3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Anti-Potassium Channel K_V11.1 (HERG) Extracellular-FITC
produced in rabbit, affinity isolated antibody

Catalog Number **K0640**

Product Description

Anti-Potassium Channel K_V11.1 (HERG)**-** Extracellular-FITC (Voltage gated K^+ channel subfamily H member 2, KCNH2, ether-a-go-go-related channel 1) is produced in rabbit using as immunogen the peptide AFLLKETEEGPPATEC corresponding to residues 430-445 of human K_V11.1 (HERG). Anti-K_V11.1 (HERG) antibody is directed against an extracellular epitope located between the S1 and S2 domains. The antibody is affinity purified on immobilized antigen and labeled with fluorescein isothiocyanate (FITC).

Anti- K_V11.1 (HERG) recognizes human K_V11.1 (HERG) (Gene ID 3757. Homology with rat and mouse shows that 11 out of 16 residues are identical. Dog and rabbit have 15 out of 16 residues identical. The antibody has been used in flow cytometry and immunocytochemistry.

The K_V11.1 (HERG) channel is a member of the *ether-a-go-go* (EAG) subfamily of voltage-dependent K^+ channels that includes the related proteins K_V11.2 and K_V11.3 (erg2 and erg3). K_V11.1 possess the signature structure of the voltage-dependent K^+ channels: six membrane-spanning domains and intracellular N- and C-termini. The K_V11.1 current is characterized by strong inward rectification with slow activation and very rapid inactivation kinetics. The channel is expressed in the brain and heart (where it underlies the I_{Kr} current) and has a central role in mediating repolarization of action potentials.

Mutations in the K_V11.1 channel cause inherited long QT syndrome (LQTS) or abnormalities in the repolarization of the heart that are associated with life-threatening arrhythmias and sudden death. All the identified K_V11.1 mutations produce loss of function of the channel via several cellular mechanisms ranging from alterations of gating properties, alterations of channel permeability/selectivity and alterations in intracellular channel trafficking that decreases the number of channels that reach the cell membrane.

Lately drug-induced forms of LQTS have been reported for a wide range of non-cardiac drugs including antihistamines, psychoactive agents and antimicrobials. All these drugs potently block the K_V11.1 channel as an unintended side effect, prompting regulatory drug agencies to issue recommendations for the testing of new drugs for their potential K_V11.1 blocking effect.

In addition, K_V11.1 expression was found to be upregulated in several tumor cell lines of different histogenesis suggesting that it confers the cells some advantage in cell proliferation. Indeed, in several studies it has been shown that inhibition of the K_V11.1 current leads to a decrease in tumor cell proliferation.

Reagent

Supplied as lyophilized powder from phosphate buffered saline, pH 7.4, containing 1% BSA and 0.05% sodium azide.

Reconstitution

Reconstitute the lyophilized powder with 50µL deionized water. Further dilutions should be made using a carrier protein such as BSA (1-3%).

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

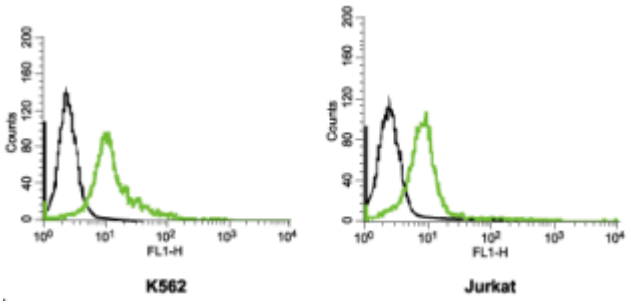
Storage/Stability

Lyophilized powder can be stored intact at room temperature for several weeks. For extended storage, it should be stored at -20 °C or below. The reconstituted solution can be stored at 2-8 °C for up to 2 weeks. For longer storage, freeze in working aliquots. Avoid repeated freezing and thawing. Storage in “frost-free” freezers is not recommended. Centrifuge before use. Working dilution samples should be discarded if not used within 12 hours. The antibody is stable for at least 12 months when stored appropriately.

Product Profile
Flow cytometry: a recommended working concentration of 2-10 µg per 1x10^6cells was determined using intact live human cells.

Immunocytochemistry: a recommended dilution of 1:25 was determined using intact live HEK-K_V11.1 transfected cells.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.



FACS analysis of live intact K562 (human chronic myelogenous leukemia) and Jurkat (human T cell leukemia) cells

Peaks at lower FL1-H values are unstained cells
Peaks at higher FL1-H values are Cells + Anti-K_V11.1-Extracellular-FITC

References

1. Curran, M.E. et al. *Cell* **80,** 795 (1995).
2. Sanguinetti, M.C. et al. *Cell* **81,** 299 (1995).
3. Pardo, L.A. et al. *Physiology* **19,** 285 (2004.

AH,PHC 04/07-1