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FOXK1 antibody - C-terminal region

Rabbit Polyclonal Antibody
Catalog # AI11281

Product Information

Application	WB, IHC
Primary Accession	P42128
Other Accession	NM_199068, NP_951031
Reactivity	Mouse, Rat
Predicted	Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	74920

Additional Information

Gene ID	17425
Alias Symbol	Mnf, Gm10868, AI463295, A630048H08Rik, ENSMUSG00000075577
Other Names	Forkhead box protein K1, Myocyte nuclear factor, MNF, Foxk1, Mnf
Format	Liquid. Purified antibody supplied in 1x PBS buffer with 0.09% (w/v) sodium azide and 2% sucrose.
Reconstitution & Storage	Add 100 ul of distilled water. Final anti-FOXK1 antibody concentration is 1 mg/ml in PBS buffer with 2% sucrose. For longer periods of storage, store at 20°C. Avoid repeat freeze-thaw cycles.
Precautions	FOXK1 antibody - C-terminal region is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	Foxk1 {ECO:0000303|PubMed:12446708, ECO:0000312|MGI:MGI:1347488}
Function	Transcriptional regulator involved in different processes such as glucose metabolism, aerobic glycolysis, muscle cell differentiation and autophagy (PubMed:25402684, PubMed:29861159, PubMed:30700909). 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:25402684, PubMed:29861159, PubMed:30700909). 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 (PubMed:30700909). 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 (PubMed:30700909). Probably plays a role in gluconeogenesis during overnight fasting, when lactate from white adipose tissue and muscle is the main substrate (PubMed:30700909). 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 (PubMed:29861159). 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 (PubMed:25402684). Acts as a transcriptional regulator of the myogenic progenitor cell population in skeletal muscle (PubMed:12446708, PubMed:22956541, PubMed:8007964, PubMed:9271401). Binds to the upstream enhancer region (CCAC box) of myoglobin (MB) gene, regulating the myogenic progenitor cell population (PubMed:8007964, PubMed:9271401). Promotes muscle progenitor cell proliferation by repressing the transcriptional activity of FOXO4, thereby inhibiting myogenic differentiation (PubMed:12446708, PubMed:22956541). Involved in remodeling processes of adult muscles that occur in response to physiological stimuli (PubMed:22956541, PubMed:9271401). Required to correct temporal orchestration of molecular and cellular events necessary for muscle repair (PubMed:10792059). Represses myogenic differentiation by inhibiting MEFC activity (PubMed:22956541). Positively regulates Wnt/beta-catenin signaling by translocating DVL into the nucleus (By similarity). Reduces virus replication, probably by binding the interferon stimulated response element (ISRE) to promote antiviral gene expression (By similarity). Accessory component of the polycomb repressive deubiquitinase (PR-DUB) complex; recruits the PR-DUB complex to specific FOXK1-bound genes (PubMed:32747411).

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 (PubMed:29861159) Dephosphorylation promotes translocation to the nucleus (PubMed:29861159).

Tissue Location

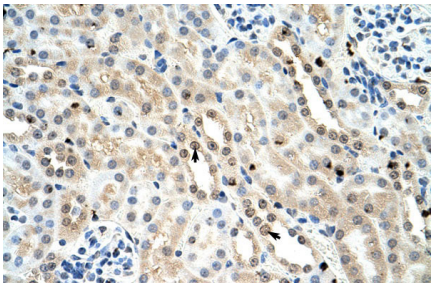
Expressed in tissues and cells in which the myoglobin gene is transcriptionally active including cardiac and skeletal myocytes, brain and kidney (PubMed:8007964, PubMed:9271401) In the adult brain, expressed in the piriform cortex and the indusium griseum. In the hippocampus, expression is localized to the dentate gyrus and CA3 area (PubMed:16376864). In the cerebellum, expression is confined to the Purkinje cell layer (PubMed:16376864). Present in neuroretinal cells: expressed in rod bipolar cells, amacrine cells and ganglion cells (at protein level) (PubMed:23714736)

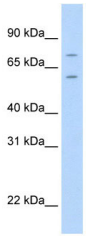
References

Wijchers,P.J., (2006) Brain Res. 1068 (1), 23-33Reconstitution and Storage:For short term use, store at 2-8C up to 1 week. For long term storage, store at -20C in small aliquots to prevent freeze-thaw cycles.

Images

Mouse Kidney





WB Suggested Anti-FOXK1 Antibody Titration: 2.5µg/ml
Positive Control: NIH/3T3 cell lysate

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