

Kv7.1/minK Cell Line Data Sheet

Kv7 channels (also known as KQT-like or KCNQ channels) differ from other voltage-gated 6 TM helix channels, chiefly in that they possess no tetramerisation domain. Consequently, they rely on interaction with accessory subunits, or form heterotetramers with other members of the family.

The heterotetramers of KCNQ1 with KCNE1 (KvLQT1/minK) conduct I_{Ks} , a slow activation rectifier potassium current that plays important role in repolarization. Inhibition or mutation of I_{Ks} will induce QT-prolongation, a disorder in which the patient has a substantial risk of sudden death due to an arrhythmia known as Torsades de pointes (TdP). Thus I_{Ks} is considered an important part of Comprehensive in Vitro Proarrhythmia Assay (CiPA).

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|---------------------------|--|
| Channel | Kv7.1/minK, KvLQT1/minK, KCNQ1/KCNE1, I_{Ks} |
| Catalog Reference | ICE-HEK-Kv7.1 |
| Gene | KCNQ1/KCNE1 |
| Sources | Human |
| Expression system | HEK293 |
| Method | whole cell patch clamp |
| Standard time | 2 weeks |
| Reference compound | Chromanol 293B ($1.4 \pm 0.171 \mu\text{M}$) |
| Target | QT-prolongation, Short QT syndrome, Atrial Fibrillation. |

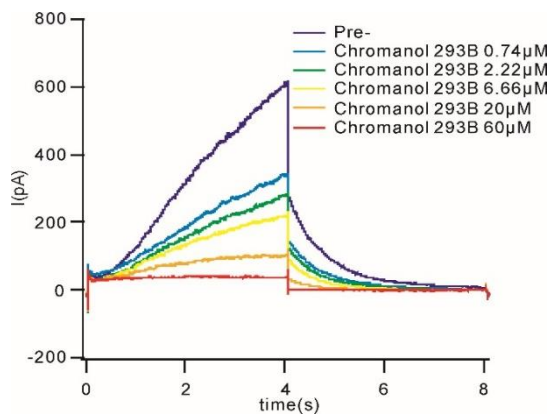


Figure 1. Current-time dependent curves of I_{Ks} , in the absence or presence of Chromanol 293B at different concentrations

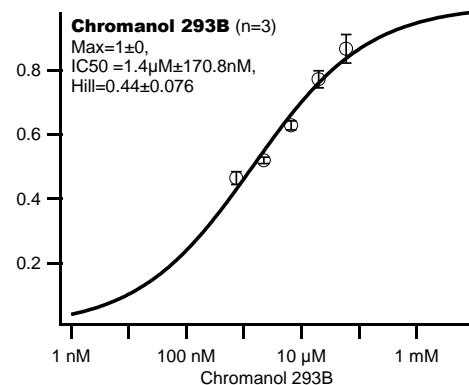


Figure 2. Concentration-dependent effects of Chromanol 293B on I_{Ks}

Further validation data available on request.