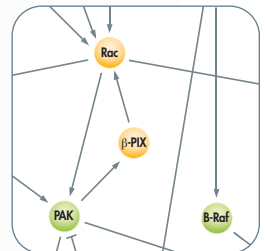
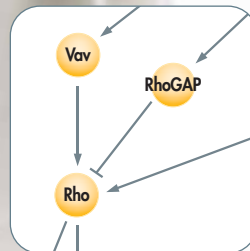
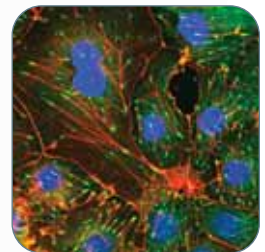
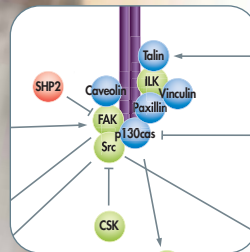


MILLIPORE

Cytoskeletal Signaling

Antibodies, Reagents and Kits



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Cytoskeletal Signaling: Antibodies, Reagents and Kits

Cytoskeletal Signaling: A Brief Review

G-protein Assays, Antibodies, Reagents and Modifiers Chart

Cytoskeletal Product Listing

Junction Molecules

Cell Migration Assays Feature

Molecular Motors

Phosphorylation Highlight

Integrins Highlight

Upstate®, Chemicon® and Linco® are now part of Millipore

The goal of this combined company is to provide more innovative tools, services and application expertise that will improve your productivity. Our first priority is to support your work as a valued partner. Together we now offer:

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Cytoskeletal Signaling

The actions of the cytoskeleton and its continuous remodeling are predominate contributors to cell migration and morphology. Cell migration is an integral part of many different physiological and pathological processes including angiogenesis and tumor metastasis. Many believe it is one of the imperative events contributing to tumor dissemination, and that the prevention of cell migration may stop malignant evolution. The multi-step process of cell migration involves protrusion, adhesion to the underlying substratum, contraction, and breaking of older adhesions. This is a well orchestrated process, carefully coordinated through signaling to the cytoskeleton. These signals are dependent on the extremely regulated and site-specific protein complex formations that act as adapters to link external signals with the cytoskeleton. These protein complexes, which include phosphorylated proteins and the kinases and phosphatases that act on them, as well as G-proteins, are important regulators of cell spreading, migration, and morphology. A greater understanding of cytoskeletal signaling and the events that allows a cell to change shape and migrate will provide a greater insight into many aspects of cell biology and disease.

Extracellular Signaling to the Cytoskeleton

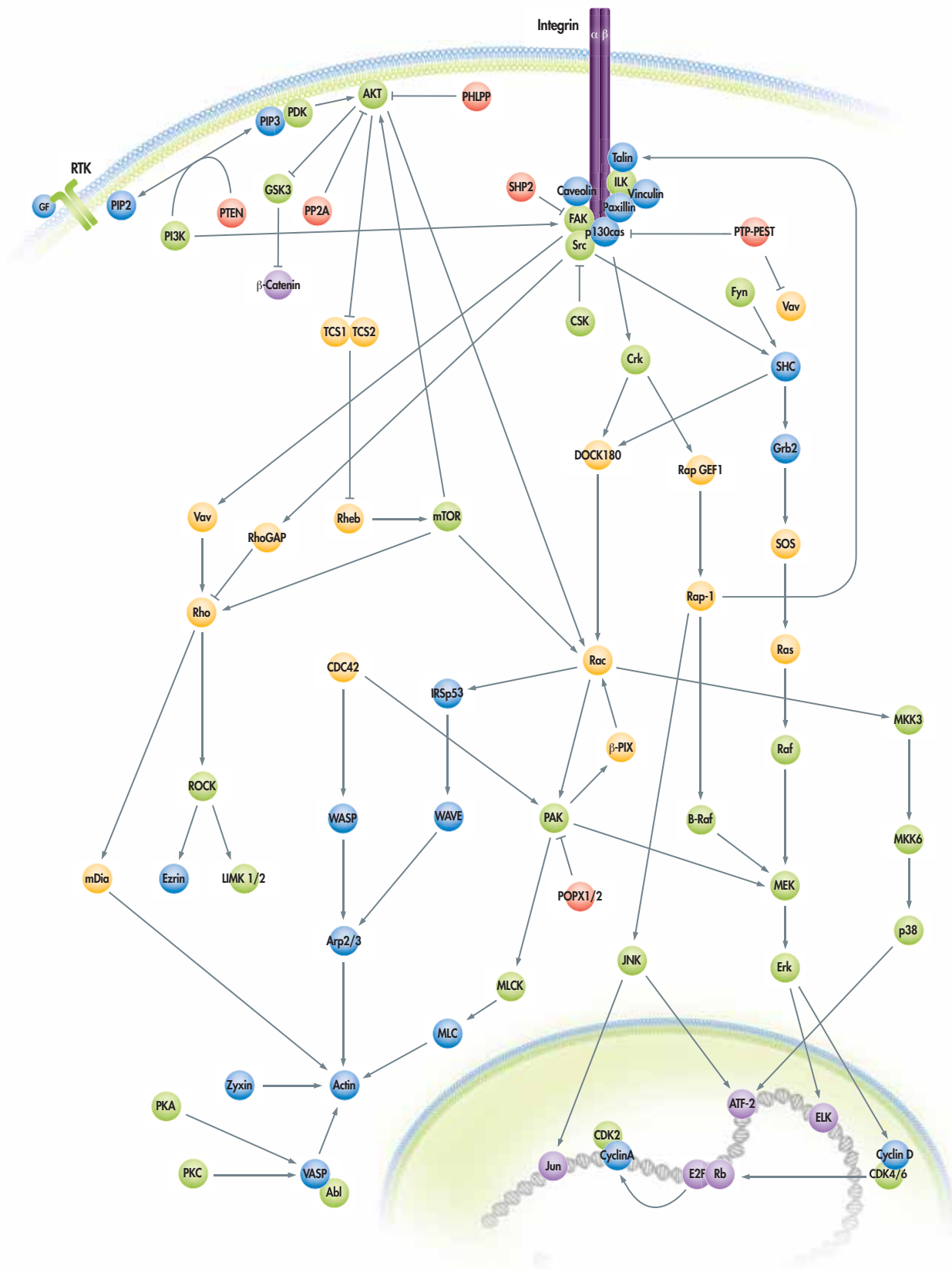
Cell surface integrins when engaged with their ligands lead to the recruitment of a number of intracellular proteins to specialized sites of the cytoplasmic face into focal adhesions. These focal adhesion plaques are composed of many proteins that include kinases, phosphatases, scaffolding proteins, and G-proteins. The activation of integrins leads to the tyrosine phosphorylation of several cytoplasmic proteins critical to the biochemical process, including FAK, Src, paxillin, tensin, and p130Cas. This clustering and activation of proteins at the membrane leads to the activation of many diverging signaling pathways that results in cytoskeletal re-organization. This starts with either the recruitment of Src and FAK to the plasma membrane following integrin or PI3 Kinase activation. These ultimately often signaling through the G-proteins, most notable the Rho family, to the cytoskeleton to regulate cell motility.

The non-receptor protein-tyrosine kinases (PTKs) FAK and Src are key members of the focal adhesion

complex. These PTKs co-localize and associate with the transmembrane integrins and various downstream targets of certain growth factor receptors. The outcome of Src binding to FAK is the phosphorylation of several tyrosine residues in FAK and its related proteins, including the FAK autophosphorylation site Tyr397. This autophosphorylation occurs immediately after integrin clustering and allows for the association of FAK with various signaling proteins such as PI3 kinase, Grb2-Sos, p130Cas, and paxillin. The phosphorylation of FAK Tyr397 is crucial for many of the established biological roles of FAK, including cell migration, cell cycle progression, and prevention of anoikis, a form of detachment-induced apoptosis and is correlated with the invasiveness of tumors and is thought to be a pivotal player by modulating the turnover of focal adhesions to regulate cell migration.

Phosphoinositide 3-Kinase (PI3 kinase or PI3K) also plays a role in cell migration via its binding to the autophosphorylation site (Tyr397) of FAK through one or both of its SH2 domains in the p85 subunit of PI3K. This is the same site in FAK that is bound by Src. In theory, the binding of PI3 kinase to FAK may be involved in activities like cell proliferation, apoptosis, and migration that are related to the phosphorylation of Tyr397. This is substantiated by the observation that AKT is downstream of PI3 kinase and is a mediator in preventing apoptosis. Therefore it is possible that FAK/PI3 kinase association may help regulate apoptosis.

PI3K can also stimulate cytoskeletal signaling irrespective of integrin stimulation through receptor tyrosine kinases. These signaling events are in coordination with PTEN. PTEN is lipid phosphatase that helps keep the activities of PI3K in check by converting the PI3K product PIP3 to PIP2 thus terminating the PI3K signal after chemoattractant stimulation. PI3K/PTEN has been shown to help regulate chemotaxis by the translocation of PI3K to the leading edge of the migrating cell in response to chemoattractant stimulation. In resting cells, PTEN localizes to the plasma membrane but delocalizes in response to stimulation. In chemotaxing cells, PTEN is absent from the leading edge but not from the sides or the back of cells, thus exhibiting a complementary pattern of localization to PI3K. A greater understanding of the PI3K/PTEN dynamics in chemotaxis is continuing to be explored.



G-proteins

The Rho family of GTPases or small G-proteins, most notably Rac, Rho, and Cdc42, are all implicated in different aspects of regulation of cytoskeletal signaling when in their GTP-bound active state. Rac, Rho and Cdc42 encompass the assembly of actin-based structures such as lamellipodia, stress fibers, and filopodia, respectively. Together they help control the organization of the actin cytoskeleton, proliferation, apoptosis, membrane transport and gene expression.

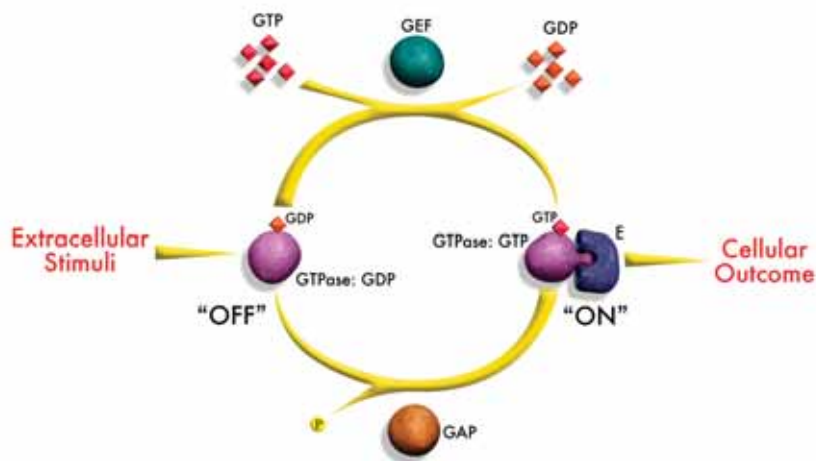
Rac, Cdc42, and Rho work in concert with one another to orchestrate the migration of the cell. Rac, involved in lamellipodia formation, works with Cdc42, involved in cell polarization and filopodia formation, through their downstream targets WAVE and WASP, respectively, that signal through the Arp2/3 complex to the actin cytoskeleton. This signaling enables the coordination of cell migration at the leading edge by inducing the migrating cell to stimulate actin-mediated membrane protrusion. RhoA works in parallel of this dynamic relationship by acting on the back end of the cell. It mediates the detachment and tail retraction of the cell. It then moves toward the inner part of the cell. The downstream target of Rac, WAVE-1, functions as a scaffolding protein that directs actin reorganization by

relaying signals from Rac to the Arp2/3 complex. The continued addition of actin monomers in this branched network is thought to provide the driving force for the extension of the membrane that occurs during lamellipodial protrusion. Activated WASP, the Cdc42 downstream target, binds to and induces a conformational change in the Arp2/3 complex that allows the Arp2 and Arp3 subunits of the complex to form the template for the daughter filament. Nucleation of actin polymerization in this fashion triggers the addition of actin monomers close to the membrane. It is easy to see how the greater understanding of these activities and to control G-proteins would enable a better understanding of cytoskeletal signaling dynamics.

References:

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Regulation of Ras and Rho GDP/GTP Cycling



Members of the Ras and Rho GTPase branches function as GDP/GTP-regulated binary switches. The active GTP-bound protein is formed in response to extracellular stimuli, most commonly by activation of a GEF. GAP stimulation of the intrinsic GTP hydrolysis activity returns the protein to its inactive GDP-bound state. The GDP- and GTP-bound forms differ in conformation, with the GTP-bound form exhibiting preferential binding to downstream effectors (E). Each GTPase interacts with multiple effectors, causing stimulation of distinct cytoplasmic signaling pathways that regulate cytoplasmic (e.g., actin reorganization) or nuclear (e.g., cell cycle progression, gene expression) events.

G-protein Cat. Nos. Now Available - Assays, Antibodies, Reagents and Modifiers

	Activation Assay	Proteins	Antibodies	siRNA	cDNA	Modifiers
Ras	17-218 Ras Activation Assay Kit 17-424 Ras Activation Plate Assay Kit	14-278 Ras Assay Reagent (Raf-1 RBD, Agarose) 14-139 GST-Ras agarose conjugate 14-863 Raf-1 Assay Reagent (Raf-1, RBD, GST)	05-516 anti-RAS, clone RAS10 MAB3291 anti-Ras, clone 7D7.2 05-775 anti-Ha-Ras, clone MC57	62-214 siRNA Plasmid pKD-Ras-V1 62-215 siRNA Plasmid pKD-Ras-V2 60-093 Ras siRNA/siAb™ Assay Kit M-004142 Ras SMARTpool® siRNA Reagent	17-267 H-Ras cDNA allelic pack 21-102 H-Ras cDNA (wild type) 21-104 H-Ras cNDA (dominant negative) 21-103 H-Ras cDNA (activate)	06-157 anti-RasGAP 05-178 RasGAP GTPase, clone B4F8 09-120 anti-Rce-1 09-118 anti-ICMT 04-470 anti-FNTA 09-121 anti-FNTB AB4073 Farnesyl
Rho	17-294 Rho Activation Assay Kit	14-383 Rho Assay Reagent (Rhotekin RBD, Agarose) 14-662 Rhotekin, GST fusion protein SGT212 Rho, recombinant human full length protein	05-778 anti-Rho (-A,-B,-C), clone 55 05-822 Anti-Rho (-A,-B,-C), clone 3L74 06-770 anti-Rho (-A, -B, -C) AB3884 anti-Rho (-A,-B,-C) 05-723 Anti-RhoE/Rnd3, clone 4		21-194 RhoA cDNA (wild type) 21-195 RhoA cDNA (active) 21-196 RhoA cDNA (dominant negative)	05-378 anti-RhoGAP, p190, clone D2D6 06-730 anti-Rho-GDI 05-219 anti-Vav 07-192 Anti-Vav 07-464 anti-Vav3
Rac	17-283 Rac Activation Assay 17-369 Rac2 Activation Assay	14-325 Rac/Cdc42 Assay Reagent (PAK1, Agarose)	05-389 anti-Rac1, clone 23A8 07-604 anti-Rac2 07-896 anti-phospho-Rac1/Cdc42 (Ser71) AB3838 anti-phospho-Rac1/Cdc42 (Ser71) AB4202 anti-Rac1 MAB3735 anti-Rac1, clone 102 AB3302 anti-Rac/Cdc42	60-037 Rac1 siRNA/siAB Assay Kit	17-309 Rac1 cDNA Allelic pack 21-199 Rac1 cDNA (dominant negative) 21-193 Rac1 cDNA (active) 21-200 Rac1 cDNA (wild type)	
Cdc42	17-286 Cdc42 Activation Assay Kit	14-325 Rac/Cdc42 Assay Reagent (PAK1, Agarose)	17-299 Anti-Cdc42 Immunoblotting Kit AB3302 anti-Cdc42 AB4201 anti-Cdc42 07-896 anti-phospho-Rac1/Cdc42 (Ser71) AB3838 anti-phospho-Rac1/Cdc42 (Ser71)		21-191 Cdc42 cDNA (wild type) 21-192 Cdc42 cDNA (dominant negative) 21-197 Cdc42 cDNA	
Rap-1	17-321 Rap1 Activation Assay Kit 20-220 Rap1 Activation Lysis Buffer	14-455 Rap1 Assay Reagent (RAL GDS-RBD, Agarose)	07-916 anti-Rap1			
Ral	17-300 Ral A Activation Assay Kit 17-439 RalB Activation Assay 20-196 Ral Activation Assay Buffer, 5X	14-415 Ral Assay Reagent (RAL BP1, Agarose)	05-586 anti-RalA 04-037 anti-RalB, clone 25		21-189 RalA cDNA (active) 21-187 RalA cDNA (dominant negative) 21-190 RalA cDNA (wild type)	
mTOR pathway			04-427 anti-TSC2 04-426 anti-TSC2 MAB3792 anti-TSC2 07-456 anti-TSC2 07-454 anti-TSC1 09-247 Rheb1	60-059 TSC1 iRNA/siAB™ Assay Kit 60-060 TSC2 iRNA/siAB Assay Kit		
RAN			07-517 Anti-Ran			07-519 Anti-RanGEF

Cytoskeletal Products

Supporting your research from start to finish, Millipore is a valued partner providing a full spectrum of life science research products. Millipore offers the complete line of Upstate cell signaling products and services to boost your productivity, leaving more time for the science that is at the heart of your expertise. Choose from thousands of antibodies including more than 600 for PTM specific antibodies including ones for phosphorylation, methylation, acetylation, and ubiquitylation modifications, including the gold-standard of anti-Phosphotyrosine, 4G10.

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Note: Additional species and applications may apply. For more information, call technical support at **800 437 7500**. For international technical support, please look for your local listing in the back of this brochure.

Tested Applications

Abbr.	Description	Abbr.	Description	Abbr.	Description
ABA	Affinity Binding Assay	HAT	Histone Acetyltransferase Assay	LFA	Lateral Flow Assay
ACT	Activity Assay	HDAC	Histone Deacetylase Assay	NB	Northern Blot
ADH	Stimulates ECM Adhesion	HI	Hemagglutination Inhibition	NEUT	Neutralizing
AI	Agonist or Inhibitor	HMT	Histone Methyltransferase Assay	NT	Nitration
AMP	DNA Amplification	IAP	Immunoaffinity Purification	NUEX	Nuclear Extraction
APA	Affinity Precipitation Assay	IC	Immunocytochemistry (Cells)	PA	Phosphatase Assay
BD	Beadlyte® Assay	ID	Immunodiffusion	PC	Positive Control
CA	Caspase Assay	IEP	Immuno-electrophoresis	PCU	Protein Clean-up
CC	Culture Confirmation	IF	Immunofluorescence	PD	Protein Determination
ChIP	Chromatin Immunoprecipitation	IFIX	Immunofixation	PIA	Peptide Inhibition Assay
CULT	Cell Culture	IH	Immunohistochemistry (Tissue)	RIA	Radioimmunoassay
DB	Dot Blot	IH(P)	Immunohistochemistry (Paraffin)	RNAi	RNAi/siRNA/Gene Knockdown
EA	Enzyme Assay	IND	Induces Function	RPA	Ribonuclease Protection Assay
ELISA	Enzyme Immunoassay (ELISA)	INHIB	Inhibits Activity/Function	RT-PCR	Reverse Transcriptase Polymerase Chain Reaction
EM	Electron Microscopy	IP	Immunoprecipitation	SW	Software Needed
EMSA	Electrophoretic Mobility Shift Assay	IPK	IP-Kinase Assay	TFX	Transfection
FC	Flow Cytometry (FACS)	IPX	Immunoperoxidase Staining	UC	Uncharacterized Antiserum
FUNC	Affects Function	IRMA	Immuno Radio-Metric Assay	WB	Immunoblotting (Western)
GPA	G-Protein Assay	IT	Immunotoxin	Web*	Important additional product reactivity information available on datasheet
HA	Hemagglutination	KA	Kinase Assay		

Tested Species Reactivity

Abbr.	Description	Abbr.	Description	Abbr.	Description
A	All Species	Gr	Gerbil	R	Rat
Am	Amphibian	Gs	Ground Squirrel	Rb	Rabbit
As	<i>Aspergillus</i>	Gt	Goat	Rc	Raccoon
Av	Avian	H	Human	rH	Recombinant Human Protein
B	Bovine	H-sp	Human Only	Rp	Reptilian
Bab	Baboon	Ht	Hamster	Sal	Salamander
Bact	Bacterial	In	Insect	Seal	Seal
Bat	Bat	Inv	Invertebrates	Sh	Sheep
Ca	Canine (Dog)	Kn	Kangaroo	Shk	Shark
Ch	Chicken	Lg	<i>Ligia</i>	SHm	Syrian Hamster
Chp	Chimpanzee	Lz	Lizard	Shp	Shrimp
Crab	Crab	M	Mouse	Sj	<i>Schistosoma japonicum</i>
Crf	Crawfish	Ma	Mammals	Sn	Snail
Di	<i>Dictyostelium</i>	Md	Mule Deer	Snk	Snake
Dr	<i>Drosophila</i>	Mi	Mink	Spd	Spider
Ec	<i>E. coli</i> Bacteria	Mk	Monkey	Sqd	Squid
Ech	Echinoderms	Ml	Mollusk	Su	Sea Urchin
Ecl	<i>Enterobacter cloacae</i>	Nem	Nematode	T	<i>Tetrahymena</i>
Elk	Elk	Nr	<i>Neurospora crassa</i>	Vo	Vole
Eq	Equine (Horse)	Op	Opposum	Vrt	Vertebrates
Eu	Eukaryote	Ox	Ox	WR	Most common vertebrate species tested
F	Fish	Pl	Green Plants	Xn	<i>Xenopus</i>
Fe	Feline (Cat)	Pm	Primate	Y	Yeast (<i>S. cerevisiae</i>)
Fg	Frog	Pn	<i>Penicillium</i>	Zf	Zebra Fish
Fi	Ferret	Po	Porcine (Pig)		
Gp	Guinea Pig	Qu	Quail		

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
14-3-3							
Monoclonal Antibody							
Anti-14-3-3 γ	CG31-2B6	H M R	WB	Pur	M IgG ₁	100 μ g	05-639
Anti-14-3-3 Proteins	8C3	R Sh	WB	Asc	M IgG _{2a}	500 μ l	MAB3053
Anti-14-3-3 σ	CS112-2A8	H M R	WB IP	Pur	M IgG _{1k}	200 μ g	05-632
Polyclonal Antibody							
Anti-14-3-3 β/ζ		Ma In	WB	Pur	Rb IgG	200 μ g	06-351
Anti-14-3-3 $\xi/\gamma/\eta$		WR	WB		Rb IgG	150 μ l	06-408
Anti-14-3-3 Proteins		R	WB	Serum	Rb	100 μ l	AB1671

Abl

Monoclonal Antibody							
Anti-c-Abl	8E9	H M	WB IP IF IH(P)	Pur	M IgG ₁	100 μ g	MAB1130
Polyclonal Antibody							
Abl SH2 Domain		H M Rb	WB IP		Rb IgG	250 μ g	06-465
Abl SH3 Domain		H M	WB IP		Rb IgG	250 μ g	06-466
Abl		H	WB	Pur	Rb	100 μ g	AB3898
anti-phospho-Abl (Tyr245)		H,M,R	WB, ELISA	APur	Rb	100 μ l	07-787
anti-phospho-Abl (Tyr412)		H,M,R	WB, ELISA	APur	Rb	100 μ l	07-788
phospho-Abltide			WB	APur	Rb IgG	200 μ g	07-516
Proteins and Peptides							
Abl, active, mouse			KA			10 μ g	14-459
Abl (T315I), active			KA			10 μ g	14-522
Abl, active			KA			10 μ g	14-529
Abltide			KA			1 mg	12-493
Abltide, biotin conjugate			KA			500 μ g	12-539
Abltide-GST						500 μ g	12-525
Abltide			KA			1 mg	12-493
Abltide-GST						500 μ g	12-525
Abltide, biotin conjugate			KA			500 μ g	12-539
siRNA							
Abl siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-073
Abl SMARTpool		H	RNAi			5 nmol	M-003100
siRNA plasmid, pKD-Abl-v3		H	RNAi			5 μ g	62-112
siRNA plasmid, pKD-Abl-v6		H M	RNAi			5 μ g	62-113

Aciculin

Monoclonal Antibody							
Aciculin		H M R Rb B Av Fg	WB IP IC IH	Pur	M IgG ₁	100 μ g	MAB1640

Actin

Monoclonal Antibody							
Actin	10A5	H	WB ELISA	Asc	M IgM	100 μ l	MAB3128
Actin Bundles	420-8	H	IH	Sup	M IgM	100 μ l	MAB1279
Actin, a.a. 50-70	C4	A	IF FC	Alexa 488	M IgG _{1k}	100 μ g	MAB1501X
Actin, near a.a. 50-70	C4	A	WB ELISA IC	Asc	M IgG _{1k}	100 μ l	MAB1501
Actin, near a.a. 50-70	C4	A	WB ELISA IC	Pur	M IgG _{1k}	100 μ g	MAB1501R
Actin, smooth muscle γ & α actin	CGA7	H R Rb	WB IH IH(P)	Asc	M IgG _{2a}	100 μ l	MAB1522
Actin, smooth muscle	ASM-1	H M R B	WB IF IH IH(P)	Pur	M IgG _{2a}	50 μ g	CBL171
Polyclonal Antibody							
Actin		R Ch	WB IH	Serum	Rb	500 μ l	AB978
Actin, γ		H M R	WB IC IH	Serum	Sh	100 μ l	AB3265
F-actin Capping Protein		H	WB	APur	Ch	100 μ g	AB3415
Fractin [32 kDa Fragment of β -Actin], C-terminus		H M R	WB IC IH(P)	Serum	Rb	100 μ l	AB3150

Actinin

Monoclonal Antibody							
Actinin, α	AT6/172	H	WB IF IH	Pur	M IgG ₁	100 μ g	CBL231
Actinin, α	AT6/172	H	WB IP IF	Asc	M IgG ₁	100 μ l	MAB1682
Anti- α -Actinin	AT6/172	H M Rb	WB IC	Pur	M IgG ₁	200 μ g	05-384

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Adducin							
Monoclonal Antibody							
Anti-phospho-Adducin (Ser724)	pADD	H M R	WB IP IC	Pur	M IgG	100 µg	05-587
Polyclonal Antibody							
phospho-Adducin (Ser662)		H M R Ca	WB	APur	Rb IgG	100 µg	06-820
AKT							
Monoclonal Antibody							
Anti-Akt/PKB, PH Domain	SKB1	H M R	FC IP IPK WB IC	Pur	M IgG	100 µg	05-591
Anti-Akt/PKB, PH Domain	SKB1	H M R	IP IPK WB FC IC	Pur	M IgG	1 mg	05-591MG
Antibody Conjugates							
Anti-Akt/PKB, PH Domain, agarose conj.	SKB1		IP IPK			100 µg	16-185
Anti-Akt/PKB, PH Domain, Alexa Fluor® 488 Conjugate	SKB1	HMR	WB IF FC IC	Pur	M IgG	50 µg	16-293
Anti-Akt/PKB, PH Domain, Alexa Fluor 555 Conjugate	SKB1	HMR	WB IF FC IC	Pur	M IgG	50 µg	16-294
Akt1							
Monoclonal Antibody							
Anti-Akt1/PKBα	AW24	H M R	IP WB	Pur	Rb IgG	100 µL	05-796
Anti-phospho-Akt1/PKBα (Thr308)	NL50	H M	WB	Pur	Rb IgG	100 µL	05-802
Anti-phospho-Akt1/PKBα (Ser473)	11E6	H M	WB	Pur	M IgG _{1κ}	100 µg	05-669
Anti-phospho-Akt1/PKBα (Ser473)	SK703	H M	WB	Pur	Rb IgG	100 µg	05-736
Polyclonal Antibody							
Anti-Akt1/PKBα		H M R	IPK WB	Pur	Rb IgG	100 µg	07-416
Anti-Akt1/PKBα, PH domain, polyclonal		H M	WB	APur	Rb IgG	100 µL	06-885
Anti-Akt (Thr34)		H	WB	APur	Rb IgG	100 mL	07-789
Anti-phospho-Akt1/PKBα (Thr308)		M	WB IH	APur	Rb IgG	100 µL	06-678
Anti-phospho-Akt1/PKBα (Ser473)		H M	WB	Pur	Rb IgG	200 µg	07-310
Anti-Akt1		H M R	WB	APur	Rb	50 µg	AB3137
Anti-Akt1, phospho-specific (Ser473)		H M R	ELISA WB	APur	Rb	50 µg	AB3132
Assays and cDNAs							
STAR Akt1 ELISA Kit			ELISA	96 well		1 kit	17-455
STAR Phospho-Akt (Thr308) ELISA Kit			ELISA	96 well		1 kit	17-456
STAR Phospho-Akt (Ser473) ELISA Kit			ELISA	96 well		1 kit	17-457
Akt1/PKBα Immunoprecipitation-Kinase Assay Kit			IP KA			1 kit	17-188
Akt1/PKBα cDNA (dominant negative) Expression Kit			TFX			1 kit	17-252
Akt1/PKBα cDNA (activated) Expression Kit			TFX			1 kit	17-253
Akt1/PKBα cDNA Allelic Pack			TFX			1 kit	17-254
Akt1/PKBα cDNA (activated) in pUSEamp			TFX			5 µg	21-151
Akt1/PKBα cDNA (dominant negative) in pUSEamp			TFX			5 µg	21-152
Akt1/PKBα cDNA (wt) in pUSEamp			TFX			5 µg	21-153
Akt1/PKBα KinEASE™ FP Fluorescein Green Assay			KA			1 kit	32-021
siRNA							
Akt1/PKBα siRNA/siAbtm Assay Kit		H	WB RNAi			1 kit	60-001
siRNA plasmid, pKD-Akt1/PKBα-v2		H	RNAi			5 µg	62-041
siRNA plasmid, pKD-Akt1/PKBα-v4		H	RNAi			5 µg	62-153
Akt1/PKBα SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003000
Protein							
Akt1/PKBα, active			IPK KA			15 µg	14-276
Akt/SGK Substrate Peptide			KA			500 µg	12-340
Akt1/PKBα, unactive			KA			50 µg	14-279
Akt1/PKBα-GST, unactivated agarose conj.			KA			50 µg	14-241
Akt1/PKBα (δPH, S473D), active			KA			10 µg	14-453
Akt1/PKBα, (PHD deletion), active			KA			10 µg	14-341
Akt1/PKBα, PH Domain (aa 1-149)			PIA			100 µg	14-245

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Akt2							
Monoclonal Antibody							
Anti-Akt2/PKB β	AW114	H R	IP WB	Pur	Rb IgG	100 μ L	05-771
Polyclonal Antibody							
Anti-Akt2/PKB β		H M R	IP WB	Pur	Rb IgG	200 μ g	07-372
siRNA							
Akt2/PKB β siRNA/siAb™ Assay Kit		H	WB RNAi			1 kit	60-002
Akt2/PKB β SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003001
Protein							
Akt2/PKB β (δ PH, S474D), active			KA			10 μ g	14-447
Akt2/PKB β (δ PH, S474D), active			KA			10 μ g	14-339
Assay							
Akt2/PKB β KinEASE FP Fluorescein Green Assay			KA			1 kit	32-022

Akt3							
Monoclonal Antibody							
Anti-Akt3/PKB γ	GMA104	H	IP WB	Pur	M IgG _{2a}	100 μ g	05-780
Polyclonal Antibody							
Anti-Akt3/PKB γ		H	IPK WB	APur	Rb IgG	100 μ L	07-383
Anti-Akt2		R	ELISA WB	Serum	Rb	50 μ L	AB3135
siRNA							
Akt3/PKB γ siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-056
siRNA plasmid, pKD-Akt2/PKB β -v1		H	RNAi			5 μ g	62-103
siRNA plasmid, pKD-Akt2/PKB β -v6		H M	RNAi			5 μ g	62-119
siRNA plasmid, pKD-Akt3/PKB γ -v2		H	RNAi			5 μ g	62-138
siRNA plasmid, pKD-Akt3/PKB γ -v4			RNAi			5 μ g	62-171
Akt3/PKB γ SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003002
Protein							
Akt3/PKB γ , unactive			KA			15 μ g	14-416
Akt3/PKB γ (S472D), active			KA			10 μ g	14-502
Assay							
Akt3/PKB γ KinEASE FP Fluorescein Green Assay			KA			1 kit	32-023

Ankyrin							
Monoclonal Antibody							
Ankyrin	AnkO16	H M R Rb B Po Ca	WB IP ELISA FC IC	Pur	M IgG _{2a}	50 μ g	MAB1683

ARF							
Monoclonal Antibody							
ARF1	3F1	H	WB ELISA		M IgG _{2a}	100 μ g	MAB3779
p14Arf	4C6/4						MAB3782
Assay							
CpG WIZ® p14/ARF Amplification Kit		H				25 assays	S7817

ARP 2/3							
Polyclonal Antibody							
Anti-Arp3		H M B	WB	APur	Rb IgG	100 μ L	07-272
Anti-p34-Arc/ARPC2		H M	WB IC IH	Pur	Rb IgG	200 μ g	07-227
ARP2		H	WB	APur	Rb	100 μ g	AB3886

Axin							
Polyclonal Antibody							
Anti-Axin		M	WB	Pur	Rb IgG	200 μ g	06-922

β-Catenin							
Monoclonal Antibody							
Anti- β -Catenin (non-phospho)	8E4	H M R	WB IP	Pur	M IgG _{1κ}	100 μ g	05-601
Anti- β -Catenin	2H4A7	H M R	WB IP IH	Pur	M IgG	200 μ g	05-613
Anti-Active- β -Catenin (anti-ABC)	8E7	H M R	WB IC IH	Pur	M IgG _{1κ}	100 μ g	05-665
Anti- β -Catenin	5H10	H R	WB IP IC	Pur	M IgG ₁	100 μ g	MAB2081
Anti- β -Catenin	9F12.2	H	WB	Pur	M IgG _{1κ}	200 μ g	MAB3790

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Polyclonal Antibody							
Anti-β-Catenin		H M R Rb B	WB IP IC	Pur	Rb IgG	200 µg	06-734
Anti-β-Catenin		H M R Ca	WB IP ELISA	Serum	Rb	50 µL	AB19022
Protein							
β-Catenin, GST			KA			100 µg	12-537
siRNA							
β-Catenin siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-014
β-Catenin SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003482

βPix

Polyclonal Antibody							
βPix, SH3 domain		H M R	WB IF ELISA	Pur	Rb IgG	100 µg	AB3829

Caldesmon

Monoclonal Antibody							
Caldesmon	TD107	H Ma Av Y	WB IP IF IC IH	Asc	M IgG ₁	100 µL	MAB1684
Caldesmon, smooth muscle	N5/22	H Rb B Po	WB IP IC IH(P)	Pur	M IgG ₁	100 µg	MAB3576
Polyclonal Antibody							
Anti-Caldesmon		VR	WB	Pur	Rb IgG	200 µg	07-135
Anti-phospho-Caldesmon (Ser789)		Po Ca Ft	WB KA	Pur	Rb IgG	100 µg	07-156

cAMP

Polyclonal Antibody							
anti-cyclic AMP (cAMP)		A	ELISA RIA IH	Serum	Rb	100 µL	09-439
anti-cyclic AMP (cAMP)		A	ELISA RIA IH	Serum	Rb	50 µL	AB306
Anti-cAMP		A	RIA	Serum	Rb	1,000 assays	AB505
Assay							
cAMP HTS Immunoassay Kit (Chemiluminescent)			ELISA			192 assays	17-418

Cardiotin

Monoclonal Antibody							
Cardiotin		H M Ht Gt Po Ca Fe	WB IC IH(P)	PSup	M IgM	100 µg	MAB3240

Catenin

Polyclonal Antibody							
Anti-d-Catenin		M R	WB	Pur	Rb IgG	100 µg	07-259

Caveolin

Monoclonal Antibody							
Anti-Caveolin-1	7C8	H R	WB IP IC	Pur	M IgG _{2b}	200 µg	05-762
Polyclonal Antibody							
Anti-Caveolin		H M R Ht	WB IP IC	Pur	Rb IgG	200 µg	06-591
Phospho-Caveolin-1		H M R Mk	WB IP	APur	Rb	100 µL	AB3830

Cdc42

Polyclonal Antibody							
Cdc42		H				100 µg	
Anti-Rac / Cdc42		B H M R	IP WB	Pur	Rb	50 µg	AB3302
Anti-Cdc42		H M R	WB	Pur	Rb	100 µg	AB4201
Recombinant Protein							
Cdc42, recombinant human full length				Pur	<i>E. coli</i>	20 µg	SGT211
Assay							
cdc42 Activation Assay Kit			ABA			1 kit	17-286
Anti-cdc42 Immunoblotting Kit			WB			1 kit	17-299
Cdc42/Rac Activation Assay Kit						30 assays	SGT445
cDNA							
cdc42 cDNA (wt) in pUSEamp			TFX			5 µg	21-191
cdc42 cDNA (dominant negative) in pUSEamp			TFX			5 µg	21-192
cdc42 cDNA (activated) in pUSEamp			TFX			5 µg	21-197

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Protein							
Rac/cdc42 Assay Reagent (PAK1 PBD, agarose)			ABA			300 µg	14-325

Clathrin

Monoclonal Antibody

Clathrin	CHC5.9	H R B Po Am	WB IH	Pur	M IgM	100 µg	CBL188
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Cofilin

Polyclonal Antibody

Anti-Cofilin 2		H R	WB	Pur	Rb IgG	200 µg	07-300
Anti-phospho-Cofilin 2 (Ser3)		H M Ch	WB	Pur	Rb IgG	200 µg	07-326
Cofilin, phospho-specific (Ser3)		H M Mk	WB IP	APur	Rb	100 µL	AB3831
Cofilin		H M R Mk	WB IP	APur	Rb	100 µL	AB3842

Protein and peptide

Cofilin 1			KA			150 µg	12-556
Cofilin 2			KA			100 µg	12-454
Cofilin 2 (S3A)			KA			100 µg	12-455
Cofilin 2			KA			100 µg	12-454
Cofilin 2 (S3A)			KA			100 µg	12-455

Connexin

Monoclonal Antibody

Connexin 32	M12.13	H M R	WB IH	Pur	M IgG	100 µg	MAB3069
Connexin 35				Pur		100 µg	MAB3041
Connexin 35				Pur		100 µg	MAB3042
Connexin 35	9D7.2	Rb F	WB IH	Pur	M IgG ₁	100 µg	MAB3043
Connexin 35				Pur		100 µg	MAB3044
Connexin 35	8F6.2	Rb Mk F	IH	Pur	M IgG ₁	100 µg	MAB3045
Connexin 43	4E6.2	H M R	WB ELISA	Pur	M IgG ₁	100 µg	MAB3067
		Po Ca	IC IH				
Connexin 43	RN26	H M R	WB IP ELISA	Pur	M IgG ₁	100 µg	MAB3068
		Ca Ch	IF IC IH				
Connexin 45	8A11.2	H R Rb	WB IC	Pur	M IgG ₁	100 µg	MAB3100
Connexin 45	5B9.2	H R Rb	WB IC	Pur	M IgG ₁	100 µg	MAB3101

Polyclonal Antibody

Connexin 26		H M R	WB ELISA IH	APur	Rb	50 µg	AB1717
Connexin 32		H M R	WB ELISA	APur	Rb	50 µg	AB1721
Connexin 32 Control Peptide for AB1721			PIA	Pur		100 µg	AG632
Connexin 40		H M R	WB IP ELISA	APur	Rb	50 µg	AB1726
Connexin 43		M R B	WB IP	APur	Rb	50 µg	AB1727
			ELISA IC				
Connexin 43		H M R	WB IP	APur	Rb	50 µg	AB1728
			ELISA IF IH				
Connexin 43, phospho-specific (Ser368)		H M R	WB	APur	Rb	100 µL	AB3841
Connexin 45		H M	WB IP	Serum	Rb	100 µL	AB1745
			ELISA IH				
Connexin 45		H	WB IP	Serum	Gt	100 µL	AB1748
			ELISA IH				

Peptide

Connexin 40 Control Peptide for AB1726			PIA	Pur		100 µg	AG634
Connexin 43 Control Peptide for AB1727			PIA	Pur		100 µg	AG633
Connexin 43 Control Peptide for MAB3067/AB1727			PIA	Pur		100 µg	AG678
CX 43, Control Peptide for AB1728			PIA	Pur		100 µg	AG636

Coronin

Polyclonal Antibody

Anti-Coronin		H	WB	Antiserum	Rb IgG	100 µL	07-493
Coronin 1				Pur	Ch	50 µL	AB9286

Junction Molecules

Junction molecules, as the name suggests, are specific proteins that are found at intercellular junctions. Typically, they are components of specialized structure that are found at cell junctions. There are several types of junction molecules, including tight junctions, gap junctions, adherens junctions, and desmosomal junctions. Junction molecules play a key role in the maintenance of tissue integrity in multicellular organisms.

Connexins are transmembrane proteins that oligomerize to form intercellular gap junction channels. These channels allow direct cytoplasmic communication among the cells, allowing small molecules of approximately 1000 Da or less to pass through in a controlled manner. Members of the connexin family are differentially expressed according to cell type and at different periods of development. CX43 is the most widely expressed connexin family member and can be induced by retinoids and carotenoids.

Gap junctions mediate vitally important processes such as signal propagation, regulation of cell growth, and organ development. Also, mutations in a gap junction protein have been linked to various inherited diseases, including nervous system disorders, deafness, cataracts, heart defects, and skin diseases.

Cadherins belong to a family of calcium ion-dependent cell adhesion molecules that mediate attachment between cells at adherens junctions. Focal adhesions consist of transmembrane receptors of the integrin family that link the cell to the extracellular matrix. In addition to keeping cells bound together, adherens, junctions and focal contacts transduce signals into and out of the cell, and influence cellular behaviors such as proliferation, migration, and differentiation.

Desmosomes and hemidesmosomes are structures that are also primarily involved in adhesion, and are distinguished by their association with the keratin-based cytoskeleton. The desmosome possesses calcium ion-dependent cell adhesion molecules that interact with similar molecules in the adjacent cell. The hemidesmosome interacts with the extracellular matrix via integrins at its core. Junction molecules and the specializations they form play a prominent role in maintaining tissue integrity in multicellular organisms and facilitating intercellular communication. Millipore offers numerous antibodies and proteins for the study of junction molecules, particularly in the areas of disease research and drug discovery.

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Cortactin							
Monoclonal Antibody							
Anti-Cortactin (p80/85)	4F11	H M R Ht B Av	WB IP IC IH	Pur	M IgG ₁	200 µg	05-180
Polyclonal Antibody							
Cortactin [pY466]							AB3795
Cortactin		H	WB	APur	Rb	100 µg	AB3887
Phospho-Cortactin (Y421)			WB	APur	Rb	100 µg	AB3852
Phospho-Cortactin (Y486)			WB	APur	Rb	100 µg	AB3853
Conjugated Antibody							
Anti-Cortactin (p80/85), Alexa Fluor 488 Conjugate	4F11	H M R Ht B Av	WB IF FC IC	Pur	IgG ₁	100 µg	16-228
Anti-Cortactin (p80/85), Alexa Fluor 555 Conjugate	4F11	H M R Ht B Av	WB IF FC IC	Pur	IgG ₁	100 µg	16-229
C-Protein							
Monoclonal Antibody							
C-Protein, Myocardial	C-1	Ch	WB IC	Asc	M IgG ₁	100 µL	MAB3089

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Crk							
Monoclonal Antibody							
CrkL	5-6	H	WB IP IH	Pur	M IgG	200 µg	05-414
Polyclonal Antibody							
CrkL		H	WB	Pur	Rb IgG	200 µg	07-620
CrkL, NT		H	WB	Pur	Rb IgG	200 µg	07-621
Protein							
Crk (120-225)-GST			KA			500 µg	14-468

Csk

Polyclonal Antibody							
Csk		H M R B	WB IC	Pur	Rb IgG	200 µg	06-566
Protein							
Csk, active			KA			10 µg	14-458
siRNA							
Csk siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-051
Csk SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003110
siRNA plasmid, pKD-CSK-v2		H	RNAi			5 µg	62-061
siRNA plasmid, pKD-CSK-v3		H	RNAi			5 µg	62-062

Cytokeratin

Monoclonal Antibody							
Basal Cell Cytokeratin [Cytokeratin 5 and others]		H R Hi Rb Po Ca Ch Qu	WB FC	PSup	M IgG ₁	100 µg	MAB3224
Cytokeratin 1, 10	LH1	H	WB IH	Pur	M IgG ₁	100 µg	CBL266
Cytokeratin 3, 12	AE5	H M Rb B	WB IH IH(P)	Pur	M IgG ₁	100 µg	CBL218
Cytokeratin 4, 5, 6, 8, 10, 13, 18	C11	H R B Fg	WB IH IH(P)	Pur	M IgG ₁	100 µg	CBL234
Cytokeratin 4, 5, 6, 8, 10, 13, 18	C-11	WR	WB IC IH(P)	Asc	M IgG ₁	100 µL	MAB1636
Cytokeratin 5, 14	LH8	H	IH IH(P) Web*	Pur	M IgM	100 µg	CBL267
Cytokeratin 5, 6	D5/16B4	H	WB IH(P)	Pur	M IgG ₁	50 µg	MAB1620
Cytokeratin 5, 8	C-50	H Ma	WB IC IH(P)	Asc	M IgG ₁	100 µL	MAB1629
Cytokeratin 5, 8		H M R Hi Rb Po Ca	WB FC IC IH(P)	PSup	M IgG ₁	100 µg	MAB3228
Cytokeratin 7	LP5K	H	WB IH(P)	Pur	M IgG _{2b}	100 µg	CBL194
Cytokeratin 7	RCK105	H M R Hi Po Ca Fe	WB FC IC IH	PSup	M IgG ₁	100 µg	MAB3226
Cytokeratin 7	OV-TL 12/30	H	WB FC IC IH(P)	PSup	M IgG ₁	100 µg	MAB3554
Cytokeratin 7, 17	C-46	H Sh B Po Ca	WB IC IH(P)	Asc	M IgG ₁	100 µL	MAB1625
Cytokeratin 7, 8	LDS23, LDS65, and LDS68	H	IH	Asc	M IgG ₁ IgM	100 µL	MAB1609
Cytokeratin 7, FITC Conjugate	LP5K	H	IH(P)	FITC	M IgG _{2b}	100 assays	CBL194F
Cytokeratin 8	LP3K	H	IC IH(P)	Sup	M IgG ₁	100 µg	CBL195
Cytokeratin 8	C51	H Sh B Po	WB IC IH(P)	Asc	M IgG ₁	100 µL	MAB1634
Cytokeratin 8	E2	R	WB IH	Asc	M IgG ₁	100 µL	MAB1673
Cytokeratin 8	4.1.18	H	WB IC IH IH(P)	Pur	M IgG ₁	50 µg	MAB3414
Cytokeratin 10	LH-2	H	WB IH(P)	Pur	M IgG ₁	100 µg	CBL196
Cytokeratin 10	RKSE60	H M R Ca	WB FC IC IH	PSup	M IgG ₁	100 µg	MAB3230
Cytokeratin 10 Blend	LH-1 and LH-2	H	IC IH	Asc	M IgG	100 µL	MAB1605
Cytokeratin 10, FITC Conjugate	LH-2	H	WB	FITC	M IgG ₁	100 assays	CBL196F
Cytokeratin 13	Ks 13.1	H M R B	WB IH(P)	Pur	M IgG ₁	50 µg	CBL176
Cytokeratin 14	LLO02	H	WB IH(P)	Pur	M IgG ₃	100 µg	CBL197
Cytokeratin 14	RCK107	H R Po Ca	WB FC IC IH	PSup	M IgG ₃	100 µg	MAB3232
Cytokeratin 14, FITC Conjugate	LLO02	H	IH(P)	FITC	M IgG ₃	100 assays	CBL197F
Cytokeratin 15	LHK15	H M	WB ELISA IH IH(P)	Pur	M IgG _{2ακ}	100 µg	CBL272
Cytokeratin 16	LLO25	H	IH IH(P)	Pur	M IgG ₁	100 µg	CBL273

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Cytokeratin 17	E3	H R	WB IC IH(P)	Asc	M IgG ₁	100 µL	MAB1677
Cytokeratin 18		H	WB	APur	Ch	100 µg	AB3457
Cytokeratin 18	Ks18.04	M R Hi Sh B Po Ca F Am	WB IH(P)	Pur	M IgG ₁	50 µg	CBL177
Cytokeratin 18	DC-10	H	WB IC	Pur	M IgG ₁	100 µg	CBL185
Cytokeratin 18	DC-10	H	WB IC IH(P)	Asc	M IgG ₁	100 µL	MAB1600
Cytokeratin 18	RGE53	H M R Hi Rb Po Ca Ch	WB FC IC IH IH(P)	PSup	M IgG ₁	100 µg	MAB3234
Cytokeratin 18	RGE53	H M R Hi Rb Po Ca Ch	WB FC IC IH IH(P)	PSup	M IgG ₁	100 µg	MAB3234
Cytokeratin 18	RGE53	H M R Hi Rb Po Ca Ch	WB FC IC IH IH(P)	PSup	M IgG ₁	100 µg	MAB3234
Cytokeratin 18	RGE53	H M R Hi Rb Po Ca Ch	WB FC IC IH IH(P)	PSup	M IgG ₁	100 µg	MAB3234
Cytokeratin 18	RCK106	H-sp	WB FC IC IH(P)	PSup	M IgG ₁	100 µg	MAB3236
Cytokeratin 18	CK2	H	IC IH	Pur	M IgG ₁	40 µg	MAB3404
Cytokeratin 18, FITC Conjugate	DC-10	H	WB IC	FITC	M IgG ₁	100 assays	CBL185F
Cytokeratin 19	BA 17	H	WB IC IH(P)	Pur	M IgG ₁	100 µg	CBL198
Cytokeratin 19	BA16 and BA17	H	IH	Asc	M IgG	100 µL	MAB1607
Cytokeratin 19	IAS86	H	IH	Asc	M IgM	100 µL	MAB1608
Cytokeratin 19	E6	H M R Rb F Xn	WB IH	Asc	M IgG ₁	100 µL	MAB1675
Cytokeratin 19	RCK108	H	WB FC IC IH(P)	PSup	M IgG _{1κ}	100 µg	MAB3238
Cytokeratin 19	RCK108	H	WB FC IC IH(P)	PSup	M IgG _{1κ}	100 µg	MAB3238
Cytokeratin 19	RCK108	H	WB FC IC IH(P)	PSup	M IgG _{1κ}	100 µg	MAB3238
Cytokeratin 19	RCK108	H	WB FC IC IH(P)	PSup	M IgG _{1κ}	100 µg	MAB3238
Cytokeratin 20	Ks20.8	H	WB IH(P)	Pur	M IgG _{2α}	50 µg	CBL208
Cytokeratin AE1/AE3 (Pan cytokeratins), recognizes acidic and basic cytokeratins	AE1/AE3	H M R Rb B Mk Ch	WB ELISA IH Web*	Pur	M IgG ₁	500 µg	MAB3412
Cytokeratin Epithelial	AE1	H M R Rb B Ch	IH(P)	Pur	M IgG	500 µg	MAB1612
Cytokeratin Pan	Lu5	Ma	IH	Pur	M IgG ₁	200 µg	MAB3406-200UG
Cytokeratin Pan	Lu5	Ma	IH	Pur	M IgG ₁	40 µg	MAB3406-40UG
Cytokeratin Pan, FITC Conjugate	C-11	H R B Fg	IH(P)	FITC	M IgG ₁	100 assays	CBL234F
Keratin Epithelial [Type II Cytokeratin]	AE3	H M R Rb B Mk Ch	WB IH(P)	Pur	M IgG ₁	500 µg	MAB1611

Polyclonal Antibody

Keratin Type 8		H	WB	APur	Ch	100 µg	AB3459
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Desmin

Monoclonal Antibody

Desmin	131-15014	H Rb B	IC IH(P)	Pur	M IgG ₁	100 µg	MAB1698
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Polyclonal Antibody

Desmin (KN50-1-4)		H M B Ch	WB IH(P)	Serum	Rb	500 µL	AB907
Desmin	DE-B-5	H R Po Fg	IC IH IH(P)	Pur	M IgG ₁	40 µg	MAB3430

Desmoglein

Monoclonal Antibody

Desmoglein	DG 3.10	H M R B Ch	WB IH(P)	Pur	M IgG ₁	50 µg	CBL174
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Desmoplakin

Monoclonal Antibody

Desmoplakin	DP2.15	H M R B Ch	WB IF IC	Pur	M IgG ₁	50 µg	CBL173
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Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Diaphanous							
Polyclonal Antibody							
Diaphanous 1		H	WB	APur	Rb	100 µg	AB3888
Dynamin							
Monoclonal Antibody							
Dynamin, Hudy 1		H M R B	WB IP IC	Pur	M IgG	200 µg	05-319
Dynamin 1	D5	H M R	WB IH	Pur	M Ig	100 µg	MAB5402
Polyclonal Antibody							
Dynamin 2			WB IH	Pur	Sh	100 µL	AB5501
Dynamin Phospho SER774		R	WB IC IH	APur	Sh	100 µL	AB5593
Dynamin Phospho SER778		R	WB	APur	Sh	100 µL	AB5591
Dynein							
Monoclonal Antibody							
Dynein, cytoplasmic	74.1	M R Sh B F	WB IP IF IC	Pur	M IgG _{2b}	100 µg	MAB1618
Polyclonal Antibody							
Dynein, axonemal				APur	Ch	100 µg	AB9124
Dynein, Left - Right		Ch Xn	WB IF IH	Serum	Rb	100 µL	AB1961
Dystroglycan							
Monoclonal Antibody							
Anti-α-Dystroglycan	IIH6C4	H M R Gp Rb Ca	WB IH	Ascites	M IgM	200 µL	05-593
Anti-α-Dystroglycan	VIA4-1	H M R Gp Rb Ca	WB IH	Sup	M IgG ₁	200 µL	05-298
Cranin [Dystroglycan]	6C1	H M R Sh Ch Xn	ELISA IC IH	Asc	M IgM	100 µL	MAB371
Cranin [Dystroglycan]	8B4	H M R Sh Ch Xn	ELISA IC IH	Asc	M IgM	100 µL	MAB373
Dystrophin							
Monoclonal Antibody							
Dystrophin	XIXC2-D11	H M R Rb	WB IH	Ascites	M IgM	200 µL	05-265
Dystrophin	1808	H M R Ch	WB IH	Pur	M IgG ₁	100 µg	MAB1645
Dystrophin, C-terminus	6C5 (a.k.a DY8/Dys2)	H M R Rb Ca	WB IH	Sup	M IgG ₁	1 mL	MAB1694
Dystrophin, mid-rod	6D3	H M R Rb Ca	WB IH	Sup	M IgG _{2a}	1 mL	MAB1692
Dystrophin, N-terminus domain	12B2	H M R Ht Rb Po Mk Ca Ch	WB IH	Sup	M IgG _{2a}	1 mL	MAB1690
Erk							
See "MAP Kinase/Erk"							
ERM							
Polyclonal Antibody							
Phospho-ERM		H M R Mk	WB IH(P)	APur	Rb	100 µL	AB3832
Ezrin							
Monoclonal Antibody							
Ezrin	4A5	H M R	WB IP	Pur	M IgG ₁	100 µg	MAB3822
Polyclonal Antibody							
Anti-Ezrin		H M Rb Ca	WB IH ELISA IC	Pur	Rb IgG	200 µg	07-130
Ezrin/Radixin/Moesin Antibody		H M R Mk	WB IC IH(P)	APur	Rb	100 µL	AB3843
FAK							
Monoclonal Antibody							
FAK	2A7	H M R Av	IP IC	Pur	M IgG ₁	200 µg	05-182
FAK	4.47	H M R	WB IP IC IH	Pur	M IgG ₁	200 µg	05-537
FAK		H M R Ht	WB IP IC	Pur	Rb IgG	200 µg	06-543

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Anti-Focal Adhesion Kinase	BLAb2H7	H M Ch	WB IP IC	Pur	M IgG ₁	100 µg	MAB2156
anti-phospho-FAK (Tyr397)		H M	WB IF	Pur	M IgG ₁	100 µg	MAB1144
Polyclonal Antibody							
Focal Adhesion Kinase		H M	WB IP IH	Serum	Rb	100 µL	AB1605
FAK, BC3		H M R Av	IP IC	Pur	Rb IgG	150 µg	06-446
anti-phospho-FAK (Tyr407)		H	WB	APur	Rb IgG	100 µL	07-829
anti-phospho-FAK (Tyr576)		H M R	WB IC	Antiserum	Rb IgG	200 µL	07-157
anti-phospho-FAK (Tyr576)		H	WB	APur	Rb IgG	100 µL	07-830
anti-phospho-FAK (Tyr577)		H M Ch	WB IC	APur	Rb IgG	100 µL	07-831
anti-phospho-FAK (Ser722)		H	WB	APur	Rb IgG	100 µL	07-825
anti-phospho-FAK (Ser732)		M R	WB	APur	Rb IgG	100 µL	07-826
anti-phospho-FAK (Ser843)		H	WB	APur	Rb IgG	100 µL	07-827
anti-phospho-FAK (Tyr861)		H M Ch	WB IC	APur	Rb IgG	100 µL	07-832
anti-phospho-FAK (Ser910)		H M R Ch	WB	APur	Rb IgG	100 µL	07-828
conjugated antibody							
anti-FAK, Alexa Fluor 555 Conjugate	4.47	H M R	WB FC IC	Pur	M IgG ₁	100 µg	16-234
anti-FAK, agarose conjugate	4.47	H M R	IP IAP		M IgG ₁	200 µg	16-173
Anti-FAK, Alexa Fluor 488 Conjugate	4.47	H M R	WB FC IC	Pur	M IgG ₁	100 µg	16-233
Protein							
FAK, active			KA	Ni	NTA agarose	10 µg	14-720
siRNA							
FAK (PTK2) siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-018
FAK (PTK2) SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003164
siRNA plasmid, pKD-FAK-v1			RNAi			5 µg	62-174
siRNA plasmid, pKD-FAK-v4			RNAi			5 µg	62-175
Assays							
STAR FAK ELISA Kit			ELISA	96 well		1 kit	17-479
STAR phospho-FAK (Tyr 397) ELISA Kit			ELISA	96 well		1 kit	17480
CAKPAK, (FAK, Pyk 2, ILK), Miniature Set			WB IP			1 kit	17-177
Actin Cytoskeleton / Focal Adhesion Staining Kit		H Rb B Po	IC		M IgG ₁	100 assays	FAK100

Fascin

Monoclonal Antibody							
Fascin	55K2	H Ma Ech Gr Su	WB IP IC IH(P)	Pur	M IgG ₁	100 µg	MAB3582

FNTA/FNTB (Farnesyl Transferase α and β subunits)

Monoclonal Antibody							
anti-Farnesyl Transferase α subunit (FNTA)	2418	H	WB	Pur	M IgG ₁	100 mL	04-470
Polyclonal Antibody							
anti-Farnesyl Transferase β subunit (FNTB)		H	WB	APur	Rb IgG	100 mL	09-121

Filamin

Monoclonal Antibody							
Filamin A [α -Filamin; Filamin I; Endothelial	PM6/317	H R Gp	WB IP IH IH(P)	Asc	M IgG ₁	100 µL	MAB1678
Filamin	PM6/317	H	WB IH IH(P)	Pur	M IgG ₁	100 µg	CBL228
Filamin A [α -Filamin; Filamin I; Endothelial Actin-binding Protein; ABP-280; Nonmuscle Filamin]	T110	H M R B	WB IP IH IH(P)	Asc	M IgG ₁	100 µL	MAB1680
Polyclonal Antibody							
Filamin 2 [pS2113] Actin-binding Protein; ABP-280; Nonmuscle Filamin]		Rb Ch					AB3791
Filamin B		H	WB	APur	Rb	100 µg	AB9276

Flotillin

Polyclonal Antibody							
Flotillin-1		R	WB	Serum	Rb	100 µL	AB9292

Gab

Polyclonal Antibody							
Gab1, CT		H M R	WB IP IC	Pur	Rb IgG	200 µg	06-579
Gab2		H M R	WB IP	Pur	Rb IgG	200 µg	06-967

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
siRNA							
Gab1 siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-019
Gab1 SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003553

General Reagents

Assay Dilution Buffer I (ADBI)			KA			1 mL	20-108
Assay Dilution Buffer II (ADBI)			KA			1 mL	20-111
Magnesium/ATP Cocktail			KA			1 mL	20-113
Phosphate-Citrate Buffer, 5X						8 mL	20-143
Assay Dilution Buffer, 5X			KA			1 mL	20-145
Mg2+ Lysis/Wash Buffer, 5X			GPA			18 mL	20-168
Protein Phosphatase Dilution Buffer			PA			1 mL	20-169
100X GTPγS, 10mM			GPA			50 μL	20-176
100X GDP, 100mM			GPA			50 μL	20-177
pNPP Ser/Thr Assay Buffer			PA			20 mL	20-179
pNPP Tyr Assay Buffer			PA			20 mL	20-180
Tris Assay Dilution Buffer, 10X			KA			1 mL	20-181
Kinase Assay Blocking Buffer			KA			10 mL	20-189
TBS, 20X						50 mL	20-190
10% BSA in TBS			KA			10 mL	20-191
Kinase Assay Clearing Buffer			KA			10 mL	20-193
Dithiothreitol, 1M						450 μL	20-265
1M MgCl ₂						500 μL	20-303
50mM AMP						50 μL	20-304
10mM ATP						300 μL	20-306
0.5M EDTA, pH 7.2						2 mL	20-307
10X Detection Buffer						3 mL	20-308

Grb

Monoclonal Antibody

Grb2	3F2	H M R Hi B	WB IH	Pur	M IgG _{1κ}	100 μg	05-372
Grb2	2GB04	H M R B Xn	IF IH(P)	Pur	M IgG ₁	100 μg	MAB1127

ICMT

Polyclonal Antibody

Anti-Isoprenylcysteine Carboxymethyl Transferase (ICMT)		H	WB	APur	Rb IgG	100 μL	09-119
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ILK

Monoclonal Antibody

ILK	65.1.9	H M R	WB IP IC	Pur	M IgG _{2b}	200 μg	05-575
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Polyclonal Antibody

ILK		H M R	WB IP IPK IF	APur	Rb IgG	100 μg	06-592
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cDNA

ILK cDNA (hyperactive) in pUSEamp			TFX			5 μg	21-185
ILK cDNA (inactive, R211A) in pUSEamp			TFX			5 μg	21-182
ILK cDNA (inactive, S343A) in pUSEamp			TFX			5 μg	21-183
ILK cDNA (wt) in pUSEamp			TFX			5 μg	21-184

siRNA

ILK siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-116
ILK SMARTpool siRNA Reagent			RNAi			5 nmol	M-004499

IRSp53

Polyclonal Antibody

anti-IRSp53		H M R	WB	Serum	R IgG	100 μL	07-786
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JNK/SAPK

Monoclonal Antibody

anti-JNK2		H M R	WB ELISA	APur	M IgG	100 μg	05-986
anti-JNK3/SAPK1b	COST	H R	WB	Pur	M IgG	100 μL	05-893

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Polyclonal Antibody							
Anti-JNK/SAPK1		H M R	IP WB	Pur	Rb IgG	200 µg	06-748
Anti-phosphoJNK (Thr183/Tyr185, Thr221/Tyr223)		H M R	IP WB	Pur	Rb IgG	200 µg	07-175
Anti-JNK1		M R	IP KA	Pur	Sh	250 µg	AB4081
Anti-JNK2		H M R	ELISA WB	Serum	Rb	50 µL	AB8910
siRNA							
JNK2/SAPK1α siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-099
siRNA plasmid, pKDJNK2α2/SAPK1α-v1		H	RNAi			5 µg	62-097
siRNA plasmid, pKDJNK2α2/SAPK1α-v5		H M	RNAi			5 µg	62-098
JNK2 SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003515
Protein							
JNK1α1/SAPK1c, active			KA			10 µg	14-327
JNK1α1/SAPK1c, inactive			KA			50 µg	14-328
JNK2α2/SAPK1α, active			KA			10 µg	14-329
JNK3/SAPK1b, active			KA			10 µg	14-501
JNK3/SAPK1b, inactive			KA			50 µg	14-523
JNK3/SAPK1b (K55R), inactive, Streptavidin Binding Peptide			KA			200 µg	13-126
JNK3tide						1 mg	12-528
MKK6/SKK3, active			KA			10 µg	14-303
Assay							
STAR JNK 1/2 ELISA Kit			ELISA	96 well		1 kit	17-465
STAR phosphoJNK 1/2 (Tyr 183/Tyr185) ELISA Kit			ELISA	96 well		1 kit	17-466
Junction Adhesion Molecule							
Polyclonal Antibody							
JAM2		M	WB	APur	Rb	100 µg	AB1734
Kinesin							
Monoclonal Antibody							
Kinesin, Heavy chain	H1	H R B	WB IP ELISA RIA IC IH INHIB	Pur	M IgG ₁	100 µg	MAB1613
Kinesin, Heavy chain	H2	Ma Ch Sqd Su	WB IP ELISA RIA IC IH INHIB	Pur	M IgG _{2b}	100 µg	MAB1614
Kinesin, light chain	L1	Ma	WB IP ELISA RIA	Pur	M IgG ₁	100 µg	MAB1616
Kinesin, light chain	L2	Ma	WB IP ELISA RIA	Pur	M IgG _{2α}	100 µg	MAB1617
Polyclonal Antibody							
KIF21A		H M R	WB	Pur	Rb IgG	200 µg	07-529
KIF21B		H M R	WB	Pur	Rb IgG	200 µg	07-525
Lamin							
Monoclonal Antibody							
Lamin A [70 kDa Lamin], C-terminus, a.a. 598-611	133A2	H M R B Ca	WB FC IC IH	PSup	M IgG ₃	100 µg	MAB3540
Lamin A,	Jol4	H	WB IP IH	Sup	M IgG ₁	1 mL	MAB3212
Lamin A/C	Jol2	H M Xn	WB IP IH	Sup	M Ig	1 mL	MAB3211
Lamin A/C, localized to aa319-566 rat lamin A	131C3	H M R Hi Sh B Ca	WB FC IH	PSup	M IgG _{1κ}	100 µg	MAB3538
Lamin B1	119D5-F1	H M R Sh B Ca	WB IP ELISA IH	Sup	M IgG ₁	1 mL	MAB3213
Lamin A/C	14	H M R Ca Ch	WB IC	Pur	M IgG	50 µg	05-714
Lamin B2	LN43	H M Hi Xn	WB FC IH	PSup	M IgG ₁	100 µg	MAB3536
Polyclonal Antibody							
Lamin C		H	WB FC IH	Serum	Rb	100 µL	AB3702

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
siRNA							
Lamin A/C (HU) SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-004978
Lamin A/C (mouse) SMARTpool siRNA Reagent			RNAi			5 nmol	M-040758
Lamin A/C siRNA/siAb Starter Kit (human)		H	WB RNAi			1 kit	61-001
Lamin A/C siRNA/siAb Starter Kit (mouse)		M	WB RNAi			1 kit	61-002

LIM Kinase

Polyclonal Antibody

LIM Kinase 1		H M	WB	Pur	Rb	100 µg	AB3814
LIMK1/2 [pTpY507/508] Affinity-purified		H	WB	APur	Rb IgG	100 µL	07-850

Protein

LIM Kinase 1, active, mouse			KA			15 µg	14-457
LIM Kinase 1, active			KA			10 µg	14-656
LIM Kinase 1, unactive			KA			50 µg	14-659

siRNA

pKD-LIM Kinase 1-v2			RNAi			5 µg	62-256
pKD-LIM Kinase 1-v3			RNAi			5 µg	62-257

Erk/MAP Kinase

Monoclonal Antibody

Anti-MAP Kinase 2/Erk2	1B3B9	Av H M R	IP WB	Pur	M IgG _{2a}	200 µg	05-157
Anti-phospho-MAP Kinase1/2 [Erk 1/2]	12D4	Av H M R	IP WB	Pur	M IgG _{1κ}	50 µg	05-481
Anti-phospho-MAP Kinase 1/2 [Erk1/2][Thr185/Tyr187]	AW39	H R	BD WB	Pur	Rb IgG	100 µL	05-797
Anti-MAP Kinase 1/Erk 1, CT		M R	IPK WB	Pur	Rb IgG	100 µL	05-957

Polyclonal Antibody

Anti-MAP Kinase 1/2 [Erk1/2], CT		Av H M R Sh Xn Ech	IP WB IC	APur	Rb IgG	100 µg	06-182
Anti-MAP Kinase 2/Erk2		H M R	IP WB	Pur	Rb IgG	200 µg	06-333
Anti-phospho-MAP Kinase1/2 [Erk1/2] (Tyr180), polyclonal		H M R	IP WB	APur	Sh IgG	100 µg	06-642
Anti-phospho-MAP Kinase1/2 [Erk1/2]		H R WVR	WB	Pur	Rb IgG	200 µg	07-467
Anti-ERK1/2		B Ch Dr H M R Sh Xn Ech Ml	ELISA IP WB IC	Pur	Rb	50 µg	AB3053
Anti-ERK1		B H M Po R Rb	ELISA IP WB	APur	Rb	100 µg	AB3189
Anti-ERK1/2, phospho-specific (Thr202/Tyr204)		H M R Xn	WB	APur	Rb	100 µL	AB3826

Antibody Conjugate

Anti-MAP Kinase 1/2 [Erk1/2], agarose			IAP IP			50 µg	16-111
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Assay

STAR ERK 1/2 ELISA Kit			ELISA	96 well		1 kit	17-463
STAR phospho-ERK 1/2 (Tyr 185/Tyr187) ELISA Kit			ELISA	96 well		1 kit	17-464
MAP Kinase/Erk Assay Kit			KA			1 kit	17-133
MAP Kinase/Erk Sampler Pack			KA			1 kit	17-171
MAP Kinase/Erk Assay Kit, non-radioactive			KA			1 kit	17-191
MAP Kinase/Erk Immunoprecipitation Kinase Assay Kit, non-radioactive			KA			1 kit	17-192
MAP Kinase [ERK1/2] Activity Assay			ACT			1 plate	SGT415
MAP Kinase/Erk Substrate Cocktail I			KA			1 mL	20-115
MAP Kinase/Erk Substrate Cocktail II			KA			1 mL	20-166
MAP Kinase 2/Erk2 cDNA (wt) in pUSEamp			TFX			50 µg	21-112
MAP Kinase 1/Erk1 KinEASE FP Fluorescein Green Assay			KA			1 kit	32-044
MAP Kinase 2/Erk2 KinEASE FP Fluorescein Green Assay			KA			1 kit	32-045
MAP Kinase 1/Erk1 KinEASE FP-645nm FarRed Assay			KA			1 kit	32-124
MAP Kinase 2/Erk2 KinEASE FP-645nm FarRed Assay			KA			1 kit	32-125

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Protein							
MAP Kinase 2/Erk 2 (K52R), inactive			KA			100 µg	14-696
MAP Kinase 1/Erk1 agarose, unactive			KA			250 µg	14-121
MAP Kinase 2/Erk2, active			KA			10 µg	14-550
MAP Kinase 1/Erk1, active			KA			10 µg	14-439
MAP Kinase 2/Erk2, unactive			KA			50 µg	14-198

siRNA							
MAP Kinase 1/Erk2 siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-029
siRNA plasmid, pKD-MAP Kinase 1/Erk2-v1		H M	RNAi			5 µg	62-046
siRNA plasmid, pKD-MAP Kinase/Erk1-v4		H	RNAi			5 µg	62-149
siRNA plasmid, pKD-MAP Kinase 1/Erk2-v5			RNAi			5 µg	62-191
siRNA plasmid, pKD-MAP Kinase/Erk1-v3			RNAi			5 µg	62-192
MAP Kinase 1/Erk2 SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003555

MBP

Monoclonal Antibody							
Anti-phospho-MBP	P12	WR	KA WB	Pur	M IgG	100 µg	05-429
Anti-MBP	SKB3	H M R	WB	Pur	M IgG _{1κ}	50 µg	05-675
Anti-phospho-MBP	BK403	WR	WB	Pur	M IgG _{1κ}	200 µg	05-705
Anti-phospho-MBP	BK403		WB	Pur	M IgG _{1κ}	1 mg	05-705MG
Antibody Conjugate							
Anti-phospho-MBP, HRP conj.			ELISA KA WB			50 µL	16-198
Anti-phospho-MBP, HRP conj.						50 µL	16-206

Protein							
MBP (myelin basic protein), bovine, purified			KA			10 mg	13-104
MBP, Dephosphorylated			KA			5 mg	13-110
MBP, biotin conj.			KA			1 mg	13-111
MBP, recombinant			KA			50 µg	13-173

Assay							
MBP Assay Kit, 96-well, Chemiluminescence Detection			KA			1 kit	17-353
MBP Coated Microplate, 96 Well			KA			2 plates	30-011
KinEASE FP Fluorescein Green Assay - Module 2 - MBP (Thr98) Kinases			KA			1 kit	32-002
KinEASE FP-645nm FarRed Assay Module 2 - MBP (Thr98) Kinases			KA			1 assay	32-005

MEK

Monoclonal Antibody							
Anti-phospho-MEK1 (Ser218/222)/ MEK2 (Ser222/226)		H M R	WB	Pur	Rb IgG	100 µL	05-747
Anti-MEK1, NT	C12T	Ca H M Mk R Rb	IP WB	Pur	Rb IgG	100 µL	05-925
Anti-MEK1 CT, Rb Mab		H R	FC IP WB IC IH(P)	Serum	Rb IgG	100 µL	04-376
Anti-MEK2 NT, Rb Mab		H R	FC IP WB IC IH(P)	Serum	Rb IgG	100 µL	04-377
anti-MEK2 (N-Terminus)		H	WB ELISA	Pur	M IgG	100 µg	04-305

Polyclonal Antibody							
Anti-phospho-MEK1 (Ser298)		H M R	WB	APur	Rb IgG	200 µL	07-339
Anti-phospho-MEK1 (Ser218/222)/ MEK2 (Ser222/226)		H M R	WB	Pur	Rb IgG	200 µg	07-461
Anti-MEK1		H M R	IP IPK WB	Pur	Rb IgG	200 µg	07-641
Anti-phospho-MEK1 (Thr292)		H M	WB	APur	Rb IgG	100 µL	07-852
Anti-phospho-MEK1 (Thr386)		H M R	WB	APur	Rb IgG	100 µL	07-853
Anti-phospho-MEK2 (Thr394)		H	WB	APur	Rb IgG	100 µL	07-854
Anti-phospho-MEK2 (Thr394)		M R	WB	APur	Rb IgG	100 µL	07-855
Anti-phospho-MKK3/6 (Ser189/Thr193)/ (Ser207/Thr211)		H	WB	APur	Rb IgG	100 µL	07-856
Anti-phospho-MKK4 (Ser257/Thr261)		H	WB	APur	Rb IgG	100 µL	07-857

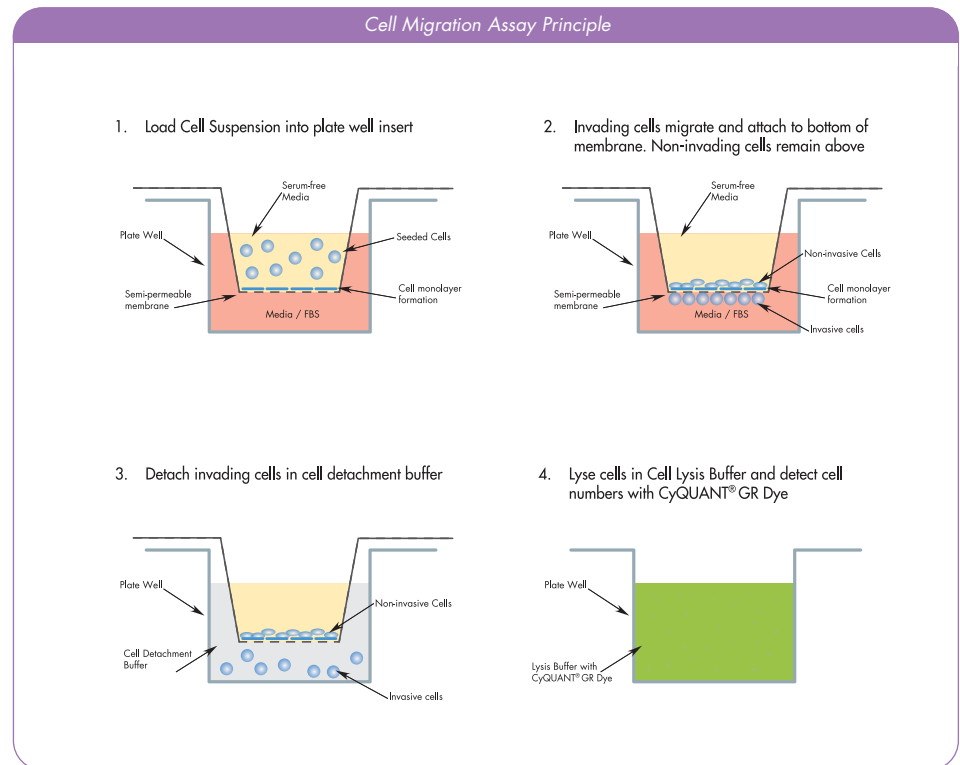
Cell Migration Assays

Cell migration plays a central role in a wide variety of biological phenomena. During embryogenesis, cell migration is a recurring theme in important morphogenic processes ranging from gastrulation to development of the nervous system. In the adult organism, cell migration remains prominent in both physiological and pathological conditions. Migration of fibroblasts and vascular endothelial cells is essential for wound healing. In metastases, tumor cells migrate from the initial tumor mass to localize in other areas of the body. Directed tumor cell motility by chemotaxis is the final step of tumor invasion, and the inhibition of this process has been a major focus of research. Cell migration is characterized by direct interaction of cells with the extracellular matrix (ECM), cell communication with neighboring cells, or chemoattractant stimuli triggering cell movement.

The most widely accepted method for evaluating cell migration is the Boyden Chamber assay. All of Millipore's cell migration plates, assays and kit inserts use Boyden Chamber technology and they are designed as efficient environments to investigate different elements of cell migration. The Boyden Chamber system uses a hollow plastic chamber, sealed at one end with a porous membrane. Membranes may be coated with an extracellular matrix if necessary. This chamber is suspended over a larger well containing medium and/or chemoattractants. Cells are placed inside the

chamber and allowed to migrate through the pores, to the other side of the membrane. Migratory cells are then stained and counted. In a standard Boyden assay, the pore diameter of the membrane is typically 3 to 12 μm , and is selected to suit the subject cells.

Millipore's assays are manufactured to provide quantitative determinations of the influence of assorted factors on cell migration. This includes screening of pharmacological agents, evaluation of integrins or other adhesion receptors responsible for cell migration, analysis of gene function in transfected cells, and determination of ECM protein involvement in cell movement. Whether your task is analyzing chemotaxis, haptotaxis, transmigration or cell invasion, Millipore has the perfect solution to provide clear, concise and quantifiable results.



Cell Migration Assay Highlights

QCM™ Haptotaxis Cell Migration Assays

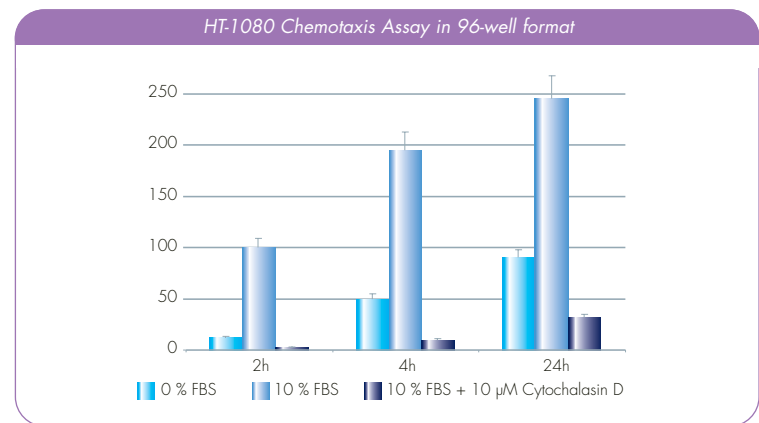
- Study cell surface adhesion receptor binding to extracellular matrix (ECM) proteins and the effects of ECM protein involvement in cell movement
- Measure haptotaxis – directed cell movement towards an immobilized ECM protein gradient
- Boyden chamber porous insert membrane is coated on the outside with ECM protein

QCM Cell Invasion Assays

- Study cell invasion by cellular degradation of ECM proteins in response to a chemoattractant located in the outer plate well
- Measure invasion – directional cell migration through the physical penetration of an ECM protein layer
- Boyden chamber porous insert membrane is coated on the inside with ECM protein

QCM Chemotaxis Cell Migration Assays

- Study cell motility solely in response to a chemical gradient
- Measure chemotaxis – directional cell movement in response to chemical concentration gradients
- Boyden chamber porous insert membrane is uncoated



Description	Detection	ECM Coating	Pore Size	Quantity	Cat. No.
Haptotaxis					
QCM Haptotaxis Cell Migration Assay	Colorimetric	Collagen I	8 µm	24 wells (12 tests)	ECM582
	Colorimetric	Fibronectin	8 µm	24 wells (12 tests)	ECM580
	Colorimetric	Vitronectin	8 µm	24 wells (12 tests)	ECM581
	Fluorimetric	Collagen I	8 µm	24 wells	ECM564
	Fluorimetric	Collagen I	8 µm	96 wells	ECM566
	Fluorimetric	Fibronectin	8 µm	24 wells	ECM562
	Fluorimetric	Fibronectin	8 µm	96 wells	ECM565
Chemotaxis					
QCM Chemotaxis Cell Migration Assay	Colorimetric		8 µm	24 wells	ECM508
	Fluorimetric		8 µm	24 wells	ECM509
	Fluorimetric		8 µm	96 wells	ECM510
	Fluorimetric		5 µm	24 wells	ECM507
	Fluorimetric		5 µm	96 wells	ECM512
	Fluorimetric		3 µm	24 wells	ECM505
	Fluorimetric		3 µm	96 wells	ECM515
Invasion					
QCM Cell Invasion Assay	Colorimetric	Collagen	8 µm	24 wells	ECM551
	Fluorimetric	Collagen	8 µm	96 wells	ECM556
	Fluorimetric	Collagen	8 µm	24 wells	ECM552
	Colorimetric	ECMatrix™	8 µm	24 wells	ECM550
	Fluorimetric	ECMatrix	8 µm	24 wells	ECM554
	Fluorimetric	ECMatrix	8 µm	96 wells	ECM555

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Anti-phospho-MKK7 (Ser271/Thr275)		H M	WB	APur	Rb IgG	100 µL	07-858
Anti-MEK1, N-terminus		H M R Xn	IP WB IH	Pur	Rb	50 µg	AB3183
Anti-MEK5		Ca H M Mk R Rb Sh Xn	ELISA IP WB IH	APur	Rb	50 µg	AB3184
Anti-MKK6		H M R Xn	IP WB	Pur	Rb	50 µg	AB3185
Anti-MEK1/2, phospho-specific (Ser218/222)		H	WB	APur	Rb	100 µL	AB3810
Anti-MEK1/2, phospho-specific (Ser218/222)		H	WB	APur	Rb	25 µL	AB3810-25UL
Anti-MEK1, phospho-specific (Thr386)		H M	WB	APur	Rb	100 µL	AB4209
Anti-MEK1, phospho-specific (Thr292)		H M	WB	APur	Rb	100 µL	AB4210
Assay and cDNA							
STAR MEK1 ELISA Kit			ELISA	96 well		1 kit	17-455
STAR Phospho-MEK1 (Ser218/Ser222) ELISA Kit			ELISA	96 well		1 kit	17-456
MEK1 Assay Kit			KA			1 kit	17-157
MEK1 cDNA (wt) in pUSEamp			TFX			5 µg	21-106
MEK2 cDNA (wt) in pUSEamp			TFX			5 µg	21-107
MEK1 cDNA (activated) in pUSEamp			TFX			5 µg	21-119
MEK2 cDNA (activated) in pUSEamp			TFX			5 µg	21-120
siRNA							
MEK1 siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-096
siRNA plasmid, pKD-MEK1-v2		H M R	RNAi			5 µg	62-152
MEK1 SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003571
Protein							
MEK1 (6His), inactive			KA			50 µg	14-706
MEK1, active			KA			10 µg	14-429
MEK1, active, rabbit			KA			10 µg	14-206
MEK1 (K97R), inactive			EA			50 µg	14-737
MEK1, inactive			KA			50 µg	14-420
MEK1, inactive, rabbit			IPK KA			50 µg	14-205
MEK2, active			KA			10 µg	14-528
MEK2 (K101M), inactive			KA			50 µg	14-709
MEK2, inactive			KA			25 µg	14-541
MEK2, inactive			KA			50 µg	14-532
Merlin							
Monoclonal Antibody							
Merlin (NF2)		H	IP IC IH	Pur	M Ig	100 µg	MAB5454
Polyclonal Antibody							
Anti-Merlin/Neurofibromatosis-2		H M R	WB IP	Pur	Rb IgG	200 µg	07-558
NF2 (Merlin) PSER518		H M	WB	APur	Rb	100 µg	AB5607
Microtubule-Associated Protein							
Monoclonal Antibody							
Anti-MAP2	5F9	H M R Rb	WB IH	Pur	M IgG ₁	200 µg	05-346
MAP 1	HM-1	H M R	WB IC IH	Asc	M IgG ₁	100 µL	MAB362
MAP 1B	3G5	H R B Ch	WB IP IF IH IH(P)	Asc	M IgG ₁	100 µL	MAB376
MAP 2		H M R B Ch	IH	Alexa 488	M IgG ₁	100 µg	MAB3418X
MAP 2A, 2B, 2C	HM-2	H M R	WB IH	Asc	M IgG ₁	100 µL	MAB364
		B Ch Qu					
MAP1B [MAP5]	AA6	M R Hi B	WB IH	Asc	M IgG ₁	100 µL	MAB366
		Ch Fe					
MAP-2	AP20	H M R B	WB IH Web*	Pur	M IgG ₁	200 µg	MAB3418
		Ch Xn Qu					
MAP2 Kinase	MK12	H M R B	WB IP IC IH	Pur	M IgG ₁	100 µg	MAB3054
		Ca Ch Xn					
MAP2A, 2B [Microtubule Associated Protein 2]		H M R B Av Xn Am Qu	WB IH	Asc	M IgG ₁	100 µL	MAB378
Polyclonal Antibody							
MAP2		H M R	WB ELISA IC IH	Pur	Rb	100 µL	AB5622

Molecular Motors

Proteins that use energy from nucleotide hydrolysis to move along cytoskeletal components such as actin filaments or microtubules are called molecular motors. These proteins harness the energy released by ATP hydrolysis to mediate the sliding of filaments relative to one another and to transport organelles along cytoskeletal tracks. Myosins, kinesins, and dyneins are well known examples of molecular motor proteins that move unidirectionally along intracellular tracks that are organized in a directional manner. The difference between the various motor proteins is in the type of filament or cytoskeletal component they bind to, the direction in which they move along this track, and their function.

Motor proteins of the myosin superfamily move toward the plus end of actin filaments, except for myosin VI, which moves toward the minus end. Myosins are traditionally known for their role in muscle contraction, but have also been implicated in processes of gene transcription, cytokinesis, cell migration, organelle transport, and hearing.

Motor proteins that move on microtubules are members of either the kinesin superfamily or the dynein family. Kinesins carry organelles to their appropriate cellular location by walking toward the plus end of microtubules. Critical for cell division, kinesins also are involved in the transport of synaptic vesicles in neurons. Dyneins, on the other hand, are a family of motor proteins that mediate transport toward the minus end of microtubules. Cytoplasmic dyneins are important for vesicle trafficking, as well as for the localization of the Golgi apparatus. Axonemal dyneins are specialized for generating microtubule movements that drive the beating of cilia and flagella. Dyneins are the largest of the known molecular motors and among the fastest. Molecular motors are necessary for a variety of essential cellular functions and have been the subject of extensive investigation. Many of Millipore's antibodies and proteins are uniquely suited to the study of molecular motors, whether for disease research or for drug discovery.

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
MLCK							
Polyclonal Antibody							
anti-phospho-Myosin Light Chain Kinase (Ser1760)		Rb B	WB	APur	Rb IgG	100 µL	07-860
Protein							
MLCK, active							14-638
Moesin							
Polyclonal Antibody							
Anti-Moesin		H M R	WB	Pur	Rb IgG	200 µg	07-121
Myosin							
Monoclonal Antibody							
Anti-Myosin Heavy Chain, cardiac	2F4	H	WB IH	Ascites	M IgG	100 µL	05-833
Anti-Myosin Heavy Chain	A4.1025	H M R Rb Dr Zf	WB IH	Ascites	M IgG	200 µL	05-716
Myosin, heavy chain β	5B9 (aka 2C8)	H	WB IH	Sup	M IgG _{2α}	1 mL	MAB1548
Myosin, skeletal muscle heavy chain	15F4	Rb	WB IH	Sup	M IgG ₁	1 mL	MAB1549
Myosin, slow muscle	NOQ7.5.4D	H R Fe	WB RIA IH	Pur	M IgG	100 µg	MAB1628
Myosin, smooth muscle heavy chain, SM1 & SM2 (aka SMMS-1)	ID8	H Rb B Po	WB IP IC	Pur	M IgG ₁	100 µg	MAB3568
Myosin, smooth muscle heavy chain, SM1 & SM2 (aka SM-M5)	N1/5	H Rb B Po	WB IP IC IH(P)	Pur	M IgG ₁	100 µg	MAB3570
Myosin, smooth muscle heavy chain, SM1 & SM2 (aka SM-M10)	V/10	H Rb B Po	WB IP IC IH(P)	Pur	M IgG ₁	100 µg	MAB3572
Myosin, ventricular heavy chain α/β	F26.2D11	H	WB IH	Sup	M IgG _{2α}	1 mL	MAB1552
Polyclonal Antibody							
Myosin Light Chain, phospho-specific (Ser19)		H M	WB ELISA	APur		100 µg	AB3381

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Myosin V		M Ch Sqd	WB	APur	Rb	100 µg	AB5887P
Myosin V		M Ch Sqd	WB	Serum	Rb	100 µL	AB5887

Myosin Phosphatase

Polyclonal Antibody

MYPT1		H Ch WR	WB IP	Pur	Rb IgG	200 µg	07-672
MYPT3		H M Rb	WB	APur	Rb IgG	200 µL	07-470
phospho-MYPT1 (Thr696)		H R	WB	Pur	Rb IgG	200 µg	07-251
phospho-MYPT1 (Thr850)		H M R Ch	WB	Pur	Rb IgG	200 µg	36-003

Peptides

MYPT1, (714-1004)			KA			50 µg	12-421
MYPT1 (654-880)			KA			100 µg	12-457

siRNA

siRNA plasmid, pKD-MYPT1-v3			RNAi			5 µg	62-176
siRNA plasmid, pKD-MYPT1-v4		H R	RNAi			5 µg	62-148

mTOR

Monoclonal Antibody

Anti-mTOR, rabbit mAb		H M R	FC IP WB IC IH(P)		Rb	100 µL	04-385
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Polyclonal Antibody

Anti-mTOR (mTab1)		H M R	IPK KA WB	APur	Rb IgG	200 µL	07-231
Anti-mTOR, a.a. 1223-1290		H R	IP WB	Pur	Rb	100 µg	AB3882
Anti-phospho-mTOR (Ser2448)		M	WB	APur	Rb	100 µg	09-213

siRNA

siRNA plasmid, pKD-mTOR-v4, see also GβL, Raptor, Rheb, Sin1 and TSC		H	RNAi			5 mg	62-302
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Nck

Polyclonal Antibody

Nck		H M R	WB IP	Pur	Rb IgG	100 µg	06-288
Nck		H M R	WB IP IF	Pur	Rb	100 µg	AB3167
Nckα		H M Hi B	WB	Pur	Rb IgG	200 µg	07-099
Nckβ		H M	WB IP	Pur	Rb IgG	200 µg	07-100

p130 Cas

Monoclonal Antibody

p130 Cas	8G4-E8	H M R	WB IP	Pur	M IgG _{2α}	200 µg	05-469
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Polyclonal Antibody

p130 Cas		H M R	WB IP IC	Pur	Rb IgG	250 µg	06-500
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PAK (p21-Activated Kinase)

Monoclonal Antibody

Anti-PAK1, Rab Mab		H M R	IF IP WB IH(P)			100 µL	04-394
Anti-PAK3, Rab Mab		H M R	IF IP WB IH(P)		Rb IgG	100 µL	04-395

Polyclonal Antibody

Anti-PAK3, NT		M R	IP WB	Pur	Rb IgG	200 µg	06-902
Anti-PAK1 (Ser144)/PAK2 (Ser141), phospho-specific		H	WB	APur	Rb	100 µL	AB3833
Anti-PAK1 (Ser199/204)/PAK2 (Ser192/197), phospho-specific		H	WB	APur	Rb	100 µL	AB3834
Anti-PAK2, phospho-specific (Ser20)		H	WB IH(P)	APur	Rb	100 µL	AB3836
Anti-PAK1		H M Mk R	IP WB IH(P)	APur	Rb	100 µL	AB3844
Anti-PAK1/2/3		H M Mk R	WB	APur	Rb	100 µL	AB3845
PAK-PBD GST Protein, Rac/Cdc42 binding domain				Pur			SGT224

Protein

PAK2, active			KA			10 µg	14-481
PAK3, active			KA			10 µg	14-683
PAK4, active			KA			10 µg	14-584
PAK5, active			KA			10 µg	14-699
PAK6, active			KA			10 µg	14-633

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Assay							
PAK2 KinEASE FP Fluorescein Green Assay			KA			1 kit	32-018
PAK2 KinEASE FP-645nm FarRed Assay			KA			1 kit	32-098

Pals1

Polyclonal Antibody

Anti-Pals1		R Ca	WB IP IC	APur	Rb IgG	100 µL	07-708
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PAR

Monoclonal Antibody

Anti-PAR-1B/MARK2	5C12D2	H	WB	Ascites	M	100 mL	05-943
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Polyclonal Antibody

Anti-PAR-3		H M Mo Ca	WB ICC	Pur	Rb IgG	200 mg	07-330
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Protein

PAR-1B α , active			KA			10 mg	14-544
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siRNA

siRNA plasmid, pKD-Par-1B-v3		H	RNAi			5 mg	62-233
siRNA plasmid, pKD-Par-1B-v4		H	RNAi			5 mg	62-334

Paxillin

Monoclonal Antibody

Anti-Paxillin	5H11	H M R B Av	WB IP IC	Pur	M IgG ₁	250 µg	05-417
Paxillin	349	H M R	WB ELISA	Pur	M IgG ₁	100 µg	MAB3060
anti-phospho-Paxillin (Tyr118)	30	H M	WB	Pur	M IgG ₁	100 µg	MAB1145
Paxillin, phospho-specific [Tyr31]	M102	H	WB ELISA		M IgG ₁	100 µL	MAB1146

Polyclonal Antibody

Paxillin		H M R Rb Ca Ch	WB IP IC IH	Pur	Rb	50 µL	AB3794
Paxillin (Tyr118)		M	WB	APur	Rb IgG	100 µL	07-733
Paxillin (Ser126)				APur			AB3793
Paxillin, phospho-specific [Ser178]		H	WB ELISA		Rb IgG	100 µL	AB1962
Phospho-Paxillin		H M R	WB IH(P)	APur	Rb	100 µL	AB3837

PDK

Polyclonal Antibody

Anti-PDK1		H R	IPK WB	APur	Rb IgG	100 µL	07-707
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Assay

PDK1 Immunoprecipitation Kinase Assay Kit			IPK			1 kit	17-279
PDK1 Kinase Assay Kit			KA			1 kit	17-280
PDK1 Assay Dilution Buffer, 10X (PDK1-ADB)			KA			1 mL	20-151

Protein

PDK1, active			KA			10 µg	14-452
PDK1, active			KA			250 ng	14-280
PDKtide			KA			1 mg	12-401

PED/PEA-15

Polyclonal Antibody

anti-phospho-PED/PEA-15 (Ser116)		H M	WB	APur	Rb IgG	100 µL	07-865
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PI3 Kinase

Monoclonal Antibody

Anti-PI3 Kinase, p85, N-SH3	AB6	H M	IP WB IC	Pur	M IgG _{1k}	100 µg	05-212
Anti-PI3 Kinase, p85, N-SH2	UB93-3	H M R	IP WB	Sup	M IgG	200 µL	05-217
Anti-PI3 Kinase, p85 α , Rb Mab		H M R	FC IP WB IC IH(P)		Rb IgG	100 µL	04-403
Anti-PI 3-Kinase p85 α	8-2D-4D	H M R	FC IF IP	Pur	M IgG ₁	100 µg	MAB1143
Anti-PI3 Kinase, p110 α , Rb Mab		H	IF IP VVB		Rb IgG	100 µL	04-399
Anti-PI3 Kinase, p110 β , Rb Mab		H	FC IP WB		Rb IgG	100 µL	04-400
Anti-PI3 Kinase, p110 δ , Rb Mab	AW103	H	WB	Pur	M IgG _{1k}	200 µg	05-703
Anti-PI3 Kinase, p110 δ , Rb Mab		H	IF IP VVB		Rb IgG	100 µL	04-401
Anti-PI3 Kinase, p110 γ , Rb Mab		H	FC IP WB		Rb IgG	100 µL	04-402

Phosphorylation and Phosphotyrosine, clone 4G10[®]

Phosphorylation

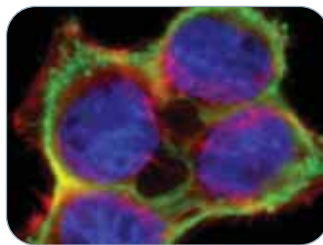
Many aspects of cell activity are controlled by reversible phosphorylation of target proteins that are mediated by protein kinases and their subsequent dephosphorylation by phosphatases. In many cases, mutations or misregulation of members of these two families of enzymes, kinase and phosphatases, are indicated in various disease states. Protein kinases play crucial roles in the regulation of many cellular events such as signal transduction, cell cycle progression, targeted proteolysis, protein trafficking, cytoskeletal organization, and gene expression. A protein's activity may be enabled or inhibited by the phosphorylation of specific serine, threonine, or tyrosine amino acids by protein kinases resulting in altered conformations.

Anti-Phosphotyrosine, clone 4G10

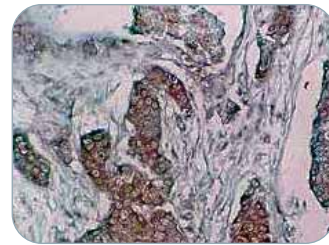
The Gold Standard in Anti-Phosphotyrosine Antibodies

The development of the anti-Phosphotyrosine clone 4G10 in 1989 was a monumental discovery for researchers as it facilitated the study of tyrosine kinase activity by removing the need for radioactivity and converting the method to a simple blotting procedure. Millipore's clone 4G10 was the first and is still the most highly cited and validated phosphotyrosine antibody to consistently produce high quality, reproducible data. Over the past 17 years, clone 4G10 has been validated by thousands of scientific and medical researchers in virtually every application and tyrosine target including western blot (Wb), flow cytometry (FC), fluorescence polarization (FP), ELISA, Homogeneous Time Resolved Fluorescence (HTRF[®]), immunocytochemistry (ICC), immunohistochemistry (IHC) and immunoprecipitation (IP). Clone 4G10 is now a critical tool for researchers in areas as diverse as serine/threonine phospho-proteins (including p38, Akt, and ERK 1/2), G-proteins, and neurological targets. For your full range of research needs, clone 4G10 is available as a number of conjugates including agarose, biotin, FITC, and HRP as well as the newly released

Catch and Release[®] Phosphotyrosine, clone 4G10 for easier, cleaner immunoprecipitation of your tyrosine phosphorylated material. In addition to its unparalleled characterization and applicability, Clone 4G10 is well known as one of the most sensitive phosphotyrosine antibodies, detecting at least twice as many phosphoproteins in a side-by-side comparison with PY20 and PT-66 by independent investigators. This sensitivity is also observed in other applications, including FP, where clone 4G10 and recombinant clone 4G10 from Millipore were shown to be more sensitive than other anti-phosphotyrosine antibodies tested.



EGF treated A431 cells that are triple stained with anti-Phosphotyrosine, clone 4G10 (green), anti-actin Alexa Fluor[®] 555, (red), and Dapi nuclei, (blue).



Clone 4G10 IHC Stain: Paraffin embedded poorly-differentiated adenocarcinoma, stained with anti-phosphotyrosine, clone 4G10 (Cat. No. 05-321) at 10 µg/mL.

Antibodies

Description	Quantity	Cat. No.
Phosphotyrosine, clone 4G10	100 µg	05-321
Phosphotyrosine, clone 4G10	1 mg	05-321MG
Phosphotyrosine, clone 4G10	50 µg	05-321X
Phosphotyrosine, recombinant clone 4G10	1 mg	05-777

Conjugates

Description	Quantity	Cat. No.
Phosphotyrosine, clone 4G10, agarose conjugate	1 mg	16-101
Phosphotyrosine, clone 4G10, HRP conjugate	10 blots	16-105
Phosphotyrosine, clone 4G10, FITC conjugate	100 µg	16-104
Phosphotyrosine, clone 4G10, biotin conjugate	100 µg	16-103
Phosphotyrosine, recombinant clone 4G10, HRP conjugate	10 blots	16-184
Phosphotyrosine, recombinant clone 4G10, agarose conjugate	1 mg	16-199
Phosphotyrosine, recombinant clone 4G10, FITC conjugate	100 µg	16-205
Catch and Release Phosphotyrosine, clone 4G10	50 assays	17-502

For a complete listing of products, please visit our website at www.millipore.com.

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Polyclonal Antibody							
Anti-PI3 Kinase, p85		H M Mk R	IP WB	Antiserum	Rb IgG	125 µL	06-195
Anti-PI3 Kinase, p85, N-SH2 domain		H M Mk R	IP WB	Pur	Rb IgG	250 µg	06-496
Anti-PI3 Kinase, p85		H M Mk R	IP WB	Pur	Rb IgG	250 µg	06-497
Anti-PI3 Kinase, p110β		B H M R	IP	Pur	Rb IgG	200 µg	06-568
Anti-PI3 Kinase, p101		H R	WB	Pur	Rb IgG ₁	200 µg	07-281
Anti-PI3 Kinase, p110α		H VWR	IP	Pur	Rb IgG	200 µg	07-658
Anti-PI4-Kinase β		H M R	IP WB IC	Pur	Rb IgG	200 µg	06-578

siRNA

PI3 Kinase p85a siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-048
siRNA plasmid, pKD-PI3 Kinase, p85-v3			RNAi			5 µg	62-222
PI3 Kinase p85a SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003020

Protein

PI3 Kinase (p110α/p85a), active			KA			20 µg	14-602
PI3 Kinase (p110β/p85a), active			KA			20 µg	14-603
PI3 Kinase (p110δ;/p85a), active			KA			10 µg	14-604
PI3 Kinase (p120γ)			KA			20 µg	14-558
Wortmannin, (PI3 Kinase inhibitor)			KA			1 mg	12-338

Assay

PI 3-Kinase HTRF® Assay			KA			1 plate	33-016
PI 3-Kinase HTRF Assay			KA			5 plates	33-017

PIKE

Polyclonal Antibody

PIKE-L/S		H R	WB IP	APur	Rb IgG	200 µg	07-675
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PKA

Monoclonal Antibody

anti-phospho-PKA, RII (Ser 96), Rab Mab		H M R	WB IP IF IH(P)		Rb IgG	100 µL	04-404
Anti-cAMP-Dependent Protein Kinase II, Regulatory Subunit α/β	RS30	H B Po	WB ELISA IF	Pur	Rb IgG	100 µg	MAB1697

Polyclonal Antibody

Anti-PKA, RII Subunits		H R	IP WB IC	Pur	Gt IgG	500 µg	06-411
Anti-phospho-PKA, RII (Ser96)		M R	WB	Pur	Rb IgG	100 µg	06-704
Anti-PKA, NT		B H Ht M Po R	WB	Pur	Rb IgG	200 µg	06-903
Anti-phospho-PKA catalytic subunits α/β (Thr197)		M	WB	APur	Rb IgG	100 µL	07-867
anti-phospho-PKA Catalytic β subunit (Ser338)		M	WB	APur	Rb IgG	100 µL	07-868
Anti-phospho-PKA, Regulatory subunit IIβ (Ser114)		M	WB	APur	Rb IgG	100 µL	07-869

Assay

PKA Assay Kit			KA			1 kit	17-134
PKA KinEASE FP Fluorescein Green Assay			KA			1 kit	32-020
PKA KinEASE FP-645nm FarRed Assay			KA			1 kit	32-100

Reagents

PKA Inhibitor Cocktail			KA			1 mL	20-114
PKA Inhibitor Peptide			KA			1 mL	20-120
PKA/PKC Inhibitor Cocktail			KA			1 mL	20-129
PKA/CaMK Inhibitor Cocktail			KA			1 mL	20-132

siRNA

PKA siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-115
siRNA plasmid, pKD-PKAa-v2		H	RNAi			5 µg	62-069
siRNA plasmid, pKD-PKAa-v3		H	RNAi			5 µg	62-070
Anti-cAMP-Dependent Protein Kinase, Regulatory Subunit IIβ, internal		H M Mk	WB IH	APur	Rb	100 µg	AB1612
Anti-cAMP-Dependent Protein Kinase, Regulatory Subunit IIα		H M Mk	ELISA FC IP WB IH	APur	Rb	100 µg	AB1613
Anti-cAMP-Dependent Protein Kinase, Regulatory Subunit IIβ, internal		H M Mk Ech	WB IH	APur	Rb	100 µg	AB1614

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
PKA SMARTpool siRNA Reagent			RNAi			5 nmol	M-004649
Anti-cAMP-Dependent Protein Kinase II, Regulatory Subunit α/β	RS30	B H Po	ELISA IF WB	Pur	M IgG _{2a}	100 μ g	MAB1697

Protein

PKA, catalytic subunit			KA			10 μ g	14-114
PKA, catalytic subunit, recombinant			KA			10 μ g	14-440
PKA Substrate Peptide			KA			2 mg	12-152
PKA Substrate Peptide, biotin conj.			KA			500 μ g	12-394
PKA Inhibitor peptide			KA			2 mg	12-151

PKC

PKC α

Monoclonal Antibody

Anti-PKC α	M4	B H M R Rb	IP WB NEUT	Pur	M IgG ₁	100 μ g	05-154
Anti-Protein Kinase C- α	1F3.2	H	ELISA WB	Asc	M IgM	100 μ L	MAB3074

Polyclonal Antibody

Anti-phospho-PKC α (Ser657)		B H M R Rb	WB	Pur	Rb IgG	200 μ g	06-822
Anti-PKC α , β , γ		B H M R Rb	WB	Pur	Rb IgG	200 μ g	06-870
anti-phospho-PKC α (Thr638)		H M	WB	APur	Rb IgG	100 μ L	07-871

siRNA

PKC α siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-110
siRNA plasmid, pKD-PKC α -v4		H	RNAi			5 μ g	62-104
siRNA plasmid, pKD-PKC α -v6		H M	RNAi			5 μ g	62-105
PKC α SMARTpool siRNA Reagent			RNAi			5 nmol	M-003523

Protein

PKC α , active			KA			10 μ g	14-484
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PKC β

Polyclonal Antibody

Anti-PKC α , β , γ		B H M R Rb	WB	Pur	Rb IgG	200 μ g	06-870
anti-phospho-PKC β I (Thr642)		H	WB	APur	Rb IgG	100 μ L	07-872
anti-phospho-PKC β II (Thr641)		H	WB	APur	Rb IgG	100 μ L	07-873
anti-phospho-PKC β I & II (Thr500)		H	WB	APur	Rb IgG	100 μ L	07-870

Protein

PKC β I, active			KA			10 μ g	14-503
PKC β II, active			KA			10 μ g	14-496

PKC δ

Polyclonal Antibody

Anti-PKC δ		H M R	WB	Pur	Rb IgG	200 μ g	06-990
anti-phospho-PKC δ (Ser645)		H	WB	APur	Rb IgG	100 μ L	07-874
anti-phospho-PKC δ (Ser644)		H	WB	APur	Rb IgG	100 μ L	07-875
Anti-PKC δ		H M	IP WB IH	Pur	Sh	100 μ g	AB1685

siRNA

siRNA plasmid, pKD-PKC δ -v3		H	RNAi			5 μ g	62-071
siRNA plasmid, pKD-PKC δ -v6		H M R	RNAi			5 μ g	62-072

Protein

PKC δ , active			KA			10 μ g	14-504
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PKC γ

Polyclonal Antibody

Anti-PKC α , β , γ		B H M R Rb	WB	Pur	Rb IgG	200 μ g	06-870
anti-phospho-PKC γ (Thr514)		H	WB	APur	Rb IgG	100 μ L	07-878
anti-phospho-PKC γ (Thr655)		H	WB	APur	Rb IgG	100 μ L	07-879
anti-phospho-PKC γ (Thr674)		H	WB	APur	Rb IgG	100 μ L	07-880

Protein

PKC γ , active			KA			10 μ g	14-483
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Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
PKCε							
Polyclonal Antibody							
Anti-phospho-PKCε (Ser729)		H M R Rb	WB	Pur	Rb IgG	200 µg	06-821
Anti-PKCε		H M R	IP WB IH	Pur	Rb IgG	200 µg	06-991
siRNA							
PKCε siRNA/siAbTM Assay Kit		H	WB RNAi			1 kit	60-111
siRNA plasmid, pKD-PKCεv1		H	RNAi			5 µg	62-121
siRNA plasmid, pKD-PKCεv5		H	RNAi			5 µg	62-122
PKCε SMARTpool siRNA Reagent			RNAi			5 nmol	M-004653
Protein							
PKCε, active			KA			10 µg	14-518
PKCη							
Polyclonal Antibody							
PKC η, active			KA			10 µg	14-497
PKCι							
Polyclonal Antibody							
anti-phospho-PKCι (Thr555)/PKCλ (Thr563)		H M	WB	APur	Rb IgG	100 µL	07-881
Protein							
PKCι, active			KA			10 µg	14-505
PKCμ							
Polyclonal Antibody							
Anti-phospho-PKCμ/PKD (Ser742)		H M	WB	APur	Rb IgG	100 µL	07-882
Protein							
PKCμ, active			KA			10 µg	14-508
PKCτ							
Polyclonal Antibody							
anti-phospho-PKCτ (Ser676)		H	WB	APur	Rb IgG	100 µL	07-883
anti-phospho-PKCτ (Ser695)		H	WB	APur	Rb IgG	100 µL	07-884
anti-phospho-PKCτ (Thr538)		H	WB	APur	Rb IgG	100 µL	07-885
Protein							
PKC τ, active			KA			10 µg	14-444
PKCξ							
Polyclonal Antibody							
Anti-PKC ξ		H M R	WB	Antiserum	Rb IgG	200 µL	07-264
siRNA							
PKCξ siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-112
siRNA plasmid, pKD-PKCξv1		H	RNAi			5 µg	62-073
siRNA plasmid, pKD-PKCξv3		H	RNAi			5 µg	62-074
PKC ξ SMARTpool siRNA Reagent			RNAi			5 nmol	M-003526
Protein							
PKC ξ, active			KA			10 µg	14-525
Plakophilin							
Monoclonal Antibody							
Plakophilin-3, MS X	92623E3/4	H M Ca	WB IP IC IH(P)	Pur	M IgG _{2b}	100 µg	MAB2007
PP2A							
Monoclonal Antibody							
Anti-PP2A, C subunit	1D6	B H M R Rb Xn Y	IP WB IC	Pur	M IgG _{2bk}	200 µg	05-421
Anti-PP2A, C subunit	7A6	H M Y	IP WB	Sup	M IgG	200 µL	05-545
Anti-methyl-PP2A, C subunit	2A10	Ch Dr H M Po R Rb Y	WB	Sup	M IgG	2 mL	05-546
Anti-phospho-PP2A, C subunit (Tyr307)	4B10	WR	ELISA	Ascites	M IgG ₁	100 µL	05-547
Anti-PP2A, C subunit, demethylated	4b7	WR	IP WB IC	Ascites	M IgG	200 µL	05-577
Anti-PP2A, B subunit	2G9	B H M Po R Rb Xn	IP WB IH	Ascites	M IgG	200 µL	05-592

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Anti-PP2A, A subunit	4G7	H M R Xn	WB	Pur	M IgG ₁	200 µg	05-657
Anti-PTPA	5G3	H M	WB		M	100 µL	05-941
Anti-PP2A-methyltransferase/PPMT1	4A4	M R	WB	Pur	M IgG ₁	100 µg	05-849
Polyclonal Antibody							
Anti-PP2A, C subunit		H M R Rb	IP WB	Pur	Rb IgG	200 µg	06-222
Anti-PP2A, A subunit		H M Po R Xn	IP WB	APur	Rb IgG	100 µg	07-250
Anti-PP2A, C subunit		B H M R	WB	APur	Rb IgG	100 µL	07-324
Anti-PP2A, B' subunit		H M Rb	WB	Pur	Rb IgG	200 µg	07-334
Anti-Protein Phosphatase 2 A/C		B Ch H M R	WB	APur	Rb	100 µL	AB1621
Anti-Protein Phosphatase 2 A/B β		B H M R	WB	APur	Rb IgG	100 µg	AB4086
Anti-Protein Phosphatase 2 A/B δ		B H M R	IF WB	Pur	Rb IgG	100 µg	AB4087
Anti-Protein Phosphatase 2 A/B (B' pan 2)		B H M R	WB	Pur	Rb IgG	100 µg	AB4088
Anti-Protein Phosphatase 2 A/B γ2		B H M R	WB	Pur	Rb	100 µg	AB4089
Anti-Protein Phosphatase 2 C α/β		B H M R	WB	Pur	Rb	100 µg	AB4090
Anti-PP2A-methyltransferase/PME-1		H M R	IP WB	Pur	Rb IgG	200 µg	07-095
Assay							
PP2A Immunoprecipitation Phosphatase Assay Kit			PA			25 assays	17-313
siRNA							
PP2A Ca subunit siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-065
PP2A Ca subunit SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003598
Protein							
PP2A, purified			PA			10 units	14-111
PP2A1, purified			PA			10 µg	14-165
PME-1, active			PA			25 µg	14-414
PRAS (Proline-Rich AKT Substrate)							
Monoclonal Antibody							
anti-PRAS40		H	IP WB	APur	M IgG _{1κ}	200 µL	05-988
Polyclonal Antibody							
anti-phospho-PRAS40 (Thr246)		H M	WB	APur	Rb IgG	100 µL	07-888
Prenylation							
see FNTA, FNTB, ICMT, and Rce-1							
Profilin							
Polyclonal Antibody							
Profilin 1/2		H	WB	APur	Rb	100 µg	AB3891
Profilin 2		H M R	WB	APur	Ch	100 µg	AB4221
Anti-Profilin 1/2		H	WB	APur	Rb	100 µg	AB3891
Anti-Profilin 2, isoform α		H M R	WB	APur	Ch	100 µg	AB4221
Pseudopodia							
Assay							
Quantitative Pseudopodia Assay						12 assays	ECM650
Pseudopodia Purification Kit						6 assays	ECM660
PTEN							
Monoclonal Antibody							
Anti-PTEN	6H2.1	H M R	WB IP IHC IC		M IgG	100 µg	04-035
Anti-PTEN, Rab Mab		H M R	WB IH(P) IF FC IP		Rb IgG	100 µL	04-409
Polyclonal Antibody							
Anti-phospho-PTEN (Ser370)		M	WB	APur	Rb IgG	100 µL	07-889
Anti-phospho-PTEN (Ser385)		H	WB	APur	Rb IgG	100 µL	07-890
Anti-phospho-PTEN (Ser380/Thr382/ Thr383/Ser385)		H M	WB	APur	Rb IgG	100 µL	07-891
Assay							
PTEN Malachite Green Assay Kit			PA			1 kit	17-351
PTEN Enzyme Assay Buffer, 5X			PA			1 mL	20-165
siRNA							
PTEN SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003023

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Anti-PTEN, C-terminus	A2b1	H M R	IP WB IC IH not IH(P)	Pur	M IgG ₁	100 µg	MAB4037
Protein							
PTEN, active			PA			10 µg	14-488
PTP							
Monoclonal Antibody							
Anti-PTP-PEST	AG25	H M	WB IP IC	Asc	M IgG ₁	100 µL	MAB3739
Protein							
PTPMEG-2			KA			10 µg	14-592
LMPTP-B			PA			10 µg	14-620
LMPTP-A			PA			10 µg	14-619
PTPMEG-1			PA			10 µg	14-642
HePTP			KA			10 µg	14-593
TCPTP			PA			10 µg	14-646
Assay							
PTP Assay Kit 1			PA			1 kit	17-125
PTP Assay Kit 2			PA			1 kit	17-126
PTP-1B							
Polyclonal Antibody							
Anti-PTP-1B		H M	WB	Pur	Rb IgG	50 µg	07-088
Anti-PTPα		H M R	WB	APur	Rb IgG	100 µL	07-472
Protein							
PTP-1B			PA			10 µg	14-621
PTP-1B, active, agarose conj.			PA			50 µg	14-109
PTP-1B			PA			500 units	14-358
PTPb			PA			10,000 units	14-350
siRNA							
PTP-1B siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-086
PTP-1B SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003529
PTP-1D							
see SHP-2							
Pyk (CAKb/FAK2)							
Monoclonal Antibody							
anti-phospho-Pyk2 (Tyr402)	RR102	H R	IP	Pur	M IgG _{1κ}	200 µg	05-679
anti-phospho-Pyk2 (Tyr402)	RR102	H R	IP	Pur	M IgG _{1K}	1 mg	05-679MG
Pyk2/CAKb	74	H R	WB IP	Pur	M IgG ₁	250 µL	05-488
Polyclonal Antibody							
Pyk2		H M	WB IP IC	Pur	Rb IgG	250 µg	06-559
Pyk2 (RAFTK/CAK-b)		H R B	WB IP IK IC	Antiserum	Rb IgG	200 µL	07-437
anti-phospho-Pyk2 (Tyr402)		H R	WB IC	APur	Rb IgG	100 µL	07-892
anti-phospho-Pyk2 (Tyr579)		H	WB IC IH	APur	Rb IgG	100 µL	07-893
anti-phospho-Pyk2 (Tyr580)		H	WB IC IH	APur	Rb IgG	100 µL	07-894
anti-phospho-Pyk2 (Tyr881)		H	WB IC IH	APur	Rb IgG	100 µL	07-895
Pyk2 (CAKb) SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003165
Protein							
Pyk2, active			KA			10 µg	14-567
siRNA							
Pyk2 (RAFTK/CAK-b) siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-102
Rab							
Monoclonal Antibody							
Rab11	47	H M R Mk Ca Ch	WB IF	APur	M IgG _{2α}	100 µg	05-853
Polyclonal Antibody							
Rab4		H M R Hi Gp Sh Rb Po Mk Ca Ch	WB IP IC	Serum	Rb IgG	100 µL	07-655

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Rac							
Monoclonal Antibody							
Anti-Rac1	23A8	H M R	IP WB IH	Pur	M IgG _{2b}	250 µg	05-389
Polyclonal Antibody							
Anti-Rac2		H M	IP WB APA	Serum	Rb IgG	50 µL	07-604
Anti-phospho-Rac1/cdc42 (Ser71)		H	WB	APur	Rb IgG	100 µL	07-896
Anti-Rac1/Cdc42, phospho-specific (Ser71)		H	WB	APur	Rb	100 µL	AB3838
Anti-Rac1		H M R	WB	Pur	Rb	100 µg	AB4202
Recombinant Protein							
Rac/cdc42 Assay Reagent (PAK1 PBD, agarose)			ABA			300 µg	14-325
Assay							
Rac1 Activation Assay Kit			ABA			1 kit	17-283
Rac2 Activation Assay Kit			ABA			30 assays	17-369
Rac1 Activation Assay (96 well)			ABA			96 assays	17-450
Rac1/Cdc42 Activation Assay (96 well)			ABA			96 assays	17-452
cDNA							
Rac1 cDNA (activated) in pUSEamp			TFX			5 µg	21-193
Rac1 cDNA (dominant negative) in pUSEamp			TFX			5 µg	21-199
Rac1 cDNA Allelic Pack			TFX			1 kit	17-309
Rac1 cDNA (wt) in pUSEamp			TFX			5 µg	21-200
siRNA							
Rac1 siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-037
Rac1 SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003560
Anti-Rac1	102	H M R	IF WB IH	Pur	M IgG _{2b}	100 µg	MAB3735
		Ca Ch Dr					

Raf

Monoclonal Antibody							
Anti-phospho-Raf-1 (Ser338)		M	WB	Pur	R IgG ₁	100 µg	05-534
Anti-phospho-Raf-1 (Ser338)		M	WB	Pur	M IgG	200 µg	05-538
Anti-phospho-Raf-1 (Ser338)			WB	Pur	M IgG	1 mg	05-538MG
Anti-Raf-1	AM223		IP WB	Pur	Rb IgG	100 µg	05-739
Polyclonal Antibody							
Anti-Raf-1		H	IPK WB	Pur	Rb IgG	200 µg	07-396
Anti-B-Raf		H M R	IPK WB	Pur	Rb IgG	200 µg	07-453
Anti-B-Raf, NT		H M R	KA WB	APur	Rb IgG	200 µL	07-583
anti-phospho-Raf1 (Ser259)		H	WB	APur	Rb IgG	100 µL	07-811
anti-phospho-Raf1 (Ser43)		H	WB	APur	Rb IgG	100 µL	07-812
anti-phospho-Raf-1 (Ser621)		H	WB	APur	Rb IgG	100 µL	07-813
anti-phospho-c-Raf (Ser338/Tyr340)		H	WB	APur	Rb IgG	100 µL	07-814
anti-phospho-Raf-1 (Tyr340/Tyr341)		H	WB	APur	Rb IgG	100 µL	07-815
Assay							
Raf-1 Kinase Cascade Assay Kit			IPK KA			1 kit	17-357
B-Raf Kinase Cascade Assay Kit			IPK KA			1 kit	17-358
B-Raf Kinase Assay Kit, Chemiluminescence Detection			KA WB			1 kit	17-359
Raf-1 Kinase Assay Kit, Chemiluminescence Detection			KA			1 kit	17-360
Protein							
Raf-1-RBD GST Protein, ras binding domain				Pur		300 µg	SGT223
cDNA							
Raf-1 cDNA (wt) in pUSEamp			TFX			5 µg	21-111
siRNA							
Raf-1 siRNA/siAbTM Assay Kit		H	WB RNAi			1 kit	60-109
siRNA plasmid, pKD-Raf-1-v4		H M R	RNAi			5 µg	62-085
siRNA plasmid, pKD-Raf-1-v6		H	RNAi			5 µg	62-086
Raf-1 SMARTpool siRNA Reagent			RNAi			5 nmol	M-003601

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Protein							
B-Raf (V599E), active			KA			10 µg	14-557
B-Raf (δ;1-415), active			KA			10 µg	14-530
Raf-1 (truncated), active			KA			10 µg	14-352

Ral

Antibody							
anti-RalB	25	H M R	WB	Pur	M IgG	100 µL	309

Proteins							
Ral Assay Reagent (Ral BP1, agarose)			ABA			300 µg	14-415

Assays							
RalA Activation Assay Kit			ABA			1 kit	17-300
RalB Activation Assay Kit			ABA			1 kit	17-439
Ral Activation Assay Buffer, 5X			ABA			18 mL	20-196

cDNA							
RalA cDNA (activated) in pUSEamp			TFX			5 µg	21-189
RalA cDNA (dominant negative) in pUSEamp			TFX			5 µg	21-187
RalA cDNA (wt) in pUSEamp			TFX			5 µg	21-190

Ran

Polyclonal Antibody							
Ran		H Xn	WB IP IC	Antiserum	Rb IgG	200 µL	07-517
RanGEF (RCC1)			WB IP IC	Antiserum	Rb IgG	200 µL	07-519

RanBP17

Polyclonal Antibody							
RanBP17		H	WB ELISA	APur	Rb	100 µg	AB3488

Rap

Assays							
Rap1 Activation Assay Kit			ABA			1 kit	17-321
Rap1 Assay Reagent (Ral GDS-RBD, agarose)			ABA			650 µg	14-455

Raptor

Please visit our website for a more complete list of anti-phospho-Raptor products.

Polyclonal Antibody							
anti-Raptor		H	IP WB	APur	Rb IgG	100 µL	09-217

Ras

Monoclonal Antibody							
Anti-Ras	RAS10	H M R	ELISA FC IP WB IC IH	Pur	M IgG _{2ακ}	100 µg	05-516

Anti-Ha-Ras	MC57	H	WB	APur	Rb IgG	100 µL	05-775
Anti-RasGAP	B4F8	B H Ht M R	IP WB IC	Pur	M IgG	200 µg	05-178

Polyclonal Antibody							
Anti-RasGAP		Av H M R	IP WB	Pur	Rb IgG	200 µg	06-157

Protein							
Ras-GST, agarose conj.			ABA			100 µg	14-139
Ras Assay Reagent (Raf-1 RBD, agarose)			ABA			600 µg	14-278
Ras, recombinant human full length				Pur		100 µg	SGT213

cDNA							
HRas cDNA (wt) in pUSEamp			TFX			5 µg	21-102
HRas cDNA (activated) in pUSEamp			TFX			5 µg	21-103
HRas cDNA (dominant negative) in pUSEamp			TFX			5 µg	21-104

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Assay							
Ras GTPase Activation ELISA Kit - 96 well		H M R	ELISA GPA			96 assays	17-424
Ras Activation Assay Kit			ABA			1 kit	17-218
H-Ras cDNA Allelic Pack			TFX			1 kit	17-267
siRNA							
Ras siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-093
siRNA plasmid, pKD-Ras-v1			RNAi			5 µg	62-214
siRNA plasmid, pKD-Ras-v2			RNAi			5 µg	62-215
Ras SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-004142
Anti-H-Ras	7D7.2	H M R	ELISA WB	Pur	M IgG _{2b}	100 µg	MAB3291

Prenylation of Ras

see FNNTA, FNTB, ICMT, and Rce-1

Rce1 (Ras converting enzyme 1)

Polyclonal Antibody

anti-Rce-1		H	WB	Pur	Rb IgG	100mL	09-120
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Rheb

Polyclonal Antibody

anti-Rheb1		H	WB	Pur	Rb IgG	100 µL	09-247
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Rho

Monoclonal Antibody

Rho (A, -B, -C)	3L74	H R	WB	Pur	Rb IgG	100 µL	05-822
Rho (A, -B, -C)	55	H M R	WB IC	Pur	M IgG ₁	200 µg	05-778
RhoE/Rnd3	4	H M	WB IC	Ascites	M IgG	200 µL	05-723
RhoG		H M	WB		M IgG	100 µg	04-486
RhoGAP p190	D2D6	H M R Mk	WB IP	Pur	M IgG	200 µg	05-378

Polyclonal Antibody

Rho		H	WB	Pur	Rb	100 µg	AB3884
RhoGDI		H M B	WB IP	Pur	Rb IgG	200 µg	06-730

Protein

Rho Assay Reagent (Rhotekin RBD, agarose)			ABA			650 µg	14-383
Rhotekin, GST fusion protein						500 µg	14-662
Rho-GST				Pur		20 µg	SGT212

Assay

Rho Activation Assay Kit			ABA			1 kit	17-294
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cDNA

RhoA cDNA (activated) in pUSEamp			TFX			5 µg	21-195
RhoA cDNA (dominant negative) in pUSEamp			TFX			5 µg	21-196
RhoA cDNA (wt) in pUSEamp			TFX			5 µg	21-194

Rin

Monoclonal Antibody

Rin	14G7	H	WB	Pur	M IgG ₁	100 µg	MAB3744
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Rit

Monoclonal Antibody

Rit	27G2	H M	WB	Pur	M IgG _{2b}	100 µg	MAB3743
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ROK/ROCK

Monoclonal Antibody

ROKa/ROCK-II	A9W4	H R	WB IP	Pur	Rb IgG	100 µL	05-841
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Polyclonal Antibody

anti-ROCK (1113) cleavage-specific product		H	WB	APur	Rb IgG	100 µL	07-903
ROCK-1		H M	WB	APur	Rb	100 µg	AB3885
ROKa/ROCK-II		R	WB IP	Pur	Rb IgG	200 µg	07-443

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Protein							
ROK α /ROCK-II, active			KA			10 μ g	14-451
ROK β /ROCK-I, active			KA			10 μ g	14-601
siRNA							
siRNA plasmid, pKD-ROK α /ROCK-II-v4		H M R	RNAi			5 μ g	62-075
siRNA plasmid, pKD-ROK α /ROCK-II-v6		H M R	RNAi			5 μ g	62-076

SHC

Monoclonal Antibody

anti-Shc	11F6	H	WB ELISA	Pur	Ms IgG ₁	100 μ g	04-311
anti-phospho-Shc (Tyr239/Tyr240)	1E3	H	WB ELISA	Pur	Ms IgG ₁	100 μ g	04-312
phospho-SHC (Tyr317)	15E11	H M	WB	Pur	M IgG _{1κ}	100 μ g	05-668

Polyclonal Antibody

phospho-SHC (Tyr239)		H	WB ELISA		Rb IgG	200 μ L	07-209
phospho-SHC (Tyr317)		H M	WB		Rb IgG	200 μ L	07-206
SHC		H M R Po	WB IP IH	Pur	Rb IgG	250 μ g	06-203
SHC		H M R	WB IP	Antiserum	Rb IgG	200 μ L	07-150
SHC [p66; SH2 domain Protein C1]				Pur		100 μ L	AB3824

SHP/SHPTP

Monoclonal Antibody

Anti-SHP-1	HG213	H	IP WB	Pur	Rb IgG	100 μ g	05-738
Anti-SHP-1/2	NL213	H M	IP WB	Pur	Rb IgG	100 μ g	05-742
Anti-SHP-1	1SH01	H	IP WB	Pur	M IgG _{2bk}	50 μ g	MAB1128

Polyclonal Antibody

Anti-SHP-2/SHPTP-2		H M R	IP WB IC	Pur	Rb IgG	400 μ g	06-118
Anti-SHP-1/SHPTP-1		H	IP WB	Pur	Rb IgG	200 μ g	07-419
anti-phospho-SHP-2 (Ser576)		H	WB	APur	Rb IgG	100 μ L	07-904
anti-phospho-SHP-2 (Tyr542)		M	WB	APur	Rb IgG	100 μ L	07-905
anti-phospho-SHP-2 (Tyr580)		M	WB	APur	Rb IgG	100 μ L	07-906

Protein

SHP-2			PA			10 μ g	14-622
SHP-1/SHPTP-1, agarose conj.			PA			50 μ g	14-113
SHP-1			PA	Pur		10 μ g	14-591

Smoothelin

Monoclonal Antibody

Smoothelin	R4A	H Ht Po Mk Ca Ch Fe	WB IC IH(P)	PSup	M IgG ₁	100 μ g	MAB3242
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SOCS

Monoclonal Antibody

Anti-SOCS1	4H1	H M	WB IP	Pur	M IgG ₁	100 μ g	04-002
Anti-SOCS3	1B2	H M	WB IP	Pur	M IgG ₁	100 μ g	04-004

SOS

Polyclonal Antibody

SOS1, CT		H M	WB IP	Pur	Rb IgG	200 μ g	07-337
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Spectrin

Monoclonal Antibody

Fodrin [a II Spectrin], a	AA6	H M R Gp Rb Po Ch	WB IP IH IH(P)	Pur	M IgG ₁	50 μ g	MAB1622
Fodrin [Spectrin]	FOD009	H M R Rb B Po Ca	WB IP ELISA RIA FC IC IH	Pur	M IgG _{2α}	50 μ g	MAB1685
Spectrin, a & b	SB-SP2	H	WB IF IC	Asc	M IgM	100 μ L	MAB372

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Src							
Monoclonal Antibody							
anti-Src	N6L	H	WB	Pur	Rb IgG	100 µL	05-889
anti-Src, CT	NL19	H M R	WB IP	Pur	Rb IgG	100 µL	05-772
anti-Src	GD11	H M R Mi Av	WB IP	Pur	M IgG ₁	200 µg	05-184
anti-Src	EC10	Av	WB IP IC	Pur	M IgG _{2b}	200 µg	05-185
anti-phospho-Src (Tyr416)	9A6	H M R	WB	Pur	M IgG _{1κ}	100 µg	05-677
anti-phospho-Src family (Tyr416)	2N8	M WR	WB	Pur	Rb IgG	100 µL	05-857
Polyclonal Antibody							
anti-phospho-Src (Tyr215)		H	WB ELISA	APur	Rb IgG	100 µL	07-791
anti-phospho-Src (Tyr418)		H M Ch	WB IC IH	APur	Rb IgG	100 µL	07-909
anti-phospho-Src (Tyr529)		H M R	WB IC IH	APur	Rb IgG	100 µL	07-910
C-Src		H	WB IP	Pur	Sh	100 µg	CBL769
Antibody Conjugates							
Src, agarose	GD11		IP IAP			200 µg	16-186
Anti-phospho-Src (Tyr416), Alexa Fluor 488 Conjugate	9A6	H M R	IF FC IH		M IgG _{1κ}	50 µg	16-248
Anti-phospho-Src (Tyr416), Alexa Fluor 555 Conjugate	9A6	H M R	IF FC IH		M IgG _{1κ}	50 µg	16-249
cDNA							
Src cDNA (activated) in pUSEamp			TFX			5 µg	21-115
Src cDNA (dominant negative) in pUSEamp			TFX			5 µg	21-154
Src cDNA (kinase-inactive) in pUSEamp			TFX			5 µg	21-116
Src cDNA (wt) in pUSEamp			TFX			5 µg	21-114
Src cDNA Allelic Pack			TFX			1 kit	17-268
Protein and Peptides							
Src, active			KA			10 µg	14-326
Src (p60c-src)			KA			300 units	14-117
Src Substrate Peptide			KA			1 mg	12-140
Src Substrate Peptide, biotin conjugate			KA			1 mg	12-543
Tyrosine Kinase (Src Family) Substrate Peptide Pack			KA			1 kit	17-111
Src Substrate Peptide			KA			1 mg	12-140
Src Substrate Peptide, biotin conjugate			KA			1 mg	12-543
siRNA							
Src (c-src) SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003175
Src siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-042
Assays and Reagents							
STAR Src ELISA			ELISA		96 well	1 kit	17-467
STAR phospho-Src ELISA (Tyr416)			ELISA		96 well	1 kit	17-468
phospho-Src ELISA (chemiluminescent)			ELISA		96 well	1 kit	17-426
Src Assay Kit			KA			1 kit	17-131
Src Kinase Reaction Buffer			KA			1 mL	20-121
Src Manganese/ATP Cocktail			KA			1 mL	20-110

Talin

Monoclonal Antibody							
Anti-Talin (human)	TA205	H M Rb	WB IP IH	Pur	M IgG ₁	200 µg	05-385
Talin, C-terminus	TD 77	H M Ch	WB IC IH	Pur	M IgG ₁	100 µg	CBL246
Talin, C-terminus, a.a. 2269-2541	TD77	H M Ch	WB IP IC	Pur	M IgG ₁	100 µg	MAB3264
Talin, N-terminus, a.a. 139-433	TA205	H M R Rb	WB IP IH	Pur	M IgG ₁	100 µg	MAB1676

Tensin

Monoclonal Antibody							
Tensin	5	H R Ch	WB IC	Pur	M IgG _{2b}	100 µg	MAB1649

Thymosin

Polyclonal Antibody							
Thymosin		H M Po	ELISA	APur	Ch	100 µg	AB3523

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Titin							
Monoclonal Antibody							
Titin	9B9	H	WB IH	Sup	M IgG ₁	1 mL	MAB1553

Trophinin

Monoclonal Antibody							
Anti-Trophinin	3-11	H M	WB IP IH	Sup	M IgM	100 µL	05-946

Tropomyosin

Polyclonal Antibody							
Tropomyos, 1,2,3,5A,5B,6		M R	WB IC IH	APur	Sh	100 µL	AB5441
Tropomyosin 4		H M R	WB IC IH	Serum	Rb	100 µL	AB5449
Tropomyosin, 5NM1 and 5NM2		M R	WB IC IH	APur	Sh	100 µL	AB5447
Tropomyosin, 9A		H M R	WB IC IH	APur	Sh	100 µL	AB5443
Tropomyosin, BR1, BR3		H M R	WB IC IH	Serum	Rb	100 µL	AB5439
Tropomyosin, Brain		M R	WB IC IH	APur	Sh	100 µL	AB5445
Tropomyosin, Smooth Musc		H M R	WB IC IH	APur	Sh	100 µL	AB5437

Troponin

Monoclonal Antibody							
Troponin I [cTnI]; Cardiac Troponin I], a.a. 87-91	8E10	H M R Rb B Gt Po Ca F Fe	WB ELISA	Pur	M IgG ₁	100 µg	MAB3152
Troponin I [cTnI], a.a. 41-49	284 (19C7)	H M R Rb B Gt Po Ca F Fe	WB ELISA	Pur	M IgG _{2b}	100 µg	MAB3150
Troponin I, a.a. 87-93	C5	H M Rb B Ch F Fg	WB ELISA	Pur	M IgG _{2b}	100 µg	MAB1691
Troponin I, cardiac	B2	H Rb B	WB ELISA IH	Pur	M IgG _{2b}	100 µg	MAB3438
Troponin T	2G3	H	WB ELISA	Pur	M IgG _{2b}	100 µg	MAB1693
Polyclonal Antibody							
Troponin I, cardiac		H	WB ELISA	Pur	Rb	100 µg	AB1627

TSC

TSC1

Monoclonal Antibody							
Anti-Harmartin		H R	IP WB IC	Asc	M IgG ₁	100 µL	MAB5532
Anti-TSC1, Rab Mab		H M R	WB IHC		Rb IgG	100 µL	04-426
Polyclonal Antibody							
Anti-TSC1		H M R	WB	APur	Rb IgG	100 µL	07-454
siRNA							
TSC1 siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-059
TSC1 SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003028

TSC2

Monoclonal Antibody							
Anti-TSC2, Rab Mab		H M R	WB IH(P) FC		Rb IgG	100 µL	04-427
Anti-TSC2	3G1.2	H R	WB	Pur	M IgG _{2b}	100 µg	MAB3792
Polyclonal Antibody							
Anti-TSC2		H M R	WB	Pur	Rb IgG	200 µg	07-456
siRNA							
TSC2 siRNA/siAb Assay Kit		H	WB RNAi			1 kit	60-060
TSC2 SMARTpool siRNA Reagent		H	RNAi			5 nmol	M-003029

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Tubulin							
Monoclonal Antibody							
Tubulin, neuronal	2G10	H M R B	WB IC	Pur	M IgG _{2a}	200 µg	05-559
Anti-α-Tubulin	DM1A	H M R Gp B Po Av	WB IC	Pur	M IgG ₁	200 µg	05-829
Anti-β-Tubulin	AA2	H M R B	WB	Pur	M IgG ₁	200 µg	05-661
β III Tubulin	Tuj1	Ma Av	WB IP IC	Pur	M IgG _{2a}	100 µg	MAB5544
β-Tubulin, III isoform	TU-20 (Similar to TUJ1)	H M R Sh B	WB IP ELISA	Asc	M IgG ₁	100 µL	MAB1637
Tubulin	YL1/2	H	WB IP ELISA RIA IH	Pur	R IgG _{2a}	100 µg	MAB1864
Tubulin, β	KMX-1	A	WB IC	Pur	M IgG _{2b}	50 µg	MAB3408
Tubulin, β	5H1	H R B	IH	Asc	M IgM	100 µL	MAB380
Tubulin	YOL 1/34	H Eu	WB ELISA IH	Pur	R IgG _{2a}	100 µg	CBL270
Tubulin β-3	TU-20 (Similar to TUJ1)	H M R B Po Mk	WB IP ELISA IC IH IH(P)	Pur	M IgG ₁	100 µg	CBL412
Polyclonal Antibody							
β III Tubulin		Ma	WB IC	Pur	Rb	50 µg	AB9324
β III Tubulin		H R Po Mk Av	IC IH IC IH IH(P)	APur	Ch	500 µL	AB9354
Tubulin		Ch	IC IEP	Serum	Rb	500 µL	AB935
Tubulin, d2		Ma Y Pl Ech Su	WB EM IC IH	APur	Rb	50 µg	AB3203
Tubulin, Detyrosinated [Glu Tubulin]		Ma Y Pl Ech Su	WB EM IC IH(P)	APur	Rb	50 µg	AB3201
Conjugated Antibody							
Anti-α-Tubulin, clone DM1A, Alexa Fluor 488 Conjugate	DM1A	H M R Gp B Po Av	WB IF FC IC	Pur	M IgG ₁	100 µg	16-232
Anti-α-Tubulin, clone DM1A, Alexa Fluor 555 Conjugate	DM1A	H M R Gp B Po Av	IF	Alexa-555	M IgG ₁	100 µg	05-829X-555
Anti-β-Tubulin, clone AA2, Alexa Fluor 488 Conjugate	AA2	H M R B	WB IF FC IC	Pur	M IgG ₁	100 µg	16-230
Anti-β-Tubulin, clone AA2, Alexa Fluor 555 Conjugate	AA2	H M R B	WB IF FC IC	Pur	M IgG ₁	100 µg	16-231
VASP							
Monoclonal Antibody							
Anti-phospho-VASP (Ser239)	16C2	H M R	WB FC IC		M IgG _{1κ}	100 µg	05-611
Polyclonal Antibody							
Phospho-VASP (SER157)		H M R Mk	WB IC IH(P)	APur	Rb	100 µL	AB3839
Phospho-VASP (SER239)		H M R Mk	WB	APur	Rb	100 µL	AB3840
VASP		H Mk	WB IH(P)	APur	Rb	100 µL	AB3846
Vav							
Monoclonal Antibody							
p95 vav	VAV-30	H M	WB IP IF	Pur	M IgG ₁	50 µg	MAB88060
Vav		H M	WB	Ascites	M IgG	200 µL	05-219
Polyclonal Antibody							
Vav		H	WB		Rb IgG	200 µL	07-192
Vav-1		H	WB	APur	Rb	100 µg	AB4094
Vav3		H	WB IP IC IH	APur	Rb IgG	200 µg	07-464
Vav3		M	WB IP	APur	Rb IgG	200 µg	07-465
VAV-3		H	WB	APur	Rb	50 µg	AB3889
Villin							
Monoclonal Antibody							
Villin	12	H Ch	WB	Pur	M IgG ₁	150 µg	MAB1639
Villin	ID2C3	H Po Ch	IH	Pur	M IgG ₁	100 µg	MAB1671

Description	Clone	Species	Applications	Format	Host	Quantity	Cat. No.
Vimentin							
Monoclonal Antibody							
Vimentin	J144	H	IH	Asc	M IgG	100 µL	MAB1633
Vimentin	LN-6	H M	IH(P)	Sup	M IgM	1 mL	MAB1681
Vimentin	43BE8	H Mk	IC IH(P)	Asc	M IgM	100 µL	MAB1687
Vimentin	V9	H M R B	WB IC IH	Pur	M IgG ₁	40 µg	MAB3400
		Po Mk Ca	IH(P) Web*				
		Ch Fe					
Polyclonal Antibody							
Vimentin		H Ma	WB IC	Serum	Gt	500 µL	AB1620
			IH IH(P)				
Vimentin	VIM 3B4	H M R Ht B	WB IH(P)	Pur	M IgG _{2a}	50 µg	CBL202
		Ch Xn Am					
Vimentin		H	WB IH(P)	Pur	Rb	100 µg	CBL46
Vimentin		H M R	IC	Pur	Ch	50 µL	AB5733
		Ch Fe					
Vinculin							
Monoclonal Antibody							
Anti-Vinculin, clone V284	V284	H M R	WB IP IH	Pur	M IgG ₁	200 µg	05-386
		Rb Ch					
Vinculin	V284	H M Sh	WB IF IH	Pur	M IgG ₁	100 µg	CBL233
		Rb Ch					
Vinculin	FB11	H	WB IP IH	Pur	M IgG ₁	50 µg	MAB1624
Vinculin	FB11	H	WB IP IH	Pur	M IgG ₁	50 µg	MAB1624
Vinculin	FB11	H	WB IP IH	Pur	M IgG ₁	50 µg	MAB1624
Vinculin	V284	H	WB IP IF IH	Asc	M IgG ₁	100 µL	MAB1674
			IH(P) Web*				
Vinculin	VIIF9 (7F9)	H M Rb	WB IP IC	Pur	M IgG ₁	100 µg	MAB3574
		B Po Mk	IH(P)				
Polyclonal Antibody							
anti-Vinculin (Tyr100)							AB1959
anti-phospho-Vinculin (Tyr1065)		H Ch	WB	APur	Rb IgG	100 µL	AB1958
anti-phospho-Vinculin (Tyr822)							AB1960
WASP							
Polyclonal Antibody							
Anti-WASP		H	WB IP		Rb IgG	200 µL	07-066
WASP		H M	WB IP	Pur	Rb IgG	200 µg	06-754
WASP		H M	WB IP	Pur	Rb	100 µg	AB3819
anti-N-WASP							AB1963
anti-phospho-N-WASP (Tyr256)		H R	WB ELISA		Rb	100 µL	AB1966
anti-phospho-N-WASP (Ser484/Ser485)		H R	WB ELISA		Rb	100 µL	AB1964
anti-non-phospho-N-WASP (Ser484/Ser485)		H R	WB ELISA		Rb	100 µL	AB1965
WAVE							
Monoclonal Antibody							
Anti-WAVE1/Scar1	84.79	R	WB	Ascites	M IgG	200 µL	05-618
Polyclonal Antibody							
Anti-WAVE/Scar		H M R	WB IP	Pur	Rb IgG	100 µg	07-037
Anti-WAVE2/Scar2		H R	WB	Antiserum	Rb IgG	200 µL	07-410
WAVE		R	WB	APur	Rb	100 µg	AB4095
WAVE-2		R	WB	APur	Rb	100 µg	AB4226
Zyxin							
Polyclonal Antibody							
anti-Zyxin		H	WB		R IgG	100 µg	AB8150

Integrins and Cell Adhesion Molecules

During their lives, most cells express some form of adhesion molecule that allows the migration, trafficking, organization, and final anchoring of specific types to create the complex patterning we see in every tissue. The molecular biology underlying the ability to bind with other cells and the extracellular matrix (ECM) is of particular interest to developmental and stem cell biology, oncology, immunology, and neuroscience. Adhesion molecules are integral membrane proteins that have cytoplasmic, transmembrane and extracellular domains. The long extracellular domains result in either strong or weak, permanent or temporary bindings that may be homophilic, heterophilic or linker-based in nature. Dozens of different adhesion molecules are now being researched, but all seem to fall into four major families: integrins (ECM interacting); cadherins (calcium dependent); immunoglobulin-like adhesion molecules (CAMS); and selectins (carbohydrate binding).

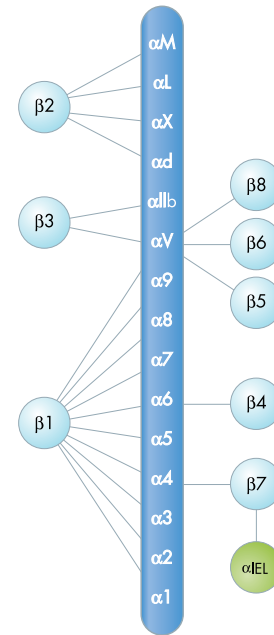
Integrins

Cells must interact with the extracellular matrix (ECM) in order to move or maintain position. The main interactions occur via receptor proteins called integrins. Integrins are a large family of heterodimeric membrane glycoproteins consisting of noncovalently associated α and β subunits. More than 18 α and 8 β subunits with numerous splice variant isoforms have been identified in mammals, with α and β subunits combining in some 22 pairings to form receptors for ECM proteins. The β subunit contains the main binding site, whose specificity is modified by a metal binding to an α subunit.

Certain integrins also bind to soluble ligands or to counterreceptors on adjacent cells, such as the intracellular adhesion molecules (ICAMs), creating cell aggregation. The most common ECM ligands for integrin binding are fibronectin, laminin and collagen. Integrins seem to bind using a sort of population approach. Each integrin ligand binding is of low affinity and has relatively weak adhering

strength. Larger local concentrations of integrin bindings yield proportionately stronger adhesions (called focal contacts), which allow many different areas on the cell membrane independent control over local binding or detachment. Integrin binding also induces extracellular signaling. Signals transduced by integrins play a role in many biological processes, including cell growth, differentiation, migration, and apoptosis.

By providing the largest selection of antibodies, proteins, and assays for the identification, localization and blocking of cellular adhesion mechanisms, Millipore translates your choices for your particular application into enhanced productivity.



Integrin Molecular Weights (kDa) by SDS-PAGE

Integrin Subunit	MW (kDa) Reduced Conditions	MW (kDa) Non-Reduced Conditions
$\alpha 1$	210	200
$\alpha 2$	165	160
$\alpha 3$	130	150
$\alpha 4$	150	140
$\alpha 5$	135	155
$\alpha 6$	120	140
αV	125	150
$\alpha 11b$	120	145
$\beta 1$	130	110
$\beta 2$	95	90
$\beta 3$	105	90
$\beta 4$	220	210
$\beta 5$	110	100

Integrin-mediated and ECM Cell Adhesion Arrays

Screening Tools for Cell - Extracellular Matrix Interactions

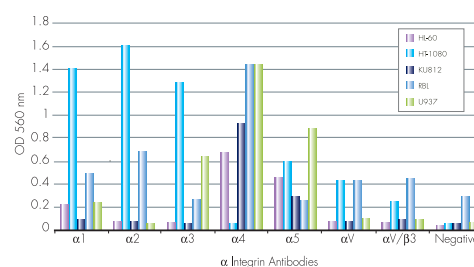
The extracellular matrix (ECM) is a complex structural and functional network of proteins and proteoglycans that can interact simultaneously with multiple cell surface receptors. ECM proteins influence cellular function through a complex feedback mechanism. Integrins mediate the adhesion of cells to ECM proteins and endothelial surfaces. These receptors anchor cells to the ECM causing transduction of signaling events that regulate cell survival, proliferation, and migration. Different integrin combinations may recognize a single ECM ligand, while others bind several different ECM proteins.

Identifying cellular integrin profiles and ECM binding properties is the first step in understanding the mechanism of action in these protein-protein interactions. Historically, antibodies have been used to determine the integrin profiles on a cell's surface, but those methodologies require long hours of labor or sophisticated equipment. As an alternative, Millipore has released Integrin-Mediated and ECM Cell Adhesion Array kits as cost effective, efficient tools to screen cell surface profiles on virtually any human cell. Using the array format reduces variability in experimental conditions; therefore interassay results are comparable in a consistent, controlled protocol. In less than 2 hours, adhesion expression profiles are generated for up to 8 samples in one user-defined experiment.

Well	Plate Strip		
	α Integrin	β Integrin	ECM Protein
A	$\alpha 1$	$\beta 1$	Collagen I
B	$\alpha 2$	$\beta 2$	Collagen II
C	$\alpha 3$	$\beta 3$	Collagen IV
D	$\alpha 4$	$\beta 4$	Fibronectin
E	$\alpha 5$	$\beta 6$	Laminin
F	αV	$\alpha V \beta 5$	Tenascin
G	$\alpha V \beta 3$	$\alpha V \beta 1$	Vitronectin
H	Neg. Control	Neg. Control	Neg. Control

Millipore's Cell Adhesion Array kits are based on a 96-well plate format, consisting of 12 x 8-well removable strips, for convenience and flexibility in experimental design. Each 8-well strip is composed of seven individual pre-coated wells with one negative control well. After a short incubation period with the cells of interest, protein binding is detected with a stain solution and analyzed using a standard microplate reader. The array kits are available in either colorimetric or fluorimetric detection formats.

α Integrin Adhesion Profile of Various Cell Lines



Cat.No. ECM530 – Various cell lines were incubated for 2 hours at 37 °C. 200,000 cells per well were added to the α integrin-coated plate. After incubation, wells were washed, stained, and measured as described under Assay Instructions.

Description

α Integrin-Mediated Cell Adhesion Array Kit

Format

Colorimetric

Quantity

96 wells

Cat.No.

ECM530

β Integrin-Mediated Cell Adhesion Array Kit

Fluorimetric

96 wells

ECM533

α/β Integrin-Mediated Cell Adhesion Array Combination Kit; 1 each ECM530 / ECM531

Colorimetric

2 x 96 wells

ECM532

α/β Integrin-Mediated Cell Adhesion Array Combination Kit; 1 each ECM533 / ECM534

Fluorimetric

2 x 96 wells

ECM535

ECM Cell Adhesion Array Kit

Colorimetric

96 wells

ECM540

Fluorimetric

96 wells

ECM545



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