Revision 1

Store at -20C

#70638

PAPSS2 Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H	Endogenous	70	Rabbit	#O95340	9060

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. *Do not aliquot the antibody.*

Specificity/Sensitivity

PAPSS2 Antibody recognizes endogenous levels of total PAPSS2 protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Pro567 of human PAPSS2 protein. Antibodies are purified by peptide affinity chromatography.

Background

PAPSS2 is a bifunctional enzyme with both ATP sulfurylase and APS kinase activity, which mediates two reactions to generate 3'-Phosphoadenosine-5'-phosphosulfate (PAPS), a critical intermediate in the sulfate activation pathway. PAPS is the sulfate donor co-substrate for all sulfotransferase (SULT) enzymes and is required to catalyze the sulfate conjugation of many endogenous and exogenous compounds (1,2). Mutations in PAPSS2 lead to an autosomal recessive form of spondyloepimetaphyseal dysplasia (SEMD) in humans (3), whereas mutant mice lacking PAPSS2 activity demonstrate defective postnatal skeletal development leading to premature joint degeneration and brachymorphism (4). In conjunction with SULT1E1, PAPSS2 and its paralogue PAPSS1 are responsible for sulfation and subsequent inactivation of estrogen in target tissues. Expression levels of PAPSS2 were found to be significantly higher in tumorous breast and endometrial tissues than in adjacent normal tissues, suggesting that targeting PAPSS2 could be an important approach for estrogen-dependent cancers (5). Additionally, PAPSS2 provides the universal sulfate donor PAPS to SULT2A1, which is responsible for sulfation of the crucial androgen precursor dehydroepiandrosterone (DHEA) (6). TGF-β signaling has been shown to regulate the expression of PAPSS2 via stabilization of SOX9 protein in mouse articular cartilage and bovine chondrocytes (7,8).

Background References

1. Venkatachalam, K.V. (2003) *IUBMB Life* 55, 1-11.
2. Xu, Z.H. et al. (2000) *Biochem Biophys Res Commun* 268, 437-44.
3. Faiyaz ul Haque, M. et al. (1998) *Nat Genet* 20, 157-62.
4. Ford-Hutchinson, A.F. et al. (2005) *Osteoarthritis Cartilage* 13, 418-25.
5. Xu, Y. et al. (2012) *Cancer Sci* 103, 1000-9.
6. Oostdijk, W. et al. (2015) *J Clin Endocrinol Metab* 100, E672-80.
7. Ramaswamy, G. et al. (2012) *Arthritis Res Ther* 14, R49.
8. Chavez, R.D. et al. (2017) *Osteoarthritis Cartilage* 25, 332-40.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human

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Limited Uses

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