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## Product Information

### Anti-Potassium Channel KCNE3 (MiRP2)

produced in rabbit, affinity isolated antibody

Catalog Number **K0140**

#### Product Description

Anti-Potassium Channel KCNE3 (MiRP2) ( $K^+$  channel  $\beta$  subunit MiRP2, MinK-related peptide 2) is developed in rabbit using a synthetic peptide (C)RSRKVDKRSDPYH, corresponding to amino acid residues 81-93 of human KCNE3 (Gene ID 10008). This epitope is identical in rat, mouse, dog and pig. The antibody is affinity purified on immobilized antigen. This highly specific antibody is directed against the intracellular C-terminal part of the human KCNE3 protein. The antibody will also work with rat and mouse samples.

Anti-Potassium Channel KCNE3 antibody cross reacts with rat KCNE3 (Gene ID 63883). The antibody is used in immunoblotting and immunohistochemistry. KCNE3 (or MiRP2) is a member of a family of proteins that regulate the activity of voltage-dependent  $K^+$  channels. The other members of the family are KCNE1 (IsK, MiNK), KCNE2 (MiRP1), KCNE4 (MiRP3) and KCNE5 (MiRP4). KCNE1 is the founding member of the family and was initially believed to form a  $K^+$  channel itself, but it was later recognized that it worked as a regulatory  $\beta$  subunit associated with the  $K_v7.1$  (KCNQ1)  $\alpha$  protein. KCNE3 was discovered based on its homology with KCNE1.

The KCNE regulatory subunits are small proteins (14-20 kDa) with a type-1 integral membrane topology. It is believed that both the cytoplasmic C-terminus tail and the transmembrane domain are necessary for the interaction with the  $\alpha$  subunits. The stoichiometry of the KCNE subunits with their partner  $\alpha$  subunits in the native channels is not clear and ratios ranging from 2 to 14 KCNE subunits per 4  $\alpha$  subunits have been proposed. KCNE3 is relatively widely expressed in several tissues with prominent expression in the kidney and skeletal muscle. KCNE3 is quite promiscuous and associations with  $K_v7.1$ ,  $K_v3.4$ ,  $K_v7.4$  (KCNQ4),  $K_v11.1$  (HERG),  $K_v2.1$  and  $K_v3.1b$  have been demonstrated. The best characterized interactions are with the former two proteins. KCNE3 interacts with  $K_v7.1$  in epithelial cells of the gastrointestinal tract where it appears to be

important for  $Na^+$  absorption. In skeletal muscle KCNE3 couples to  $K_v3.4$  to regulate muscle function. Indeed, a mutation in KCNE3 (R83H) has been associated with an inherited form of periodic paralysis (Thyrotoxic hypokalemic periodic paralysis).

#### Reagent

Supplied as lyophilized powder from phosphate buffered saline (PBS), pH 7.4, containing 1% BSA and 0.025% sodium azide.

#### Reconstitution:

Reconstitute the lyophilized vial with 50  $\mu$ L or 200  $\mu$ L deionized water, depending on package size. 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

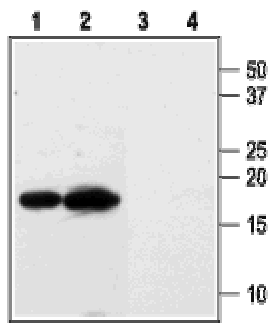
Lyophilized powder can be stored intact at room temperature for several weeks. For extended storage, it should be stored at  $-20^\circ\text{C}$  or below. The reconstituted solution can be stored at  $2-8^\circ\text{C}$  for up to 2 weeks. For longer storage, freeze in working aliquots. Avoid repeated 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

Immunoblotting: a recommended working dilution of 1:200 was determined using rat kidney and heart membranes.

Immunohistochemistry: rat kidney sections.

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



### Immunoblotting

Rat kidney membranes (Lanes 1 and 3)

Rat heart membranes (Lanes 2 and 4)

Lanes 1, 2. Anti- KCNE3 antibody (1:200).

Lanes 3, 4. Anti- KCNE3 antibody, preincubated with the control peptide antigen.

### References

1. Abbott, G.W. et al. *Cell*, **97**, 175-187 (1999).
2. Schroeder, B.C. et al., *Nature*, **403**, 196-199 (2000).
3. Abbott, G.W. et al. *Cell*, **104**, 217-231 (2001).
4. Li, Y. et al. *Neuroscientist*, **12**, 199-210 (2006).

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