PMvK Antibody
Cat. No. CA1067

Applications:	**WB, IHC**
Detected MW:	**22 kDa**
Species & Reactivity:	**Human, Rat**
Isotype:	**Rabbit IgG**

BACKGROUND

Phosphomevalonate kinase (PMvK; EC 2.7.4.2.) catalyzes an essential step in the so-called mevalonate pathway, which appears to be the sole pathway for the biosynthesis of sterols and other isoprenoids in mammals and archea. Isoprenoid biosynthesis starts with three molecules of acetyl-CoA, which in a series of six different enzyme reactions are converted to isopentenyl pyrophosphate, the basic C5 isoprene unit used for the synthesis of all isoprenoids. PMvK catalyzes the fifth reaction of the pathway, which is the phosphorylation of phosphomevalonate to produce pyrophosphomevalonate. PMvK is a member of the GHMP[1] kinase superfamily, which is composed of 13 families; eight of which have a known catalytic function. Superfamily members share a consensus sequence (P*X* $_3$GSSAA) that has been shown recently to form a unique P-loop structure. Among the features that distinguish the GHMP kinase nucleotide-binding pocket from the more well known P-loop kinases are that the GHMP P-loop is "missing" the catalytic lysine reside thought to stabilize negative charge that develops at the beta, gamma-bridging oxygen of ATP during bond cleavage, the nucleotide is positioned relative to the P-loop such that the adenosyl group occupies the pocket normally assigned to the gamma-phosphoryl acceptor, and the six-membered ring of the adenine is rotated into a position over the ribose (*i.e. syn*rather than *anti*).[1] PMvK is expressed in a variety of tissues with high expression in heart, skeletal muscle, liver, kidney, and pancreatic tissues.[2] The human PMvK sequence contains a putative PTS-1, SRL, at the extreme carboxyl terminal. Analysis of PMvK message from lymphoblasts grown in lipoprotein-deficient media or media containing lovastatin, an inhibitor of HMG-CoA reductase, indicated that PMvK expression may be responsive to lipid availability. It was shown that PMvK is a peroxisomal protein which utilizes a PTS-1 for its peroxisomal localization.[3] However other studies have also identified the chromosomal and cytosolic location of PMvK.[3, 4]

References:
1. Pilloff, D. et al: J. Biol. Chem. 278:4510-5, 2002
2. Chambliss, K. L. et al: J. Biol. Chem. 271:17330-4, 1996
3. Olivier, L.M. et al: J. Lipid Res. 40:672-9, 1999
4. Hogenboom, M. et al: J. Lipd Res. 45:697-405, 2004

TECHNICAL INFORMATION

Source:
PMvK Antibody is a rabbit antibody raised against a short peptide from human PMvK sequence.

Specificity and Sensitivity:
This antibody detects endogenous levels of PMvK proteins without cross-reactivity with other related proteins.

Storage Buffer: PBS and 30% glycerol

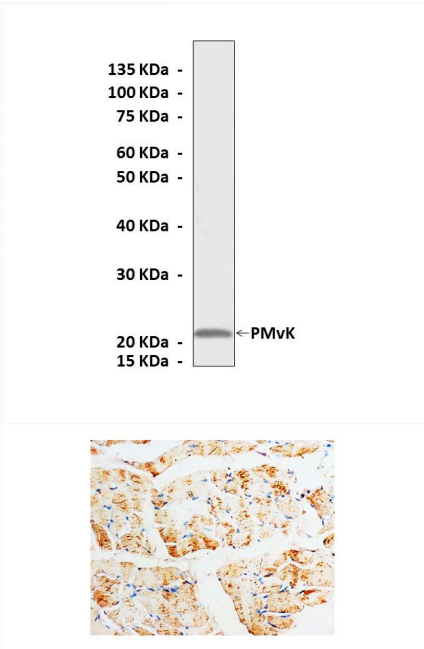
Storage:
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	n/d
IHC	1:50-200
ICC	n/d
FACS	n/d

**Optimal dilutions must be determined by end user.*

QUALITY CONTROL DATA



Top: Western Blot detection of PMvK proteins in rat cardiac muscle tissue lysate using PMvK Antibody. **Bottom:** This antibody stains paraffin-embedded rat skeletal muscle tissue in immunochemical analysis.