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Affinity Cardiovascular Disease Research

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COMMITTED TO LIFE SCIENCE RESEARCH

HOT RESEARCH SELECTION ANTIBODIES

Cardiovascular Disease Research

Cardiovascular disease (CVD), which includes diseases of the heart and blood vessels, is the leading cause of death worldwide and occurs in many forms, from congenital heart disease (CHD) in newborns to coronary artery disease (CAD), myocardial infarction (MI), heart failure and hypertension in adults. Treatment of these diseases remains a challenge. The cardiovascular system is a highly complex and well-organized system in which signal transduction plays an important physiological and pathological role. Over the past two decades, researchers have dramatically improved their understanding of signaling pathways in the cardiovascular system. The identification of protein kinases and phosphatases as key elements in these pathways makes them potential molecular targets for future drug development. The signaling pathways involved include: P3K-Akt/protein kinase B.Notch, MDM2/p53, mTOR, MAPK, Hippo and others. In particular, the intimate involvement of the MAPK family of enzymes (and their associated phosphatases) in physiological and pathological cardiovascular processes suggests that they may provide therapeutic targets for preventing or reversing aberrant cell growth in the failing heart.

Mammalian MAPKs are classified into at least five families: ERK1/2 (extracellularly regulated kinases), p38mapks, c-junN-terminal kinases (JNKs), ERK3/4, and ERK5. The most extensively studied MAPK in recent years has been ERK1/2, which is a component of the classical MAPK cascade. These enzymes were the first of the mammalian cell MAPKs to be identified as serine/threonine kinases, and a key function of ERK1/2 is to control cell proliferation and differentiation and survival through the activation of transcription factors, but these MAPKs have also been implicated in a number of acute events in cardiovascular cells, including the release of vasoactive molecules from endothelial cells and the contraction of vascular smooth muscle cells in resistance vessels. For example, in endothelial cells, ERK1/2 acidifies an isoform of the effector molecule PLA2, which releases arachidonic acid from membrane phospholipids. Cyclooxygenase then converts arachidonic acid to prostaglandin H2, which is a substrate for several synthetic enzymes, and these synthetic acids produce a variety of other prostaglandins, including prostacyclin (PGI2).

Because PGI2 is a vasodilator that suppresses platelet reactivity and inhibits vascular smooth muscle cell proliferation, activation of endothelial ERK1/2 directly contributes to limiting the degree of vascular smooth muscle contraction, thrombosis, and smooth muscle cell growth. All of these may be exaggerated in many cardiovascular diseases, including hypertension and atherosclerosis. In vascular smooth muscle, ERK1/2 phosphorylate caldesmon, a high-fraction type of contraction-regulating protein, suggesting that these kinases are also directly involved in regulating normal contraction of the vascular wall. ERK1/2 and JNK activities are also increased in the vasculature of hypertensive animals, suggesting that aberrant expression and activation of these MAPKs may also be involved in vascular pathology.

• Hot-selling antibodies recommended:

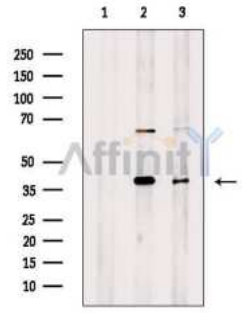
p38 MAPK Antibody (PubMed 108)

Catalog: AF6456

Application: WB IHC IF/ICC

Reactivity: Human, Mouse, Rat, Pig

Prediction: Pig, Bovine, Horse, Sheep, Rabbit, Dog



Western blot analysis of extracts from various samples, using p38 MAPK Antibody. Lane 1: MDA-MB-231 cells, blocked with antigen-specific peptides, Lane 2: MDA-MB-231 cells, Lane 3: Rat lung.

AF6456 at 1/100 staining Human brain tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue was then blocked and incubated with the antibody for 1.5 hours at 22° C. An HRP conjugated goat anti-rabbit antibody was used as the secondary antibody.

• Related antibodies recommended

Cat#	Des#	Reactivity	Application	Cited
AF6423	AMPK alpha Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦
AF6266	beta Catenin Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦
AF6493	CaMKII alpha/delta Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦
AF6311	Caspase 3 Ab	Human, Mouse, Rat, Bovine	WB,IHC,IF/ICC	♦♦♦♦
AF5126	CD8 Antibody	Human, Mouse, Rat	WB,IHC,ELISA(peptide)	♦♦
AF6090	c-Jun Ab	Human, Mouse, Rat	WB,IHC,IF/ICC,IP	♦♦
AF7022	Cleaved-Caspase 3 (Asp175),p17 Ab	Human, Mouse, Rat, Bovine	WB,IHC,IF/ICC	♦♦♦♦♦
AF0358	c-Myc Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦
AF0931	Cyclin D1 Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦
DF6386	Cyclin D1 Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦
AF0131	E-cadherin Ab	Human, Mouse, Rat, Monkey	WB,IHC,IF/ICC	♦♦♦♦
AF0155	ERK1/2 Ab	Human, Mouse, Rat, Pig Zebrafish, Bovine, Horse, Sheep, Dog, Monkey, Fish	WB,IHC,IF/ICC,IP	♦♦♦♦
AF5016	GSK3 beta Ab	Human, Mouse, Rat	WB,IHC,IF/ICC,IP	♦♦♦
AF6009	IKK-beta Ab	Human, Mouse, Rat, Monkey	WB,IHC,IF/ICC	♦♦♦
AF5103	IL1 beta Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦♦
DF6895	IRF3 Antibody	Human,Mouse,Rat	WB,IHC,IF/ICC,ELISA(peptide)	♦♦
AF6318	JNK1/2/3 Ab	Human, Mouse, Rat, Pig	WB,IF/ICC	♦♦♦
AF6385	MEK1/2 Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦
AF0218	MMP7 Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦
AF6308	mTOR Ab	Human, Mouse, Rat, Fish	WB,IHC,IF/ICC	♦♦♦♦
DF6446	NFAT2 Ab	Human, Mouse, Rat	WB,IHC	♦♦
AF5006	NF-kB p65 Ab	Human, Mouse, Rat, Monkey	WB,IHC,IF/ICC	♦♦♦♦♦
AF6456	p38 MAPK Ab	Human, Mouse, Rat, Pig	WB,IHC,IF/ICC	♦♦♦♦
AF0879	p53 Ab	Human, Mouse, Rat, Monkey	WB,IHC,IF/ICC	♦♦♦
AF6226	p70 S6 Kinase Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦
AF3423	P-AMPK alpha (Thr172) Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦♦
AF6261	pan-AKT1/2/3 Ab	Human, Mouse, Rat, Monkey	WB,IHC,IF/ICC,IP	♦♦♦♦
DF2989	P-beta Catenin (Ser33/Ser37/Thr41) Ab	Human, Mouse, Rat	WB,IF/ICC	♦♦
AF3493	P-CaMKII alpha/delta (Thr286) Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦
AF3095	P-c-Jun (Ser73) Ab	Human, Mouse, Rat, Zebrafish	WB,IHC,IF/ICC	♦♦
AF1015	P-ERK1/2 (Thr202/Tyr204) Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦♦♦
AF2016	P-GSK3 beta (Ser9) Ab	Human, Mouse, Rat, Monkey	WB,IHC,IF/ICC,IP	♦♦♦
AF6241	PI3K p85 alpha Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦
AF3272	P-IRS1 (Ser307) Ab	Human, Mouse, Rat, Monkey	WB,IHC,IF/ICC	♦♦♦
AF3318	P-JNK1/2/3(Thr183+Tyr185)Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦♦
AF7746	PKA alpha/beta/gamma CAT Ab	Human, Mouse, Rat, Monkey	WB,IHC	♦♦
AF6197	PKC-pan Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦
AF8035	P-MEK1/2 (Ser218+Ser222/Ser222+Ser226) Ab	Human, Mouse, Rat	WB,IHC,IF/ICC	♦♦♦
AF3308	P-mTOR (Ser2448) Ab	Human, Mouse, Rat, Fish	WB,IHC	♦♦♦♦
AF2006	P-NF-kB p65 (Ser536) Ab	Human, Mouse, Rat, Monkey	WB,IHC,IF/ICC,IP	♦♦♦♦♦
AF4001	P-p38 MAPK(Thr180/Tyr182) Ab	Human, Mouse, Rat	WB,IHC,IF/ICC,IP	♦♦♦♦
AF3075	P-p53 (Ser15) Ab	Human, Mouse, Rat	WB,IHC,IF/ICC,IP	♦♦
AF3228	P-p70 S6 Kinase (Thr389/Thr412) Ab	Human, Mouse, Rat, Pig	WB,IHC,IF/ICC	♦♦♦
AF0016	P-pan-AKT1/2/3 (Ser473) Ab	Human, Mouse, Rat, Monkey	WB,IHC,IF/ICC	♦♦♦♦♦