SANTA CRUZ BIOTECHNOLOGY, INC.

HERG (F-3): sc-515611

BACKGROUND

Human ether-a-go-go related gene (HERG) encodes the pore-forming α subunit of the delayed rectifier potassium channel IKr. The HERG subunit contains six transmembrane α-helices with a reentrant "pore-loop" between the fifth and the sixth transmembrane helices. The two N-terminal splice variants of HERG include the full-length isoform 1α and the shorter isoform 1β. Isoform 1β lacks the PAS motif and deactivates at a faster rate than isoform 1α. Residues within the C-terminal play a role in channel expression and channel gating, including voltage-dependent activation. HERG is expressed in the heart and is more abundantly expressed in the ventricles than in the atria. Mutations in the gene encoding HERG increase beat-to-beat variability and early after depolarization. These fluctuations facilitate the genesis and propagation of premature heartbeats associated with inheritable long QT syndrome.

REFERENCES

1. Heginbotham, L., et al. 1994. Mutations in the K^+ channel signature sequence. Biophys. J. 66: 1061-1067.
2. Curran, M.E., et al. 1995. A molecular basis for cardiac arrhythmia: HERG mutations cause long QT syndrome. Cell 80: 795-803.
3. Sanguinetti, M.C., et al. 1995. A mechanistic link between an inherited and an acquried cardiac arrhythmia: HERG encodes the IKr potassium channel. Cell 81: 299-307.
4. Lees-Miller, J.P., et al. 1997. Electrophysiological characterization of an alternatively processed ERG K^+ channel in mouse and human hearts. Circ. Res. 81: 719-726.
5. Doyle, D.A., et al. 1998. The structure of the potassiumm channel: molecular basis of K^+ conduction and selectivity. Science 280: 69-77.
6. Pond, A.L., et al. 2000. Expression of distinct ERG proteins in rat, mouse, and human heart. Relation to functional IKr channels. J. Biol. Chem. 275: 5997-6006.
7. Aydar, E., et al. 2001. Functional characterization of the C-terminus of the human ether-a-go-go-related gene K^+ channel (HERG). J. Physiol. 534: 1-14.

CHROMOSOMAL LOCATION

Genetic locus: KCNH2 (human) mapping to 7q36.1; Kcnh2 (mouse) mapping to 5 A3.

SOURCE

HERG (F-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 134-158 within an internal region of HERG of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-515611 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

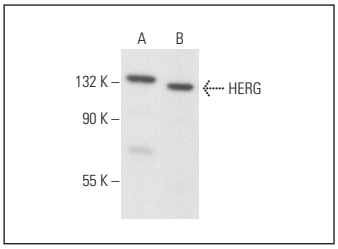
HERG (F-3) is recommended for detection of HERG of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for HERG siRNA (h): sc-42497, HERG siRNA (m): sc-42498, HERG siRNA (r): sc-63268, HERG shRNA Plasmid (h): sc-42497-SH, HERG shRNA Plasmid (m): sc-42498-SH, HERG shRNA Plasmid (r): sc-63268-SH, HERG shRNA (h) Lentiviral Particles: sc-42497-V, HERG shRNA (m) Lentiviral Particles: sc-42498-V and HERG shRNA (r) Lentiviral Particles: sc-63268-V.

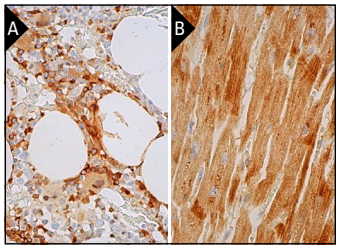
Molecular Weight of HERG: 127 kDa.

Positive Controls: Neuro-2A whole cell lysate: sc-364185 or SK-N-SH cell lysate: sc-2410.

DATA



HERG (F-3): sc-515611. Western blot analysis of HERG expression in Neuro-2A (**A**) and SK-N-SH (**B**) whole cell lysates.



HERG (F-3): sc-515611. Immunoperoxidase staining of formalin fixed, paraffin-embedded human bone marrow tissue showing cytoplasmic staining of hematopoietic cells (**A**), and of human heart muscle tissue showing cytoplasmic staining of myocytes (**B**). Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216.

SELECT PRODUCT CITATIONS

1. Wei, M., et al. 2023. Electrophysiological evaluation of an anticancer drug gemcitabine on cardiotoxicity revealing down-regulation and modification of the activation gating properties in the human rapid delayed rectifier potassium channel. PLoS ONE 18: e0280656.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.