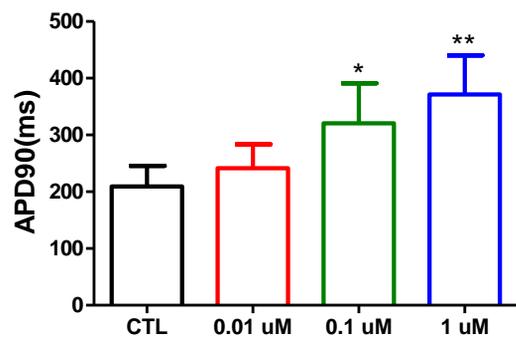
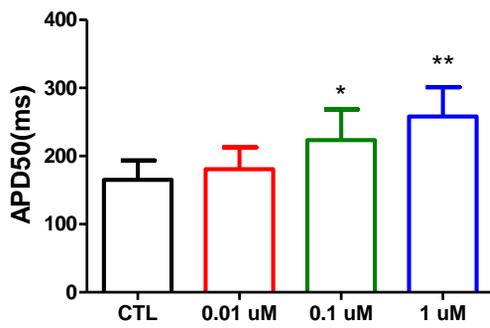
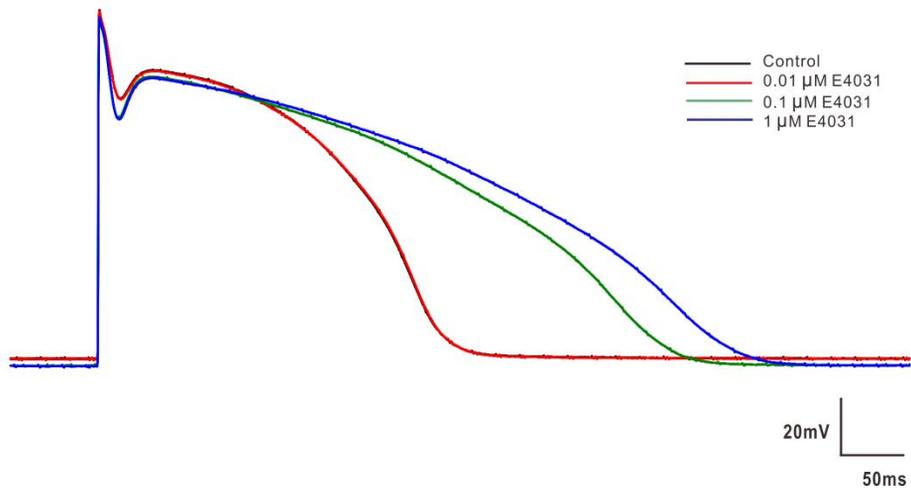


Figure 4. Expression of BaCl₂ mRNA in the stable cell line

Further validation data available on request.

Action potential of rabbit Purkinje fiber



Action potential of guinea pig papillary muscle

