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FOXK1 Rabbit pAb

Catalog # AP100195

Product Information

Application	IHC-P, IHC-F, IF
Primary Accession	P85037
Other Accession	P85037
Reactivity	Human, Mouse
Predicted	Rat, Pig, Rabbit, Sheep
Host	Rabbit
Clonality	Polyclonal
Calculated MW	75457
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human FOXK1
Epitope Specificity	101-200/733
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Contains 1 FHA domain. Contains 1 fork-head DNA-binding domain.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	The FOX family of transcription factors share a common DIUA binding domain termed a winged-helix or forkhead domain. Many FOX proteins play important roles in development, metabolism, cancer and aging. In skeletal muscles, undifferentiated myogenic stem cells (satellite cells) can mobilize to regenerate myofibers in response to injury. FOXK1 is expressed in these cells and regulates cell cycle progression through an interaction with its downstream target the cyclin-dependent kinase inhibitor p21 (CIP). Loss of FOXK1 in mice results in growth retardation and a severe impairment in skeletal muscle regeneration following injury. FOXK1 also shows expression in immature tissues of brain, eye, heart, lung and thymus. It also is predominantly expressed in many malignant tissues, such as tumors of the brain, colon and lymph node.

Additional Information

Gene ID	221937
Other Names	FOXK1L; A630048H08Rik; Gm10868; Mnf; FOXK1_HUMAN; FOXK1; Myocyte nuclear factor (MNF); FOXK1_MOUSE; forkhead box K1
Dilution	IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	FOXK1
Function	Transcriptional regulator involved in different processes such as glucose metabolism, aerobic glycolysis, muscle cell differentiation and autophagy (By similarity). Recognizes and binds the forkhead DNA sequence motif (5'-GTAAACA-3') and can both act as a transcription activator or repressor, depending on the context (PubMed:17670796). Together with FOXK2, acts as a key regulator of metabolic reprogramming towards aerobic glycolysis, a process in which glucose is converted to lactate in the presence of oxygen (By similarity). Acts by promoting expression of enzymes for glycolysis (such as hexokinase-2 (HK2), phosphofructokinase, pyruvate kinase (PKLR) and lactate dehydrogenase), while suppressing further oxidation of pyruvate in the mitochondria by up-regulating pyruvate dehydrogenase kinases PDK1 and PDK4 (By similarity). Probably plays a role in gluconeogenesis during overnight fasting, when lactate from white adipose tissue and muscle is the main substrate (By similarity). Involved in mTORC1-mediated metabolic reprogramming: in response to mTORC1 signaling, translocates into the nucleus and regulates the expression of genes associated with glycolysis and downstream anabolic pathways, such as HIF1A, thereby regulating glucose metabolism (By similarity). Together with FOXK2, acts as a negative regulator of autophagy in skeletal muscle: in response to starvation, enters the nucleus, binds the promoters of autophagy genes and represses their expression, preventing proteolysis of skeletal muscle proteins (By similarity). Acts as a transcriptional regulator of the myogenic progenitor cell population in skeletal muscle (By similarity). Binds to the upstream enhancer region (CCAC box) of myoglobin (MB) gene, regulating the myogenic progenitor cell population (By similarity). Promotes muscle progenitor cell proliferation by repressing the transcriptional activity of FOXO4, thereby inhibiting myogenic differentiation (By similarity). Involved in remodeling processes of adult muscles that occur in response to physiological stimuli (By similarity). Required to correct temporal orchestration of molecular and cellular events necessary for muscle repair (By similarity). Represses myogenic differentiation by inhibiting MEFC activity (By similarity). Positively regulates Wnt/beta-catenin signaling by translocating DVL into the nucleus (PubMed:25805136). Reduces virus replication, probably by binding the interferon stimulated response element (ISRE) to promote antiviral gene expression (PubMed:25852164). Accessory component of the polycomb repressive deubiquitinase (PR-DUB) complex; recruits the PR-DUB complex to specific FOXK1-bound genes (PubMed:24634419, PubMed:30664650). Acts as an indirect positive regulator of ferroptosis following phosphorylation by isoform Beta-II of PRKCB by promoting expression and subsequent secretion of LGALS13 (PubMed:40246981).
Cellular Location	Nucleus. Cytoplasm. Note=Translocation to the nucleus is regulated by phosphorylation: phosphorylation by GSK3 (GSK3A or GSK3B) promotes interaction with 14-3-3 proteins and sequestration in the cytoplasm. Dephosphorylation promotes translocation to the nucleus (By similarity). Accumulates in the nucleus upon viral infection (PubMed:25852164). {ECO:0000250|UniProtKB:P42128, ECO:0000269|PubMed:25852164}
Tissue Location	Expressed both developing and adult tissues (PubMed:15289879). In adults, significant expression is seen in tumors of the brain, colon and lymph node (PubMed:15289879)

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.