R&D Systems Antibodies

The Antibody Reference Guide for Signal Transduction Research represents a portion of our current database of published citations using R&D Systems products. We currently offer more than 1000 Signal Transduction-related antibodies raised against multiple species and validated for a variety of applications.

Host Species			
Mouse	Donkey	Hamster	Rat
Chicken	Goat	Rabbit	Sheep

Target Species			
Human	Canine	Equine	*T. gondii*
Mouse	Chicken	Feline	Viral
Rat	Cotton Rat	Porcine	*Xenopus*
Bovine	*Drosophila*	Primate	Zebrafish

Applications	
Western Blot	Matched Antibody Pairs for ELISA Development
Flow Cytometry (Cell Surface or Intracellular)	Immunoprecipitation
Immunohistochemistry/Immunocytochemistry	Cell Selection
Neutralization	Blockade of Receptor-Ligand Interaction

Antibody Conjugates (see page 26)	
Fluorescent (Excitation/Emission maxima)	**Others**
NorthernLights - 493 (493/514)	Biotin (Btn)
NorthernLights - 557 (557/575)	Alkaline Phosphatase (AP)
NorthernLights - 637 (637/658)	Horseradish Peroxidase (HRP)
Allophycocyanin (APC) (645/660)	Cell & Tissue Staining Kits
Fluorescein (CFS) (492/517)	
Phycoerythrin (PE) (565/575)	

Contents in Brief

The R&D Systems Reference Guide presents peer-reviewed research articles that use our antibodies in various applications. Reference selection was not based on exclusive use of R&D Systems products or scientific merit. Rather, references were selected randomly or based on the use of unique sample types or applications that have not been validated by R&D Systems.

Alphabetical Listing

Molecule	Monoclonal Antibodies	Polyclonal Antibodies	Biotinylated Antibodies	Fluorochrome-labeled Antibodies	Phospho-Antibodies
14-3-3		H M R X			(S58)
14-3-3ζ		H M			
4EBP1		H M			
Actin		H M R			
Akt	H M R	H M R		H M R	(S473), (T308)
Akt1	H M R	H M R		H	
Akt2	H	H M R		H	
Akt3	H				
ALK/CD246	H				
Alkaline Phosphatase	H M R	M	H M R	H M R	
AMPK α1/2		H			(T174/T172)
AMPK α1	H M R	H M R			
AMPK α2		H M R			
AMPK β1		H M R			
AMPK β2	H M				
Androgen R/NR3C4	H				
APC		H			
APLP-1	H M	H M	M		
APLP-2		M			
APP	H M	H M R Ca Pr			(T668)
ASK1		H			
ATM		H M R			(S1981)
Aurora A		H			
Aurora B		H			
Axl	H M	H M	H M		(Y779)
Bad	M	H M			
BLIMP1		H			
Blk		H M R			
Brachyury		H	H	H	
Brk		H			
C1q R1/CD93	H M	H M	H M		
cAMP	Ms				
Calcineurin A	H M R				
Calcineurin B	H M R	H M R			
CaM Kinase II		H M R B Ch X			(T286), (T305)
CAR/NR1I3	H M				
Carboxymethyl Lysine	Ms				
β-Catenin	H M R	H M R X			(S33/S37)
CBP	H M R				
CD45	H M	M	H M	H M	
CDC2		H M R			(Y15)
CDC25A	H M R				

Key: **H** Human **M** Mouse **R** Rat **B** Bovine **Ca** Canine **Ch** Chicken **CR** Cotton Rat **D** *Drosophila* **E** Equine **F** Feline **Ms** Multi Species **P** Porcine **Pr** Primate **Rb** Rabbit **Tg** *T. gondii* **V** Viral **X** *Xenopus* **Z** Zebrafish

Akt

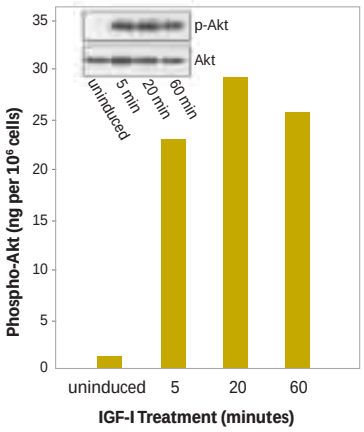
Application: Western Blot

Product: Human/Mouse/Rat Phospho-Akt (S473) Polyclonal Catalog # AF887

Reference(s):

Strizzi, L. *et al.* (2005) Netrin-1 regulates invasion and migration of mouse mammary epithelial cells overexpressing Cripto-1 *in vitro* and *in vivo*. J. Cell Sci. **118**:4633.

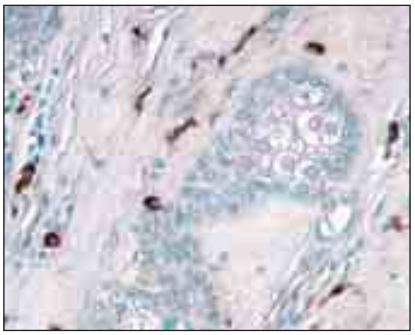
Sample(s) Tested: mouse HC-11 mammary epithelial cell line



Phosphorylated and Total Akt in MCF-7 Cells. Human breast cancer MCF-7 cells were treated with recombinant human IGF-I (Catalog # 291-G1). Lysates were assessed by Western blot (inset) with rabbit anti-human/mouse/rat phospho-Akt (S473) polyclonal antibody (Catalog # AF887) or anti-human/mouse/rat Akt (Pan) monoclonal antibody (Catalog # MAB2055). The results are consistent with phosphorylated Akt levels detected by the Surveyor™ IC Immunoassay (Catalog # SUV887; histogram).

Application: Immunohistochemistry

Product: Human/Mouse/Rat Phospho-Akt (S473) Polyclonal Catalog # AF887



Phosphorylated Akt in Human Breast Carcinoma. S473-phosphorylated Akt was detected in paraffin-embedded human breast carcinoma tissue sections using anti-human/mouse/rat phospho-Akt (S473) polyclonal antibody (Catalog # AF887). Tissue was stained using the anti-rabbit HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS005; brown) and counterstained with hematoxylin (blue).

Akt2

Application: Immunohistochemistry

Product: Human Akt2 Monoclonal
Catalog # MAB23152

Reference(s):

Hagemann, T. *et al.* (2007) Molecular profiling of cervical cancer progression. Br. J. Cancer **96**:321.
Sample(s) Tested: human cervical cancer cells

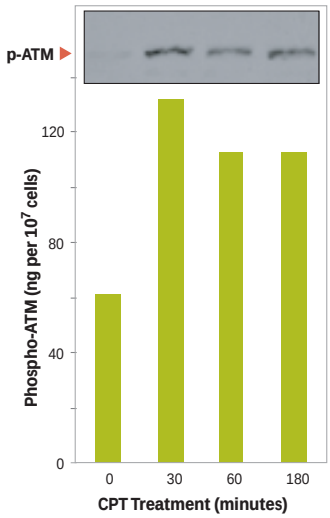
ATM

Application: Western Blot

Product: Human/Mouse/Rat Phospho-ATM (S1981)
Polyclonal Catalog # AF1655

Reference(s):

Nair, V.D. *et al.* (2006) p53 mediates nontranscriptional cell death in dopaminergic cells in response to proteasome inhibition. J. Biol. Chem. **281**:39550.
Sample(s) Tested: rat PC12 cell line expressing human D2 receptors



Phosphorylated ATM in U2-OS Cells. Human osteosarcoma U2-OS cells were treated with camptothecin (CPT). Lysates generated from treated and untreated cells were assessed by Western blot using rabbit anti-human phospho-ATM (S1981) polyclonal antibody (Catalog # AF1655; p-ATM). The results are consistent with those obtained using the phospho-ATM (S1981) DuoSet® IC ELISA (Catalog # DYC1655) on the same cell lysates.

Axl

Application: Flow Cytometry

Product: Human Axl Monoclonal
Catalog # MAB154

Reference(s):

Shimojima, M. *et al.* (2006) Tyro3 family-mediated cell entry of Ebola and Marburg viruses. J. Virol. **80**:10109.
Sample(s) Tested: human A549 alveolar epithelial, HEK293 embryonic kidney, HeLa cervical adenocarcinoma, HT1080 fibrosarcoma, monkey Cos-7 SV40-transformed kidney fibroblast, and Vero E6 kidney epithelial cell lines

Application: Neutralization

Product: Human Axl Monoclonal
Catalog # MAB154

Reference(s):

Shimojima, M. *et al.* (2006) Tyro3 family-mediated cell entry of Ebola and Marburg viruses. J. Virol. **80**:10109.
Sample(s) Tested: human A549 alveolar epithelial, HEK293 embryonic kidney, HeLa cervical adenocarcinoma, HT1080 fibrosarcoma, monkey Cos-7 SV40-transformed kidney fibroblast, and Vero E6 kidney epithelial cell lines

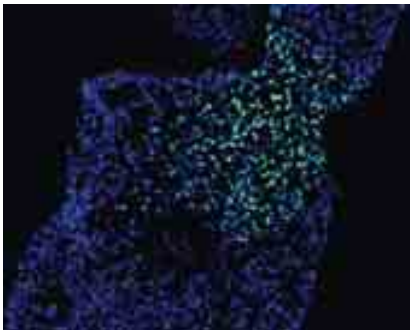
Brachyury

Application: Immunohistochemistry

Product: Human Brachyury Polyclonal
Catalog # AF2085

Reference(s):

Yao, S. *et al.* (2006) Long-term self-renewal and directed differentiation of human embryonic stem cells in chemically defined conditions. Proc. Natl. Acad. Sci. USA **103**:6907.
Sample(s) Tested: human embryonic stem cell-derived mesodermal cells



Brachyury in Human Embryonic Stem Cells. Brachyury was detected in differentiated human embryonic stem cells using anti-human Brachyury polyclonal antibody (Catalog # AF2085). Cells were stained using an anti-goat secondary antibody (green) and counterstained with DAPI (blue). *Courtesy of Dr. Frank Soldner from the National Institute of Neurological Disorders and Stroke & Stem Cell Unit at NIH.*

Reference(s):

Kim, B.K. *et al.* (2006) Neurogenic effect of vascular endothelial growth factor during germ layer formation of human embryonic stem cells. FEBS Lett. **580**:5869.
Sample(s) Tested: human embryonic stem cell-derived mesodermal cells

Application: Western Blot

Product: Human Brachyury Polyclonal
Catalog # AF2085

Reference(s):

McLean, A.B. *et al.* (2007) Activin A efficiently specifies definitive endoderm from human embryonic stem cells only when phosphatidylinositol 3-kinase signaling is suppressed. Stem Cells **25**:29.
Sample(s) Tested: human embryonic stem cell-derived mesodermal cells

β-Catenin

Application: Immunohistochemistry

Product: Human/Mouse/Rat β-Catenin Polyclonal
Catalog # AF1329

Reference(s):

Saenz-Morales, D. *et al.* (2006) Requirements for proximal tubule epithelial cell detachment in response to ischemia: role of oxidative stress. Exp. Cell Res. **312**:3711.
Sample(s) Tested: rat NRK-52E renal proximal tubular cell line

CD45

Application: Immunohistochemistry

Product: Mouse CD45 Monoclonal
Catalog # MAB114

Reference(s):

Jensen, K.K. *et al.* (2003) Disruption of CCL21-induced chemotaxis *in vitro* and *in vivo* by M3, a chemokine-binding protein encoded by murine γ herpesvirus 68. J. Virol. **77**:624.
Sample(s) Tested: human pancreas

Application: Western Blot

Product: Mouse CD45 Monoclonal
Catalog # MAB114

Reference(s):

Carter, A.J. *et al.* (2004) Long-term effects of polymer-based, slow-release, sirolimus-eluting stents in a porcine coronary model. Cardiovasc. Res. **63**:617.
Sample(s) Tested: porcine artery

Molecule	Monoclonal Antibodies	Polyclonal Antibodies	Biotinylated Antibodies	Fluorochrome-labeled Antibodies	Phospho-Antibodies
CDC25B		H M R			
CDX4	H	H	H		
Chk1	H	H M R			(S317), (S345)
Chk2	M R	H			(T68)
COUP-TF I/NR2F1	H				
COUP-TF II/NR2F2	H				
CREB	H	H M			(S133)
CREG	H	H M	H		
CRY1		H M			
CSL		H			
DARPP-32		M R			(T34)
DAX1/NR0B1	H				
DDR1	H	H	H		
DDR2	H	H	H		
DEP-1/CD148	H	H M R		H	
Dtk	H M	H M	H M	H	
EAR2/NR2F6	H				
eEF-2		H M R			
EGF R	H M	H M	H M	H	(Y845), (Y1068), (Y1773)
EGR1		H			
eIF2α		H			
eIF4B		H			
eIF4E	H M R				
eIF4G		H			
Elk-1		H M R			(S383)
Engrailed-2	H				
EphA1	H	H M	H		
EphA2	H M	H M	H M	M	
EphA3	M	M	M		
EphA4	M	M	M		
EphA5	R	M R	R		
EphA6	M	M			
EphA7	M	M	M		
EphA8	M	M	M		
EphB1	R	R	R		
EphB2		M	M		
EphB3		M	M		
EphB4	M	H M	M		
EphB6		M	M		
ErbB2	H	H	H	H	(Y1248)
ErbB3	H	H	H	H	
ErbB4	H	H	H		
ERK1/ERK2	H M R	H M R			(T202/Y204)
ERK1	H	H M R	H		

Key: **H** Human **M** Mouse **R** Rat **B** Bovine **Ca** Canine **Ch** Chicken **CR** Cotton Rat **D** *Drosophila* **E** Equine **F** Feline **Ms** Multi Species **P** Porcine **Pr** Primate **Rb** Rabbit **Tg** *T. gondii* **V** Viral **X** *Xenopus* **Z** Zebrafish

CDC2

Application: Western Blot

Product: Human/Mouse/Rat Phospho-CDC2 (Y15) Polyclonal
Catalog # AF888

Reference(s):

Tcherpakov, M. *et al.* (2002) The p75 neurotrophin receptor interacts with multiple MAGE proteins. J. Biol. Chem. **277**:49101.

Sample(s) Tested: rat PC12 pheochromocytoma cell line

Chk1

Application: Western Blot

Product: Mouse/Rat Phospho-Chk1 (S317) Polyclonal
Catalog # AF2054

Reference(s):

Olson, E. *et al.* (2006) RPA2 is a direct downstream target for ATR to regulate the S-phase checkpoint. J. Biol. Chem. **281**:39517.

Sample(s) Tested: human U2OS bone osteosarcoma epithelial cells transfected with ATR

Dtk

Application: Flow Cytometry & Neutralization

Product: Human Dtk Monoclonal
Catalog # MAB859

Reference(s):

Shimojima, M. *et al.* (2006) Tyro3 family-mediated cell entry of Ebola and Marburg viruses. J. Virol. **80**:10109.

Sample(s) Tested: human A549 alveolar epithelial, HEK293 embryonic kidney, HeLa cervical adenocarcinoma, HT1080 fibrosarcoma, monkey Cos-7 SV40-transformed kidney fibroblast, and Vero E6 kidney epithelial cell lines

Application: Flow Cytometry

Product: Mouse Dtk Biotin-Polyclonal
Catalog # BAF759

Reference(s):

Budagian, V. *et al.* (2005) Soluble axl is generated by ADAM10-dependent cleavage and associates with gas6 in mouse serum. Mol. Cell. Biol. **25**:9324.

Sample(s) Tested: mouse dendritic cells

EGF R

Application: Western Blot
Product: Human EGF R Polyclonal
Catalog # AF231
Reference(s):
Vollmann, A. *et al.* (2006) Effective silencing of EGFR with RNAi demonstrates non-EGFR dependent proliferation of glioma cells. Int. J. Oncol. **28**:1531.
Sample(s) Tested: human U373 glioma cell line

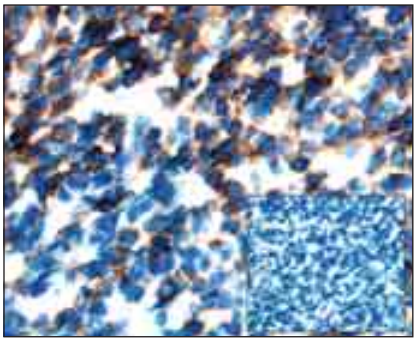
Application: Neutralization
Product: Human EGF R Polyclonal
Catalog # AF231
Reference(s):
Yano, S. *et al.* (2004) Calcium-sensing receptor activation stimulates parathyroid hormone-related protein secretion in prostate cancer cells: role of epidermal growth factor receptor transactivation. Bone **35**:664.
Sample(s) Tested: human PC3 prostate cancer cell line

Application: Immunohistochemistry
Product: Human EGF R Polyclonal
Catalog # AF231
Reference(s):
Murphy, M.O. *et al.* (2006) Expression of growth factors and growth factor receptor in non-healing and healing ischaemic ulceration. Eur. J. Vasc. Endovasc. Surg. **31**:516.
Sample(s) Tested: human epidermal ulceration

EphA3

Application: Western Blot
Product: Mouse EphA3 Polyclonal
Catalog # AF640
Reference(s):
Vaidya, A. *et al.* (2003) EphA3 null mutants do not demonstrate motor axon guidance defects. Mol. Cell. Biol. **23**:8092.
Sample(s) Tested: mouse spinal cord

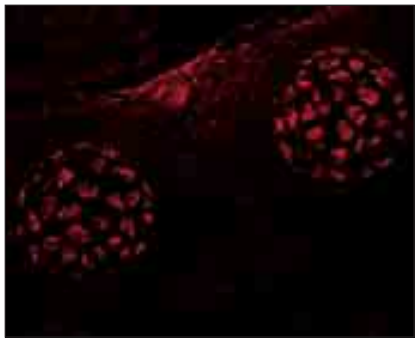
Application: Immunohistochemistry
Product: Mouse EphA3 Polyclonal
Catalog # AF640



EphA3 in Mouse Tongue. EphA3 was detected in frozen sections of embryonic (E13) mouse tongue using anti-mouse EphA3 polyclonal antibody (Catalog # AF640). Tissue was stained with anti-goat HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS008; brown) and counterstained with hematoxylin (blue). The inset shows staining in the absence of primary antibody.

EphA4

Application: Immunohistochemistry
Product: Mouse EphA4 Polyclonal
Catalog # AF641
Reference(s):
Yao, V.J. *et al.* (2005) Targeting pancreatic islets with phage display assisted by laser pressure catapult microdissection. Am. J. Pathol. **166**:625.
Sample(s) Tested: mouse pancreas



EphA4 in Embryonic Rat Rib. EphA4 was detected in paraffin-embedded sections of embryonic (E15) rat rib cartilage using anti-mouse EphA4 polyclonal antibody (Catalog # AF641). Tissue was stained with a Cy™3-conjugated anti-mouse secondary antibody (red).

EphB2

Application: Immunohistochemistry
Product: Mouse EphB2 Polyclonal
Catalog # AF467
Reference(s):
Holmberg, J. *et al.* (2006) EphB receptors coordinate migration and proliferation in the intestinal stem cell niche. Cell **125**:1151.
Sample(s) Tested: mouse colon

Application: Immunoprecipitation
Product: Mouse EphB2 Polyclonal
Catalog # AF467
Reference(s):
Holmberg, J. *et al.* (2006) EphB receptors coordinate migration and proliferation in the intestinal stem cell niche. Cell **125**:1151.
Sample(s) Tested: mouse colon

Application: Neutralization
Product: Mouse EphB2 Polyclonal
Catalog # AF467
Reference(s):
Batlle, E. *et al.* (2002) β-catenin and TCF mediate cell positioning in the intestinal epithelium by controlling the expression of EphB/ephrinB. Cell **111**:251.
Sample(s) Tested: mouse intestine

Application: Western Blot
Product: Mouse EphB2 Polyclonal
Catalog # AF467
Reference(s):
Nakada, M. *et al.* (2004) The phosphorylation of EphB2 receptor regulates migration and invasion of human glioma cells. Cancer Res. **64**:3179.
Sample(s) Tested: human U87, T98G, U251, SF767, and G112 glioma cell lines

EphB3

Application: Immunohistochemistry
Product: Mouse EphB3 Polyclonal
Catalog # AF432
Reference(s):
Holmberg, J. *et al.* (2006) EphB receptors coordinate migration and proliferation in the intestinal stem cell niche. Cell **125**:1151.
Sample(s) Tested: mouse colon

Molecule	Monoclonal Antibodies	Polyclonal Antibodies	Biotinylated Antibodies	Fluorochrome-labeled Antibodies	Phospho-Antibodies
ERK2	H M R	H M R			
ERK3	H	H			
ERK5/BMK1		H M			
ERR α/NR3B1	H				
ERR β/NR3B2	H				
ERR γ/NR3B3	H				
ER α/NR3A1	H				
ER β/NR3A2	H				
FADD		H			
FGF R1	H				(Y653/Y654)
FGF R2	H M				
FGF R3	H M			H	
FGF R4	H	M	M		
FGF R5	M	H M			
Fgr	H M R	H R			
FKBP12.6		H M R			
FKBP25		H M R			
FKBP38	H M R	H M R			
FKBP51		H M R			
FKBP52		H M R			
FLIP		H M			
Flt-3	H M	H M	H M	H M	(Y591)
FosB/G0S3	H M	H	H		
FoxD3	H	H			
FoxJ1		H			
FoxP3		H	H		
Frk		H M R			
FXR/NR1H4	H	H			
Fyn	H M R	H			
GATA-1	H M	H	H	H	
GATA-2		H	H	H	
GATA-3	H M	H	H		
GATA-4		H	H		
GATA-5	H	H			
GATA-6	H	H	H		
GBL		H M R			
GCNF/NR6A1	H	H	H		
GFI-1		H			
GLI-1		H			
GLI-2		H M	H		
GLI-3		H M			
GMF-β	H	H	H		
GR/NR3C1	H				
GRB2		H M R			

Key: **H** Human **M** Mouse **R** Rat **B** Bovine **Ca** Canine **Ch** Chicken **CR** Cotton Rat **D** *Drosophila* **E** Equine **F** Feline **Ms** Multi Species **P** Porcine **Pr** Primate **Rb** Rabbit **Tg** *T. gondii* **V** Viral **X** *Xenopus* **Z** Zebrafish

EphB3 Continued

Application: Neutralization

Product: Mouse EphB3 Polyclonal Catalog # AF432

Reference(s):

Batlle, E. *et al.* (2002) β-catenin and TCF mediate cell positioning in the intestinal epithelium by controlling the expression of EphB/ephrinB. Cell **111**:251.

Sample(s) Tested: mouse intestine

Application: Western Blot

Product: Mouse EphB3 Polyclonal Catalog # AF432

Reference(s):

Liu, X. *et al.* (2006) EphB3: an endogenous mediator of adult axonal plasticity and regrowth after CNS injury. J. Neurosci. **26**:3087.

Sample(s) Tested: mouse optic nerve and retina

EphB4

Application: Immunohistochemistry

Product: Mouse EphB4 Polyclonal Catalog # AF446

Reference(s):

Ogawa, K. *et al.* (2006) EphB2 and ephrin-B1 expressed in the adult kidney regulate the cytoarchitecture of medullary tubule cells through Rho family GTPases. J. Cell Sci. **119**:559.

Sample(s) Tested: mouse kidney

Application: Western Blot

Product: Mouse EphB4 Polyclonal Catalog # AF446

Reference(s):

Fuller, T. *et al.* (2003) Forward EphB4 signaling in endothelial cells controls cellular repulsion and segregation from ephrinB2 positive cells. J. Cell Sci. **116**:2461.

Sample(s) Tested: porcine aortic endothelial cells over-expressing human EphB4 and Ephrin B2

EphB6

Application: Flow Cytometry

Product: Mouse EphB6 Polyclonal Catalog # AF611

Reference(s):

Luo, H. *et al.* (2004) EphB6-null mutation results in compromised T cell function. J. Clin. Invest. **114**:1762.

Sample(s) Tested: mouse thymocytes

Application: Immunohistochemistry

Product: Mouse EphB6 Polyclonal
Catalog # AF611

Reference(s):

Ogawa, K. *et al.* (2006) EphB2 and ephrin-B1 expressed in the adult kidney regulate the cytoarchitecture of medullary tubule cells through Rho family GTPases. J. Cell Sci. **119**:559.

Sample(s) Tested: mouse kidney

ErbB3

Application: *In Vivo*

Product: Human ErbB3 Polyclonal
Catalog # AF234

Reference(s):

Kastin, A.J. *et al.* (2004) Neuregulin-1-β1 enters brain and spinal cord by receptor-mediated transport. J. Neurochem. **88**:965.

Sample(s) Tested: mouse

ErbB4

Application: *In Vivo*

Product: Human ErbB4 Polyclonal
Catalog # AF1131

Reference(s):

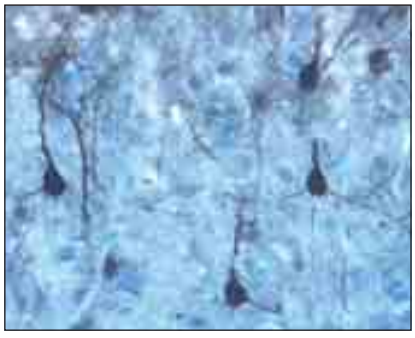
Kastin, A.J. *et al.* (2004) Neuregulin-1-β1 enters brain and spinal cord by receptor-mediated transport. J. Neurochem. **88**:965.

Sample(s) Tested: mouse

ERK1/ERK2

Application: Immunohistochemistry

Product: Human/Mouse/Rat Phospho-ERK1/ERK2 (T202/Y204) Polyclonal
Catalog # AF1018



ERK1/ERK2 in Rat Brain. Phosphorylated ERK1/ERK2 was detected in frozen tissue sections of rat brain cortex using anti-human/mouse/rat phospho-ERK1/ERK2 polyclonal antibody (Catalog # AF1018). Tissue was stained using the anti-rabbit HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS005; brown) and counterstained with hematoxylin (blue).

Application: Western Blot

Product: Human/Mouse/Rat ERK1/ERK2 Monoclonal
Catalog # MAB1576

Reference(s):

Calzolari, A. *et al.* (2006) TfR2 localizes in lipid raft domains and is released in exosomes to activate signal transduction along the MAPK pathway. J. Cell Sci. **119**:4486.

Sample(s) Tested: human K562 erythroleukemia cell line

Product: Human/Mouse/Rat Phospho-ERK1/ERK2 (T202/Y204) Monoclonal
Catalog # MAB1018

Reference(s):

Pu, Y.S. *et al.* (2006) Epidermal growth factor receptor inhibitor (PD168393) potentiates cytotoxic effects of paclitaxel against androgen-independent prostate cancer cells. Biochem. Pharmacol. **71**:751.

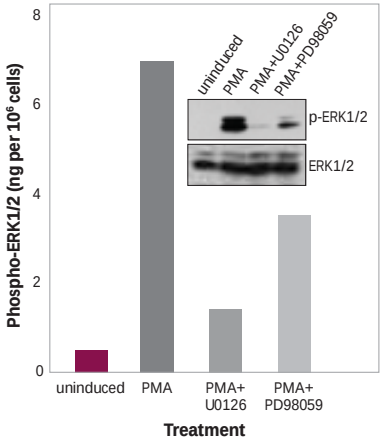
Sample(s) Tested: human DV165 and PC3 prostate cancer cell lines

Product: Human/Mouse/Rat Phospho-ERK1/ERK2 (T202/Y204) Polyclonal
Catalog # AF1018

Reference(s):

Meyer-Siegler, K.L. *et al.* (2006) Inhibition of macrophage migration inhibitory factor or its receptor (CD74) attenuates growth and invasion of DU-145 prostate cancer cells. J. Immunol. **177**:8730.

Sample(s) Tested: human BPH-1 benign prostatic hyperplasia, LNCaP, and DU-145 prostate cancer cell lines



Phosphorylated ERK1/ERK2 in HeLa Cells. Human cervical adenocarcinoma HeLa cells were induced with PMA, either with or without the MEK1/2 inhibitors U0126 or PD98059. Lysates generated from treated and untreated cells were assessed by Western blot using rabbit anti-human/mouse/rat ERK1/ERK2 polyclonal antibody (Catalog # AF1018) or mouse anti-human/mouse/rat ERK1/ERK2 monoclonal antibody (Catalog # MAB1576). The results are consistent with those obtained with the phospho-ERK1/ERK2 Surveyor IC Immunoassay (Catalog # SUV1018; histogram).

FGF R3

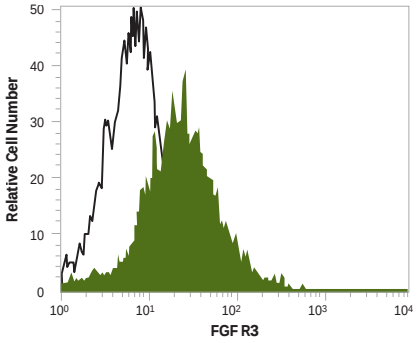
Application: Flow Cytometry

Product: Human FGF R3 PE-Monoclonal
Catalog # FAB766P

Reference(s):

Chandesris, M.O. *et al.* (2007) Detection and follow-up of fibroblast growth factor receptor 3 expression on bone marrow and circulating plasma cells by flow cytometry in patients with t(4;14) multiple myeloma. Br. J. Haematol. **136**:609.

Sample(s) Tested: human peripheral blood mononuclear and bone marrow mononuclear cells



Detection of FGF R3 by Flow Cytometry. Human monocytic U937 cells were stained with PE-conjugated mouse anti-human FGF R3 monoclonal antibody (Catalog # FAB766P; filled histogram). Staining with a PE-conjugated isotype control (Catalog # IC002P; open histogram) highlights the specificity of the FGF R3 antibody.

Application: Immunohistochemistry

Product: Human FGF R3 Monoclonal
Catalog # MAB7661

Reference(s):

Shin, J.W. *et al.* (2006) Prox1 promotes lineage-specific expression of fibroblast growth factor (FGF) receptor-3 in lymphatic endothelium: a role for FGF signaling in lymphangiogenesis. Mol. Biol. Cell **17**:576.

Sample(s) Tested: human foreskin

Product: Mouse FGF R3 Monoclonal
Catalog # MAB710

Reference(s):

Shin, J.W. *et al.* (2006) Prox1 promotes lineage-specific expression of fibroblast growth factor (FGF) receptor-3 in lymphatic endothelium: a role for FGF signaling in lymphangiogenesis. Mol. Biol. Cell **17**:576.

Sample(s) Tested: mouse E11.5 embryo

Molecule	Monoclonal Antibodies	Polyclonal Antibodies	Biotinylated Antibodies	Fluorochrome-labeled Antibodies	Phospho-Antibodies
GSK-3α/β		H M R			(S21/S9)
GSK-3α	H	H M R			(S21)
GSK-3β	H M R				
HAND1		H	H		
HAND2		H M			
Hck	H M				
HES-1		H			
HES-4		H	H		
HGF R	H M	H M	H M		(Y1003), (Y1349), (Y1234/Y1235)
HIF-1α	H M R	H M			
HIF-2α		H M R			
HMGA2		H			
HMGB1	H				
TCF-2/HNF-1β		H			
HNF-3β/FoxA2		H	H		
HNF-4α/NR2A1	H				
HNF-4γ/NR2A2	H				
HOXB4		H			
HSF4		M			
HSP27		H M R			(S78/S82)
4-Hydroxynonenal	Ms				
ICAT		H			
IGF-I R	H	H	H	H	
IGF-II R		H	H		
IkB-β	H R				
IKKα		H M R			
IKKε	H M R	H			
IKKγ		H M R			
phospho-INS R/IGF-I R		H			(Y1162/Y1163)/ (Y1135/Y1136)
INSRR	H	H	H		
Insulin R/CD220	H	H	H		
IRAK1		H			
IRAK4		H			
IRF2		H			
IRF3		H			
IRS-1	H M				
Islet-1		H			
JNK	H M R	H M R			(T183/Y185)
JNK1/JNK2	H M R				
JNK1	H M R				
JNK2	H M R	H M R			
c-jun		H			
Keap1	H M R	H M R			

Key: **H** Human **M** Mouse **R** Rat **B** Bovine **Ca** Canine **Ch** Chicken **CR** Cotton Rat **D** *Drosophila* **E** Equine **F** Feline **Ms** Multi Species **P** Porcine **Pr** Primate **Rb** Rabbit **Tg** *T. gondii* **V** Viral **X** *Xenopus* **Z** Zebrafish

FGF R3 Continued

Application: Immunoprecipitation

Product: Human FGF R3 (IIIb) Monoclonal Catalog # MAB1474 and Human FGF R3 (IIIc) Monoclonal Catalog # MAB7662

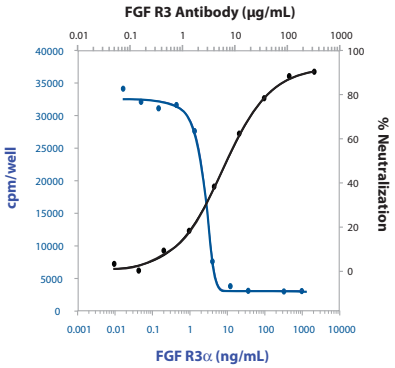
Reference(s):

Tomlinson, D.C. *et al.* (2005) Alternative splicing of fibroblast growth factor receptor 3 produces a secreted isoform that inhibits fibroblast growth factor-induced proliferation and is repressed in urothelial carcinoma cell lines. Cancer Res. **65**:10441.

Sample(s) Tested: human 97-7, RT4, RT112M, 97-18, 94-10, 97-6, BFTC905, 97-29, SCaBER, DSH1, VMCUB3, SW1710, 96-1, VMCUB2, 97-24, J82, HT1376, 97-1, 647V, 253J, BFTC909, and 5637 bladder cancer cell lines

Application: Neutralization

Product: Mouse FGF R3 Monoclonal Catalog # MAB710



Neutralization of FGF R3α Activity. Recombinant mouse FGF R3α (IIIc)/Fc (Catalog # 710-MF) inhibits FGF acidic-dependent proliferation (^{3}H-thymidine incorporation) of mouse NR6R-3T3 fibroblasts (blue). This effect was neutralized using anti-mouse FGF R3 monoclonal antibody (Catalog # MAB710; black) when FGF-acidic and FGF R3α (IIIc)/Fc are applied at constant concentrations.

Flt-3

Application: Immunoprecipitation

Product: Human Flt-3/Flk-2 Polyclonal Catalog # AF812

Reference(s):

Armstrong, S.A. *et al.* (2003) Inhibition of FLT3 in MLL. Validation of a therapeutic target identified by gene expression based classification. Cancer Cell **3**:173.

Sample(s) Tested: human Flt-3 transfected HEK293 and Baf3 cells

HGF R

Application: Electrochemiluminescence

Product: Human HGF R/c-MET Biotin-Polyclonal Catalog # BAF358

Reference(s):

Burgess, T. *et al.* (2006) Fully human monoclonal antibodies to hepatocyte growth factor with therapeutic potential against hepatocyte growth factor/c-Met-dependent human tumors. Cancer Res. **66**:1721.
Sample(s) Tested: human PC3 prostate cancer cell line

Application: Flow Cytometry

Product: Human HGF R/c-MET Monoclonal Catalog # MAB358

Reference(s):

Meyerrose, T.E. *et al.* (2007) *In vivo* distribution of human adipose-derived mesenchymal stem cells in novel xenotransplantation models. Stem Cells **25**:220.
Sample(s) Tested: human adipose-derived mesenchymal cells

Product: Human HGF R/c-MET Polyclonal Catalog # AF276

Reference(s):

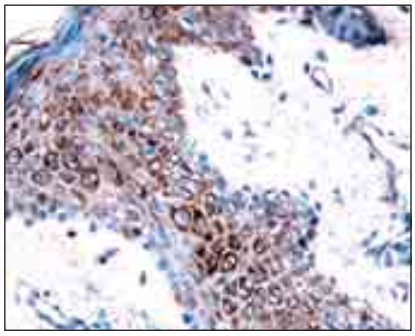
Kashiwakura, Y. *et al.* (2005) Hepatocyte growth factor receptor is a coreceptor for adeno-associated virus type 2 infection. J. Virol. **79**:609.
Sample(s) Tested: mouse 3T3 fibroblast cells transfected with human c-MET

Application: Immunohistochemistry

Product: Human HGF R/c-MET Polyclonal Catalog # AF276

Reference(s):

Chen, J.T. *et al.* (2006) Cigarette smoking induces overexpression of hepatocyte growth factor in type II pneumocytes and lung cancer cells. Am. J. Respir. Cell Mol. Biol. **34**:264.
Sample(s) Tested: human lung

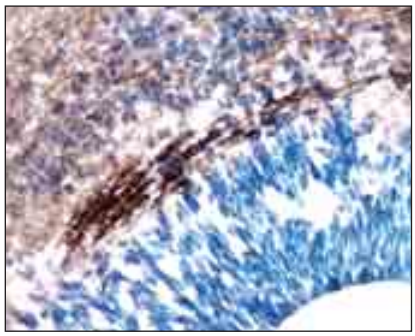


HGF R in Breast Cancer. HGF R was detected in paraffin-embedded human breast cancer tissue sections using anti-human HGF R polyclonal antibody (Catalog # AF276). Tissue was stained with the anti-goat HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS008; brown) and counterstained with hematoxylin (blue).

Product: Mouse HGF R/c-MET Polyclonal Catalog # AF527

Reference(s):

Lai, L. *et al.* (2006) A recombinant single-chain IL-7/HGFβ hybrid cytokine induces juxtacrine interactions of the IL-7 and HGF (c-Met) receptors and stimulates the proliferation of CFU-S12, CLPs, and pre-pro-B cells. Blood **107**:1776.
Sample(s) Tested: mouse early B-lineage cells



HGF R in Embryonic Mouse Spinal Cord. HGF R was detected in frozen sections of embryonic (E15)mouse spinal cord using anti-mouse HGF R polyclonal antibody (Catalog # AF527). Tissue was stained using the anti-goat HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS008; brown) and counterstained with hematoxylin (blue).

Application: Neutralization

Product: Human HGF R/c-MET Polyclonal Catalog # AF276

Reference(s):

Grant-Tschudy, K.S. & C.R. Wira. (2005) Hepatocyte growth factor regulation of uterine epithelial cell transepithelial resistance and tumor necrosis factor α release in culture. Biol. Reprod. **72**:814.
Sample(s) Tested: human epithelial cells

Product: Mouse HGF R/c-MET Monoclonal Catalog # MAB527

Reference(s):

Li, F. *et al.* (2007) Neuritogenic activity of chondroitin/dermatan sulfate hybrid chains of embryonic pig brain and their mimicry from shark liver. Involvement of the pleiotrophin and hepatocyte growth factor signaling pathways. J. Biol. Chem. **282**:2956.
Sample(s) Tested: mouse E16 hippocampal neurons

Product: Mouse HGF R/c-MET Polyclonal Catalog # AF527

Reference(s):

Lai, L. *et al.* (2006) A recombinant single-chain IL-7/HGFβ hybrid cytokine induces juxtacrine interactions of the IL-7 and HGF (c-Met) receptors and stimulates the proliferation of CFU-S12, CLPs, and pre-pro-B cells. Blood **107**:1776.
Sample(s) Tested: mouse early B-lineage cells

Application: Western Blot

Product: Mouse HGF R/c-MET Polyclonal Catalog # AF527

Reference(s):

Lai, L. *et al.* (2006) A recombinant single-chain IL-7/HGFβ hybrid cytokine induces juxtacrine interactions of the IL-7 and HGF (c-Met) receptors and stimulates the proliferation of CFU-S12, CLPs, and pre-pro-B cells. Blood **107**:1776.
Sample(s) Tested: mouse early B-lineage cells

HIF-1α

Application: Flow Cytometry

Product: Human/Mouse HIF-1α Polyclonal Catalog # AB1536

Reference(s):

Asosingh, K. *et al.* (2005) Role of the hypoxic bone marrow microenvironment in 5T2MM murine myeloma tumor progression. Haematologica **90**:810.
Sample(s) Tested: mouse bone marrow mononuclear cells

Application: Immunochemistry

Product: Human/Mouse/Rat HIF-1α Monoclonal Catalog # MAB1536

Reference(s):

Risbud, M.V. *et al.* (2006) Nucleus pulposus cells express HIF-1α under normoxic culture conditions: a metabolic adaptation to the intervertebral disc microenvironment. J. Cell. Biochem. **98**:152.
Sample(s) Tested: human, rat and sheep nucleus pulposus cells (derived from invertebral disc), human HeLa cervical adenocarcinoma cell line, rat chondrocytes, and rat osteoblasts

Application: Western Blot

Product: Human/Mouse HIF-1α Polyclonal Catalog # AB1536

Reference(s):

Maltepe, E. *et al.* (2005) Hypoxia-inducible factor-dependent histone deacetylase activity determines stem cell fate in the placenta. Development **132**:3393.
Sample(s) Tested: human trophoblast stem cells

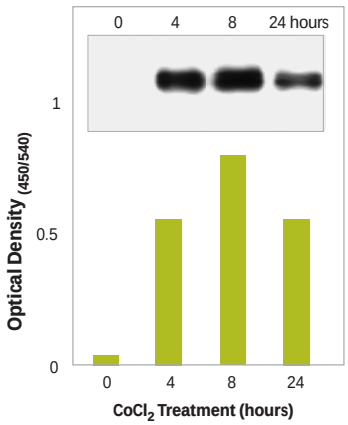
Product: Human/Mouse/Rat HIF-1α Monoclonal Catalog # MAB1536

Reference(s):

Kong, X. *et al.* (2006) Histone deacetylase inhibitors induce VHL and ubiquitin-independent proteasomal degradation of hypoxia-inducible factor 1α. Mol. Cell. Biol. **26**:2019.
Sample(s) Tested: mouse Ts20 embryo fibroblast, human U-87 glioma, HCT116 colon cancer, RCC4 VHL($^{-/-}$) and RCC4 VHL($^{+/+}$) renal cell carcinoma cell lines

Molecule	Monoclonal Antibodies	Polyclonal Antibodies	Biotinylated Antibodies	Fluorochrome-labeled Antibodies	Phospho-Antibodies
KLF4		H M			
KLF5		H			
KLF6		H			
LAR		H M R			
LCK	H				
LEDGF		H			
LMO2		H	H		
LMO4		H M			
LRH-1/NR5A2	H				
LXRα/NR1H3	H				
LXRβ/NR1H2	H				
Lyn	H R	H M R			
Lyp	H	H			
M-CSF R	H	H M	H	H	(Y723)
MafB	H R				
MafF		H			
MafG	H				
MafK	H M				
MARCKS		H M R X			(S152/S156)
Mash1	M	M	M		
MBD-3		H			
MDM2	H	H M R	H M R		
MEK1/MEK2	H M R	H M R			(S218/S222)/ (S222/S226)
MEK1	H M R	H M R			
MEK2	H M R	H	H		
Mer	H M	H M	H M	H	
Mineralocorticoid R/ NR3C2	H				
MKK3/MKK6	H M R				
MKK3	H M R				
MKK4	H	H M R			(S257/T261)
MKK6	H M R	H M R	H M R		
MKK7	H	H			
MKP-3	H M R				
MLK4α		H M R			
MSK1/MSK2		H			(S376)/(S360)
MSK1	H	H M			(S212)
MSK2	H M	H M			(S196)
MSP R/Ron	H	H M	H M		
MuSK	R	H R	R		
c-Myc		H			
MYCL1		H M			
MyD88	H M	H M R			
Myocardin	H				

HIF-1α Continued



HIF-1α in Hypoxic Cells. Mouse NIH3T3 fibroblasts were treated with $CoCl_2$ for the indicated times to mimic hypoxia. Nuclear extracts were assessed by Western blot using mouse anti-human/mouse/rat HIF-1α monoclonal antibody (Catalog # MAB1536). These results are consistent with those obtained using the HIF-1α DuoSet IC Activity Assay (Catalog # DYC1536) from the same nuclear extracts (histogram).

HNF-3β

Application: Immunohistochemistry

Product: Human HNF-3β/FoxA2 Polyclonal Catalog # AF2400

Reference(s):

Yao, S. *et al.* (2006) Long-term self-renewal and directed differentiation of human embryonic stem cells in chemically defined conditions. Proc. Natl. Acad. Sci. USA **103**:6907.

Sample(s) Tested: human embryonic stem cell-derived definitive endodermal cells

IGF-I R

Application: Flow Cytometry

Product: Human IGF-I R PE-Monoclonal Catalog # FAB391P

Reference(s):

Raile, K. *et al.* (2003) Insulin-like growth factor I (IGF-I) stimulates proliferation but also increases caspase-3 activity, Annexin-V binding, and DNA-fragmentation in human MG63 osteosarcoma cells: co-activation of pro- and anti-apoptotic pathways by IGF-I. Horm. Metab. Res. **35**:786.

Sample(s) Tested: human MG63 osteosarcoma cell line

Key: **H** Human **M** Mouse **R** Rat **B** Bovine **Ca** Canine **Ch** Chicken **CR** Cotton Rat **D** *Drosophila* **E** Equine **F** Feline **Ms** Multi Species **P** Porcine **Pr** Primate **Rb** Rabbit **Tg** *T. gondii* **V** Viral **X** *Xenopus* **Z** Zebrafish

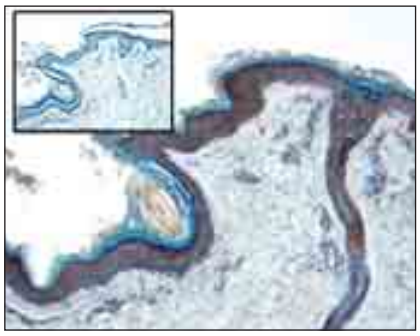
Application: Immunohistochemistry

Product: Human IGF-I R Polyclonal
Catalog # AF-305-NA

Reference(s):

Freier, S. *et al.* (2005) Relative expression and localization of the insulin-like growth factor system components in the fetal, child and adult intestine. J. Pediatr. Gastroenterol. Nutr. **40**:202.
Sample(s) Tested: human gastric and intestinal mucosa

Product: Human IGF-I R Monoclonal
Catalog # MAB391



IGF-1 R in Human Skin. IGF-1 R was detected in paraffin-embedded human skin tissue sections using anti-human IGF-I R monoclonal antibody (Catalog # MAB391). Tissue was stained using the anti-mouse HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS002; brown) and counterstained with hematoxylin (blue). An adjacent control section in the absence of primary antibody exhibits little staining (inset).

Application: Neutralization

Product: Human IGF-I R Monoclonal
Catalog # MAB391

Reference(s):

Maccarrone, M. *et al.* (2003) Leptin activates the anandamide hydrolase promoter in human T lymphocytes through STAT3. J. Biol. Chem. **278**:13318.
Sample(s) Tested: human T cells

Product: Human IGF-I R Polyclonal
Catalog # AF-305-NA

Reference(s):

Gronowicz, G.A. *et al.* (2004) Insulin-like growth factor II induces apoptosis in osteoblasts. Bone **35**:621.
Sample(s) Tested: human and mouse primary osteoblasts

Application: Western Blot

Product: Human IGF-I R Polyclonal
Catalog # AF-305-NA

Reference(s):

Samani, A.A. *et al.* (2004) Loss of tumorigenicity and metastatic potential in carcinoma cells expressing the extracellular domain of the type 1 insulin-like growth factor receptor. Cancer Res. **64**:3380.
Sample(s) Tested: human IGF-I R transfected metastatic H-59 and 293GPG-based packaging cell lines

JNK

Application: Immunoprecipitation

Product: Human/Mouse/Rat Phospho-JNK (T183/Y185) Polyclonal
Catalog # AF1205

Reference(s):

Tsukada, M. *et al.* (2006) Neurabin II mediates doublecortin-dephosphorylation on actin filaments. Biochem. Biophys. Res. Commun. **343**:839.
Sample(s) Tested: monkey Cos-7 SV40-transformed kidney fibroblasts transfected with mouse Dcx

Application: Western Blot

Product: Human/Mouse/Rat JNK Pan Specific Polyclonal
Catalog # AF1387

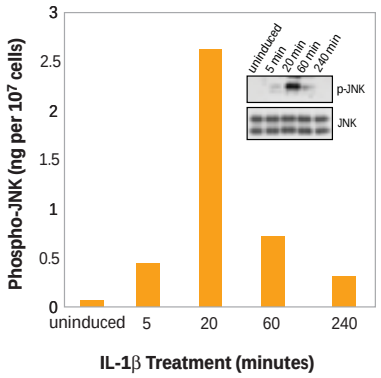
Reference(s):

Klegeris, A. *et al.* (2006) α-Synuclein and its disease-causing mutants induce ICAM-1 and IL-6 in human astrocytes and astrocytoma cells. FASEB J. **20**:2000.
Sample(s) Tested: human U-373 MG astrocytoma cell line

Product: Human/Mouse/Rat Phospho-JNK (T183/Y185) Polyclonal
Catalog # AF1205

Reference(s):

Tsukada, M. *et al.* (2006) Neurabin II mediates doublecortin-dephosphorylation on actin filaments. Biochem. Biophys. Res. Commun. **343**:839.
Sample(s) Tested: monkey Cos-7 SV40-transformed kidney fibroblasts transfected with mouse Dcx



Phosphorylated JNK in IL-1β-treated HepG2 Cells. Human hepatocellular carcinoma HepG2 cells were treated with recombinant human IL-1β (Catalog # 201-LB) for the indicated times. Cell lysates were assessed by Western blot using rabbit anti-human/mouse/rat phospho-JNK (T183/Y185) (Catalog # AF1205) or rabbit anti-human/mouse/rat JNK (Catalog # AF1387) polyclonal antibodies. The results are consistent with the total amounts of p-JNK using the same lysates and the Phospho-JNK DuoSet IC ELISA (Catalog # DYC1387; histogram).

LXRα

Application: Immunohistochemistry

Product: Human LXRα/NR1H3 Monoclonal
Catalog # PP-K8607-00

Reference(s):

Morello, F. *et al.* (2005) Liver X receptors α and β regulate renin expression *in vivo*. J. Clin. Invest. **115**:1913.
Sample(s) Tested: mouse kidney

M-CSF R

Application: Immunohistochemistry

Product: Human M-CSF R Polyclonal
Catalog # AF329

Reference(s):

Hagemann, T. *et al.* (2007) Molecular profiling of cervical cancer progression. Br. J. Cancer **96**:321.
Sample(s) Tested: human cervical cancer

MDM2

Application: Western Blot

Product: Human/Mouse/Rat MDM2 Polyclonal
Catalog # AF1244

Reference(s):

Yang, W. *et al.* (2007) CARPs are ubiquitin ligases that promote MDM2-independent p53 and phospho-p53ser20 degradation. J. Biol. Chem. **282**:3273.
Sample(s) Tested: MEF($p53^{-/-}$/$MDM2^{-/-}$) cells transfected with wild-type or mutant CARPs and p53 or MDM

Mer

Application: Flow Cytometry

Product: Human Mer Monoclonal
Catalog # MAB8912

Reference(s):

Shimojima, M. *et al.* (2006) Tyro3 family-mediated cell entry of Ebola and Marburg viruses. J. Virol. **80**:10109.
Sample(s) Tested: human A549 alveolar epithelial, HEK293 embryonic kidney, HeLa cervical adenocarcinoma, HT1080 fibrosarcoma, monkey Cos-7 SV40-transformed kidney fibroblast, and Vero E6 kidney epithelial cell lines

Product: Mouse Mer Monoclonal
Catalog # MAB591

Reference(s):

Jennings, J.H. *et al.* (2005) Monocytes recruited to the lungs of mice during immune inflammation ingest apoptotic cells poorly. Am. J. Respir. Cell Mol. Biol. **32**:108.
Sample(s) Tested: mouse bronchoalveolar lavage-derived cells

Molecule	Monoclonal Antibodies	Polyclonal Antibodies	Biotinylated Antibodies	Fluorochrome-labeled Antibodies	Phospho-Antibodies
Nanog	H	H M	H		
NeuroD1		H	H		
Neurogenin-1	H				
Neurogenin-2	H R				
Neurogenin-3	H				
NFkB1	H M	H M			
NFkB2	H				
NGFI-B α/NR4A1	H				
NGFI-B γ/NR4A3	H				
Nitrotyrosine	Ms				
NKX2.5	H	H	H		
NRAGE	H				
NRL		H	H		
Nurr-1/NR4A2	H	M			
Oct-3/4	H M	H	H	H M	
Olig 1/2/3	H			H	
Olig1	H	H	H		
Olig2		H	H		
Olig3	H M	H	H		
Otx2	H	H	H		
p27/Kip1	H M R	H			(T157), (T198)
p38		H M R			(T180/Y182)
p38α	H M R	H M R			
p38β	H				
p38δ	H	H			
p38γ	H M R	H M R			
p53	H M R	H M R	H M R	H	(S15), (S18). (S20), (S37), (S46), (S392)
p70 S6 Kinase	H M R	H M R			(T229), (T389), (T421/S424)
p70 S6 Kinase β	H				
p300		H			
PA2G4		H			
PAK		H M R Pr			(T402)
PAK4		H M R			
PAR1		H			
PAR2				H	
Park7/DJ-1		H M			
Pax3	H M	H	H	H M	
Pax4		H	H		
Pax5		H			
Pax6	M R Ch		M R Ch		
Pax7	H M R Ch				(Y742), (Y762)
PDGF Rα	H M	H M	H M	H	

Key: **H** Human **M** Mouse **R** Rat **B** Bovine **Ca** Canine **Ch** Chicken **CR** Cotton Rat **D** *Drosophila* **E** Equine **F** Feline **Ms** Multi Species **P** Porcine **Pr** Primate **Rb** Rabbit **Tg** *T. gondii* **V** Viral **X** *Xenopus* **Z** Zebrafish

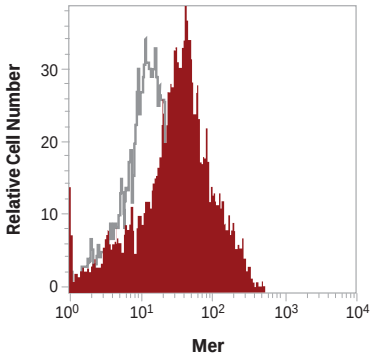
Mer Continued

Product: Human Mer PE-Monoclonal
Catalog # FAB8912P

Reference(s):

Graham, D.K. *et al.* (2006) Ectopic expression of the proto-oncogene Mer in pediatric T-cell acute lymphoblastic leukemia. Clin. Cancer Res. **12**:2662.

Sample(s) Tested: human thymocytes and leukemic lymphoblasts



Detection of Mer by Flow Cytometry. Peripheral blood monocytes were stained using PE-conjugated anti-human Mer antibody (Catalog # FAB8912P; filled histogram). Staining with a PE-conjugated isotype control (Catalog # IC002P; open histogram) highlights the specificity of the Mer antibody.

Application: Immunoprecipitation

Product: Mouse Mer Monoclonal
Catalog # MAB591

Reference(s):

Todt, J.C. *et al.* (2004) The receptor tyrosine kinase MerTK activates phospholipase C γ2 during recognition of apoptotic thymocytes by murine macrophages. J. Leukoc. Biol. **75**:705.

Sample(s) Tested: mouse J774 and PMo macrophage cell lines

Application: Neutralization

Product: Human Mer Monoclonal
Catalog # MAB8912

Reference(s):

Shimojima, M. *et al.* (2006) Tyro3 family-mediated cell entry of Ebola and Marburg viruses. J. Virol. **80**:10109.

Sample(s) Tested: human A549 alveolar epithelial, HEK293 embryonic kidney, HeLa cervical adenocarcinoma, HT1080 fibrosarcoma, monkey Cos-7 SV40-transformed kidney fibroblast, and Vero E6 kidney epithelial cell lines

Product: Mouse Mer Polyclonal
Catalog # AF591

Reference(s):

Todt, J.C. *et al.* (2004) The receptor tyrosine kinase MerTK activates phospholipase C γ2 during recognition of apoptotic thymocytes by murine macrophages. J. Leukoc. Biol. **75**:705.

Sample(s) Tested: mouse J774 and PMo macrophage cell lines

MuSK

Application: Immunoprecipitation

Product: Rat MuSK Polyclonal
Catalog # AF562

Reference(s):

Finn, A.J. *et al.* (2003) Postsynaptic requirement for Abl kinases in assembly of the neuromuscular junction. Nat. Neurosci. **6**:717.
Sample(s) Tested: mouse brain, muscle and C2C12 myoblast cell line

Application: Western Blot

Product: Rat MuSK Polyclonal
Catalog # AF562

Reference(s):

Strochlic, L. *et al.* (2004) 14-3-3 γ associates with muscle specific kinase and regulates synaptic gene transcription at vertebrate neuromuscular synapse. Proc. Natl. Acad. Sci. USA **101**:18189.
Sample(s) Tested: mouse C2C12 myoblast and monkey COS-7 cells transfected with rat MuSK and 14-3-3 γ

Application: Neutralization

Product: Rat MuSK Polyclonal
Catalog # AF562

Role of MuSK in Agrin-Induced AChR Clustering. Left: Myotubes differentiated from the C2C12 murine myoblast cell line were treated with recombinant rat agrin (Catalog # 550-AG) to cluster acetylcholine receptors (AChRs). **Right**: Pre-treatment with goat anti-rat MuSK polyclonal antibody (Catalog # AF562) inhibits agrin-induced clustering. Cells were stained using a rhodamine α-bungarotoxin conjugate.

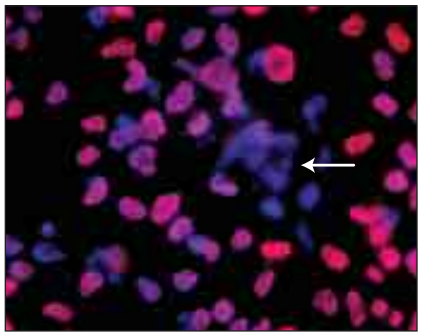
Nanog

Application: Immunohistochemistry

Product: Human Nanog Polyclonal
Catalog # AF1997

Reference(s):

Tsai, M.S. *et al.* (2006) Clonal amniotic fluid-derived stem cells express characteristics of both mesenchymal and neural stem cells. Biol. Reprod. **74**:545.
Sample(s) Tested: human amniotic fluid stem cells



Nanog in Human Embryoid Body. Nanog was detected in BG01V human embryonic stem cell line with anti-human Nanog polyclonal antibody (Catalog # AF1997). Cells were stained with NorthernLights™ 557-conjugated donkey anti-goat secondary antibody (Catalog # NL001; red) and counterstained with DAPI (blue). Differentiated cells no longer express Nanog (arrow).

Oct-3/4

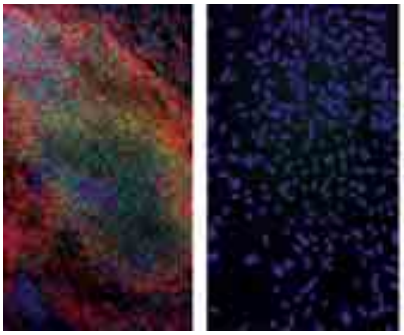
Application: Immunohistochemistry

Product: Human Oct-3/4 Polyclonal
Catalog # AF1759

Reference(s):

Takeuchi, Y. *et al.* (2005) The roles of FGF signaling in germ cell migration in the mouse. Development **132**:5399.
Sample(s) Tested: mouse embryo

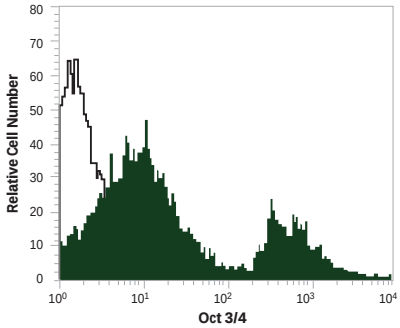
Ware, C.B. *et al.* (2006) A comparison of NIH-approved human ESC lines. Stem Cells **24**:2677.
Sample(s) Tested: human UC06, WA01, WA07, WA09, WA13, WA14, ES01,ES02, ES03, ES04, ES06, MI01, BG01, BG02, BG03 embryonic stem cell lines



Oct-3/4 in Embryonic Stem Cells. Human embryonic stem cells were cultured with recombinant human FGF basic (Catalog # 233-FB) in the presence (**left**) or absence (**right**) of Mouse Embryonic Fibroblast (MEF)-conditioned medium (Catalog # AR005). SSEA-4 and Oct-3/4 were detected using anti-human SSEA-4 monoclonal antibody (Catalog # MAB1435) and anti-human Oct-3/4 polyclonal antibody (Catalog # AF1759). Cells were stained with Alexa Fluor® 568-conjugated anti-mouse secondary antibody (SSEA-4; red) and Alexa Fluor 488-conjugated anti-goat secondary antibody (Oct-3/4; green). Cells were counterstained with DAPI (blue).
Image courtesy of Dr. Frank Soldner of the National Institutes of Health.

Application: Flow Cytometry

Product: Human/Mouse Oct-3/4
PE-Monoclonal
Catalog #IC1759P



Detection of Oct-3/4 by Flow Cytometry. Mouse embryonic stem cells differentiated by retinoic acid were stained with PE-conjugated rat anti-human/mouse Oct-3/4 monoclonal antibody (Catalog # IC1759P, filled histogram). Staining with a PE-conjugated isotype control (Catalog # IC013P; open histogram) highlights the specificity of the Oct-3/4 antibody.

Molecule	Monoclonal Antibodies	Polyclonal Antibodies	Biotinylated Antibodies	Fluorochrome-labeled Antibodies	Phospho-Antibodies
PDGF Rβ	H M	H M	H M	H	(Y751), (Y1021)
PDK-1		H			
PDX-1/IPF1	H M	H	H	H M	
PERK		H			
PI 3-Kinase p85α		H M R			
PI 3-Kinase p110β	H				
PI 3-Kinase p110δ	H				
PI 3-Kinase p110γ	H				
Pin1	H M				
PKA RIB		H M R			
PKC β1		H R			
PKR	H	H			
PLC-γ1	H M R	H M R			
PLK3		H			
PLKK		X			(S482/S486/S490)
PLZF		H	H		
PNR/NR2E3	H				
PNUTS		H M R			
PP1	H M R	H M R			
PP2A	H M R	H M R			
PPAR α/NR1C1	H				
PPAR δ/NR1C2	H				
PPAR γ/NR1C3	H				
PRL/PTP4A (pan)	H				
PRL-3	H M R				
Progesterone R/NR3C3	H				
Prox1		H			
PTEN	H M R	H M R			(S380)
PTP1B		H M R			
PTP β/ζ	H				
Oxidized PTP Active Site	Ms				
PTP-MEG2	H M R				
PTPN13/PTPL1		H			
PTPRσ		H			
PXR/NR1I2	H				
Pygopus-1		M			
Pygopus-2		H	H		
RACK1		H M R			
Raf-1		H M R X			(S301), (S642)
B-Raf	H M R				
RalA/RalB		H M R			
RalA	H M R	H M R			
RalB	H				

Otx2

Application: Immunohistochemistry

Product: Human Otx2 Polyclonal
Catalog # AF1979

Reference(s):

Rath, M.F. *et al.* (2006) Expression of the Otx2 homeobox gene in the developing mammalian brain: embryonic and adult expression in the pineal gland. J. Neurochem. **97**:556.

Sample(s) Tested: rat brain

Application: Western Blot

Product: Human Otx2 Monoclonal
Catalog # MAB1979

Reference(s):

Boon, K. *et al.* (2005) Genomic amplification of orthodenticle homologue 2 in medulloblastomas. Cancer Res. **65**:703.

Sample(s) Tested: human D283 Med, D341 Med, D425 Med, D487 Med, D556 Med, D581 Med, D721 Med, MCD1, UW228-2, and MHH-Med-1 medulloblastoma cell lines

p27

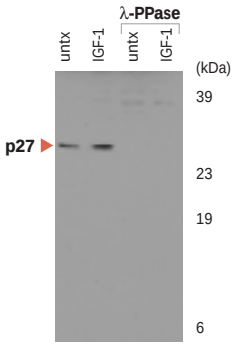
Application: Western Blot

Product: Human Phospho-p27/Kip1 (T157) Polyclonal
Catalog # AF1555

Reference(s):

Slupianek, A. & T. Skorski. (2004) NPM/ALK downregulates p27Kip1 in a PI-3K-dependent manner. Exp. Hematol. **32**:1265.

Sample(s) Tested: murine BaF3 pro B cell line transfected with NPM/ALK



Phosphorylated p27 in MCF-7 Cells. Human breast cancer MCF-7 cells were stimulated with recombinant human IGF-I (Catalog # 291-G1). Cell extracts generated from treated and untreated (untx) cells were assessed by Western blot using rabbit anti-human phospho-p27/Kip1 (T157) polyclonal antibody (Catalog # AF1555). The indicated samples were treated with λ-phosphatase (λ-PPase).

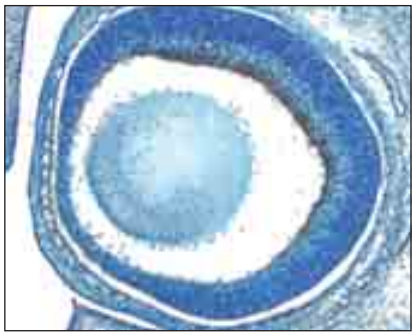
Key: **H** Human **M** Mouse **R** Rat **B** Bovine **Ca** Canine **Ch** Chicken **CR** Cotton Rat **D** *Drosophila* **E** Equine **F** Feline **Ms** Multi Species **P** Porcine **Pr** Primate **Rb** Rabbit **Tg** *T. gondii* **V** Viral **X** *Xenopus* **Z** Zebrafish

Product: Human Phospho-p27/Kip1 (T198) Polyclonal
Catalog # AF3994

Reference(s):
Liang, J. *et al.* (2007) The energy sensing LKB1-AMPK pathway regulates p27(kip1) phosphorylation mediating the decision to enter autophagy or apoptosis. Nat. Cell Biol. **9**:218.
Sample(s) Tested: human HeLa cervical adenocarcinoma and MCF-7 breast cancer cell lines

p38

Application: Immunohistochemistry
Product: Human/Mouse/Rat Phospho-p38 MAP Kinase (T180/Y182) Polyclonal
Catalog # AF869



Phosphorylated p38 in Embryonic Mouse Eye Cup. Phosphorylated p38 was detected in a frozen tissue cross-section of mouse embryonic (E15) eye cup using anti-human/mouse/rat phospho-p38 (T180/Y182) polyclonal antibody (Catalog # AF869). Tissue was stained using the anti-rabbit HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS005; brown) and counterstained with hematoxylin (blue).

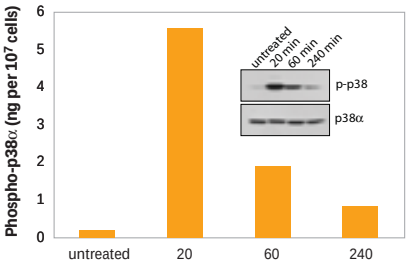
Application: Western Blot
Product: Human/Mouse/Rat Phospho-p38 MAP Kinase (T180/Y182) Polyclonal
Catalog # AF869

Reference(s):
Ottonello, L. *et al.* (2005) CCL3 (MIP-1α) induces *in vitro* migration of GM-CSF-primed human neutrophils via CCR5-dependent activation of ERK 1/2. Cell. Signal. **17**:355.
Sample(s) Tested: human neutrophils

p38α

Application: Western Blot
Product: Human/Mouse/Rat p38α Polyclonal
Catalog # AF8691

Reference(s):
Theoleyre, S. *et al.* (2004) Cellular activity and signaling induced by osteoprotegerin in osteoclasts: involvement of receptor activator of nuclear factor κB ligand and MAPK. Biochim. Biophys. Acta **1644**:1.
Sample(s) Tested: mouse RAW 264.7 macrophage cell line



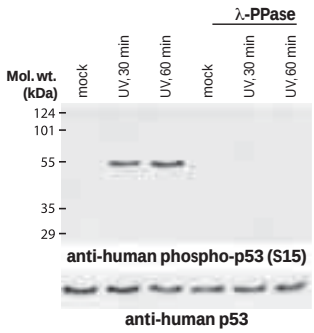
Quantification of Phosphorylated p38α in IL-1β-treated HepG2 Cells. Human hepatocellular carcinoma HepG2 cells were treated with human IL-1β (Catalog # 201-LB) for the indicated times. Lysates generated from treated and untreated cells were assessed by Western blot using rabbit anti-human/mouse/rat phospho-p38 MAPK (T180/Y182) polyclonal antibody (Catalog # AF869) or mouse anti-human/mouse/rat p38α monoclonal antibody (Catalog # MAB869). The results are consistent with those obtained using the Phospho-p38α (T180/Y182) Surveyor IC Immunoassay (Catalog # SUV869) from the same lysates (histogram).

Reference(s):
Calzolari, A. *et al.* (2006) TfR2 localizes in lipid raft domains and is released in exosomes to activate signal transduction along the MAPK pathway. J. Cell Sci. **119**:4486.
Sample(s) Tested: human K562 erythroleukemia cell line

p53

Application: Western Blot
Product: Human Phospho-p53 (S15) Polyclonal
Catalog # AF1043

Reference(s):
Mishra, S. & L.J. Murphy. (2006) The p53 oncoprotein is a substrate for tissue transglutaminase kinase activity. Biochem. Biophys. Res. Commun. **339**:726.
Sample(s) Tested: human recombinant p53



Phosphorylated p53 in CEM Cells. Human T lymphoblast CEM cells were exposed to UV-C light. Cellular extracts generated from irradiated (at indicated times post-irradiation) and non-irradiated cells were assessed by Western blot using rabbit anti-human phospho-p53 (S15) polyclonal antibody (Catalog # AF1043, upper panel) or goat anti-human p53 polyclonal antibody (Catalog # AF1355, lower panel). Indicated samples were treated with λ-phosphatase (λ-PPase).

Product: Human Phospho-p53 (S20) Polyclonal
Catalog # AF2286

Reference(s):
Yang, W. *et al.* (2007) CARPs are ubiquitin ligases that promote MDM2-independent p53 and phospho-p53ser20 degradation. J. Biol. Chem. **282**:3273.
Sample(s) Tested: MEF ($p53^{-/-}$/$MDM2^{-/-}$) cells transfected with wild-type or mutant CARPs and p53 or MDM

p70 S6 Kinase

Application: Western Blot
Product: Human Phospho-p70 S6 Kinase (T229) Polyclonal
Catalog # AF8961

Reference(s):
Kuemmerle, J.F. (2003) IGF-I elicits growth of human intestinal smooth muscle cells by activation of PI3K, PDK-1, and p70S6 kinase. Am J. Physiol. Gastrointest. Liver Physiol. **284**:G411.
Sample(s) Tested: human smooth muscle cells

Pax6

Application: Immunohistochemistry
Product: Mouse/Rat/Chicken Pax6 Monoclonal
Catalog # MAB1260

Reference(s):
Oliver, T.G. *et al.* (2005) Loss of patched and disruption of granule cell development in a pre-neoplastic stage of medulloblastoma. Development **132**:2425.
Sample(s) Tested: mouse brain

Molecule	Monoclonal Antibodies	Polyclonal Antibodies	Biotinylated Antibodies	Fluorochrome-labeled Antibodies	Phospho-Antibodies
Rap1A/B		H M R			
RARα/NR1B1	H				
RARβ/NR1B2	H				
RARγ/NR1B3	H				
Ras	H M R				
M-Ras/R-Ras3		H R			
c-Rel	M	H M	M		
Ret	H M	H M	H M		(Y905)
REV-ERB α/NR1D1	H				
REV-ERB β/NR1D2	H				
Rex-1		H	H		
Rheb	H M R				
Ribosomal Protein S6		H M R			(S235/S236)
RIP1	H M R				
ROR/NR1F1-3 (pan)	H				
RORα/NR1F1	H				
RORγ/NR1F3	H				
RTK-like Orphan Receptor 1/ROR1	H	H			
RTK-like Orphan Receptor 2/ROR2	H	H	H		
RSK (pan)		H M R			(S380), (T573)
RSK1/RSK2		H M R			(S221)/(S227)
RSK1		H M R			
RSK2		H M R			
RSK3		H M			(S218)
RSK4	H				
RUNX1/CBFA2	H M R	H	H		
RUNX2/CBFA1	H	H	H		
RUNX3/CBFA3		H			
RXRα/NR2B1	H				
RXRβ/NR2B2	H				
RXRγ/NR2B3	H				
SALL1	H				
SCF R/c-kit	H M	H M	H M	H M	(Y730)
SCL/Tal1	H	H			
SF-1/NR5A1	H				
SGK		H			
SHIP	H M R				
SHP/NR0B2		H			
SHP-1	H	H M R			
SHP-2	H M R	H M R			(Y542)
SKI		H			
SLAP-130		H			
Smad1		H	H		

PDGF Rα

Application: Flow Cytometry

Product: Human PDGF Rα Monoclonal
Catalog # MAB322

Reference(s):

Nagineni, C.N. *et al.* (2005) Expression of PDGF and their receptors in human retinal pigment epithelial cells and fibroblasts: regulation by TGF-β. J. Cell. Physiol. **203**:35.
Sample(s) Tested: human retinal pigment epithelial and choroidal fibroblast cells

Application: Immunohistochemistry

Product: Human PDGF Rα Monoclonal
Catalog # MAB322

Reference(s):

Luyt, K. *et al.* (2004) Metabotropic glutamate receptors are expressed in adult human glial progenitor cells. Biochem. Biophys. Res. Commun. **319**:120.
Sample(s) Tested: human hippocampal neurons, glial progenitor cells, HeLa cervical adenocarcinoma, and HEK293 embryonic kidney cell lines

Product: Human PDGF Rα Polyclonal
Catalog # AF-307-NA

Reference(s):

Faraone, D. *et al.* (2006) Heterodimerization of FGF-receptor 1 and PDGF-receptor-α: a novel mechanism underlying the inhibitory effect of PDGF-BB on FGF-2 in human cells. Blood **107**:1896.
Sample(s) Tested: porcine aortic endothelial cells

Product: Mouse PDGF Rα Polyclonal
Catalog # AF1062

Reference(s):

Tejada, M.L. *et al.* (2006) Tumor-driven paracrine platelet-derived growth factor receptor α signaling is a key determinant of stromal cell recruitment in a model of human lung carcinoma. Clin. Cancer Res. **12**:2676.
Sample(s) Tested: human tumor tissue from mice

Application: Immunoprecipitation

Product: Human PDGF Rα Polyclonal
Catalog # AF-307-NA

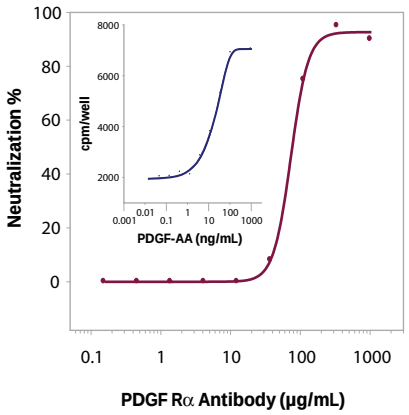
Reference(s):

Faraone, D. *et al.* (2006) Heterodimerization of FGF-receptor 1 and PDGF-receptor-α: a novel mechanism underlying the inhibitory effect of PDGF-BB on FGF-2 in human cells. Blood **107**:1896.
Sample(s) Tested: porcine aortic endothelial cells

Key: **H** Human **M** Mouse **R** Rat **B** Bovine **Ca** Canine **Ch** Chicken **CR** Cotton Rat **D** *Drosophila* **E** Equine **F** Feline **Ms** Multi Species **P** Porcine **Pr** Primate **Rb** Rabbit **Tg** *T. gondii* **V** Viral **X** *Xenopus* **Z** Zebrafish

Application: Neutralization

Product: Mouse PDGF Rα Polyclonal
Catalog # AF1062



Neutralization of Cell Surface PDGF Rα Activity. Recombinant human PDGF-AA (Catalog # 221-AA) stimulates human WS1 fibroblast proliferation (inset). The effect (PDGF-AA, 10 ng/mL) is neutralized by anti-mouse PDGF Rα polyclonal antibody (Catalog # AF1062) in a dose-dependent manner (red). Cell proliferation was measured by ^{3}H-thymidine incorporation.

Product: Human PDGF Rα Monoclonal
Catalog # MAB322

Reference(s):

Faraone, D. *et al.* (2006) Heterodimerization of FGF-receptor 1 and PDGF-receptor-α: a novel mechanism underlying the inhibitory effect of PDGF-BB on FGF-2 in human cells. Blood **107**:1896.
Sample(s) Tested: human umbilical vein endothelial cells

Application: Western Blot

Product: Human PDGF Rα Monoclonal
Catalog # MAB322

Reference(s):

Bosse, Y. *et al.* (2006) Fibroblast growth factor 2 and transforming growth factor β1 synergism in human bronchial smooth muscle cell proliferation. Am. J. Respir. Cell Mol. Biol. **34**:746.
Sample(s) Tested: human bronchial smooth muscle cells

PDGF Rβ

Application: ELISA Development

Product: Mouse PDGF Rβ Polyclonal
Catalog # AF1042

Reference(s):

Borkham-Kamphorst, E. *et al.* (2004) Dominant-negative soluble PDGF-β receptor inhibits hepatic stellate cell activation and attenuates liver fibrosis. Lab. Invest. **84**:766.
Sample(s) Tested: rat serum

Application: Flow Cytometry

Product: Human PDGF Rβ Monoclonal
Catalog # MAB1263

Reference(s):

Nagineni, C.N. *et al.* (2005) Expression of PDGF and their receptors in human retinal pigment epithelial cells and fibroblasts: regulation by TGF-β. J. Cell. Physiol. **203**:35.
Sample(s) Tested: human choroidal fibroblast cells

Application: Immunohistochemistry

Product: Human PDGF Rβ Monoclonal
Catalog # MAB1263

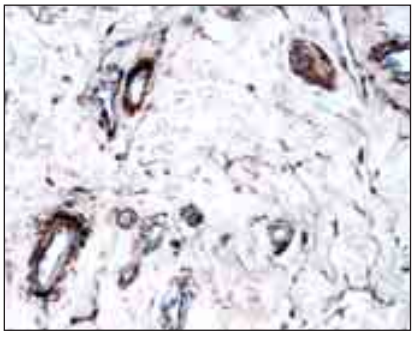
Reference(s):

Kubler, H.R. *et al.* (2005) *In vitro* cytotoxic effects of imatinib in combination with anticancer drugs in human prostate cancer cell lines. Prostate **63**:385.
Sample(s) Tested: human umbilical vein endothelial cells and PC-3, LNCaP, and DU 145 prostate cancer cell lines

Product: Human PDGF Rβ Polyclonal
Catalog # AF385

Reference(s):

Kalaaji, M. *et al.* (2006) Nephritogenic lupus antibodies recognize glomerular basement membrane-associated chromatin fragments released from apoptotic intraglomerular cells. Am. J. Pathol. **168**:1779.
Sample(s) Tested: mouse kidney



PDGF Rβ in Human Breast Cancer. PDGF Rβ was detected in a paraffin-embedded human breast cancer tissue section using anti-human PDGF Rβ polyclonal antibody (Catalog # AF385). Tissue was stained using the anti-goat HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS008; brown) and counterstained with hematoxylin (blue).

Product: Mouse PDGF Rβ Polyclonal
Catalog # AF1042

Reference(s):

Tejada, M.L. *et al.* (2006) Tumor-driven paracrine platelet-derived growth factor receptor α signaling is a key determinant of stromal cell recruitment in a model of human lung carcinoma. Clin. Cancer Res. **12**:2676.
Sample(s) Tested: human tumor tissue from mice

Application: Immunoprecipitation

Product: Human PDGF Rβ Polyclonal
Catalog # AF385

Reference(s):

Foehr, E.D. *et al.* (2001) The role of tyrosine residues in fibroblast growth factor receptor 1 signaling in PC12 cells. Systematic site-directed mutagenesis in the endodomain. J. Biol. Chem. **276**:37529.
Sample(s) Tested: rat PC12 cell line expressing human PDGF Rβ

Product: Mouse PDGF Rβ Polyclonal
Catalog # AF1042

Reference(s):

Garton, A.J. *et al.* (2006) OSI-930: a novel selective inhibitor of Kit and kinase insert domain receptor tyrosine kinases with antitumor activity in mouse xenograft models. Cancer Res. **66**:1015.
Sample(s) Tested: human umbilical vein endothelial cells, HMC-1 mast cell leukemia, WBA small-cell lung carcinoma, and BxPc3-A1 pancreatic carcinoma cell lines

Application: Neutralization

Product: Human PDGF Rβ Polyclonal
Catalog # AF385

Reference(s):

Faraone, D. *et al.* (2006) Heterodimerization of FGF-receptor 1 and PDGF-receptor-α: a novel mechanism underlying the inhibitory effect of PDGF-BB on FGF-2 in human cells. Blood **107**:1896.
Sample(s) Tested: human umbilical vein endothelial cells

Application: Western Blot

Product: Human PDGF Rβ Polyclonal
Catalog # AF385

Reference(s):

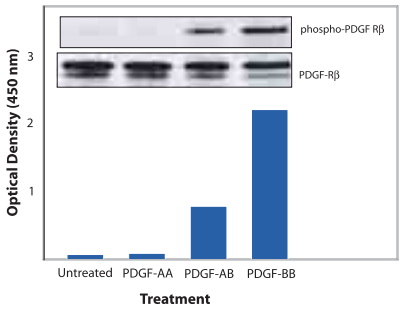
Nili, N. *et al.* (2003) Decorin inhibition of PDGF-stimulated vascular smooth muscle cell function: potential mechanism for inhibition of intimal hyperplasia after balloon angioplasty. Am. J. Pathol. **163**:869.
Sample(s) Tested: rabbit aortic smooth muscle cells

Molecule	Monoclonal Antibodies	Polyclonal Antibodies	Biotinylated Antibodies	Fluorochrome-labeled Antibodies	Phospho-Antibodies
Smad2	H	H			
Smad3	H	H			(S423/S425)
Smad4	H	H	H		
Smad5		H			
Smad7	H M R	H			
Smad8		H			
Snail		H			
SOX1		H			
SOX2	H M	H	H	H	
SOX3	H	H		H	
SOX7	H	H	H		
SOX9		H	H		
SOX10	H R	H	H		
SOX15		H			
SOX17	H	H	H		
SOX21		H	H		
Src	H M R	H M R			(Y419)
STAT1		H M	H		(Y701)
STAT2		H M	H		(Y689)
STAT3	H	H M R			
STAT4		H M	H M		
STAT5a/b		H M			(Y699)
STAT5a	H M	H M			
STAT5b	H	H M			
STAT6	H M	H M R			(Y641)
SUMO1		H			
SUMO2/3/4		H			
SUMO3		H M			
TAB1		H M			
TAO2		H M R X			(S181)
TAPP1	H				
TC-PTP	H M R	H M R			
TC21/R-Ras2		H R			
Tie-1	H	H	H		
Tie-2	H Z	H M Z	H M Z	H	(Y992), (Y1100)
TLX/NR2E1	H				
TOR	H M	H M R			(S2448)
TP63/TP73L	H	H	H		
TRα/NR1A1	H				
TRβ1/NR1A2	H				
TR2/NR2C1	H				
TR4/NR2C2	H				
TRADD	H	H			
TRAF-1		H			

Key: **H** Human **M** Mouse **R** Rat **B** Bovine **Ca** Canine **Ch** Chicken **CR** Cotton Rat **D** *Drosophila* **E** Equine **F** Feline **Ms** Multi Species **P** Porcine **Pr** Primate **Rb** Rabbit **Tg** *T. gondii* **V** Viral **X** *Xenopus* **Z** Zebrafish

PDGF Rβ Continued

Product: Human PDGF Rβ Biotin-Polyclonal Catalog # BAF385



Ligand-induced PDGF Rβ Phosphorylation in Human Fibroblasts. Immortalized human fibroblasts were treated with recombinant PDGF-AA (Catalog # 221-AA), PDGF-AB (Catalog # 222-AB) or PDGF-BB (Catalog # 220-BB). Lysates generated from treated and untreated cells were assessed by immunoprecipitation (IP) /Western blot (inset). IPs were performed using anti-PDGF Rβ monoclonal antibody (Catalog # MAB1263) and anti-mouse IgG agarose. Western blots were incubated with biotinylated anti-phosphotyrosine monoclonal antibody (Catalog # BAM1676) to detect phospho-PDGF Rβ. Bands were visualized with Streptavidin-HRP (Catalog # DY998) followed by chemiluminescent detection. Blots were stripped and total PDGF Rβ was detected using a biotinylated polyclonal anti-PDGF Rβ antibody (Catalog # BAF385). The results are consistent with those obtained by Phospho-PDGF Rβ DuoSet IC ELISA (Catalog # DYC1767) from the same lysates (histogram).

PDX-1

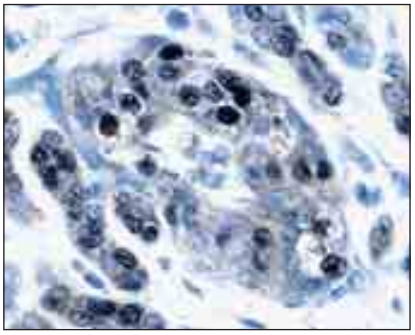
Application: Immunohistochemistry

Product: Human PDX-1/IPF1 Polyclonal Catalog # AF2419

Reference(s):

Yao, S. *et al.* (2006) Long-term self-renewal and directed differentiation of human embryonic stem cells in chemically defined conditions. Proc. Natl. Acad. Sci. USA **103**:6907.

Sample(s) Tested: human embryonic stem cell-derived pancreatic lineage cells



PDX-1 in Human Pancreatic Cancer. PDX-1 was detected in paraffin-embedded human pancreatic cancer tissue sections using anti-human PDX-1 polyclonal antibody (Catalog # AF2419). The tissue was stained using the anti-goat HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS008; brown) and counterstained with hematoxylin (blue).

Phospho-Tyrosine

see Tyrosine (page 23)

Ret

Application: Immunohistochemistry

Product: Mouse Ret Biotin-Polyclonal Catalog # BAF482

Reference(s):

Lee, J.J. *et al.* (2006) A dog pedigree with familial medullary thyroid cancer. Int. J. Oncol. **29**:1173.
Sample(s) Tested: canine thyroid

Product: Mouse Ret Polyclonal Catalog # AF482

Reference(s):

Hofmann, M.C. *et al.* (2005) Immortalization of mouse germ line stem cells. Stem Cells **23**:200.
Sample(s) Tested: mouse C18-4 putative germ cell line

Application: Immunoprecipitation

Product: Mouse Ret Polyclonal Catalog # AF482

Reference(s):

Schuetz, G. *et al.* (2004) The neuronal scaffold protein Shank3 mediates signaling and biological function of the receptor tyrosine kinase Ret in epithelial cells. J. Cell Biol. **167**:945.
Sample(s) Tested: mouse kidney

Application: Neutralization

Product: Mouse Ret Polyclonal Catalog # AF482

Reference(s):

Paratcha, G. *et al.* (2003) The neural cell adhesion molecule NCAM is an alternative signaling receptor for GDNF family ligands. Cell **113**:867.
Sample(s) Tested: rat and mouse cortical cells

Application: Western Blot

Product: Mouse Ret Monoclonal Catalog # MAB482

Reference(s):

Cerchia, L. *et al.* (2003) The soluble ectodomain of RetC634Y inhibits both the wild-type and the constitutively active Ret. Biochem. J. **372**:897.
Sample(s) Tested: rat PC12 cell line expressing human RETC634Y

Product: Mouse Ret Polyclonal Catalog # AF482

Reference(s):

Tsui-Pierchala, B.A. *et al.* (2002) The long and short isoforms of Ret function as independent signaling complexes. J. Biol. Chem. **277**:34618.
Sample(s) Tested: rat CHP126 neuroblastoma cell line

RSK

Application: Western Blot

Product: Human/Mouse/Rat Phospho-RSK (T573) Polyclonal Catalog # AF8891

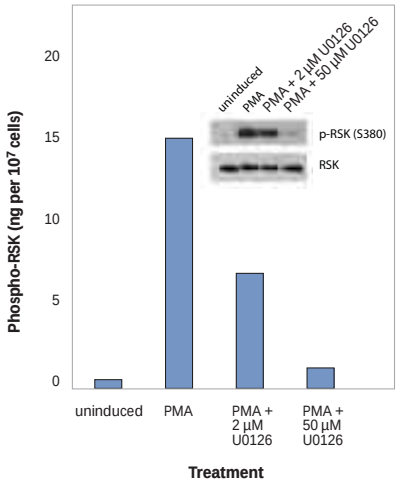
Reference(s):

Roux, P.P. *et al.* (2003) Phosphorylation of p90 ribosomal S6 kinase (RSK) regulates extracellular signal-regulated kinase docking and RSK activity. Mol. Cell. Biol. **23**:4796.
Sample(s) Tested: human HEK293 embryonic kidney cells transfected with RSK1

Product: Human/Mouse/Rat Phospho-RSK (S380) Polyclonal Catalog # AF889

Reference(s):

Woo, M.S. *et al.* (2004) Ribosomal S6 kinase (RSK) regulates phosphorylation of filamin A on an important regulatory site. Mol. Cell. Biol. **24**:3025.
Sample(s) Tested: human HEK293E EBV transformed embryonic kidney cell line and rat 3Y1 fibroblast cell line



Phosphorylated RSK (S380) in HeLa Cells. Human cervical cancer HeLa cells were incubated with PMA with or without the MEK1/2 inhibitor U0126. Lysates from treated and untreated cells were assessed by Western blot (inset) using rabbit anti-human/mouse/rat RSK Pan polyclonal antibody (Catalog # AF2056) and rabbit anti-human/mouse/rat phospho RSK (S380) polyclonal antibody (Catalog # AF889). The results are consistent with the amounts of phosphorylated RSK detected in the same lysates by the phospho-RSK (S380) DuoSet IC ELISA (Catalog # DYC889; histogram).

SCF R/c-kit

Application: Flow Cytometry

Product: Human SCF R/c-kit Biotin-Polyclonal Catalog # BAF332

Reference(s):

Ornatsky, O. *et al.* (2006) Multiple cellular antigen detection by ICP-MS. J. Immunol. Methods **308**:68.
Sample(s) Tested: human MBA-4 cells derived from Mo7e megakaryocytic leukemic cell line transfected with BCR/Abl

Product: Human SCF R/c-kit Monoclonal Catalog # MAB332

Reference(s):

Ameredes, B.T. & W.J. Calhoun. (2005) Modulation of GM-CSF release by enantiomers of β-agonists in human airway smooth muscle. J. Allergy Clin. Immunol. **116**:65.
Sample(s) Tested: human basophils

Application: Immunoprecipitation

Product: Human SCF R/c-kit Monoclonal Catalog # MAB332

Reference(s):

Pan, J. *et al.* (2007) EXEL-0862, a novel tyrosine kinase inhibitor, induces apoptosis *in vitro* and *ex vivo* in human mast cells expressing the KIT D816V mutation. Blood **109**:315.
Sample(s) Tested: human HMC-1.1 and HMC1.2 mast cell lines

Application: Western Blot

Product: Human SCF R/c-kit Polyclonal Catalog # AF332

Reference(s):

Levesque, J.P. *et al.* (2003) Granulocyte colony-stimulating factor induces the release in the bone marrow of proteases that cleave c-KIT receptor (CD117) from the surface of hematopoietic progenitor cells. Exp. Hematol. **31**:109.
Sample(s) Tested: human neutrophils

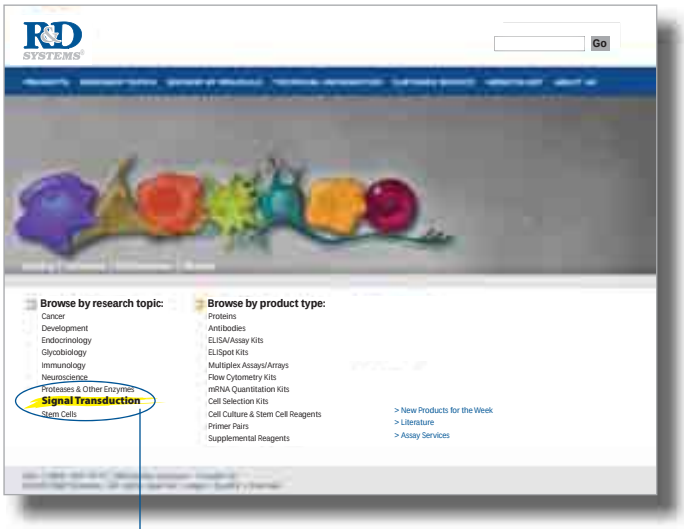
Product: Human SCF R/c-kit Monoclonal Catalog # MAB332

Reference(s):

Pan, J. *et al.* (2007) EXEL-0862, a novel tyrosine kinase inhibitor, induces apoptosis *in vitro* and *ex vivo* in human mast cells expressing the KIT D816V mutation. Blood **109**:315.
Sample(s) Tested: human HMC-1.1 and HMC1.2 mast cell lines

Molecule	Monoclonal Antibodies	Polyclonal Antibodies	Biotinylated Antibodies	Fluorochrome-labeled Antibodies	Phospho-Antibodies
TRAF-2	H M R	H			
TRAF-3		H			
TRAF-4		H			
TRAF-6		H			
TrkA	H R	H M R	R	H	(Y490)
TrkB	H M	H M	H M		
TrkC	H M	H M	H M	H	
TSC22		M R			
Tyk2	H				
Phospho-Tyrosine	Ms		Ms		
Ubiquitin	H	H	H		
UTF1		H			
Vanilloid R1		R			
Vanilloid R-like 3		H			
Vav-1		H			
VDR/NR1I1	H				
VEGF R				H	
VEGF R1/Flt-1	H M	H M	H M	H M	
VEGF R2/KDR/Flk-1	H M	H M	H M	H	(Y1214)
VEGF R3/Flt-4	H M	H M	H M	H	
VHR	H M R				
WNK1		M R			
Yes	H M R	H R			
YY1		H			
ZNF24		H			

Key: **H** Human **M** Mouse **R** Rat **B** Bovine **Ca** Canine **Ch** Chicken **CR** Cotton Rat **D** *Drosophila* **E** Equine **F** Feline **Ms** Multi Species **P** Porcine **Pr** Primate **Rb** Rabbit **Tg** *T. gondii* **V** Viral **X** *Xenopus* **Z** Zebrafish



*Please visit **www.RnDSystems.com** and click on Signal Transduction under the **Browse by research topic** menu for a complete listing of Signal Transduction products.*

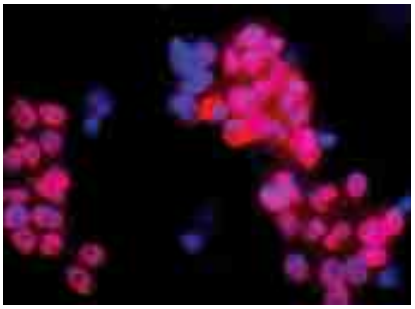
SOX2

Application: Immunohistochemistry

Product: Human/Mouse SOX2 Monoclonal
Catalog # MAB2018

Reference(s):

Korkola, J.E. *et al.* (2006) Down-regulation of stem cell genes, including those in a 200-kb gene cluster at 12p13.31, is associated with *in vivo* differentiation of human male germ cell tumors. Cancer Res. **66**:820.
Sample(s) Tested: human germ cell tumor



SOX2 in NTera-2 Cells. SOX2 was detected in human embryonal teratocarcinoma NTera-2 cells using anti-human SOX2 monoclonal antibody (Catalog # MAB2018). Cells were stained using Alexa Fluor568-conjugated anti-mouse secondary antibody (red). The nuclei were counterstained with DAPI (blue). *Image courtesy of Jingli Cai and Mahendra Rao, National Institutes of Health.*

SOX17

Application: Immunohistochemistry

Product: Human SOX17 Polyclonal
Catalog # AF1924

Reference(s):

Yao, S. *et al.* (2006) Long-term self-renewal and directed differentiation of human embryonic stem cells in chemically defined conditions. Proc. Natl. Acad. Sci. USA **103**:6907.
Sample(s) Tested: human embryonic stem cell-derived definitive endodermal cells

Product: Human SOX17 Monoclonal
Catalog # MAB1924

Reference(s):

Kim, B.K. *et al.* (2006) Neurogenic effect of vascular endothelial growth factor during germ layer formation of human embryonic stem cells. FEBS Lett. **580**:5869.
Sample(s) Tested: human embryonic stem cell-derived definitive endodermal cells

STAT1

Application: Immunoprecipitation

Product: Human/Mouse STAT1 p91 Polyclonal
Catalog # PAF-ST1

Reference(s):

Subramaniam, P.S. & H.M. Johnson. (2002) Lipid microdomains are required sites for the selective endocytosis and nuclear translocation of IFN-γ, its receptor chain IFN-γ receptor-1, and the phosphorylation and nuclear translocation of STAT1α. J. Immunol. **169**:1959.
Sample(s) Tested: human WISH amniotic cell line

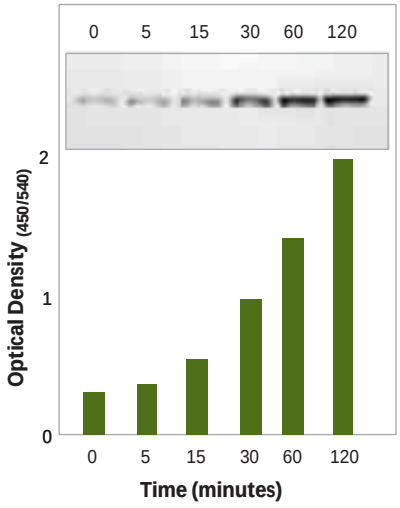
STAT4

Application: Western Blot

Product: Human/Mouse STAT4 Polyclonal
Catalog # PAF-ST4

Reference(s):

Metcalfe, S.M. *et al.* (2005) Leukemia inhibitory factor is linked to regulatory transplantation tolerance. Transplantation **79**:726.
Sample(s) Tested: mouse splenocytes



STAT4 in IL-12-treated NK92 Cells. Human lymphoma NK92 cells were treated with IL-12 for the indicated times. Nuclear extracts were assessed by Western blot using goat anti-human STAT4 polyclonal antibody (Catalog # PAF-ST4). The results are consistent with those obtained with the Active STAT4 DuoSet IC assay (Catalog # DYC1574; histogram).

STAT5a

Application: Immunohistochemistry

Product: Human/Mouse STAT5a Monoclonal
Catalog # MAB2174

Reference(s):

Kawashima, T. *et al.* (2006) Rac1 and a GTPase-activating protein, MgcRacGAP, are required for nuclear translocation of STAT transcription factors. J. Cell Biol. **175**:937.
Sample(s) Tested: human HeLa cervical adenocarcinoma cell line

Application: Immunoprecipitation

Products: Human/Mouse STAT5a Polyclonal
Catalog # PA-ST5A

Reference(s):

Zhu, J. *et al.* (2003) Stat5 activation plays a critical role in Th2 differentiation. Immunity **19**:739.
Sample(s) Tested: mouse chromatin from Th1 cells

Application: Western Blot

Product: Human/Mouse STAT5a Monoclonal
Catalog # MAB2174

Reference(s):

Kawashima, T. *et al.* (2006) Rac1 and a GTPase-activating protein, MgcRacGAP, are required for nuclear translocation of STAT transcription factors. J. Cell Biol. **175**:937.
Sample(s) Tested: murine BaF3 pro B cell line

Product: Human/Mouse STAT5a Polyclonal
Catalog # PA-ST5A

Reference(s):

Bovolenta, C. *et al.* (2002) Retroviral interference on STAT activation in individuals coinfected with human T cell leukemia virus type 2 and HIV-1. J. Immunol. **169**:4443.
Sample(s) Tested: human T cells

STAT5a/b

Application: Western Blot

Product: Human/Mouse STAT5a/b Pan Specific Polyclonal
Catalog # AF2168

Reference(s):

Zhu, J. *et al.* (2002) Growth factor independent-1 induced by IL-4 regulates Th2 cell proliferation. Immunity **16**:733.
Sample(s) Tested: mouse T cells

STAT5b

Application: Immunohistochemistry

Product: Human/Mouse STAT5b Polyclonal
Catalog # AF1584

Reference(s):

Kawashima, T. *et al.* (2006) Rac1 and a GTPase-activating protein, MgcRacGAP, are required for nuclear translocation of STAT transcription factors. J. Cell Biol. **175**:937.
Sample(s) Tested: human HeLa cervical adenocarcinoma cell line

Application: Western Blot

Product: Human/Mouse STAT5b Polyclonal
Catalog # AF1584

Reference(s):

Kawashima, T. *et al.* (2006) Rac1 and a GTPase-activating protein, MgcRacGAP, are required for nuclear translocation of STAT transcription factors. J. Cell Biol. **175**:937.
Sample(s) Tested: mouse BaF3 pro-B cell line

Product: Human/Mouse STAT5b Polyclonal
Catalog # PA-ST5B

Reference(s):

Diveu, C. *et al.* (2004) Predominant expression of the long isoform of GP130-like (GPL) receptor is required for interleukin-31 signaling. Eur. Cytokine Netw. **15**:291.
Sample(s) Tested: mouse BaF3 pro-B cell line transfected with human OSMR or gp130

STAT6

Application: Immunohistochemistry

Product: Human/Mouse/Rat STAT6 Polyclonal
Catalog # AF2167

Reference(s):

Nikonenko, A.G. *et al.* (2006) Enhanced perisomatic inhibition and impaired long-term potentiation in the CA1 region of juvenile CHL1-deficient mice. Eur. J. Neurosci. **23**:1839.
Sample(s) Tested: mouse brain

Application: Immunoprecipitation

Product: Human/Mouse STAT6 Polyclonal
Catalog # PA-ST6

Reference(s):

Hasegawa, A. *et al.* (2006) Impaired GATA3-dependent chromatin remodeling and Th2 cell differentiation leading to attenuated allergic airway inflammation in aging mice. J. Immunol. **176**:2546.
Sample(s) Tested: mouse T cells

STAT6 Continued

Application: Western Blot

Product: Human/Mouse STAT6 Polyclonal
Catalog # PA-ST6

Reference(s):

Hasegawa, A. *et al.* (2006) Impaired GATA3-dependent chromatin remodeling and Th2 cell differentiation leading to attenuated allergic airway inflammation in aging mice. J. Immunol. **176**:2546.
Sample(s) Tested: mouse T cells

Tie-1

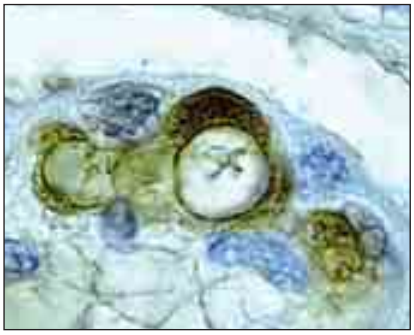
Application: Immunohistochemistry

Product: Human Tie-1 Monoclonal
Catalog # MAB619

Reference(s):

Kayisli, U.A. *et al.* (2006) Spatial and temporal distribution of Tie-1 and Tie-2 during very early development of the human placenta. Placenta **27**:648.
Sample(s) Tested: human placenta

Product: Human Tie-1 Polyclonal
Catalog # AF619



Tie-1 in Human Placenta. Tie-1 was detected in paraffin-embedded human placenta tissue sections using anti-human Tie-1 polyclonal antibody (Catalog # AF619). The tissue was stained using the anti-goat HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS008; brown) and counterstained with hematoxylin (blue).

Product: Human Tie-1 Polyclonal
Catalog # AF619

Reference(s):

Marron, M.B. *et al.* (2000) Evidence for heterotypic interaction between the receptor tyrosine kinases TIE-1 and TIE-2. J. Biol. Chem. **275**:39741.
Sample(s) Tested: human umbilical vein endothelial cells

Application: Western Blot

Product: Human Tie-1 Monoclonal
Catalog # MAB619

Reference(s):

Kayisli, U.A. *et al.* (2006) Spatial and temporal distribution of Tie-1 and Tie-2 during very early development of the human placenta. Placenta **27**:648.
Sample(s) Tested: human placenta

Product: Human Tie-1 Polyclonal
Catalog # AF619

Reference(s):

Kim, K.L. *et al.* (2006) Interaction between Tie receptors modulates angiogenic activity of angiopoietin2 in endothelial progenitor cells. Cardiovasc. Res. **72**:394.
Sample(s) Tested: human umbilical vein endothelial and endothelial progenitor cells

Tie-2

Application: Flow Cytometry

Product: Mouse Tie-2 Polyclonal
Catalog # AF762

Reference(s):

Feistritzer, C. *et al.* (2004) Expression and function of the angiopoietin receptor Tie-2 in human eosinophils. J. Allergy Clin. Immunol. **114**:1077.
Sample(s) Tested: human eosinophils

Application: Immunohistochemistry

Product: Human Tie-2 Polyclonal
Catalog # AF313

Reference(s):

Morris, P.N. *et al.* (2005) Functional analysis of a mutant form of the receptor tyrosine kinase Tie2 causing venous malformations. J. Mol. Med. **83**:58.
Sample(s) Tested: human vein tissue and human umbilical vein endothelial cells (wild type and transfected R849W Tie2a)

Product: Human Tie-2 Polyclonal
Catalog # AF313

Reference(s):

Kayisli, U.A. *et al.* (2006) Spatial and temporal distribution of Tie-1 and Tie-2 during very early development of the human placenta. Placenta **27**:648.
Sample(s) Tested: human placenta

Application: Immunoprecipitation

Product: Human Tie-2 Polyclonal
Catalog # AF313

Reference(s):

Kim, K.L. *et al.* (2006) Interaction between Tie receptors modulates angiogenic activity of angiopoietin2 in endothelial progenitor cells. Cardiovasc. Res. **72**:394.
Sample(s) Tested: human endothelial progenitor cells

Application: *In Vivo*

Product: Mouse Tie-2 Polyclonal
Catalog # AF762

Reference(s):

Ohab, J.J. *et al.* (2006) A neurovascular niche for neurogenesis after stroke. J. Neurosci. **26**:13007.
Sample(s) Tested: mouse

Application: Neutralization

Product: Human Tie-2 Polyclonal
Catalog # AF313

Reference(s):

Lemieux, C. *et al.* (2005) Angiopoietins can directly activate endothelial cells and neutrophils to promote proinflammatory responses. Blood **105**:1523.
Sample(s) Tested: human neutrophils

Product: Mouse Tie-2 Polyclonal
Catalog # AF762

Reference(s):

Feistritzer, C. *et al.* (2004) Expression and function of the angiopoietin receptor Tie-2 in human eosinophils. J. Allergy Clin. Immunol. **114**:1077.
Sample(s) Tested: human eosinophils

Application: Western Blot

Product: Human Tie-2 Polyclonal
Catalog # AF313

Reference(s):

Kayisli, U.A. *et al.* (2006) Spatial and temporal distribution of Tie-1 and Tie-2 during very early development of the human placenta. Placenta **27**:648.
Sample(s) Tested: human placenta

Product: Human Tie-2 Monoclonal
Catalog # MAB313

Reference(s):

Giuliani, N. *et al.* (2003) Proangiogenic properties of human myeloma cells: production of angiopoietin-1 and its potential relationship to myeloma-induced angiogenesis. Blood **102**:638.
Sample(s) Tested: human umbilical vein endothelial cells

Product: Mouse Tie-2 Polyclonal
Catalog # AF762

Reference(s):
Luo, Y. *et al.* (2006) Immunotherapy of tumors with protein vaccine based on chicken homologous Tie-2. Clin. Cancer Res. **12**:1813.
Sample(s) Tested: mouse and chicken recombinant Tie-2

TrkB

Application: Flow Cytometry

Product: Human TrkB Monoclonal
Catalog # MAB397

Reference(s):
Gleissner, C.A. *et al.* (2007) IL-10 inhibits endothelium-dependent T cell costimulation by up-regulation of ILT3/4 in human vascular endothelial cells. Eur. J. Immunol. **37**:177.
Sample(s) Tested: human umbilical vein endothelial cells

TrkC

Application: Immunohistochemistry

Product: Mouse TrkC Polyclonal
Catalog # AF1404

Reference(s):
Browd, S.R. *et al.* (2006) N-myc can substitute for insulin-like growth factor signaling in a mouse model of sonic hedgehog-induced medulloblastoma. Cancer Res. **66**:2666.
Sample(s) Tested: mouse medulloblastoma

Phospho-Tyrosine

Application: Western Blot

Product: Phospho-Tyrosine Monoclonal
Catalog # MAB1676

Reference(s):
Fujikawa, T. *et al.* (2007) Des-γ-carboxyl prothrombin-promoted vascular endothelial cell proliferation and migration. J. Biol. Chem. **282**:8741.
Sample(s) Tested: human umbilical vein endothelial cells

Ubiquitin

Application: Western Blot

Product: Human Ubiquitin Monoclonal
Catalog # MAB701

Reference(s):
Yang, Q.H. & C. Du. (2004) Smac/DIABLO selectively reduces the levels of c-IAP1 and c-IAP2 but not that of XIAP and livin in HeLa cells. J. Biol. Chem. **279**:16963.
Sample(s) Tested: human recombinant IAP products

VEGF R1

Application: Flow Cytometry

Product: Human VEGF R1/Flt-1 PE-Monoclonal
Catalog # FAB321P

Reference(s):
Mu, H. *et al.* (2006) Adipokine resistin promotes *in vitro* angiogenesis of human endothelial cells. Cardiovasc. Res. **70**:146.
Sample(s) Tested: human coronary artery endothelium

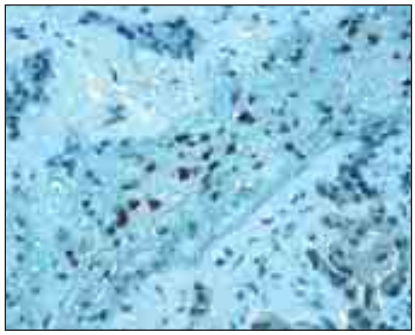
Product: Human VEGF R1/Flt-1 Biotin-Polyclonal
Catalog # BAF321

Reference(s):
Eichler, W. *et al.* (2004) PEDF derived from glial Müller cells: a possible regulator of retinal angiogenesis. Exp. Cell Res. **299**:68.
Sample(s) Tested: human MIO-M1 Müller cell line

Application: Immunohistochemistry

Product: Human VEGF R1/Flt-1 Monoclonal
Catalog # MAB321

Reference(s):
Wilgus, T.A. *et al.* (2005) Novel function for vascular endothelial growth factor receptor-1 on epidermal keratinocytes. Am. J. Pathol. **167**:1257.
Sample(s) Tested: human normal epidermal keratinocyte



VEGF R1 in Human Ovarian Cancer. VEGF R1/Flt-1 was detected in paraffin-embedded human ovarian cancer tissue sections using anti-human VEGF R1 monoclonal antibody (Catalog # MAB321). Tissue was stained using the anti-mouse HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS002; brown) and counterstained with hematoxylin (blue). Antigen retrieval was performed using Basic pH Retrieval Reagent (Catalog # CTS013).

Product: Mouse VEGF R1/Flt-1 Biotin-Polyclonal
Catalog # BAF471

Reference(s):
Wilgus, T.A. *et al.* (2005) Novel function for vascular endothelial growth factor receptor-1 on epidermal keratinocytes. Am. J. Pathol. **167**:1257.
Sample(s) Tested: mouse skin wound

Product: Mouse VEGF R1/Flt-1 Polyclonal
Catalog # AF471

Reference(s):
Gudehithlu, K.P. *et al.* (2005) Antagonism of vascular endothelial growth factor results in microvessel attrition and disorganization of wound tissue. J. Lab. Clin. Med. **145**:194.
Sample(s) Tested: rat granuloma

Application: Immunoprecipitation

Product: Human VEGF R1/Flt-1 Polyclonal
Catalog # AF321

Reference(s):
Kanda, S. *et al.* (2004) Fibroblast growth factor-2-mediated capillary morphogenesis of endothelial cells requires signals via Flt-1/vascular endothelial growth factor receptor-1: possible involvement of c-Akt. J. Biol. Chem. **279**:4007.
Sample(s) Tested: human brain capillary epithelial cells and porcine aortic endothelial cells expressing human VEGF R2/KDR

Product: Mouse VEGF R1/Flt-1 Polyclonal
Catalog # AF471

Reference(s):
Kanda, S. *et al.* (2004) Fibroblast growth factor-2-mediated capillary morphogenesis of endothelial cells requires signals via Flt-1/vascular endothelial growth factor receptor-1: possible involvement of c-Akt. J. Biol. Chem. **279**:4007.
Sample(s) Tested: mouse IBE brain capillary and spleen epithelial cells

Application: *In Vivo*

Product: Mouse VEGF R1/Flt-1 Polyclonal
Catalog # AF471

Reference(s):
Nozaki, M. *et al.* (2006) Loss of SPARC-mediated VEGFR-1 suppression after injury reveals a novel antiangiogenic activity of VEGF-A. J. Clin. Invest. **116**:422.
Sample(s) Tested: mouse

Application: Neutralization

Product: Human VEGF R1/Flt-1 Polyclonal
Catalog # AF321

Reference(s):
Wilgus, T.A. *et al.* (2005) Novel function for vascular endothelial growth factor receptor-1 on epidermal keratinocytes. Am. J. Pathol. **167**:1257.
Sample(s) Tested: human normal epidermal keratinocyte

VEGF R1 Continued

Application: Western Blot

Product: Human VEGF R1/Flt-1 Biotin-Polyclonal Catalog # BAF321

Reference(s):

Eichler, W. *et al.* (2004) PEDF derived from glial Müller cells: a possible regulator of retinal angiogenesis. Exp. Cell Res. **299**:68.

Sample(s) Tested: human MIO-M1 Müller cell line

Product: Human VEGF R1/Flt-1 Polyclonal Catalog # AF321

Reference(s):

Kanda, S. *et al.* (2004) Fibroblast growth factor-2-mediated capillary morphogenesis of endothelial cells requires signals via Flt-1/vascular endothelial growth factor receptor-1: possible involvement of c-Akt. J. Biol. Chem. **279**:4007.

Sample(s) Tested: human umbilical vein endothelial cells and porcine aortic endothelial cells expressing human VEGF R2/KDR

Product: Mouse VEGF R1/Flt-1 Polyclonal Catalog # AF471

Reference(s):

Kanda, S. *et al.* (2004) Fibroblast growth factor-2-mediated capillary morphogenesis of endothelial cells requires signals via Flt-1/vascular endothelial growth factor receptor-1: possible involvement of c-Akt. J. Biol. Chem. **279**:4007.

Sample(s) Tested: mouse IBE brain capillary and spleen epithelial cells

VEGF R2

Application: ELISA Development

Product: Human VEGF R2/KDR/Flk-1 Monoclonal Catalog # MAB3573

Reference(s):

Oliner, J. *et al.* (2004) Suppression of angiogenesis and tumor growth by selective inhibition of angiopoietin-2. Cancer Cell **6**:507.

Sample(s) Tested: human recombinant VEGF R peptides

Product: Mouse VEGF R2/KDR/Flk-1 Polyclonal Catalog # AF644

Reference(s):

Raskopf, E. *et al.* (2005) Effective angiostatic treatment in a murine metastatic and orthotopic hepatoma model. Hepatology **41**:1233.

Sample(s) Tested: mouse serum and human A549 alveolar epithelial cell line transfected with mouse VEGF R2/Flk-1

Application: Flow Cytometry

Product: Human VEGF R2/KDR/Flk-1 APC-Monoclonal Catalog # FAB357A

Reference(s):

Thom, S.R. *et al.* (2006) Stem cell mobilization by hyperbaric oxygen. Am. J. Physiol. Heart Circ. Physiol. **290**:H1378.

Sample(s) Tested: human monocytes

Product: Human VEGF R2/KDR/Flk-1 PE-Monoclonal Catalog # FAB357P

Reference(s):

Narazaki, M. & G. Tosato. (2006) Ligand-induced internalization selects use of common receptor neuropilin-1 by VEGF165 and semaphorin3A. Blood **107**:3892.

Sample(s) Tested: human umbilical vein endothelial cells

Product: Human VEGF R2/KDR/Flk-1 Biotin-Polyclonal Catalog # BAF357

Reference(s):

Eichler, W. *et al.* (2004) PEDF derived from glial Müller cells: a possible regulator of retinal angiogenesis. Exp. Cell Res. **299**:68.

Sample(s) Tested: human MIO-M1 Müller cell line

Product: Human VEGF R2/KDR/Flk-1 Monoclonal Catalog # MAB3572

Reference(s):

Sreekumar, P.G. *et al.* (2006) Thiol regulation of vascular endothelial growth factor-A and its receptors in human retinal pigment epithelial cells. Biochem. Biophys. Res. Commun. **346**:1200.

Sample(s) Tested: human retinal pigment epithelial

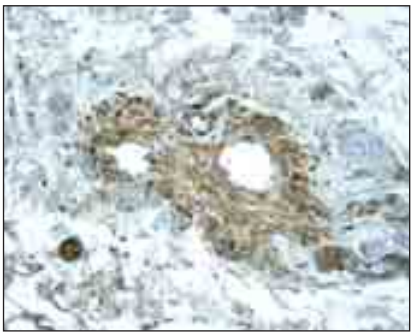
Application: Immunohistochemistry

Product: Human VEGF R2/KDR/Flk-1 Monoclonal Catalog # MAB3571

Reference(s):

Bussolati, B. *et al.* (2005) Isolation of renal progenitor cells from adult human kidney. Am. J. Pathol. **166**:545.

Sample(s) Tested: human $CD133^+$ renal cells



VEGF R2 in Human Placenta. VEGF R2 was detected in paraffin-embedded human placenta tissue sections using anti-human VEGF R2 monoclonal antibody (Catalog # MAB3571). The tissue was stained using the anti-mouse HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS002; brown) and counterstained with hematoxylin (blue).

Product: Human VEGF R2/KDR/Flk-1 Polyclonal Catalog # AF357

Reference(s):

Roberts, N. *et al.* (2006) Inhibition of VEGFR-3 activation with the antagonistic antibody more potently suppresses lymph node and distant metastases than inactivation of VEGFR-2. Cancer Res. **66**:2650.

Sample(s) Tested: mouse tumor metastasis, lymph node, and lung

Product: Mouse VEGF R2/KDR/Flk-1 Monoclonal Catalog # MAB443

Reference(s):

Siddiqui, A.J. *et al.* (2004) Simvastatin enhances myocardial angiogenesis induced by vascular endothelial growth factor gene transfer. J. Mol. Cell. Cardiol. **37**:1235.

Sample(s) Tested: mouse ventricular tissue

Product: Mouse VEGF R2/KDR/Flk-1 Polyclonal Catalog # AF644

Reference(s):

Gerhardt, H. *et al.* (2003) VEGF guides angiogenic sprouting utilizing endothelial tip cell filopodia. J. Cell Biol. **161**:1163.

Sample(s) Tested: rat retina

Product: Mouse VEGF R2/KDR/Flk-1 Biotin-Polyclonal Catalog # BAF644

Reference(s):

Wilgus, T.A. *et al.* (2005) Novel function for vascular endothelial growth factor receptor-1 on epidermal keratinocytes. Am. J. Pathol. **167**:1257.

Sample(s) Tested: mouse wound

Application: Immunoprecipitation

Product: Mouse VEGF R2/KDR/Flk-1 Polyclonal Catalog # AF644

Reference(s):

Kanda, S. *et al.* (2004) Fibroblast growth factor-2-mediated capillary morphogenesis of endothelial cells requires signals via Flt-1/vascular endothelial growth factor receptor-1: possible involvement of c-Akt. J. Biol. Chem. **279**:4007.

Sample(s) Tested: mouse IBE brain capillary and spleen epithelial cells

Application: *In Vivo*

Product: Mouse VEGF R2/KDR/Flk-1 Polyclonal Catalog # AF644

Reference(s):

Nozaki, M. *et al.* (2006) Loss of SPARC-mediated VEGFR-1 suppression after injury reveals a novel antiangiogenic activity of VEGF-A. J. Clin. Invest. **116**:422.

Sample(s) Tested: mouse

Application: Neutralization

Product: Human VEGF R2/KDR/Flk-1 Monoclonal
Catalog # MAB3571

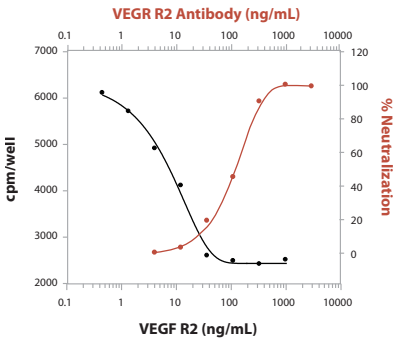
Reference(s):

Yang, X.H. *et al.* (2006) Expression of VEGFR-2 on HaCaT cells is regulated by VEGF and plays an active role in mediating VEGF induced effects. Biochem. Biophys. Res. Commun. **349**:31.
Sample(s) Tested: human HaCaT keratinocyte cell line

Product: Human VEGF R2/KDR/Flk-1 Polyclonal
Catalog # AF357

Reference(s):

De, S. *et al.* (2003) Molecular pathway for cancer metastasis to bone. J. Biol. Chem. **278**:39044.
Sample(s) Tested: human LNCaP, LNCaP-C4-2, PC3, and CWR22Rv1-H prostate cancer cell lines



Neutralization of VEGF R2 Activity. Recombinant human VEGF R2 (Catalog # 357-KD) inhibits VEGF-induced proliferation of human umbilical vein endothelial cells (black). This effect is neutralized in a dose-dependent manner using anti-human VEGF R2 polyclonal antibody (Catalog # AF357; red). Cell proliferation was assessed by ^{3}H-thymidine incorporation.

Product: Mouse VEGF R2/KDR/Flk-1 Polyclonal
Catalog # AF644

Reference(s):

Bocker-Meffert, S. *et al.* (2002) Erythropoietin and VEGF promote neural outgrowth from retinal explants in postnatal rats. Invest. Ophthalmol. Vis. Sci. **43**:2021.
Sample(s) Tested: rat retina

Application: Western Blot

Product: Human VEGF R2/KDR/Flk-1 Biotin-Polyclonal
Catalog # BAF357

Reference(s):

Eichler, W. *et al.* (2004) PEDF derived from glial Müller cells: a possible regulator of retinal angiogenesis. Exp. Cell Res. **299**:68.
Sample(s) Tested: human MIO-M1 Müller cell line

Product: Human VEGF R2/KDR/Flk-1 Monoclonal
Catalog # MAB3571

Reference(s):

Yang, X.H. *et al.* (2006) Expression of VEGFR-2 on HaCaT cells is regulated by VEGF and plays an active role in mediating VEGF induced effects. Biochem. Biophys. Res. Commun. **349**:31.
Sample(s) Tested: human HaCaT keratinocyte cell line

Product: Human VEGF R2/KDR/Flk-1 Polyclonal
Catalog # AF357

Reference(s):

Kanda, S. *et al.* (2004) Fibroblast growth factor-2-mediated capillary morphogenesis of endothelial cells requires signals via Flt-1/vascular endothelial growth factor receptor-1: possible involvement of c-Akt. J. Biol. Chem. **279**:4007.
Sample(s) Tested: human umbilical vein endothelial cells and porcine aortic endothelial cells expressing human VEGF R2/KDR

Product Mouse VEGF R2/KDR/Flk-1 Polyclonal
Catalog # AF644

Reference(s):

Dikov, M.M. *et al.* (2005) Differential roles of vascular endothelial growth factor receptors 1 and 2 in dendritic cell differentiation. J. Immunol. **174**:215.
Sample(s) Tested: mouse hematopoietic progenitor cells

VEGF R3

Application: Immunohistochemistry

Product: Human VEGF R3/Flt-4 Monoclonal
Catalog # MAB3491

Reference(s):

Su, J.L. *et al.* (2006) The VEGF-C/Flt-4 axis promotes invasion and metastasis of cancer cells. Cancer Cell **9**:209.
Sample(s) Tested: human lung

Product: Human VEGF R3/Flt-4 Polyclonal
Catalog # AF349

Reference(s):

Baluk, P. *et al.* (2005) Pathogenesis of persistent lymphatic vessel hyperplasia in chronic airway inflammation. J. Clin. Invest. **115**:247.
Sample(s) Tested: mouse trachea

Product: Mouse VEGF R3/Flt-4 Biotin-Polyclonal
Catalog # BAF743

Reference(s):

Gale, N.W. *et al.* (2007) Normal lymphatic development and function in mice deficient for the lymphatic hyaluronan receptor LYVE-1. Mol. Cell. Biol. **27**:595.
Sample(s) Tested: mouse intestine

Product: Mouse VEGF R3/Flt-4 Polyclonal
Catalog # AF743

Reference(s):

Ruddell, A. *et al.* (2003) B lymphocyte-specific c-Myc expression stimulates early and functional expansion of the vasculature and lymphatics during lymphomagenesis. Am. J. Pathol. **163**:2233.
Sample(s) Tested: mouse bone marrow mononuclear cells

Application: Immunoprecipitation

Product: Human VEGF R3/Flt-4 Polyclonal
Catalog # AF349

Reference(s):

Bando, H. *et al.* (2004) Immunodetection and quantification of vascular endothelial growth factor receptor-3 in human malignant tumor tissues. Int. J. Cancer **111**:184.
Sample(s) Tested: human umbilical vein and dermal microvascular endothelial cells, and tumor tissue

Application: Western Blot

Product: Human VEGF R3/Flt-4 Polyclonal
Catalog # AF349

Reference(s):

Su, J.L. *et al.* (2004) Cyclooxygenase-2 induces EP1- and HER-2/Neu-dependent vascular endothelial growth factor-C up-regulation: a novel mechanism of lymphangiogenesis in lung adenocarcinoma. Cancer Res. **64**:554.
Sample(s) Tested: human A549, PC14, H322, H1209, and CL5 lung adenocarcinoma cell lines transfected with COX-2

Product: Mouse VEGF R3/Flt-4 Polyclonal
Catalog # AF743

Reference(s):

Fra, A.M. *et al.* (2003) Cutting edge: scavenging of inflammatory CC chemokines by the promiscuous putatively silent chemokine receptor D6. J. Immunol. **170**:2279.
Sample(s) Tested: mouse MLEC-2 lymphatic endothelial cell line transfected with human silent chemokine receptor D6

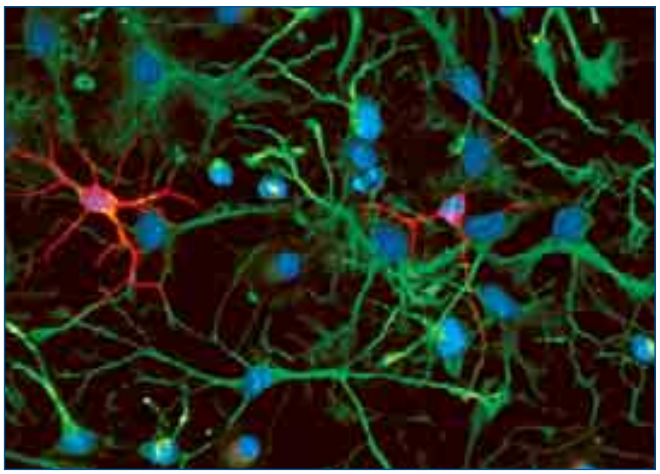
Secondary Reagents

NorthernLights™

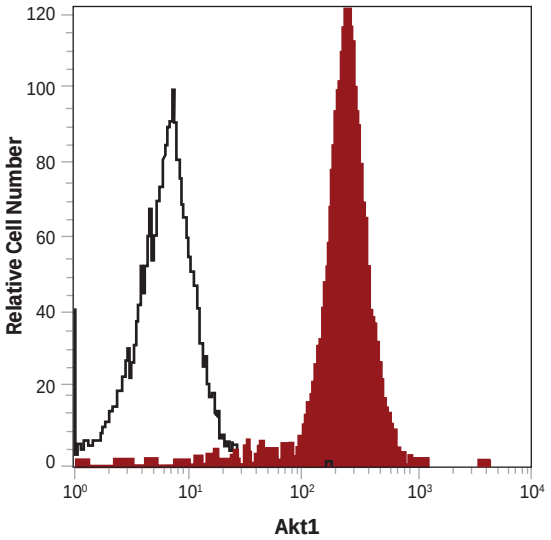
A new line of fluorochrome-conjugates for flow cytometry & IHC

The addition of the NorthernLights line of fluorescent secondary antibodies makes R&D Systems your complete source for immunofluorescence reagents.

NorthernLights secondary antibodies are bright and fade-resistant, recognizing mouse, goat, sheep, and rabbit IgG. Like all R&D Systems antibodies, NorthernLights antibody conjugates are specific and deliver a high signal-to-noise ratio. Also available are streptavidin conjugates for labeling biotinylated antibodies.



Neural progenitors were labeled with anti-rat Nestin polyclonal antibody (Catalog # AF2736) and stained with NorthernLights-493-conjugated donkey anti-goat secondary anti-body (Catalog # NL003; green). Differentiated neurons were labeled with neuron-specific mouse anti-β-III tubulin monoclonal antibody (TuJ1; Catalog # MAB1195) and stained using donkey anti-mouse NorthernLights-557 secondary antibody (Catalog # NL007; red). Nuclei were stained with DAPI (blue).



Jurkat T cells were fixed, permeabilized, and incubated with anti-human Akt1 monoclonal antibody (Catalog # MAB17751). Cells were then stained with anti-mouse IgG NorthernLights-637 (Catalog #NL008; rust histogram). Control staining was done by incubating cells in IgG1 isotype control monoclonal antibody (Catalog # MAB002), followed by the staining with NorthernLights-637 (open histogram).

NorthernLights Antibody/Label	Catalog #	Abs/Em Maxima	Laser (Ex)	Comparable Fluorochromes
NorthernLights-493 anti-Rabbit IgG anti-Mouse IgG anti-Goat IgG anti-Sheep IgG Streptavidin	 NL006 NL009 NL003 NL012 NL997	493/514	Argon (488)	FITC (492/520) Cy™2 (489/506) Alexa Fluor® 488 (494/519)
NorthernLights-557 anti-Rabbit IgG anti-Mouse IgG anti-Goat IgG anti-Sheep IgG Streptavidin	 NL004 NL007 NL001 NL010 NL999	557/575	Krypton (568) HeNe (543)	Phycoerythrin (565/575) Rhodamine Red X (570/590) Cy™3 (548/562)
NorthernLights-637 anti-Rabbit IgG anti-Mouse IgG anti-Goat IgG anti-Sheep IgG Streptavidin	 NL005 NL008 NL002 NL011 NL998	637/658	HeNe (633)	Allophycocyanin (645/660) Alexa Fluor® 647 (650/668) Cy™5 (650/670)

Additional Secondary Antibodies & Kits

Additional Secondary Antibodies

ANTIBODY	LABEL	HOST
anti-Chicken IgY	Btn	Goat
anti-Goat IgG	U, Btn, HRP, APC, CFS, PE	Donkey
anti-Goat IgG	Btn, HRP	Rabbit
anti-Goat IgG	U, Btn, HRP	Chicken
anti-Goat IgG	PE	Porcine
anti-Hamster IgG	U, Btn	Mouse
anti-Human IgG	U	Goat
anti-Mouse IgG	U, Btn, HRP, FITC, APC, PE	Goat
anti-Mouse IgG	U, Btn, HRP	Donkey
anti-Rabbit IgG	U, Btn, HRP, APC, CFS, PE	Goat
anti-Rabbit IgG	U	Donkey
anti-Rat IgG	U, Btn, APC, FITC, PE	Goat
anti-Sheep IgG	U, Btn, HRP	Donkey

U Unlabeled **Btn** Biotin **HRP** Horseradish Peroxidase
APC Allophycocyanin **CFS** or **FITC** Fluorescein **PE** Phycoerythrin

Cell and Tissue Staining Kits

SPECIES	LABEL	COMPONENTS
Anti-goat Anti-mouse Anti-rabbit Anti-rat	HRP-DAB System	Secondary Biotinylated Antibody, Streptavidin-HRP Conjugate, DAB Chromogen, DAB Chromogen Buffer, Blocking Reagents
Anti-goat Anti-mouse Anti-rabbit Anti-rat	HRP-AEC System	Secondary Biotinylated Antibody, Streptavidin-HRP Conjugate, AEC Chromogen, AEC Chromogen Buffer, Blocking Reagents

R&D Systems also offers Antibody Isotype controls. Visit www.RnDSystems.com for more information.

Frequently Asked Questions: R&D Systems Antibodies

What is the difference between AB##, AF##, BAF##, MAB## and other catalog prefixes for antibodies?

AB designated antibodies are protein G-purified fractions of polyclonal antibody: they contain the total IgG fraction and may include IgG not specific for the antigen. AF designated antibodies are affinity-chromatography purified against the antigen: AF antibodies contain only IgG specific to epitopes on the antigen. Antibodies that have the designation MAB are monoclonal antibodies. BAF and BAM prefixes designate biotinylated versions of the AF and MAB antibodies, respectively. FAB and IC prefixes indicate fluorochrome-labeled antibodies that are validated for flow cytometry. In particular, IC designates an intracellular flow cytometry application.

What is the molecular weight of IgG?

An IgG protein comprises two heavy chains that are approximately 50 kDa each and two light chains that are approximately 25 kDa each for a total molecular weight of approximately 150 kDa.

What epitope does the antibody recognize?

While we do not epitope map our antibodies, the immunogen used for antibody generation is listed on the technical data sheet. In most cases we use a mature, biologically active protein instead of a peptide to generate highly specific antibodies. This type of immunogen makes epitope mapping difficult.

Why should I reconstitute the antibody in PBS when the data sheet states that it is lyophilized from a PBS solution?

Our antibody production lots are usually highly concentrated and therefore lyophilized from a very small volume of PBS. This additional salt is usually insignificant when diluted to a working concentration in most applications. If the salt concentration is a concern, please contact Technical Service to acquire more information for your particular lot of antibody.

If an antibody is tested in immunocytochemistry (ICC) can it be used in immunohistochemistry (IHC) and vice versa?

R&D Systems will support any antibody that has been validated in-house for ICC *or* IHC (frozen or paraffin-embedded sections) regardless of which application is listed on the data sheet. Our Technical Specialists will work with any customer who encounters difficulties while using the validated antibody in ICC or IHC. Although we cannot guarantee that an antibody will work in all cells and/or tissues under all conditions, we can provide evidence that the antibodies do recognize the fixed antigen. In the event that the customer is unable to achieve successful staining, a product credit will be offered.

How do I decide which antibody is best for my application?

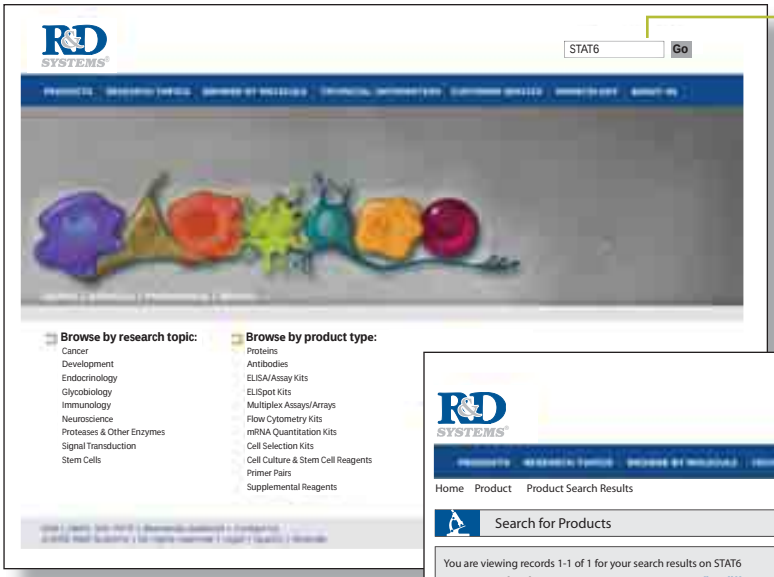
Our website features an Antibody Application field that lists all the validated applications for each antibody offered at R&D Systems. Simply enter your analyte of interest in the search box and click *Go*. After the search results appear, activate the *Antibody Application* check box. You may then refine your search by defining the parameters in the section titled *Narrow results by*. If you see multiple antibodies that may work for your application, please access the technical data sheets by clicking on the catalog number link to determine which antibody is best suited for that application (see page 28). If you do not find an antibody for your application, please feel free to contact our Technical Service department. We have thousands of references citing the use of R&D Systems antibodies on file and will be happy to help determine if the application has been demonstrated in the literature.

R&D Systems offers stringent production and rigorous application testing to ensure exceptional quality. Each of our antibodies are validated for one or more of the following applications:

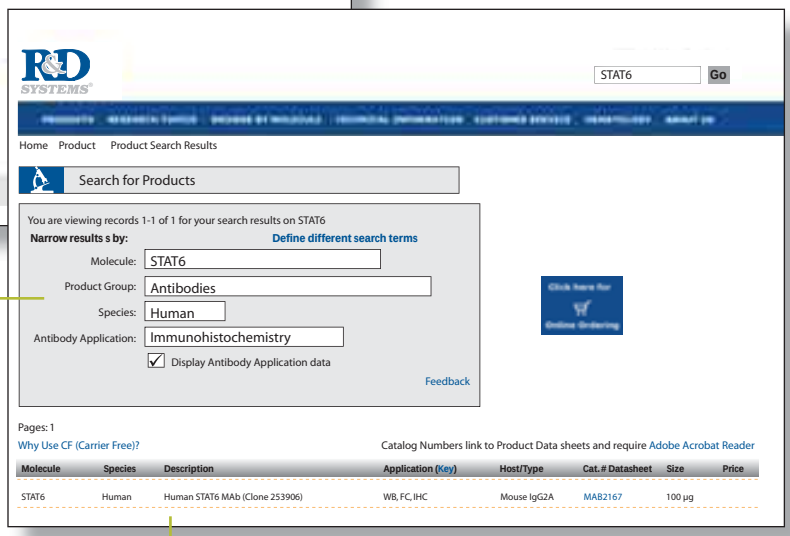
- Affinity Purification
- Blocking/Neutralization
- Cell Selection
- Dot Blots
- ELISA Capture
- ELISA Detection
- ELISA (Competitive)
- Flow Cytometry
- Functional Assay
- Gel Shift
- Immunocytochemistry
- Immunohistochemistry
- Immunoprecipitation
- Western Blot

NEWS: Locate Your Antibody Quickly Using Our New Website Antibody Application Filter

Antibodies constitute more than 50% of the products that R&D Systems offers. Our antibodies are designed to study a range of molecules, from soluble cytokines and growth factors, to intracellular kinases and transcription factors. We offer antibodies for 14 different species, many validated for multiple applications. Because of this wide selection, it is important to provide tools to quickly find the antibody that best fits your experimental design. Following your initial main product search, drop-down boxes on search result pages offer the ability to filter based on product type, molecule, and species. In addition, a new feature allows you to filter search results based on your application of interest.



Main Product Search

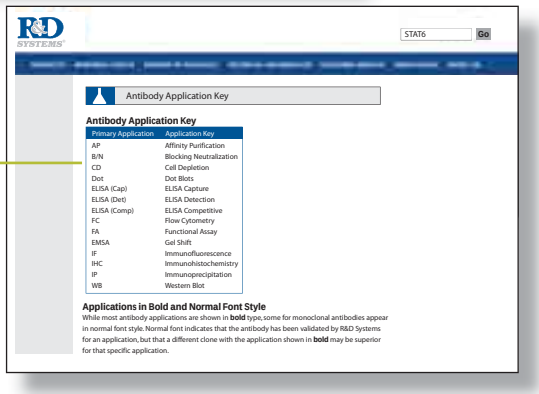


Product Search Results Filter

Even the most general product searches can be filtered using drop-down boxes to quickly locate your antibody and application of interest.

Search Results

Antibody product listing is narrowed to match your experimental needs.



Antibody Application Key

Click the link to see the Key for application abbreviations