

Quantikine® Mouse Pentraxin 3/TSG-14 ELISA

Pentraxin 3 (PTX3), also known as TSG-14, is a 45 kDa secreted long pentraxin belonging to the pentraxin superfamily.^{1,2} Like the short pentraxins CRP and SAP, PTX3 is a multifunctional pattern-recognition protein with a characteristic pentagonal discoid arrangement of five non-covalently bound subunits.² It is secreted in response to proinflammatory stimuli and Toll-like Receptor (TLR) engagement by a variety of cell types including macrophages, myeloid-derived dendritic cells, ovarian granulosa cells, endothelial cells, fibroblasts, adipocytes, renal mesangial cells, synovial cells, smooth muscle cells, alveolar epithelium, and glial cells.¹⁻⁶ PTX3 increases rapidly in plasma during inflammatory and infectious conditions.^{1,2}

High affinity binding of PTX3 to its soluble ligands plays an important role in several physiological processes. Through its interaction with TSG-6, an extracellular matrix hyaluronan (HA)-binding protein, PTX3 is involved in the assembly of the HA-rich extracellular matrix of the cumulus oophorus, which is essential for female fertility.⁴ PTX3 interacts with select viral, fungal, and bacterial components, such as the outer membrane protein A (OmpA) of Enterobacteriaceae.^{7,8} For these pathogens, PTX3 can act as an opsonin by binding the complement component C1q.^{9,10} PTX3 binds and regulates the clearance of apoptotic cells.^{11,12} It also binds FGF

basic and inhibits FGF basic-dependent angiogenesis.⁶

The Quantikine mouse PTX3 Immunoassay (Catalog # MPTX30) is a 4.5 hour solid-phase ELISA designed to measure mouse PTX3 in cell culture supernates, serum, and plasma. It contains NS0-expressed recombinant mouse PTX3 and antibodies raised against the recombinant factor. This immunoassay accurately quantitates both natural and recombinant mouse PTX3.

Please visit our website at www.RnDSystems.com/go/Pentraxin3 for other Pentraxin 3/TSG-14 products.

References

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ELISA & Activity Assay Kits

Quantikine ELISA Kits

Analyte	Species	Sensitivity	Range	Catalog #	Size
CD23/Fcε RII	Human	5.1 pg/mL	31.2-2000 pg/mL	DCD230	1 Kit
Pentraxin 3/TSG-14	Mouse	0.02 ng/mL	0.234-15 ng/mL	MPTX30	1 Kit
Survivin	Human	9.96 pg/mL	31.2-2000 pg/mL	DSV00	1 Kit

Cell-Based ELISA

Phospho-Akt (S473)	Human/Mouse/Rat			KCB887	1 Kit
Phospho-p38 MAP Kinase T180/Y182)	Human/Mouse			KCB869	1 Kit

Proteome Profiler™ Array Assay Kit

Cytokine Array, Panel A	Mouse (see highlight on back page)			ARY006	1 Kit
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Fluorokine® Receptor Detection Kit

CX3CL1/Fractalkine	Human			NFCX310	1 Kit
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Proteome Profiler Mouse Cytokine Array Kit, Panel A



Tools for Cell Biology Research™

Renin

The Renin-Angiotensin system (RAS) plays a vital role in blood pressure, homeostasis and osmoregulation.¹ Renin initiates a cascade of enzymatic reactions by cleaving Angiotensinogen to release Angiotensin I. Angiotensin I is further converted to the vasoactive hormone Angiotensin II by Angiotensin-Converting Enzyme (ACE). Produced in part by the juxtaglomerular cells in the kidney, Renin is synthesized as a proenzyme that can be activated by Trypsin, Cathepsin B, or other proteases. In addition to these activation steps, Renin activity may be regulated through receptor binding or by environmental factors such as pH. Notably, Renin is active near neutral pH. This differs from other members of the aspartate protease class, which are typically active under more acidic conditions.²

R&D Systems now offers recombinant human Renin (Catalog # 4090-AS) and anti-human Renin polyclonal antibody (Catalog # AF4090). Please visit our website for more information: www.RnDSystems.com/go/Renin-Angiotensin

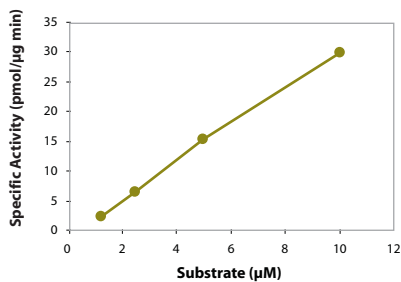


Figure 1: Effect of substrate concentrations on Renin activity. Different concentrations of a fluorogenic substrate, Arg-Glu(EDANS)-Ile-His-Pro-Phe-His-Leu-Val-Ile-His-Thr-Lys(dabcyl)-Arg, were used to assess the activity of Recombinant human Renin (Catalog # 4090-AS; 2 µg/mL).

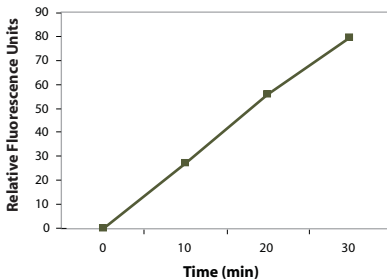


Figure 2: Linearity of Renin activity over time. The activity of recombinant Renin (Catalog # 4090-AS; 2 µg/mL) was determined at ten-minute intervals using the fluorogenic substrate (5 µM) listed above.

References

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- Fuminaki, S. *et al.* (2004) Renin. In *Handbook of Proteolytic Enzymes*, Barret, A. J. *et al.* eds. (San Diego, CA: Academic Press), pp 54 – 61.

Recombinant & Natural Proteins

Protein	Species	Source	Catalog #	Size
Akt1 (Active Kinase)	Human	Sf9	1775-KS-010	10 µg
AMICA/JAML/Fc Chimera	Mouse	NS0	3106-AM-050	50 µg
ASK1 (Active Kinase)	Human	Sf9	3575-KS-010	10 µg
M-Cadherin/Fc Chimera	Human	NS0	4096-MC-050	50 µg
CAR/NR113/Fc Chimera	Mouse	NS0	3724-NR-050	50 µg
CD38	Human	NS0	2404-AC-010	10 µg
CD83/Fc Chimera	Human	Sf21	2044-CD-050	50 µg
CEACAM-6	Human	NS0	3934-CM-050	50 µg
Chk1 (Active Kinase)	Human	Sf9	1630-KS-010	10 µg
Chk2 (Active Kinase)	Human	Sf9	1358-KS-010	10 µg
CMG-2/ANTXR2	Mouse	NS0	3636-CM-050	50 µg
Chymase/CMA1	Human	CHO	4099-SE-010	10 µg
Cytosol Nonspecific Dipeptidase/CNDP2	Human	Sf21	3560-ZN-010	10 µg
DDR2	Human	NS0	2538-DR-050	50 µg
Dectin-1/CLEC7A	Human	NS0	1859-DC-050	50 µg
Dectin-2α/CLEC6A	Mouse	NS0	1525-DC-050	50 µg
Dkk-1	Rat	NS0	4010-DK-010	10 µg
DMC/VCC-1	Human	<i>E. coli</i>	4207-DM-025	25 µg
Pro-EGF	Mouse	NS0	4095-EG-025	25 µg
Enteropeptidase/Enterokinase	Bovine	<i>E. coli</i>	4139-SE-010	10 µg
ERK1 (Active Kinase)	Human	Sf9	1879-KS-010	10 µg
FCAR/CD89	Human	NS0	3939-FA-050	50 µg
Ficolin-2	Human	NS0	2428-FC-050	50 µg
FKBP12	Human	<i>E. coli</i>	3777-FK-100	100 µg
GDF-3	Mouse	<i>E. coli</i>	958-G3-010	10 µg
GSK-3β (Active Kinase)	Human	Sf9	2506-KS-010	10 µg
HGF R	Canine	NS0	4140-ME-050	50 µg
IBSP/Sialoprotein II	Human	CHO	4014-SP-050	50 µg
α-L-Iduronidase	Human	NS0	4119-GH-010	10 µg
IFN-α/β R2/Fc Chimera	Human	NS0	4015-AB-050	50 µg
IL-22 R	Human	NS0	2770-LR-050	50 µg
Integrin α _L β ₂	Human	CHO	3868-AV-050	50 µg
Integrin α _M β ₂	Human	CHO	4047-AM-050	50 µg
Integrin α _V β ₈	Human	CHO	4135-AV-050	50 µg
JNK1 (Active Kinase)	Mouse	Sf9	1776-KS-010	10 µg
KIR3DS1/Fc Chimera	Human	CHO	4136-KR-050	50 µg
Klotho β	Mouse	NS0	2619-KB-025	25 µg
LAIR1/CD305	Mouse	NS0	4016-LR-050	50 µg
Lck (Active Kinase)	Human	Sf9	3704-KS-010	10 µg
Leukotriene A4 Hydrolase	Human	Sf21	4008-ZN-010	10 µg
LRIG3	Human	NS0	3495-LR-050	50 µg
MAPKAPK2 (Active Kinase)	Human	Sf9	3705-KS-010	10 µg
Meprin α	Mouse	Sf21	4007-ZN-010	10 µg
MFRP (Membrane type frizzled-related protein)	Human	NS0	1915-MF-050	50 µg
NEK2 (Active Kinase)	Human	Sf9	3706-KS-010	10 µg
p70 S6 Kinase (Active Kinase)	Human	Sf9	896-KS-010	10 µg
PP2C α/PPM1A (Active phosphatase)	Human	<i>E. coli</i>	4150-PP-050	50 µg
Raf-1 (Active Kinase)	Human	Sf9	3708-KS-010	10 µg
Reelin	Mouse	NS0	3820-MR-025	25 µg
Renin	Human	NS0	4090-AS-020	20 µg

Recombinant & Natural Proteins

Protein	Species	Source	Catalog #	Size
SGK (Active Kinase)	Human	Sf9	3200-KS-010	10 µg
Src (Active Kinase)	Viral	Sf9	3389-KS-010	10 µg
Thrombomodulin/CD141	Human	NS0	3947-PA-010	10 µg
Tie-2/Fc Chimera	Rat	NS0	3874-T2-100	100 µg
TIM-3/Fc Chimera	Human	NS0	2365-TM-050	50 µg
TIM-3/Fc Chimera	Mouse	NS0	1529-TM-050	50 µg
TRACP/PAP/ACP5	Human	NS0	3948-AP-010	10 µg
TRAIL/TNFSF10	Mouse	<i>E. coli</i>	1121-TL-010	10 µg
VLDLR	Mouse	NS0	2258-VL-050	50 µg
ZAP70 (Active Kinase)	Human	Sf9	3709-KS-010	10 µg

Polyclonal Antibodies

Antibody	Species	Type	Catalog #	Size
Actin	Human/Mouse/Rat	Sheep IgG	AF4000	100 µg
Annexin A2	Human/Mouse/Rat	Goat IgG	AF3928	100 µg
Annexin A4	Human/Mouse/Rat	Goat IgG	AF4146	100 µg
Annexin A7	Human/Mouse/Rat	Goat IgG	AF3926	100 µg
Annexin A11	Human/Mouse/Rat	Goat IgG	AF3927	100 µg
Annexin A13	Human/Mouse	Goat IgG	AF4149	100 µg
APC C-Terminus	Human	Goat IgG	AF3695	100 µg
APE	Human	Goat IgG	AF1044	100 µg
Aurora B	Human	Goat IgG	AF4006	100 µg
Phospho-Axl (Y779)	Human	Rabbit IgG	AF2228	100 µg
BACE-2	Human	Sheep IgG	AF4097	100 µg
BMP-10 Propeptide	Human	Goat IgG	AF3956	100 µg
BNIP3L	Human/Mouse/Rat	Goat IgG	AF4030	100 µg
Brk	Human	Goat IgG	AF3966	100 µg
Cadherin-6 (KCAD)	Human	Sheep IgG	AF2715	100 µg
Carboxypeptidase E/CPE	Human	Goat IgG	AF3587	100 µg
CARF	Human	Goat IgG	AF4195	100 µg
CD31/PECAM-1	Mouse	Goat IgG	AF3628	100 µg
CD34	Porcine	Goat IgG	AF3890	100 µg
CD99	Human	Goat IgG	AF3968	100 µg
CD200 R1	Human	Goat IgG	AF3414	100 µg
Chymase/CMA1	Human	Sheep IgG	AF4099	100 µg
CIS-1	Human	Goat IgG	AF3194	100 µg
CCL5/RANTES	Feline	Sheep IgG	AF3819	100 µg
Complement Component C1rLP	Mouse	Goat IgG	AF3990	100 µg
CRELD1	Mouse	Goat IgG	AF4116	100 µg
CSL	Human	Goat IgG	AF4079	100 µg
DC-LAMP	Human	Goat IgG	AF4087	100 µg
DLL1	Sheep	Goat IgG	AF3970	100 µg
DPP10	Human	Sheep IgG	AF4100	100 µg
EGF	Rat	Sheep IgG	AF3214	100 µg
eIF-2α	Human	Goat IgG	AF3997	100 µg
eIF-4B	Human	Goat IgG	AF3800	100 µg

Continued on page 4.

Reelin

Reelin is a secreted 400-450 kDa extracellular matrix protein. It has an N-terminal CR-50 reelin domain, eight reelin repeats; each consisting of an EGF motif and two subrepeats, and a C-terminal arginine-rich region.¹ Reelin is cleaved into three fragments. The central fragment binds to the extracellular domains of lipoprotein receptors, VLDLR (very low density lipoprotein receptor) and ApoE R2, inducing tyrosine phosphorylation of Disabled-1 (Dab1) and modulation of Tau phosphorylation.²⁻⁵ The central fragment of mouse Reelin shares 95% and 97% amino acid sequence identity with human and rat Reelin, respectively.

As an extracellular matrix serine protease, Reelin plays a central role in the development of the central nervous system.⁶ It is abundantly synthesized by the Cajal-Retzius cells and other pioneer neurons, and is secreted into the extracellular matrix where it plays an important role in guiding neurons and radial glial cells to correct positions in the developing brain.^{7,8} In the adult brain, Reelin is expressed by GABAergic cortical neurons and glutamatergic cerebellar neurons.⁸ The absence of Reelin expression in the *Reeler* mutant mouse leads to extensive defects in neuronal position and dendrite development. These *Reeler* mice exhibit ataxia, tremors, and impaired motor coordination.⁹ In humans, reduction in the levels of Reelin may be associated with autism, schizophrenia, bipolar disorder, and lissencephaly.¹⁰ Reelin is also involved in a signaling pathway that may underlie memory formation and synaptic plasticity.¹⁰ Reelin and the intracellular adaptor protein Dab1 control cell positioning during mammalian brain development. Reelin also binds $\alpha_3\beta_1$ integrin through its N-terminal domain, and mediates the inhibition of cortical neuron migration and the detachment of neurons from radial glia.¹¹

R&D Systems is now offering recombinant mouse Reelin (Catalog # 3820-MR).

References

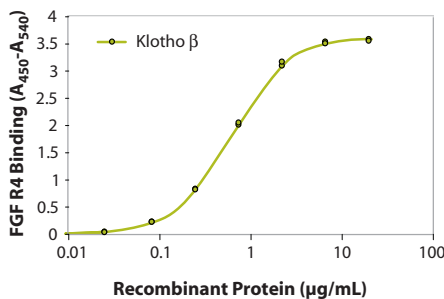
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Klotho β

The Klotho β gene encodes a type I transmembrane protein and was isolated based on its high similarity to the Klotho gene. Klotho has been implicated in renal function, aging, lifespan, and fibroblast growth factor (FGF) 23 signaling.¹ Together, Klotho β and Klotho constitute a new subfamily within the Glycosidase family 1.²

Klotho β is expressed in liver, pancreas, and adipose tissue. Mice lacking Klotho β appear grossly normal, but display significantly elevated levels of bile acid synthesis and excretion.^{2,3} The mutant mice are also resistant to gallstone formation, suggesting that inhibitors of Klotho β function could be used to prevent gallstones in humans. It has been shown that Klotho β is required for FGF-21 binding to and activation of its receptors, including FGF R4,⁴ supporting an earlier observation of phenotypic similarity between Klotho β -null mice and FGF R4-null mice.³ FGF-21 had previously been identified as a potential therapeutic agent for diabetes mellitus due to its ability to lower blood glucose in obese and diabetic mice via regulation of glucose uptake by adipocytes.⁵ In the absence of Klotho β , glucose uptake by adipocytes fails to occur.⁴

The role of Klotho β in FGF-21 signaling is highly reminiscent of the role of Klotho in FGF-23 signaling, suggesting that Klotho family proteins play important roles in regulating the activity of FGFs.



FGF R4 binds to Klotho β in a dose-dependent manner. A fixed amount of biotinylated human FGF R4/Fc Chimera (Catalog # 685-FR) was mixed with varying concentrations of mouse recombinant Klotho β (Catalog # 2619-KB) protein. Following incubation, the FGF R4-Klotho β complex was captured on a streptavidin-coated plate. Bound Klotho β protein was measured using mouse anti-polyhis HRP antibody (Catalog # MAB050H).

References

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- Ito, S. et al. (2000) *Mech. Dev.* **98**:115.
- Ito, S. et al. (2005) *J. Clin. Invest.* **115**:2202.
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Polyclonal Antibodies

Antibody	Species	Type	Catalog #	Size
<i>Continued from page 3.</i>				
eIF4G	Human	Goat IgG	AF4018	100 µg
FGF-22	Human	Sheep IgG	AF3867	100 µg
FKBP25	Human/Mouse/Rat	Sheep IgG	AF3955	100 µg
FKBP12.6	Human/Mouse/Rat	Goat IgG	AF4174	100 µg
FKBP51	Human/Mouse/Rat	Goat IgG	AF4094	100 µg
FKBP52	Human/Mouse/Rat	Goat IgG	AF4095	100 µg
FUT3/5/α-(1,3)-Fucosyltransferase	Human	Sheep IgG	AF4068	100 µg
GABA-A-Rγ2	Human/Mouse/Rat/ Chicken/Primate/ Zebrafish	Rabbit Serum	PPS072	50 µL
GBL	Human/Mouse/Rat	Goat IgG	AF4004	100 µg
Glucosamine (N-acetyl)-6-Sulfatase/ GNS	Human	Goat IgG	AF2484	100 µg
Glutathione Peroxidase 1	Human/Mouse/Rat	Goat IgG	AF3798	100 µg
Glutathione Peroxidase 3	Human/Mouse/Rat	Goat IgG	AF4199	100 µg
GPIbα	Human	Sheep IgG	AF4067	100 µg
Granulysin	Human	Goat IgG	AF3138	100 µg
GRB2	Human/Mouse/Rat	Goat IgG	AF3846	100 µg
Phospho-GSK-3α (S21)	Human/Mouse/Rat	Rabbit IgG	AF4125	100 µg
HAPLN4	Human	Goat IgG	AF4085	100 µg
HepaCAM	Human	Sheep IgG	AF4108	100 µg
Phospho-HGF R/c-MET (Y1349)	Human	Rabbit IgG	AF3950	50 µg
Phospho-HGF R/c-MET (Y1003)	Human	Rabbit IgG	AF4059	100 µg
HSF4	Mouse	Goat IgG	AF4088	100 µg
HSPA8/HSC71	Human/Mouse/Rat	Goat IgG	AF4148	100 µg
HSPH1/HSP105	Human/Mouse/Rat	Goat IgG	AF4029	100 µg
ICA1	Human	Goat IgG	AF4084	100 µg
Iduronate 2-Sulfatase/IDS	Human	Goat IgG	AF2449	100 µg
IGSF4C	Human	Goat IgG	AF4164	100 µg
IL-33	Human	Goat IgG	AF3625	100 µg
Integrin α ₈	Mouse	Goat IgG	AF4076	100 µg
Integrin β ₄ /CD104	Human	Sheep IgG	AF4060	100 µg
IRAK1	Human	Goat IgG	AF4048	100 µg
IRF2	Human	Goat IgG	AF4049	100 µg
IRF3	Human	Goat IgG	AF4019	100 µg
Kallikrein 13	Human	Goat IgG	AF2625	100 µg
Kallikrein 15	Human	Goat IgG	AF2540	100 µg
Latexin	Mouse	Sheep IgG	AF3620	100 µg
LILRC1	Rat	Goat IgG	AF4074	100 µg
Lipin 3	Mouse	Goat IgG	AF4064	100 µg
M-CSF R	Mouse	Sheep IgG	AF3818	100 µg
MAD1L1	Human	Goat IgG	AF4194	100 µg
Matriptase/ST14	Human	Sheep IgG	AF3946	100 µg
MBD-3	Human	Goat IgG	AF3839	100 µg
MBL-1	Mouse	Goat IgG	AF2077	100 µg
MCPH1	Human	Goat IgG	AF3998	100 µg
MYCL1	Human/Mouse	Goat IgG	AF4050	100 µg
NMDA R, NR1 Subunit	Human/Mouse/Rat/ Bovine/Canine/Primate	Rabbit IgG	PPS080	25 µg

Polyclonal Antibodies

Antibody	Species	Type	Catalog #	Size
NMDA R, NR1 Subunit	Human/Mouse/Rat	Rabbit IgG	PPS081	25 µg
NMDA R, NR1 Subunit	Human/Mouse/Rat	Rabbit IgG	PPS082	25 µg
NMDA R, NR1 Subunit	Human/Mouse/Rat/ Canine/Chicken/ Primate/ <i>Xenopus</i>	Rabbit IgG	PPS083	25 µg
NMDA R, NR2A Subunit	Human/Mouse/Rat	Rabbit Serum	PPS054	50 µL
NMDA R, NR2B Subunit	Human/Mouse/Rat	Rabbit Serum	PPS055	50 µL
Notch-4 Intracellular Domain	Human	Goat IgG	AF3847	100 µg
Otoraplin	Human	Goat IgG	AF3979	100 µg
Phospho-p27/Kip1 (T198)	Human	Rabbit IgG	AF3994	100 µg
PAK4	Human/Mouse/Rat	Goat IgG	AF4178	100 µg
PAR1	Human	Goat IgG	AF3855	100 µg
Patched	Mouse	Goat IgG	AF4105	100 µg
Patched 2	Human	Goat IgG	AF4078	100 µg
PERK	Human	Goat IgG	AF3999	100 µg
PKA RIB	Human/Mouse/Rat	Sheep IgG	AF4177	100 µg
Plexin A3	Mouse	Goat IgG	AF4075	100 µg
PLK3	Human	Goat IgG	AF4197	100 µg
Protein S/PROS1	Human	Goat IgG	AF4036	100 µg
PTP1B	Human	Goat IgG	AF13662	100 µg
PTP1B	Mouse/Rat	Goat IgG	AF3954	100 µg
Rad17	Mouse	Goat IgG	AF3866	100 µg
Renin	Human	Sheep IgG	AF4090	100 µg
Phospho-SCF R/c-kit (Y730)	Human	Rabbit IgG	AF3527	50 µg
Semaphorin 3E	Human	Goat IgG	AF3239	100 µg
Serpin A6	Mouse	Goat IgG	AF4065	100 µg
Serpin B8/Proteinase Inhibitor 8	Human	Goat IgG	AF4158	100 µg
Serpin B8/Proteinase Inhibitor 8	Mouse	Goat IgG	AF3588	100 µg
Smad2/3	Human/Mouse	Goat IgG	AF3797	100 µg
SMAGP	Rat	Goat IgG	AF3967	100 µg
SOX15	Human	Sheep IgG	AF4070	100 µg
Phospho-STAT5 (Y699)	Human	Rabbit IgG	AF4190	100 µg
STAT6 aa 342-640	Human/Mouse	Rabbit IgG	AF21671	50 µg
Sulfamidase/SGSH	Mouse	Goat IgG	AF2969	100 µg
Superoxide Dismutase-1/Cu-Zn SOD	Mouse/Rat	Goat IgG	AF3787	100 µg
Synapsin I	Human/Mouse/Rat	Rabbit Serum	PPS062	50 µL
Phospho-Synapsin I (S9)	Human/Mouse/Rat/ Bovine/ <i>Xenopus</i> / Zebrafish	Rabbit IgG	PPS084	100 µL
TAB1	Human/Mouse	Goat IgG	AF3578	100 µg
TFF2	Human	Goat IgG	AF4077	100 µg
TFPI-2	Mouse	Goat IgG	AF4045	100 µg
THOP1	Human	Sheep IgG	AF3439	100 µg
Phospho-Tie-2 (Y1100)	Human/Mouse	Rabbit IgG	AF3909	100 µg
TRPV3	Human	Sheep IgG	AF4167	100 µg
Trypsin 1, 2, 3/PRSS1,2,3	Human	Sheep IgG	AF3586	100 µg
Trypsin 1/PRSS1	Human	Sheep IgG	AF3848	100 µg
Trypsin 3/PRSS3	Mouse	Goat IgG	AF3565	100 µg
Phospho-Tyrosine Hydroxylase (S19)	Rat	Rabbit IgG	PPS087	100 µL
Phospho-Tyrosine Hydroxylase (S31)	Mouse/Rat/Primate	Rabbit IgG	PPS088	100 µL

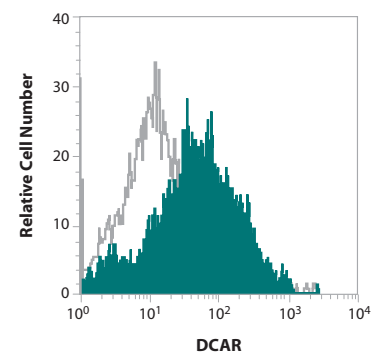
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Dendritic Cell Lectins

A large number of receptors having C-type lectin domains are expressed predominantly on phagocytic antigen-presenting cells (APCs) such as monocytes/macrophages and dendritic cells.¹⁻³ Although the function of these molecules is not clearly understood, there is growing evidence for their role in innate immunity. Lectin-like receptors (CLEC) play roles in both pathogen recognition and the regulation of APC activities.

Numerous myeloid CLEC genes occur in two clusters within a complex on syntenic regions of human chromosome 12 and mouse chromosome 6. All of the genes on these regions encode type II transmembrane proteins having a single extracellular C-type lectin domain.²

Although functional information is limited, motifs within the cytoplasmic domain suggest signaling pathways for some receptors.² Dectin-1/CLEC7A and CLEC-2 have ITAM (immune-receptor tyrosine-based activation motif)-like sequences and deliver activating signals, whereas DCIR/CLEC4A and MICAL/CLEC12A have ITIM-like motifs that are usually associated with inhibitory function. DCAR, Dectin-2/CLEC6A, and BDCA-2/CLEC4C have positively charged transmembrane residues, and DCAR is known to associate with the ITAM-bearing adaptor protein Fcγ R. Ligand specificity has been described in a few cases. Dectin-1/CLEC7A recognizes fungal β-glucan,⁴ whereas Dectin-2/CLEC6A recognizes high mannose structures found in a variety of microorganisms.⁵ LOX-1/SR-E1, originally identified as a receptor for oxidized low-density lipoprotein, mediates the internalization of apoptotic/aged cells and recognition of bacterial components.²



Bone marrow-derived dendritic cells were stained with rat anti-mouse DCAR (Catalog # MAB2757, filled histogram), or control anti-rat IgG_{2a} antibody (Catalog # MAB006, open histogram) followed by PE-conjugated anti-rat antibody (Catalog # F0105B).

References

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GDF-3

GDF-3 (growth and differentiation factor 3) is a TGF- β superfamily member that shares homology to the *Xenopus* mesoderm inducer, Vg1.¹ Although GDF-3 has the conserved cysteine-knot structure common to all TGF- β family members, the cysteine responsible in formation of intermolecular disulfide bonds is absent. Therefore, GDF-3 may exist as a non-covalently linked homodimer.¹ GDF-3 is expressed at high levels in adipose tissue and may play a role in fat metabolism. Over-expression of GDF-3 results in major weight gain in mice that are fed a high fat diet, but not in those fed a normal diet.² Other sites of GDF-3 expression include: bone marrow, spleen, and thymus in the adult; the cranial neural crest, ventral neural tube, notochord, and pluripotent cells of the inner cell mass and epiblast in the developing embryo.^{1,3-5}

GDF-3 expression is associated with the undifferentiated state of embryonic stem (ES) cells and is significantly diminished upon differentiation of mouse or human ES cells.⁴ However, this expression pattern doesn't tell the whole story. Increased levels of GDF-3 help support pluripotency in human ES cells, while decreased levels of GDF-3 help maintain the undifferentiated state in mouse ES cells.⁴ Nonetheless, GDF-3 is required for normal differentiation into the full spectrum of germ layer cell types for mouse ES cells.⁴

Interestingly, GDF-3 has been proposed to function via two distinct mechanisms. In one set of studies, it was shown to directly bind BMP and act as a BMP antagonist.⁴ GDF-3 inhibits a BMP-4-responsive reporter in both *Xenopus* embryos and the P19 mouse cell line.⁴ In contrast, analysis of GDF-3-null mice suggests that GDF-3 acts as a Nodal agonist.⁵ In this study, GDF-3 signaling *in vitro* is shown to be dependent on the Nodal co-receptor, Cripto, and to directly bind to Cripto, Lefty1, and Activin receptors.⁵ Injection experiments that manipulate either Nodal or GDF-3 expression in *Xenopus* result in similar phenotypes: inducing secondary axes and elongating animal caps.⁵ An intriguing possibility is that GDF-3 works through both mechanisms to regulate the balance between two types of TGF- β signaling.³

References

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4. Levine, A.J. & A.H. Brivanlou (2006) *Development* **133**:209.
5. Chen, C. *et al.* (2006) *Development* **133**:319.

Polyclonal Antibodies

Antibody	Species	Type	Catalog #	Size
<i>Continued from page 5.</i>				
UTF1	Human	Goat IgG	AF3958	100 μ g
VAP-1/AOC3	Human	Goat IgG	AF3957	100 μ g
Wnt-2b	Mouse	Goat IgG	AF3900	100 μ g
Wnt-6	Human	Sheep IgG	AF4109	100 μ g

Monoclonal Antibodies

Antibody	Species	Clone	Catalog #	Size
ALK/CD246	Human	383625	MAB4210	100 μ g
Alkaline Phosphatase/ALPL	Human	388816	MAB2909	100 μ g
AMICA/JAML	Human	401910	MAB3449	100 μ g
Aminopeptidase P2/XPNPEP2*	Human	391118	MAB2490	100 μ g
Angiopoietin-like 3	Human	370207	MAB3829	100 μ g
ApoB	Human	369717	MAB4124	100 μ g
Apolipoprotein All	Human	395906	MAB4215	100 μ g
B4GALT1	Human	394706	MAB3609	100 μ g
Bcl-10	Human/Mouse/Rat	384202	MAB2889	100 μ g
BMP-9	Human	360107	MAB3209	100 μ g
C1qTNF1	Human	395526	MAB3145	100 μ g
Complement Component C3a	Human	354113	MAB3677	100 μ g
Carbonic Anhydrase I	Human	363121	MAB2180	100 μ g
Carbonic Anhydrase II	Human	322706	MAB2184	100 μ g
Carbonic Anhydrase VI	Human	401819	MAB2939	100 μ g
Carbonic Anhydrase XII	Human	315602	MAB2190	100 μ g
CCK-A R	Human	377251	MAB2680	100 μ g
CD2	Mouse	377830	MAB2828	100 μ g
CD4	Feline	372711	MAB25971	100 μ g
CD5L	Mouse	375020	MAB2834	100 μ g
CD36/SR-B3	Mouse	324216	MAB2519	100 μ g
CD48/SLAMF2	Human	394620	MAB36441	100 μ g
CD97	Human	380903	MAB2529	100 μ g
CEACAM-3/CD66d	Human	417009	MAB4166	100 μ g
Chemerin	Human	365317	MAB2324	100 μ g
Chemerin	Mouse	372402	MAB2325	100 μ g
Chitotriosidase/CHIT1	Human	397504	MAB3559	100 μ g
Chitotriosidase/CHIT1	Human	397513	MAB35591	100 μ g
Claudin-4	Human	382321	MAB4219	100 μ g
Clusterin	Human	350217	MAB29371	100 μ g
CMG-2/ANTXR2	Human	406511	MAB2940	100 μ g
Coagulation Factor VII	Human	321621	MAB2338	100 μ g
Coagulation Factor XIV/ Protein C	Human	390226	MAB3349	100 μ g
Complement Factor D/Adipsin	Human	255719	MAB18241	500 μ g

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Monoclonal Antibodies

Antibody	Species	Clone	Catalog #	Size
Contactin-2/TAG1	Human	372944	MAB1714	100 µg
Contactin-2/TAG1	Human	372913	MAB17141	100 µg
CREB	Human	321120	MAB2989	100 µg
CRHBP	Human	395108	MAB2796	100 µg
Crossveinless-2	Human	355304	MAB1956	100 µg
CXCR7/RDC-1	Human	358426	MAB4227	100 µg
DCAR/CLEC4B	Mouse	349214	MAB2757	100 µg
DLL1	Human	251123	MAB18181	100 µg
DSCAM	Human	399204	MAB3666	100 µg
EphA2	Human	371805	MAB3035	100 µg
ESAM	Human	408519	MAB4204	100 µg
Exostosin-like 1/EXTL1	Mouse	353713	MAB4214	100 µg
Complement Factor H-related 5/CFHR5	Human	390513	MAB3845	100 µg
FAM3A	Human	358112	MAB2865	100 µg
FAM3D	Human	358203	MAB2869	100 µg
FKBP38	Human/Mouse/Rat	391505	MAB3580	100 µg
FLRT3	Human	357812	MAB2795	100 µg
GDF-5	Mouse	143004	MAB8531	500 µg
GITR Ligand/TNFSF18	Mouse	337122	MAB2177	500 µg
Granzyme A	Human	356422	MAB2905	100 µg
HAPLN4	Human	387915	MAB4085	100 µg
Airway Trypsin-like Protease/HAT	Human	337029	MAB2695	100 µg
HCG α	Human	381012	MAB4169	100 µg
Hck	Human/Mouse	394903	MAB3915	100 µg
HSP40/DNAJB1	Human/Mouse/Rat	419401	MAB4145	100 µg
IL-1 α /IL-1F1	Human	409405	MAB4154	100 µg
IL-17D	Human	246018	MAB15041	100 µg
IL-33	Human	390412	MAB3625	100 µg
Integrin α_{2b} /CD41	Mouse	386627	MAB4118	100 µg
Integrin α_{2b} /CD41	Mouse	386629	MAB41181	100 µg
Kallikrein 9	Human	366721	MAB3486	100 µg
Plasma Kallikrein/KLKB1	Mouse	337801	MAB2498	100 µg
KOR	Human	387310	MAB38951	100 µg
LAIR2	Human	319701	MAB2665	100 µg
Lck	Human	355713	MAB3704	100 µg
LINGO-2	Human	382008	MAB3679	100 µg
LINGO-2	Human	382007	MAB36791	100 µg
LIR-6/CD85i	Human	356316	MAB3085	100 µg
LIR-8/CD85c	Human	395239	MAB3065	100 µg
MafG	Human	370412	MAB3924	100 µg
Matrilin-3	Human	391934	MAB3017	100 µg
Matrilin-4	Human/Mouse	401127	MAB4205	100 µg
CCL2/JE/MCP-1	Mouse	123602	MAB4791	100 µg
MEA-1	Mouse	364605	MAB3088	100 µg
Mesothelin/MPF	Human	346633	MAB3265	100 µg
Meteorin	Mouse	347505	MAB3475	100 µg
MFRP	Human	291204	MAB19151	100 µg
Pro-MMP-7	Mouse	377307	MAB29672	100 µg

Continued on page 8.

Integrins: Function Beyond Adhesion

The term “integrin” was originally used to describe an integral transmembrane protein complex that presumably integrated, or linked, the cytoskeleton with the extracellular matrix.¹ It is now known that the integrins constitute a large group of heterodimeric complexes found on a wide variety of cell types. In vertebrates, the complexes are composed of noncovalently-linked type I transmembrane α - and β -chains. To date, 18 α -chains and 8 β -chains have been reported. Only 24 α - β combinations are known, and each integrin is classified based on its β -chain (or CD) number assignment. Notably, there are four β_2 /CD18 integrins: $\alpha_L\beta_2$ (or LFA-1 and CD11a/CD18), $\alpha_M\beta_2$ (or Mac-1 and CD11b/CD18), $\alpha_X\beta_2$ (or CR4 and CD11c/CD18), and $\alpha_D\beta_2$ (CD11d/CD18).²⁻⁴ These integrins are expressed on the surface of macrophages, monocytes, and neutrophils with binding affinity for ICAMs or extracellular matrix molecules such as C3bi, fibrinogen, and fibronectin.^{2,3}

Traditionally considered as adhesion molecules,^{2,4} integrins do more than serve as anchors. Studies in neutrophils suggest that integrin activation influences a constitutive apoptotic program. Depending upon the degree of membrane clustering, integrins are now proposed to block neutrophil apoptosis when highly clustered in the absence of extracellular ligation.³ This ligand-free clustering may be a result of *cis* interaction of integrins with unrelated transmembrane proteins such as LRP and RAGE.⁵⁻⁷ In general, integrin activity may depend on a series of unappreciated intramembrane interactions.

New Integrin-related Products

Recombinant Proteins	Species	Page
Integrin $\alpha_L\beta_2$	Human	2
Integrin $\alpha_M\beta_2$	Human	2
Integrin $\alpha_X\beta_2$	Human	2
Antibodies		
Integrin α_{2b} /CD41	Mouse	7
Integrin α_8	Mouse	4
Integrin β_4 /CD104	Human	4
Integrin β_3	Human	9

Please visit our website at www.RnDSystems.com/go/Integrins for additional integrin products.

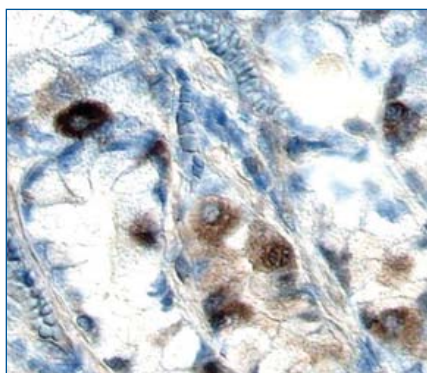
References

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2. Luo, B-H. *et al.* (2007) *Annu. Rev. Immunol.* **25**:619.
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4. Gahmberg, C.G. *et al.* (1997) *Eur. J. Biochem.* **245**:215.
5. Spijkers, P.P. *et al.* (2005) *Blood* **105**:170.
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Gas6/Axl Signaling

Gas6 is a widely expressed vitamin K-dependent γ -carboxyglutamyl protein that signals via the receptor tyrosine kinase, Axl. This ligand-receptor pair has been implicated in inflammatory, autoimmune, vascular, and kidney diseases as well as several types of cancer.¹ Binding of Gas6 leads to activation of Axl, resulting in autophosphorylation on multiple tyrosine residues.² Phosphorylation of Axl at Y779 is associated with the activation of phosphatidylinositol 3-kinase (PI3K), which subsequently activates the serine-threonine kinase Akt.²⁻⁴ This PI3K/Akt signaling cascade is responsible for many of the biological effects of Gas6.

Normal gastric mucosa exhibits low levels of Gas6 and Axl expression.⁴ However, these proteins are present at abnormally high levels in approximately one-third of gastric cancer cases, and this high level of expression is associated with lymph node metastasis and poor prognosis for gastric cancer patients.^{4,5} Inhibition of the Gas6/Axl signaling cascade in the human gastric cancer cell line MKN7 results in increased apoptosis and a reduction of cell viability and invasion.⁴ Thus the Gas6/Axl signaling pathway could provide a therapeutic target in gastric cancer, and monitoring Axl activation may have diagnostic value.



Detection of phosphorylated Axl in paraffin-embedded human stomach cancer tissue using rabbit anti-human phospho-Axl (Y779) polyclonal antibody (Catalog # AF2228). Tissues were stained using the anti-rabbit HRP-DAB Cell and Tissue Staining Kit (brown; Catalog # CTS005) and counterstained with hematoxylin (blue).

References

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- Hasanbasic, I. *et al.* (2004) Am. J. Physiol. Heart Circ. Physiol. **287**:H1207.
- Sawabu, T. *et al.* (2007) Mol. Carcinog. **46**:155.
- Wu, C.W. *et al.* (2002) Anticancer Res. **22**:1071.

Monoclonal Antibodies

Antibody	Species	Clone	Catalog #	Size
<i>Continued from page 7.</i>				
MMR	Human	309210	MAB2534	100 μ g
MS4A1/CD20	Human	396444	MAB4225	100 μ g
Myocardin	Human	355521	MAB4028	100 μ g
Nectin-4	Human	337516	MAB2659	100 μ g
Nectin-4	Mouse	356704	MAB3116	100 μ g
Netrin-G2a*	Mouse	349724	MAB27441	100 μ g
NF κ B2	Human	291319	MAB28881	100 μ g
Nogo-A	Rat	391401	MAB30981	100 μ g
Notch-2 Intracellular Domain	Human	411801	MAB3735	100 μ g
NrCAM	Human	297909	MAB20341	500 μ g
Opticin	Human	361328	MAB3148	100 μ g
OSF-2/Periostin	Human	345613	MAB3548	100 μ g
Pentraxin 3/TSG-14	Mouse	265641	MAB21661	500 μ g
PIR-B	Mouse	326414	MAB2754	100 μ g
Podocan	Human	390102	MAB4220	100 μ g
R-Spondin 3	Mouse	400404	MAB4120	100 μ g
RalA	Human/Mouse/Rat	399527	MAB3270	100 μ g
RalB	Human/Mouse/Rat	399417	MAB3920	100 μ g
RBP4	Human	393005	MAB3378	100 μ g
RGM-B	Human	398528	MAB3630	100 μ g
RSK4	Human	374521	MAB3916	100 μ g
Semaphorin 3E	Human	400520	MAB3239	100 μ g
Serpin A8/Angiotensinogen	Human	369439	MAB3156	100 μ g
Serum Amyloid A1	Human	370820	MAB3019	100 μ g
Serpin G1/C1 Inhibitor	Human	350507	MAB2488	100 μ g
Smad7	Human/Mouse/Rat	293039	MAB2029	100 μ g
Spinesin	Human	376620	MAB24951	100 μ g
STAT5a	Human	251610	MAB21741	100 μ g
STAT5b	Human	389215	MAB1584	100 μ g
VE-Statin	Mouse	362907	MAB3089	100 μ g
Syndecan-2	Human	305507	MAB29651	100 μ g
Syndecan-3	Human	374412	MAB35391	100 μ g
TEM8	Human	371113	MAB3886	100 μ g
TFPI	Human	374720	MAB2974	100 μ g
TFPI	Mouse	372311	MAB2975	100 μ g
TfR-2	Human	353816	MAB3120	100 μ g
TOR	Human/Mouse	303728	MAB1537	100 μ g
Uteroglobulin	Human	394324	MAB4218	100 μ g
VAP-1/AOC3	Human	393112	MAB3957	100 μ g
VG5Q	Mouse	368025	MAB3048	100 μ g
Vitamin D BP	Human	359501	MAB3778	100 μ g
Wnt-2	Human	346323	MAB3464	100 μ g
Wnt-7b	Human	355104	MAB3460	100 μ g
Wnt-8b	Mouse	341504	MAB3367	100 μ g
Wnt-8b	Mouse	341502	MAB33671	100 μ g
Wnt-9b	Human/Mouse	406612	MAB3669	100 μ g
Wnt-10a	Mouse	342825	MAB3469	100 μ g

*This product is covered under one or more patents owned by the Regents of the University of California.

Labeled Antibodies

Biotinylated Antibodies

Antibody	Species	Type	Catalog #	Size
Angiotensin-like 3	Human	Sheep IgG	BAF3829	50 µg
ASAH2/N-acylsphingosine Amidohydrolase-2	Mouse	Sheep IgG	BAF3558	50 µg
N-Cadherin	Human	Sheep IgG	BAF1388	50 µg
DcTRAIL R1/TNFRSF23	Mouse	Rat IgG _{2A}	BAM2378	100 µg
Dopa Decarboxylase/DDC	Human	Goat IgG	BAF3564	50 µg
DPPA5/ESG1	Mouse	Goat IgG	BAF3984	50 µg
FGF-BP	Human	Goat IgG	BAF1593	50 µg
HES-4	Human	Sheep IgG	BAF3600	50 µg
IGFBP-L1	Human	Goat IgG	BAF3877	50 µg
IGSF2/CD101	Mouse	Rat IgG _{2A}	BAM3368	100 µg
IL-1β/IL-1F2	Canine	Goat IgG	BAF3747	50 µg
Integrin β ₅	Human	Sheep IgG	BAF3824	50 µg
JAM-4/IGSF5	Mouse	Sheep IgG	BAF3836	50 µg
Laminin α4	Mouse	Goat IgG	BAF3837	50 µg
OX40/TNFRSF4	Human	Sheep IgG	BAF3388	50 µg
Serpin D1/Heparin Cofactor II	Human	Goat IgG	BAF3198	50 µg
Stabilin-1	Human	Sheep IgG	BAF3825	50 µg
Stabilin-2	Human	Sheep IgG	BAF3645	50 µg
Thrombomodulin/CD141	Mouse	Goat IgG	BAF3894	50 µg
VEGF	Canine	Goat IgG	BAF1603	50 µg

Labeled Antibodies

Fluorochrome-labeled Antibodies

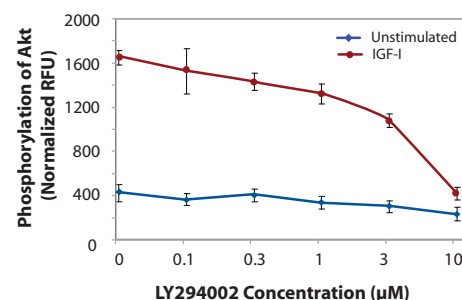
Antibody	Species	Label	Catalog #	Size
Phospho-Akt (S473)	Human/Mouse/Rat	Fluorescein	IC887F	100 Tests
Phospho-Akt (S473)	Human/Mouse/Rat	PE	IC887P	100 Tests
CCR10	Mouse	APC	FAB2815A	100 Tests
CD2	Human	APC	FAB18561A	100 Tests
CD2	Human	Fluorescein	FAB18561F	100 Tests
CD2	Human	PE	FAB18561P	100 Tests
CD46	Human	PE	FAB2005P	100 Tests
COX-1	Human	APC	FAB3740A	100 Tests
COX-1	Human	Fluorescein	FAB3740F	100 Tests
COX-1	Human	PE	FAB3740P	100 Tests
CXCR4	Mouse	Fluorescein	FAB21651F	100 Tests
EphA2	Mouse	APC	FAB639A	100 Tests
EphA2	Mouse	PE	FAB639P	100 Tests
Glypican 3	Human	APC	FAB2119A	100 Tests
Glypican 3	Human	PE	FAB2119P	100 Tests
Glypican 5	Human	Fluorescein	FAB2607F	100 Tests
Glypican 5	Human	PE	FAB2607P	100 Tests
IGSF2/CD101	Mouse	APC	FAB3368A	100 Tests
IGSF2/CD101	Mouse	Fluorescein	FAB3368F	100 Tests
IGSF2/CD101	Mouse	PE	FAB3368P	100 Tests

Continued on page 10.

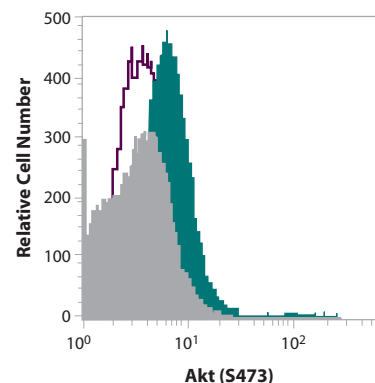
Phosphorylated Akt (S473)

Akt1, Akt2, and Akt3 comprise a family of serine/threonine kinases that are key components in cell cycle progression and apoptosis. Individual isoforms of Akt are implicated in specific developmental processes and cancer.¹ Each Akt family member contains an N-terminal pleckstrin homology domain, a central kinase domain, and a C-terminal hydrophobic regulatory domain.² Phosphorylation of two amino acids are critical for the activation of Akt: T308 in the kinase domain to stabilize the activation loop, and S473 in the C-terminal domain for full activation.³

R&D Systems has developed a Cell-Based ELISA kit (Page 1) and fluorochrome-conjugated antibodies (this page) to enable researchers to conveniently identify and quantify phosphorylated Akt.



Measurement of Akt phosphorylation using the Phospho-Akt (S473) Cell-Based ELISA Kit (Catalog # KCB887). MCF-7 human breast adenocarcinoma cells were pretreated with the indicated concentrations of the PI 3-kinase inhibitor LY294002, and then incubated with or without recombinant human IGF-I (Catalog # 291-G1). After cell fixation, phosphorylation of Akt (S473) was determined and normalized to total Akt in the same well.



Intracellular staining with anti-phospho Akt (S473)-PE (Catalog # IC887P) in untreated Jurkat cells (green), or of Jurkat cells treated with LY294002 + wortmannin (light gray). Cells were also stained with isotype control (Catalog # F0110, open histogram).

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IL-17 & IL-17 Receptor Families

With the exception of IL-17B, which exists as a non-covalently linked dimer, all IL-17 family members are disulfide linked dimers.¹ Heterodimers of IL-17A through IL-17F also occur naturally. IL-17/IL-17A and IL-17F signal through IL-17 RA, which was reported to form a heterodimer with IL-17 RC. IL-17B and IL-17E bind IL-17 RB.¹ Ligands for IL-17 RD and IL-17 RE, two type I transmembrane receptors with homology to IL-17 R, have not been identified. Th17, a recently identified effector T-cell subset that is distinct from Th1 and Th2, has been shown to secrete IL-17 and IL-17F. Th17 cells play critical roles in inflammation and autoimmunity.¹

R&D Systems has developed and validated several new fluorochrome-conjugated antibodies to IL-17 and IL-17 R family members (this page). For more information, visit www.RnDSystems.com/go/IL-17Family.

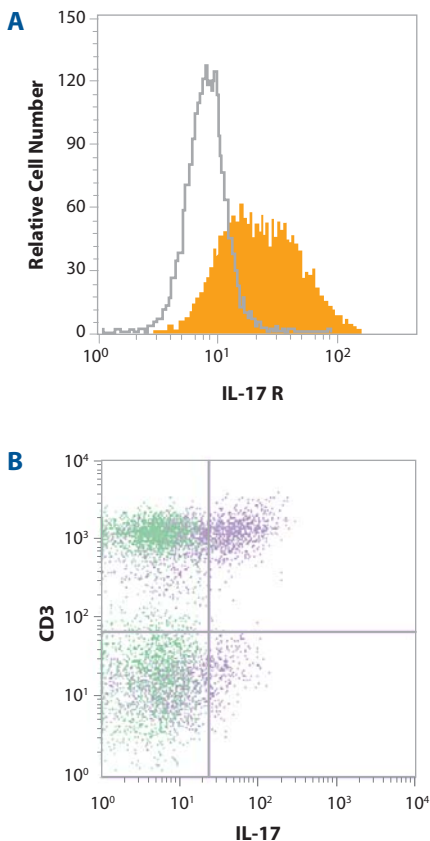


Figure 1. IL-17-expressing cells measured by flow cytometry. **A:** K562 cells were stained with anti-human IL-17 R-CFS (Catalog # FAB177F, orange histogram) or isotype control (Catalog # IC002F, open histogram). **B:** Untreated (green) and PMA/ionomycin-stimulated (purple) human PBMCs were stained using PE-conjugated mouse anti-human CD3 antibody (Catalog # FAB100P) and APC-conjugated mouse anti-human IL-17 (Catalog # IC3171A).

Reference

1. Weaver, C. *et al.* (2007) *Ann. Rev. Biol.* **25**:821.

Labeled Antibodies

Fluorochrome-labeled Antibodies

Antibody	Species	Label	Catalog #	Size
<i>Continued from page 9.</i>				
IL-17	Human	Fluorescein	FAB177F	100 Tests
IL-17 RD	Human	Fluorescein	FAB2275F	100 Tests
IL-17 RD	Human	PE	FAB2275P	100 Tests
IL-23 R	Human	PE	FAB14001P	100 Tests
ILT4/CD85d	Human	PE	FAB2078P	100 Tests
LAIR1	Human	APC	FAB2664A	100 Tests
LAIR1	Human	Fluorescein	FAB2664F	100 Tests
NTB-A/SLAMF6	Human	APC	FAB19081A	100 Tests
NTB-A/SLAMF6	Human	Fluorescein	FAB19081F	100 Tests
NTB-A/SLAMF6	Human	PE	FAB19081P	100 Tests
PDGF R α	Human	APC	FAB1264A	100 Tests
PDGF R α	Human	Fluorescein	FAB1264F	100 Tests
PDGF R β	Human	APC	FAB1263A	100 Tests
PDGF R β	Human	Fluorescein	FAB1263F	100 Tests
PDGF R β	Human	PE	FAB1263P	100 Tests
Siglec-3/CD33	Human	APC	FAB1137A	100 Tests
Siglec-3/CD33	Human	Fluorescein	FAB1137F	100 Tests
Siglec-3/CD33	Human	PE	FAB1137P	100 Tests
Siglec-9	Human	APC	FAB1139A	100 Tests
Siglec-9	Human	Fluorescein	FAB1139F	100 Tests
Siglec-9	Human	PE	FAB1139P	100 Tests
Syndecan-1/CD138	Human	APC	FAB2780A	100 Tests
Syndecan-1/CD138	Human	Fluorescein	FAB2780F	100 Tests
Syndecan-1/CD138	Human	PE	FAB2780P	100 Tests
Syndecan-2	Human	APC	FAB2965A	100 Tests
LAP (TGF- β 1)	Human	PE	FAB2463P	100 Tests
CRISP-3	Human	PE	IC23972P	100 Tests
IFN- γ	Bovine	Fluorescein	IC2300F	100 Tests
IL-1F6/FIL1 ϵ	Mouse	APC	IC22971A	100 Tests
IL-1F6/FIL1 ϵ	Mouse	PE	IC22971P	100 Tests
IL-17	Human	APC	IC3171A	100 Tests
IL-17	Human	PE	IC3171P	100 Tests
CCL13/MCP-4	Human	APC	IC327A	100 Tests
TGF- β 1,2,3	Multi-species	APC	IC1835A	100 Tests
TGF- β 1,2,3	Multi-species	PE	IC1835P	100 Tests
TGF- β 1	Multi-species	PE	IC240P	100 Tests
TGF- β RII	Mouse	PE	FAB532P	100 Tests
TLR1	Human	PE	FAB1484P	100 Tests
TLR3	Human	Fluorescein	FAB1487F	100 Tests

ELISA & Activity Assay Development Kits

DuoSet® ELISA Development Systems

Analyte	Species	Catalog #	Reagents For*
ALK-1	Mouse	DY770	15 Plates
CD23/Fcε RII	Human	DY123	15 Plates
Dkk-3	Human	DY1118	15 Plates
Ectodysplasin (EDA)	Human	DY922	15 Plates
Galectin-7	Mouse	DY1304	15 Plates
GASP-2/WFIKKN	Human	DY2136	15 Plates
HAI-1	Human	DY1048	15 Plates
HAI-1	Mouse	DY1141	15 Plates
HGF	Mouse	DY2207	15 Plates
Hip	Mouse	DY1568	15 Plates
IGFBP-5	Human	DY875	15 Plates
IL-17F	Human	DY1335	15 Plates
IL-17F	Mouse	DY2057	15 Plates
IL-22	Human	DY782	15 Plates
Proinsulin	Human	DY1336	15 Plates
LYVE-1	Human	DY2089	15 Plates
NCAM-1/CD56	Human	DY2408	15 Plates
NrCAM	Human	DY2034	15 Plates
XEDAR	Human	DY1093	15 Plates

*Also available in 45 plate Economy packs.

DuoSet IC (Intracellular) ELISAs & Activity Assays

Analyte	Species	Catalog #	Reagents For*
Phospho-RSK (S221) Pan Specific	Human/Mouse/Rat	DYC3408-2	2 Plates
Phospho-Src (Y419)	Human	DYC2685-2	2 Plates
Total TrkB	Human	DYC397-2	2 Plates
Phospho-TrkB	Human	DYC688-2	2 Plates

*Also available in 5 plate packs and 15 plate Economy Packs.

Secondary Antibodies

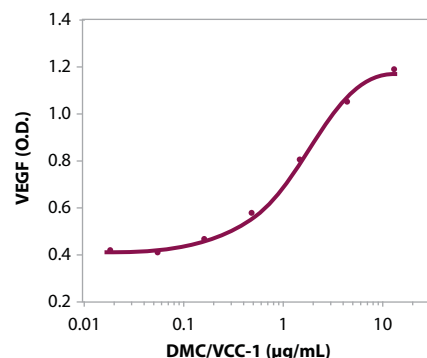
Description	Label	Catalog #	Size
Goat F(ab)2 Anti-Mouse IgG (H+L)	Fluorescein	F0103B	100 Tests
Goat F(ab)2 Anti-Rat IgG (H+L)	Fluorescein	F0104B	100 Tests
Goat F(ab)2 Anti-Rat IgG (H+L)	PE	F0105B	100 Tests

DMC/VCC-1

Dendritic cell and monocyte chemokine-like protein (DMC), also known as VEGF-correlated chemokine-1 (VCC-1), is a novel 11 kDa secreted molecule. Among peripheral blood leukocytes, it binds monocytes and dendritic cells, and it is constitutively produced by airway and intestinal epithelial cells.¹ Its size and predicted three-dimensional folding pattern are similar to that of the chemokine CXCL8/IL-8.^{1,2} DMC/VCC-1 has chemokine-like chemotactic properties but, unlike many chemokines, it is chemotactic for quiescent rather than activated cells.

Current data support a role for DMC/VCC-1 in angiogenesis, and this function may be exploited by tumors. First, its expression is increased in endothelial cells when they are induced to form tubes *in vitro*.² Second, over-expression of DMC/VCC-1 in endothelial cells significantly increases VEGF and FGF basic expression. Third, DMC/VCC-1 and two other chemokines that are known to play roles in angiogenesis, CXCL1/GRO α and CXCL8/IL-8, show correlated expression with that of VEGF in lung, breast, and esophageal tumors. Finally mice injected with NIH3T3 cells transgenically overexpressing DMC/VCC-1 develop rapid tumor growth.²

R&D Systems now offers recombinant human DMC/VCC-1 (Catalog # 4207-DM).



Incubation of SVEC 4-10 mouse endothelial cells with recombinant human DMC/VCC-1 (Catalog # 4207-DM) results in a dose-dependent increase in VEGF release into the supernatant as measured by ELISA.

References

1. Pisabarro, M.T. *et al.* (2006) *J. Immunol.* **176**:2069.
2. Weinstein, E.J. *et al.* (2006) *Biochem. Biophys. Res. Commun.* **350**:74.

Proteome Profiler Mouse Cytokine Array Kit, Panel A

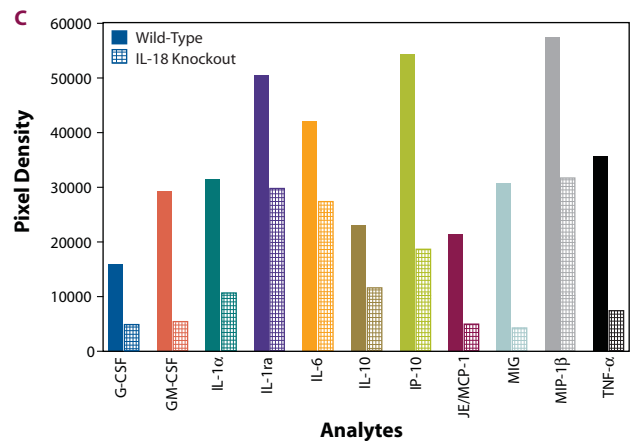
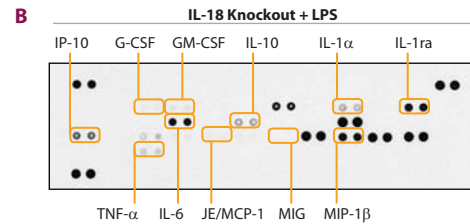
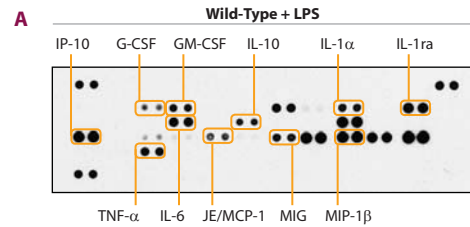
R&D Systems Mouse Cytokine Array, Panel A (Catalog # ARY006, page 1) is a rapid, sensitive, and economical tool used to simultaneously detect the relative levels of 40 different proteins in a single sample of cell culture supernatant, cell lysate, serum, or plasma. No specialized equipment is necessary.



Kit Contents

- 4 membranes with capture antibodies spotted in duplicate
- Detection antibody cocktail
- Streptavidin-HRP
- Transparency overlay
- Detailed protocol
- Buffers

Array Analytes		
CXCL13/BLC/BCA-1	IL-5	CCL12/MCP-5
C5a	IL-6	CCL2/JE/MCP-1
G-CSF	IL-7	CXCL9/MIG
GM-CSF	IL-10	CCL3/MIP-1 α
CCL1 /I-309	IL-13	CCL4/MIP-1 β
CCL11/Eotaxin	IL-12 p70	MIP-2
sICAM-1	IL-16	CCL5/RANTES
IFN- γ	IL-17	CXCL12/SDF-1
IL-1 α	IL-23	CCL17/TARC
IL-1 β	IL-27	TIMP-1
IL-1ra	CXCL10/IP-10	TNF- α
IL-2	CXCL11/I-TAC	TREM-1
IL-3	KC	
IL-4	M-CSF	



The Mouse Cytokine Array (Catalog # ARY006) simultaneously detects relative differences in the levels of multiple analytes in cultures of LPS-treated wild-type (A) and IL-18 knockout (B) splenocytes. Mean spot pixel densities were quantified for select analytes using image analysis software and the histogram profile is shown (C). For this experiment, 50 μ L of conditioned media was used for each array shown.

We are grateful to Drs. Claudia and Marcel Nold from the Charles Dinarello laboratory at University of Colorado School of Medicine in Denver for providing samples from knockout mice.



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