



THE ION CHANNEL EXPERT

## **Stably Transfected Cell Line - Product Data Sheet**

**hK<sub>v</sub>1.4-HEK**

**Catalog Number CT6136**

### **Related Services and Products**

FastPatch<sup>®</sup> and ScreenPatch<sup>™</sup> automated patch clamp services

Replicating hK<sub>v</sub>1.4-CHO cell line. Cat. No. CT6135

Additional information available at [www.chantest.com](http://www.chantest.com)

### **Contact Information**

ChanTest Corporation

14656 Neo Parkway

Cleveland OH 44128

Tel: (216) 584-0590

Fax: (216) 584-0591

## Table of Contents

1	Cell Line Description.....	3
1.1	Background.....	3
1.2	Pore-forming subunit identifier: hK <sub>v</sub> 1.4.....	3
1.3	Sequence Information.....	3
1.4	Expression System.....	3
1.5	Product Format.....	3
1.6	Mycoplasma Status: Negative.....	3
1.7	Cell Line Stability.....	3
2	Validated Test Platforms.....	3
2.1	Representative PatchXpress <sup>®</sup> Data.....	4
3	References.....	5

## 1 Cell Line Description

### 1.1 Background

Kv1.4 is a voltage-gated, K<sup>+</sup>-selective channel expressed in the CNS, pancreas, and cardiac and skeletal muscle.

### 1.2 Pore-forming subunit identifier: hK<sub>v</sub>1.4

Class: Voltage-gated potassium channel

Species: Human

Gene name: KCNA4

### 1.3 Sequence Information

The cDNA sequence of the KCNA4 gene used to create this cell line was confirmed prior to transfection. The amino acid sequence encoded by the transfected cDNA is identical to the translated sequence for GenBank accession number NM\_002233.2.

### 1.4 Expression System

HEK293 (human embryonic kidney) cells, constitutive expression.

### 1.5 Product Format

Cryopreserved cells, 1 x10<sup>6</sup> cells/vial.

### 1.6 Mycoplasma Status: Negative

The absence of mycoplasma species in this cell line was confirmed with the MycoAlert Kit (Lonza Rockland, Inc.).

### 1.7 Cell Line Stability

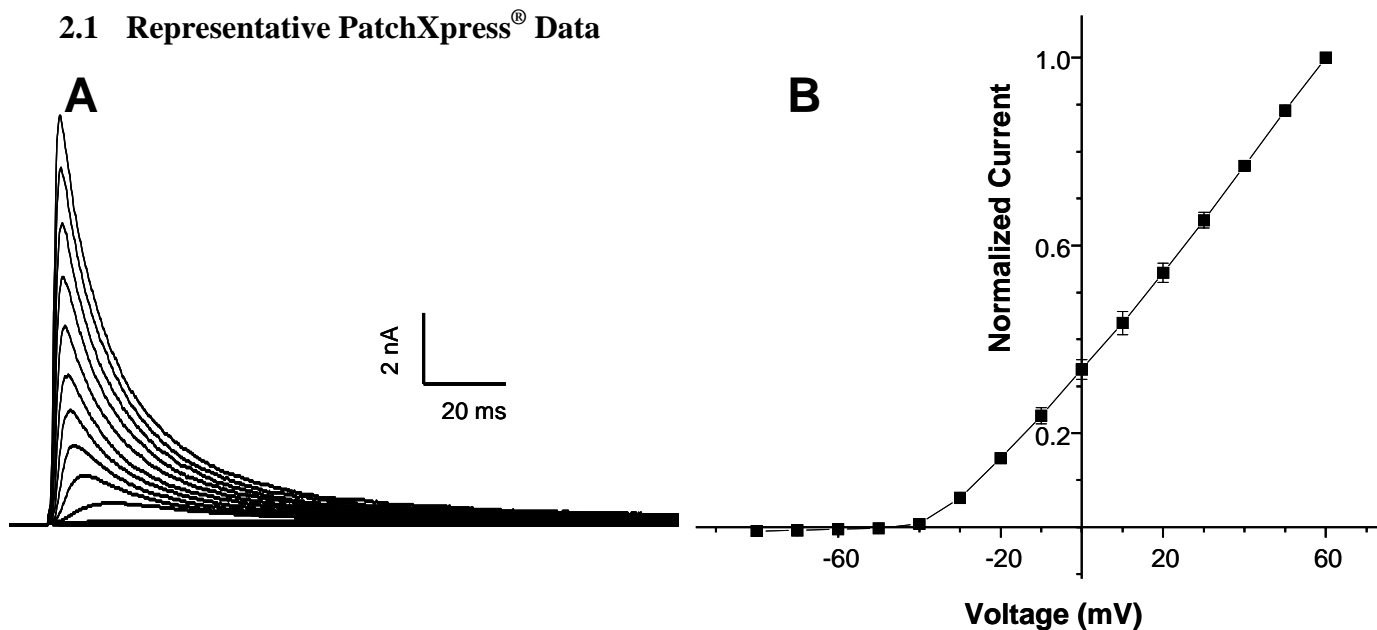
Channel expression has been stable for at least 38 passages.

## 2 Validated Test Platforms

Electrophysiological and pharmacological verification of the functional properties of the cloned channels was assessed in the following test platforms:

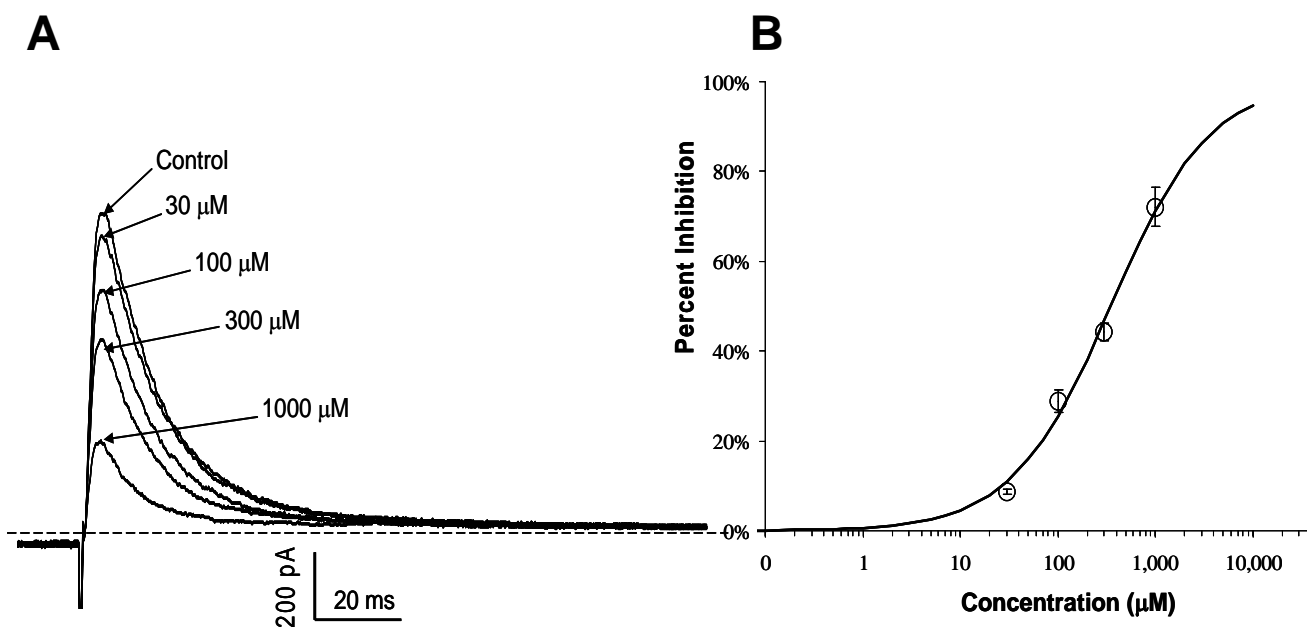
PatchXpress<sup>®</sup> (MDS-AT)

## 2.1 Representative PatchXpress<sup>®</sup> Data



**Figure 1. Voltage-dependent Gating in PatchXpress<sup>®</sup>.**

**A:** hK<sub>v</sub>1.4 current traces elicited by 300-ms test pulses from -80 to +60 mV in 10 mV increments, holding potential of -80 mV. **B:** Steady-state current-voltage relationship.



**Figure 2. 4-Aminopyridine (4-AP) block in PatchXpress<sup>®</sup>**

**A:** Current traces elicited by 300-ms test pulses to +20 mV in the absence (control) and presence of 4-AP. **B:** Concentration-response relationship (Mean  $\pm$  SEM, n = 3 cells/concentration). IC<sub>50</sub> = 350 μM.

### **3 References**

Gutman GA, et al. 2005. International Union of Pharmacology. LIII. Nomenclature and molecular relationships of voltage-gated potassium channels. *Pharmacol Rev.* 57:473-508.