

## Product Information

### Anti-Potassium Channel K<sub>v</sub>1.3 (extracellular)- FITC

Developed in Rabbit  
Affinity Isolated Antibody

Product Number **P 4247**

#### Product Description

Anti-Potassium Channel K<sub>v</sub>1.3 (extracellular) was developed in rabbit using a synthetic peptide KDYPASTSQDSFEA(C) corresponding to amino acid residues 211-224 of human K<sub>v</sub>1.3 as the immunogen. This sequence has 12/14 residues identical in rat and mouse. The antibody was affinity isolated on immobilized immunogen, and labeled with fluorescein isothiocyanate.

Anti-Potassium Channel K<sub>v</sub>1.3 (extracellular) recognizes K<sub>v</sub>1.3 from human and rat samples. It has been successfully used in Western blot with rat brain membranes.

The action of potassium (K<sup>+</sup>) channels is regulated by voltage, calcium and a variety of neurotransmitters. Each subfamily generally consists of a primary pore forming  $\alpha$  subunit that is associated with several regulatory subunits.<sup>1</sup> To date, some 70 different genes that encode the  $\alpha$  subunits of K<sup>+</sup> channels have been identified. Recently, the crystal structure of the K<sup>+</sup> channels has been identified.<sup>2</sup>

The vast family of K<sup>+</sup> channels has been subdivided into the three main subfamilies: the 2 TM, 4 TM and 6 TM K<sup>+</sup> channels.<sup>3</sup> The voltage-gated K<sup>+</sup> (K<sub>v</sub>) channels belong to the 6 TM family of K<sup>+</sup> channels. The first genes for K<sub>v</sub> channels were isolated as naturally occurring mutations of the Shaker locus in the fruit fly *Drosophila melanogaster*. As a result, K<sub>v</sub> channels are often referred to as Shaker-like channels.<sup>4</sup> Three related genes, Shal, Shaw, and Shab were also cloned from *Drosophila*. Mutations of genes encoding voltage-sensitive K<sup>+</sup> channels have been found to cause epilepsy, episodic ataxia/myokymia, and episodic cardiac arrhythmia (the long QT syndrome). The K<sub>v</sub>1.3 channels are linked to cell proliferation, thus implicating this channel subtype in cancer.<sup>5</sup> The K<sub>v</sub>1.3 channels also regulate the immune system and are expressed in hematopoietic cells such as T and B lymphocytes, macrophages and natural killer cells.<sup>6</sup>

Further molecular characterization of the genes behind the various K<sup>+</sup> channel activities is ongoing.

#### Reagent

Anti-Potassium Channel K<sub>v</sub>1.3 (extracellular)-FITC is supplied as lyophilized powder from phosphate buffered saline containing 1% bovine serum albumin and 0.05% sodium azide as preservative.

#### Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling.

#### Preparation Instructions

Reconstitute the lyophilized vial with 0.05 ml deionized water. Further dilutions should be made using a carrier protein such as BSA (1%).

#### Storage/Stability

Store at -20 °C. For extended 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.

#### Product Profile

The recommended working dilution is 2-5  $\mu$ g/ml for immunoblotting.

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

#### References

- Alexander, S.P., et al., Br. J. Pharmacol., **141**, Suppl 1:S1-S126 (2004).
- MacKinnon, R., FEBS Letters, **555**, 62-65 (2003).

3. Gutman, G.A., et al., Pharmacol. Rev., **55**, 583-586 (2003).
4. Manganas, L.N. and Trimmer, J.S., J. Biol. Chem. **275**, 29685-29693 (2000).
5. DeCoursey, T.E., et al., Nature, **307**, 465-468 (1984).
6. Lewis, R.S., et al., Annu. Rev. Immunol., **13**, 623-653 (1995)

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