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Quantikine[®] Human Adiponectin/Acrp30 ELISA

Adiponectin, also known as Acrp30, is an adipocyte-specific, secreted protein with potential roles in glucose and lipid homeostasis. Two Adiponectin receptors (AdipoR1 and AdipoR2) have been recently cloned and the genes encode novel 7-pass transmembrane proteins functionally distinct from G-protein-coupled receptors.¹

Injection of Adiponectin into NOD mice leads to a decrease in glucose levels, likely due to insulin-sensitizing effects involving Adiponectin-regulation of triglyceride metabolism.² A truncated form of Adiponectin (gAcrp30) containing only the C-terminal globular head domain has been identified in blood. Recombinant and full length Adiponectin/gAcrp30 have been shown

to regulate weight reduction and free fatty acid oxidation in mouse muscle and liver.^{3,4} A negative correlation between obesity and circulating Adiponectin has been well established, and Adiponectin levels increase concomitantly with weight loss.⁵⁻⁸ Decreased Adiponectin levels are associated with insulin resistance and hyperinsulinemia, and patients with type-2 diabetes exhibit decreased circulating Adiponectin.^{9,10}

Bioassays for Adiponectin typically are tedious and not specific for Adiponectin activity. The Quantikine human Adiponectin Immunoassay is a 4.5 hour solid phase ELISA designed to measure Adiponectin in cell culture supernates, serum, and plasma.

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ELISA & Activity Assay Kits

ANALYTE	SPECIES	CATALOG #	SENSITIVITY	RANGE	SIZE
Adiponectin/Acrp30	human	DRP300	0.25 ng/mL	3.9-250 ng/mL	1 Kit
BCAM	human	DBCM00	0.05 ng/mL	0.31-20 ng/mL	1 Kit
◆ BLC/BCA-1/CXCL13	human	DCX130	1.64 pg/mL	7.8-500 pg/mL	1 Kit
	mouse	MCX130	1.81 pg/mL	15.6-1000 pg/mL	1 Kit
Cathepsin B	human	DCATB0	0.016 ng/mL	0.16-10 ng/mL	1 Kit
Endoglin	human	DNDG00	0.007 ng/mL	0.156-10 ng/mL	1 Kit
FGF R3	human	DFR3A0	2.36 pg/mL	31.2-2000 pg/mL	1 Kit
ICAM-1 (CD54)	mouse	MIC100	0.029 ng/mL	0.31-20 ng/mL	1 Kit
◆ IL-8/CXCL8	human	D8000C	3.5 pg/mL	31.2-2000 pg/mL	1 Kit
Thrombopoietin	human	DTP00B	7.45 pg/mL	31.2-2000 pg/mL	1 Kit
● TNF- α /TNFSF2	human	DTA00C	1.6 pg/mL	15.6-1000 pg/mL	1 Kit

These products are for research use only. Not for use in diagnostic procedures.

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LRP-6 in Wnt Signaling

The low-density lipoprotein (LDL) receptor family, originally characterized for its ability to endocytose ligands, is currently receiving attention for roles in signal transduction.¹ The LDL receptor related proteins, LRP-5 and LRP-6, distantly related members of this family, are components of the Wnt signaling pathway. Loss-of-function LRP-6 mutants demonstrate patterning defects suggestive of Wnt-3a, Wnt-1 or Wnt-7a mutants.² LRP-5 and -6 are single pass transmembrane proteins. The extracellular region includes a coated pit-mediated internalization motif as well as domains characteristic of the LDL receptor family, but arranged in a different order. However, unlike other LDL receptor family members, the intracellular domain contains protein-protein interaction motifs and is required for Wnt signal transduction.^{1,3}

LRP functions as a co-receptor with Frizzled to transduce Wnt signals: the extracellular domain of LRP-6 binds Wnt and associates with Frizzled in a Wnt dependent manner. Overexpression of LRP-6 in *Xenopus* embryos synergizes with Wnt-5a to cause secondary axes and mimics extra Wnt signaling in the neural crest.³ Based on results from a cell culture assay system, Frizzled and LRP-6 are both necessary for Wnt/ β -Catenin signaling, but it is likely that each receptor helps stabilize β -Catenin through a different mechanism.⁴ Moreover, the Wnt signaling antagonist, Dkk-1, is a ligand for LRP-5/-6. Dkk-1 inhibits Wnt signaling by binding LRP and antagonizing LRP function.⁵⁻⁷ LDL receptor cannot substitute for LRP-6 in transducing Wnt signals, suggesting a separate subfamily for LRP-5 and -6 in the LDL receptor family.

References

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Recombinant Proteins

PROTEIN	SPECIES	CATALOG #	SOURCE	SIZE
B7-H3	mouse	1397-B3-050	NSO	.50 μ g
BMP-3b/GDF10	human	1543-BP-025	<i>E. coli</i>	.25 μ g
● CD40 (TNFRSF5)/Fc	human	1493-CD-050	NSO	.50 μ g
Cripto	mouse	1538-CR-010	NSO	.10 μ g
DC-SIGNR/Fc	human	162-D2-050	NSO	.50 μ g
DLL4 (Delta-4)	human	1506-D4-050	NSO	.50 μ g
	mouse	1389-D4-050	NSO	.50 μ g
GDF-8/myostatin propeptide	mouse	1539-PG-025	NSO	.25 μ g
GM-CSF	canine	1546-GM-025	<i>E. coli</i>	.25 μ g
IL-17B	human	1248-IB-025	<i>E. coli</i>	.25 μ g
IL-17C	human	1234-IL-025	<i>E. coli</i>	.25 μ g
IL-17D	human	1504-IL-025	<i>E. coli</i>	.25 μ g
▲ IL-1ra/IL-1F3	rat	1545-RA-025	<i>E. coli</i>	.25 μ g
Insulin Receptor	human	1544-IR-050	NSO	.50 μ g
LAMP/Fc	human	873-LP-050	NSO	.50 μ g
Limitin	mouse	1535-LM-010	NSO	.10 μ g
LRP-6/Fc	human	1505-LR-025	NSO	.25 μ g
Osteopontin (OPN)	human	1433-OP-050	NSO	.50 μ g
Nogo R/Fc	human	1208-NG-050	NSO	.50 μ g
	mouse	1440-NG-050	NSO	.50 μ g
Prolactin	mouse	1445-PL-050	<i>E. coli</i>	.50 μ g
● TNF-α/TNFSF2	canine	1507-CT-025	<i>E. coli</i>	.25 μ g
TrkB	mouse	1494-TB-025	NSO	.25 μ g
● TROY (TNFRSF19)/Fc	human	1548-TR-100	NSO	.100 μ g
TSLP R/Fc	human	981-TR-050	NSO	.50 μ g
ULBP-3/Fc	human	1517-UL-050	NSO	.50 μ g

Proteases, Substrates, & Inhibitors

PRODUCT	SPECIES	CATALOG #	SOURCE	SIZE
ACE	mouse	1513-ZN-010	NSO	.10 μ g
ACE-2 and Caspase-1 Substrate		ES007		.1 mg
Cathepsin Substrate		ES008		.10 mg
Cathepsin 1	mouse	1499-CY-010	NSO	.10 μ g
Cathepsin L	mouse	1515-CY-010	NSO	.10 μ g
Cystatin/Stefin Homolog 2	mouse	1516-PI-050	<i>E. coli</i>	.50 μ g
Furin	human	1503-SE-010	NSO	.10 μ g
HGF Activator	human	1514-SE-010	NSO	.10 μ g
HtrA2/Omi	human	1458-HT-100	<i>E. coli</i>	.100 μ g
ciAP-1 (HIAP-2)	human	818-IA-50	<i>E. coli</i>	.50 μ g
Kell	mouse	1454-ZN-010	NSO	.10 μ g
Serpin F2/α_2-Antiplasmin	human	1470-PI-010	NSO	.10 μ g
Thrombin	human	1473-SE-010	NSO	.10 μ g

- TNF Superfamily
- ◆ Chemokines & Receptors
- Signal Transduction
- ▲ Interleukin-1 Family

Polyclonal Antibodies



ANTIBODY	SPECIES	CATALOG #	HOST	SIZE
Activin RIB	..mouse	..AF1477	..Goat IgG	..100 µg
AIF	..human/mouse/rat	..AF1457	..Rabbit IgG	..100 µg
ALCAM	..mouse	..AF1172	..Goat IgG	..100 µg
Acid Labile Subunit (ALS)	..mouse	..AF1436	..Goat IgG	..100 µg
Amphiregulin	..mouse	..AF989	..Goat IgG	..100 µg
ANGRP2	..mouse	..AF1444	..Goat IgG	..100 µg
B7-2	..rat	..AF1340	..Goat IgG	..100 µg
BAFF R/TNFRSF13C	..human	..AF1162	..Goat IgG	..100 µg
Caspase-12	..mouse/rat	..AF1456	..Rabbit IgG	..100 µg
● CD40 Ligand/TNFSF5	..mouse	..AF1163	..Goat IgG	..100 µg
Dectin-2α	..mouse	..AF1525	..Goat IgG	..100 µg
Endoglycan/PODLX2	..human	..AF1524	..Goat IgG	..100 µg
■ ERK2/MAPK1	..human/mouse/rat	..AF12301	..Goat IgG	..100 µg
FABP4	..mouse	..AF1443	..Goat IgG	..100 µg
FABP5	..mouse	..AF1476	..Goat IgG	..100 µg
Frizzled-6	..mouse	..AF1526	..Goat IgG	..100 µg
Galectin-1	..mouse	..AF1245	..Goat IgG	..100 µg
GFRα-4	..human	..AF1439	..Goat IgG	..100 µg
Growth Hormone R (GHR)	..rat	..AF1211	..Goat IgG	..100 µg
HtrA2/Omi	..human/mouse/rat	..AF1458	..Rabbit IgG	..100 µg
▲ IL-18 Rβ/IL-1 R7	..mouse	..AF199	..Goat IgG	..100 µg
JAM-3	..human	..AF1189	..Goat IgG	..100 µg
MAdCAM-1	..mouse	..AF993	..Goat IgG	..100 µg
Neogenin	..mouse	..AF1079	..Goat IgG	..100 µg
Nephrilysin	..human	..AF1182	..Goat IgG	..100 µg
Nodal	..mouse	..AF1315	..Goat IgG	..100 µg
Nogo R	..mouse	..AF1440	..Goat IgG	..100 µg
Notch-3	..mouse	..AF1308	..Goat IgG	..100 µg
■ p38δ/MAPK13	..human	..AF1519	..Rabbit IgG	..100 µg
■ Phospho-p53 (S46)	..human	..AF1489	..Rabbit IgG	..100 µg
■ p53 Acetylated K317	..human/mouse	..2372-PC-050	..Rabbit IgG	..50 µL
■ p53 Acetylated K379	..mouse	..2370-PC-050	..Rabbit IgG	..50 µL
■ p53 Acetylated K382	..human	..2371-PC-050	..Rabbit IgG	..50 µL
PDGF-D	..human	..AF1159	..Goat IgG	..100 µg
Prolactin	..mouse	..AF1445	..Goat IgG	..100 µg
RELMα	..mouse	..AF1523	..Goat IgG	..100 µg
■ RSK2	..human/mouse/rat	..AF1518	..Rabbit IgG	..50 µg
Serpin F2	..mouse	..AF1239	..Goat IgG	..100 µg
SIGNR4	..mouse	..AF1528	..Goat IgG	..100 µg
SLPI	..human	..AF1274	..Goat IgG	..100 µg
Soggy-1	..human	..AF1549	..Goat IgG	..100 µg
TCCR/WSX-1	..human	..AF1479	..Goat IgG	..100 µg
▲ Toll-like Receptor 1 (TLR1)	..human	..AF1484	..Goat IgG	..100 µg
▲ Toll-like Receptor 2 (TLR2)	..mouse	..AF1530	..Goat IgG	..100 µg
▲ Toll-like Receptor 3 (TLR3)	..human	..AF1487	..Goat IgG	..100 µg
▲ Toll-like Receptor 4 (TLR4)	..human	..AF1478	..Goat IgG	..100 µg
ULBP-2	..human	..AF1298	..Goat IgG	..100 µg
uPA	..human	..AF1310	..Goat IgG	..100 µg

Furin

Furin is the first member of the proprotein convertase (PC) family, which belongs to the subtilisin superfamily of serine proteases.¹ As a cellular protease, Furin processes a variety of proproteins in secretory pathway compartments by cleaving after R-X-K/R-R-like motifs, which usually reside at the ends of the pro regions. Furin proprotein substrates include bacterial toxins (such as anthrax toxin, arelysin toxin, α toxin), viral pathogens (HIV, respiratory syncytial virus, measles virus, avian influenza virus), cytokines (TGF-β1, BMP-4, B cell activating factor, APRIL, β-NGF, C-type natriuretic peptide,² IGF-I, EDA-A), cytokine receptors (Notch, IGF-I R), and other proteases (ADAMs, ADAMTSs, BACE, some MMPs). Processing by Furin enables toxins to form pores in cell membranes, viruses to initiate the host membrane fusion process, cytokines and cytokine receptors to have long-range signaling effects, and proteases to become active. Therefore, Furin has an essential role in embryogenesis and homeostasis and is implicated in various pathologies such as cancer and neurodegenerative disease.

Furin is synthesized as a 794 amino acid (aa) type I transmembrane (TM) protein precursor with a signal peptide (aa 1-24), a pro region (aa 25-107) that plays a crucial role in folding, activation, and transport, and a mature chain (aa 108-794). The mature chain consists of the subtilisin-like catalytic domain, a P domain, essential for enzyme activity and the modulation of pH and calcium requirements, a TM domain, and a cytoplasmic domain that controls the localization and sorting of Furin in the *trans*-Golgi network/endosomal system.

R&D Systems' purified recombinant human Furin (aa 108-715; Cat. # 1503-SE) corresponds to the extracellular region of the mature enzyme and exhibits specific activity against a fluorogenic peptide substrate (Ac-R-E-K-R-AFC) at greater than 50 pmoles/min/µg.

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Notch Ligands

The evolutionarily conserved Notch signaling pathway is important for cell fate determination, pattern formation, and morphogenesis in a broad range of tissues.¹ Dysregulation in the Notch pathway is associated with various developmental abnormalities and diseases. In mammals, four Notch homologs (Notch 1 to 4) and five ligands (Delta-like 1, 3, and 4, Jagged 1 and 2) have been identified.²⁻⁵ Notch receptors are type I transmembrane proteins with a large extracellular domain. Notch ligands are also type I transmembrane proteins containing an extracellular Delta/Serrate/Lag2 (DSL) motif necessary for Notch binding, tandem EGF repeats, a transmembrane region and a short intracellular domain (ICD).

Binding of Notch receptors with their ligands results in regulated intramembrane proteolysis (RIP) of both the Notch receptor and ligand.⁶⁻⁹ RIP is a mechanism for transmembrane signal transduction that involves sequential processing by a disintegrin metalloprotease (ADAM) and then by presenilin/ γ secretase, resulting in shedding of the extracellular domain and generation of the soluble ICD signaling fragment, respectively. The Notch ICD translocates to the nucleus and interacts with transcriptional coactivators resulting in transcription of target genes. The Notch ligand ICDs also contain nuclear localization signals. Although the physiological nuclear functions of the Notch ligand ICDs are not yet known, the Jagged ICD has been shown to activate gene expression via the transcription factor AP1. This bidirectional signaling via Delta-Notch or Jagged-Notch interactions is likely crucial in providing feedback to establish differential expression patterns between two neighboring cells.

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Monoclonal Antibodies

ANTIBODY	SPECIES	CATALOG #	CLONE	SIZE
ACE	human	MAB929	171417	100 μ g
		MAB9291	171409	500 μ g
ACE-2 Ectodomain	human	MAB933	171606	500 μ g
Albumin	human/mouse	MAB1455	188835	100 μ g
ALCAM	human	MAB6561	105902	500 μ g
Alkaline Phosphatase	human/mouse/rat	MAB1448	B4-78	100 μ g
B7-H2	human	MAB1651	136716	500 μ g
B7-H3	human	MAB1027	185504	500 μ g
● BAFF/BLyS/TNFSF13B	mouse	MAB1357	121808	500 μ g
Caronte	chicken	MAB1051	156808	500 μ g
Cathepsin A	human	MAB1049	179803	500 μ g
Cathepsin H	mouse	MAB1013	175909	500 μ g
Cathepsin O	human	MAB1174	180406	500 μ g
◆ CCR8	human	MAB1429	191704	500 μ g
● CD27/TNFRSF7	human	MAB382	57703	500 μ g
CD45	human	MAB1430	2D1	100 μ g
CD72	mouse	MAB1279	164726	500 μ g
◆ D6 Chemokine Receptor	human	MAB1364	196124	500 μ g
DAN	human	MAB955	161502	500 μ g
DC-SIGNR	human	MAB16211	DC28	500 μ g
Dkk-4	human	MAB1269	185709	500 μ g
● DR3/TNFRSF25	human	MAB943	59204	500 μ g
● EDA-A2	human	MAB922	174813	500 μ g
EGF R	human	MAB1095	102618	500 μ g
◆ ENA-78/CXCL5	human	MAB2541	33103	500 μ g
EphA1	human	MAB638	86810	500 μ g
EphA3	mouse	MAB640	99437	500 μ g
EphA6	mouse	MAB607	81610	500 μ g
		MAB6071	81605	500 μ g
EphA7	mouse	MAB1495	88712	500 μ g
EphA8	mouse	MAB454	95734	500 μ g
EphB4	mouse	MAB446	117808	500 μ g
EphB6	mouse	MAB1428	92224	500 μ g
Epiregulin	human	MAB1425	183625	500 μ g
ErbB4	human	MAB1131	182803	500 μ g
FGF R1 (IIIb)	human	MAB765	133111	500 μ g
FGF R2	human	MAB6843	98739	500 μ g
FGF R3 (IIIb)	human	MAB1474	136315	500 μ g
FGF-19	human	MAB9691	117611	500 μ g
Flt-3 (Flk-2)	human	MAB812	66903	500 μ g
Frizzled-3	human/mouse	MAB1001	169310	100 μ g
Frizzled-7	human/mouse	MAB1981	151143	100 μ g
Glucagon	human/mouse	MAB1249	181402	100 μ g
GM-CSF Rα	human	MAB706	31916	500 μ g
gp130	mouse	MAB4681	125623	100 μ g
◆ GRO	cotton rat	MAB1114	186413	500 μ g
Growth Hormone	human	MAB1067	178902	500 μ g
● HVEM/TNFRSF14	human	MAB3561	94804	500 μ g
IGFBP-5	human	MAB875	164503	500 μ g
IGFBP-7	human	MAB1334	192520	500 μ g
▲ IL-1F5/FIL1δ	human	MAB1275	190524	500 μ g
▲ IL-1F6/FIL1ϵ	human	MAB1078	162122	500 μ g
IL-4	feline	MAB984	159638	500 μ g
IL-11	human	MAB218	22626	500 μ g
	mouse	MAB418	188520	500 μ g

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Monoclonal Antibodies

Mouse NKG2D

NKG2D is a lectin-like stimulatory receptor that is constitutively expressed on NK cells and upregulated on activated CD8⁺ T cells, $\gamma\delta$ T cells, and macrophages.^{1,2} Alternative mRNA processing results in two isoforms that differ in their cytoplasmic domains and associate with two distinct signaling adapter proteins, DAP10 or DAP12.^{3,4} NKG2D ligand engagement can deliver activating or costimulatory signals depending on the adapter protein and cell type.¹⁻⁴ Seven different NKG2D ligands have been reported in mouse including H60, MULT-1, and five closely related members of the Rae-1 family.^{1,2}

R&D Systems' rat anti-mouse NKG2D monoclonal antibody (Cat. # MAB1547) has been validated for a variety of applications. This antibody can be used to detect NKG2D in both flow cytometric and western analysis. It will also neutralize binding of NKG2D to its ligands (Figure 1) and therefore, can be used to inhibit lysis of target cells. When appropriately cross-linked, this antibody will trigger an activation signal as demonstrated by its ability to enhance killing in a redirected lysis assay. This antibody has also been used *in vivo* to effect a complete down-modulation of NKG2D on splenic NK cells (the NK cell population was not depleted in these experiments).⁵

References

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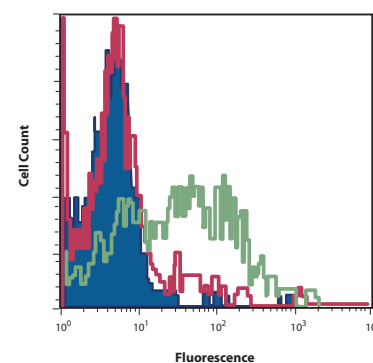


Figure 1. R&D Systems' anti-mouse NKG2D monoclonal antibody (Cat. # MAB1547) completely neutralizes NKG2D ligand binding to mouse NKG2D-transfected Ba/F3 cells. In the presence of an isotype control antibody, an H60/Fc chimera bound to the transfectant (green line). Pre-exposure of the transfectant to R&D Systems' rat anti-mouse NKG2D monoclonal antibody (Cat. # MAB1547) prevented binding of H60/Fc (red). Staining by an irrelevant human Fc chimeric protein in the presence of an isotype control antibody is also shown (blue).

ANTIBODY	SPECIES	CATALOG #	CLONE	SIZE
IL-21	mouse	MAB594	149204	500 µg
Insulin	human/bovine/mouse	MAB1417	182410	100 µg
Integrin α 2 (CD49b)	human	MAB1233	HAS3	500 µg
Integrin α 3 (CD49c)	human	MAB1345	IA3	500 µg
Integrin α 4 (CD49d)	human	MAB1354	7.2R	500 µg
Integrin α 6 (CD49f)	human	MAB1350	MP4F10	500 µg
	human/bovine/mouse	MAB13501	GoH3	100 µg
Integrin α V (CD51)	human	MAB1219	P2W7	500 µg
◆ IP-10/CXCL10	cotton rat	MAB1117	163426	500 µg
Jagged 1	human	MAB1277	188331	500 µg
JAM-2	human	MAB1074	156623	500 µg
		MAB10741	156624	500 µg
Kallikrein 5	human	MAB1108	193318	500 µg
Lefty-A	human	MAB7461	182525	500 µg
M-CSF R	human	MAB329	61708	500 µg
Mer	mouse	MAB591	108921	500 µg
		MAB5911	108908	500 µg
◆ MIP-3 α /CCL20	mouse	MAB7601	114908	500 µg
MIS/AMH	mouse	MAB1426	188103	500 µg
MMP-14	human	MAB9181	128527	500 µg
MMP-15 Ectodomain	human	MAB9161	130522	500 µg
NKG2D	mouse	MAB1547	191004	500 µg
NRG-1 β 1	human	MAB3771	147705	500 µg
Osteocalcin	human	MAB1419	190125	100 µg
Osteopontin	human	MAB1433	190312	100 µg
■ p38 γ /MAPK12	human/mouse/rat	MAB1347	212464	100 µg
■ p53	human/mouse/rat	MAB1355	184721	100 µg
PDGF-C	mouse	MAB1447	184129	500 µg
PEDF	human	MAB1177	187003	500 µg
	mouse	MAB1149	199315	500 µg
Proinsulin	human/mouse	MAB1336	M32237	100 µg
Resistin	human	MAB1359	184335	500 µg
L-Selectin	mouse	MAB5762	95226	500 µg
P-Selectin	mouse	MAB737	127933	500 µg
▲ SIGIRR	mouse	MAB1092	161917	500 µg
Siglec-5	human	MAB1072	194117	500 µg
Siglec-7	human	MAB1138	194212	500 µg
α -Smooth muscle actin	human	MAB1420	1A4	100 µg
Soggy 1	mouse	MAB1508	192425	500 µg
SSEA-4	human/mouse	MAB1435	MC-813-70	100 µg
● TACI/TNFRSF13B	human	MAB1741	165604	500 µg
	mouse	MAB1041	166010	500 µg
TIMP-3	human	MAB973	183551	500 µg
● TNF- α /TNFSF2	cotton rat	MAB10111	159813	500 µg
	rhesus macaque	MAB1070	182303	500 µg
		MAB10701	182309	500 µg
● TRANCE/RANK L/TNFSF11	mouse	MAB462	88227	500 µg
TREM-1	human	MAB1278	193015	500 µg
TrkB	human	MAB397	75133	500 µg
Tyrosine Hydroxylase	multi-species	MAB1423	TH-2	100 µg
VEGF _{120/164}	mouse	MAB493	39917	500 µg
Wip1	human	2380-MC-100	WC10	100 µL
● XEDAR	human	MAB1093	173111	500 µg

Fluorochrome-labeled Monoclonal Antibodies

ANTIBODY	SPECIES	CATALOG #	LABEL	CLONE	SIZE
◆ CCR7	human	.FAB197A	.Allophycocyanin	.150503	.100 Tests
◆ CCR8	human	.FAB1429A	.Allophycocyanin	.191704	.100 Tests
◆ CCR9	human	.FAB179A	.Allophycocyanin	.112509	.100 Tests
◆ CXCR1/IL-8 RA	human	.FAB330A	.Allophycocyanin	.42705	.100 Tests
◆ CXCR2/IL-8 RB	human	.FAB331A	.Allophycocyanin	.48311	.100 Tests
◆ CXCR5	human	.FAB190A	.Allophycocyanin	.51505	.100 Tests
◆ D6 Chemokine Receptor	human	.FAB1364A	.Allophycocyanin	.196124	.100 Tests
FGF R3	human	.FAB766F	.Fluorescein	.136334	.100 Tests
		.FAB766P	.Phycoerythrin	.136334	.100 Tests
poly-HistidineIC050P	.Phycoerythrin	.AD1.1.10	.100 Tests
IgG₁ Isotype Control	mouse	.IC002A	.Allophycocyanin		.50 µg
IgG_{2A} Isotype Control	mouse	.IC003A	.Allophycocyanin		.50 µg
IgG_{2B} Isotype Control	mouse	.IC004A	.Allophycocyanin		.50 µg
	rat	.IC013P	.Phycoerythrin		.50 µg
LIF	human	.IC2501P	.Phycoerythrin	.9808	.100 Tests
MMP-10	human	.IC910P	.Phycoerythrin	.110316	.100 Tests

ELISpot Kits & Reagents

ELISpot kits are highly sensitive, microplate based assays for the detection of cytokine secreting cells. Each ELISpot Development Module contains sufficient reagents for 5 (96-well) microplates.

PRODUCT	SPECIES	CATALOG #	SIZE
ELISpot Kits			
IFN-γ	porcine	.EL985	.1 Kit
IL-4	canine	.EL754	.1 Kit
IL-16	human	.EL316	.1 Kit
● TNF-α/TNFSF2	primate	.EL1070	.1 Kit
ELISpot Development Modules			
GM-CSF	mouse	.SEL415	.1 Kit
IFN-γ	canine	.SEL781	.1 Kit
	porcine	.SEL985	.1 Kit
▲ IL-1β/IL-1F2	porcine	.SEL681	.1 Kit
IL-5	mouse	.SEL405	.1 Kit
IL-10	human	.SEL217	.1 Kit
	mouse	.SEL417	.1 Kit
IL-13	mouse	.SEL413	.1 Kit
● TNF-α/TNFSF2	porcine	.SEL690	.1 Kit

● **TNF Superfamily**

◆ **Chemokines & Receptors**

■ **Signal Transduction**

▲ **Interleukin-1 Family**

Anti-CCR8

R&D Systems makes use of transfectants over-expressing cell immunogens as an alternative approach to monoclonal antibody development. Although the process of using whole cells as immunogens may be more labor intensive, the resulting antibodies can be superior to those generated from linear peptide immunogens.

The benefits of this immunization strategy are exemplified by our anti-human CCR8 monoclonal antibody (Cat. # FAB1429P). This antibody detects CCR8 expression on peripheral blood monocytes and on the monocytic leukemic cell line THP-1 (Figure 1). However, when these same cells were exposed to a commercially available anti-human CCR8 antibody generated using a CCR8 peptide immunogen, no staining was observed (data not shown). The additional value of this anti-human CCR8 monoclonal antibody is its ability to neutralize the action of I-309/CCL1 (data not shown here; please refer to the Summer 2003 Cytokine Bulletin, www.RnDSystems.com/SCBSU03TN).

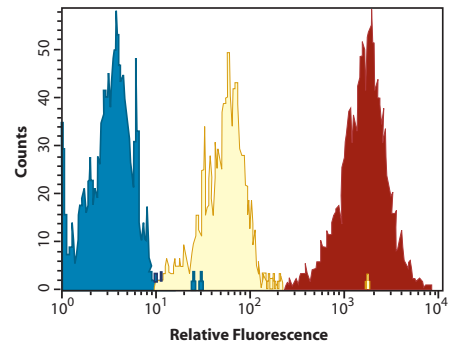


Figure 1. Flow cytometric detection of CCR8 on human monocytes. Peripheral blood monocytes (yellow) or THP-1 cells (red) were stained using R&D Systems' PE-conjugated anti-human CCR8 monoclonal antibody (Cat. # FAB1429P). Isotype control staining is shown in blue.

Matched Antibody Pairs



ANALYTE	SPECIES	CATALOG #	USE	SIZE
ALCAM	.human	MAB6561	.Capture	.500 µg
		BAF656	.Detection	.50 µg
		656-AL-100	.Protein	.100 µg
Axl	.mouse	MAB854	.Capture	.500 µg
		BAF854	.Detection	.50 µg
		854-AX-100	.Protein	.100 µg
B7-1 (CD80)	.human	MAB140	.Capture	.500 µg
		BAM1402	.Detection	.100 µg
		140-B1-100	.Protein	.100 µg
◆ CXCL16	.human	AF976	.Capture	.100 µg
		BAF976	.Detection	.50 µg
		976-CX-025	.Protein	.25 µg
● Fas (CD95)/TNFRSF6	.mouse	AF435	.Capture	.100 µg
		BAF435	.Detection	.50 µg
		435-FA-050	.Protein	.50 µg
● Fas Ligand/TNFSF6	.human	MAB126	.Capture	.500 µg
		BAF126	.Detection	.50 µg
		126-FL-010	.Protein	.10 µg
◆ I-TAC/CXCL11	.mouse	AF572	.Capture	.100 µg
		BAF572	.Detection	.50 µg
		572-MC-025	.Protein	.25 µg
IFN-γ	.rhesus macaque	AF961	.Capture	.100 µg
		BAF961	.Detection	.50 µg
		961-RM-025	.Protein	.25 µg
IGFBP-5	.mouse	AF578	.Capture	.100 µg
		BAF578	.Detection	.50 µg
		578-B5-025	.Protein	.25 µg
IL-4	.feline	MAB984	.Capture	.500 µg
		BAF984	.Detection	.50 µg
		984-FL-025	.Protein	.25 µg
MMP-8	.human	MAB908	.Capture	.500 µg
		BAF908	.Detection	.50 µg
		908-MP-010	.Protein	.10 µg
L-Selectin (CD62L)	.mouse	MAB5762	.Capture	.500 µg
		BAM5761	.Detection	.250 µg
		576-LS-100	.Protein	.100 µg
P-Selectin (CD62P)	.mouse	MAB737	.Capture	.500 µg
		BAF737	.Detection	.50 µg
		737-PS-050	.Protein	.50 µg
TGF-α	.human	AF-239-NA	.Capture	.100 µg
		BAF239	.Detection	.50 µg
		239-A-100	.Protein	.100 µg
● TROY/TNFRSF19	.mouse	AF723	.Capture	.100 µg
		BAF723	.Detection	.50 µg
		723-TR-100	.Protein	.100 µg

● TNF Superfamily

◆ Chemokines & Receptors

■ Signal Transduction

▲ Interleukin-1 Family

TREM-1

TREM-1 (triggering receptor expressed by myeloid cells) is a type I transmembrane protein possessing a single extracellular immunoglobulin-like domain.¹ It is expressed on neutrophils and monocytes, and expression is strongly upregulated by exposure to extracellular bacteria or cell wall components such as lipopolysaccharide (LPS) or lipoteichoic acid.^{1,2} It also occurs on epithelial cells in skin and lymph nodes infected with bacteria or fungi. TREM-1 associates via a positive charge in its transmembrane domain with the DAP12 signaling adapter protein.^{1,2} Engagement with an as yet unidentified ligand delivers an activating signal that has been shown to play an important role in inflammatory response amplification.¹⁻³

Monocyte activation via either LPS or a cross-linking anti-TREM-1 antibody induces proinflammatory cytokine (TNF- α , MCP-1, and IL-8) production.¹⁻⁴ Simultaneous delivery of both signals increases cytokine production by 10 to 20 fold over either signal alone.⁴ Anti-TREM-1 antibody also elicits differentiation of primary monocytes into cells that phenotypically resemble immature dendritic cells with enhanced ability to stimulate T cells.⁴

Septic shock is an excessive inflammatory response that is accompanied by the release of massive amounts of proinflammatory cytokines leading to tissue damage, organ failure, and eventual death. TREM-1 expression is strongly upregulated on peritoneal neutrophils of patients with septic shock due to bacterial peritonitis.³ In a mouse model of sepsis in which shock is induced by LPS, injection of a TREM-1/Fc fusion protein greatly reduces hyperresponsiveness and death.³ An alternatively spliced TREM-1 mRNA has been reported that lacks the transmembrane and cytoplasmic domains. If translated, this could encode a secreted version of the protein capable of acting as a decoy receptor and modulating TREM-1 mediated signaling.⁵

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α -Synuclein

α -Synuclein is a member of a family of small highly conserved proteins, including α , β -, and γ -synuclein, and synoretin.¹⁻³ These proteins are localized predominantly in the brain, concentrated in presynaptic nerve terminals.⁴ α -Synuclein is normally a soluble protein. Abnormal α -synuclein forms filamentous inclusions (Lewy bodies and Lewy neurites) in several neurodegenerative diseases, including Parkinson's disease (PD), dementia with Lewy bodies, and Alzheimer's disease.⁵⁻⁷ It is a major component of intracellular inclusions in sporadic PD. Mutations in the α -synuclein gene (A53T and A30P) have been reported in several families with autosomal dominant Parkinsonism.^{8,9}

α -Synuclein contains 140 amino acids, including a 60 aa N-terminal region, a 35 aa central region, and a C-terminal region. α -Synuclein has six 11 aa repeating motifs (four in the N-terminal region and two in the central region) that contain sequences favoring formation of amphipathic α -helices. Similar repeating motifs are present in lipoproteins, suggesting that the sequence in the N-terminal region allows α -synuclein to bind to lipids and membranes.¹⁰ The central region is highly amyloidogenic and is largely responsible for the initiation of α -synuclein fibrils and the extent of aggregation.¹¹ The C-terminal region, which is enriched in acidic residues, may regulate aggregation of full-length α -synuclein.^{12,13} Although the mechanism of α -synuclein aggregation is not clear, the conversion of soluble α -synuclein into filamentous aggregates may play a role in disease pathogenesis.

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Biotinylated Antibodies

ANTIBODY	SPECIES	CATALOG #	HOST	SIZE
α_{2u} -Globulin	.rat	BAM586	.Mouse IgG ₁	.250 μ g
ALS	.mouse	BAF1436	.Goat IgG	.50 μ g
Amphiregulin	.mouse	BAF989	.Goat IgG	.50 μ g
Artemin	.mouse	BAF1085	.Goat IgG	.50 μ g
Cathepsin S	.human	BAF1183	.Goat IgG	.50 μ g
CD32	.human	BAF1330	.Goat IgG	.50 μ g
DLEC	.human	BAF1376	.Goat IgG	.50 μ g
Dtk/TYRO3	.mouse	BAM759	.Rat IgG ₁	.100 μ g
ErbB2	.human	BAF1129	.Goat IgG	.50 μ g
ErbB4	.human	BAF1131	.Goat IgG	.50 μ g
Follistatin Related Gene (FLRG)	.mouse	BAF1255	.Goat IgG	.50 μ g
Galectin-8	.human	BAF1305	.Goat IgG	.50 μ g
GFR α -4	.human	BAF1439	.Goat IgG	.50 μ g
GMF- β	.human	BAF1276	.Goat IgG	.50 μ g
Granzyme H	.human	BAF1377	.Goat IgG	.50 μ g
Growth Hormone R	.human	BAF1210	.Goat IgG	.50 μ g
	.rat	BAF1211	.Goat IgG	.50 μ g
ICAM-5	.mouse	BAF1173	.Goat IgG	.50 μ g
IGFBP-1	.mouse	BAF1240	.Goat IgG	.50 μ g
IgG	.hamster	BAM011	.Mouse IgG _{2B}	.250 μ g
IL-17E	.human	BAF1258	.Goat IgG	.50 μ g
IL-26/AK155	.human	BAF1375	.Goat IgG	.50 μ g
JAM-3	.human	BAF1189	.Goat IgG	.50 μ g
Limitin	.mouse	BAF597	.Goat IgG	.50 μ g
Nepriylsin	.human	BAF1182	.Goat IgG	.50 μ g
Nogo R	.human	BAF1208	.Goat IgG	.50 μ g
	.mouse	BAF1440	.Goat IgG	.50 μ g
PDGF-AA	.rat	BAF1055	.Goat IgG	.50 μ g
PDGF-D	.human	BAF1159	.Goat IgG	.50 μ g
Prolactin	.mouse	BAF1445	.Goat IgG	.50 μ g
Reg IV	.human	BAF1379	.Goat IgG	.50 μ g
SCF R/c-kit	.mouse	BAF1356	.Goat IgG	.50 μ g
Sca-1/Ly6	.mouse	BAM1226	.Rat IgG _{2A}	.250 μ g
L-Selectin	.mouse	BAM5761	.Rat IgG _{2A}	.250 μ g
Serpin F2	.mouse	BAF1239	.Goat IgG	.50 μ g
Siglec-5	.human	BAF1072	.Goat IgG	.50 μ g
Siglec-7	.human	BAF1138	.Goat IgG	.50 μ g
SLPI	.human	BAF1274	.Goat IgG	.50 μ g
α -Synuclein	.human	BAF1338	.Goat IgG	.50 μ g
TGF- β 3	.multi-species	BAM243	.Mouse IgG ₁	.250 μ g

Cell Culture Supplements

PRODUCT	SPECIES	CATALOG #	SIZE
Hematopoietic Stem Cell Expansion Cytokine Panel	.human	SMPK8	.1 Kit
	.mouse	SMPK9	.1 Kit

Each kit contains sufficient reagents (Flt-3 Ligand, Tpo and SCF) for 1 liter of media.

ELISA & Activity Assay Development Kits

DuoSet® ELISA Development Systems

These kits contain the basic components required to develop an immunoassay to measure natural or recombinant proteins. Each DuoSet kit provides a protocol optimized for cell culture supernates. All standards are mass-calibrated for immunoassay and all components undergo quality control testing to eliminate lot-to-lot variability. Each kit provides sufficient reagents for approximately 15 plates. Also available in 45 plate Economy Packs.



ANALYTE	SPECIES	CATALOG #	SIZE
Adiponectin/Acrp30	human	DY1065	15 Plates
ALCAM	human	DY656	15 Plates
B7-1 (CD80)	human	DY140	15 Plates
BMP-6	human	DY507	15 Plates
◆ CXCL16	human	DY1164	15 Plates
◆ Eotaxin/CCL11	mouse	DY420	15 Plates
● Fas Ligand/TNFSF6	human	DY126	15 Plates
● GITR Ligand/TNFSF18	human	DY694	15 Plates
GM-CSF	feline	DY987	15 Plates
▲ IL-1β/IL-1F2	porcine	DY681	15 Plates
IL-4	feline	DY984	15 Plates
Leptin R	mouse	DY497	15 Plates
◆ MDC/CCL22	mouse	DY439	15 Plates
◆ MIP-3α/CCL20	mouse	DY760	15 Plates
E-Selectin (CD62E)	mouse	DY575	15 Plates
L-Selectin (CD62L)	mouse	DY576	15 Plates
Sonic Hedgehog (Shh)	mouse	DY461	15 Plates
TGF-α	human	DY239	15 Plates
● TROY/TNFRSF19	mouse	DY723	15 Plates
VEGF-D	mouse	DY469	15 Plates

DuoSet® IC Intracellular ELISA and Activity Assays

Each DuoSet IC kit provides sufficient reagents for approximately 2 or 5 plates. Also available in 15 plate Economy Packs.



ANALYTE	SPECIES	CATALOG #	SIZE
Bax-α	human	DYC820-2	.2 Plates
		DYC820-5	.5 Plates
Caspase-8 (Active)	human	DYC705-2	.2 Plates
		DYC705-5	.5 Plates
■ phospho-ERK2 (T185/Y187)	human/mouse/rat	DYC1483-2	.2 Plates
		DYC1483-5	.5 Plates
■ p53 (Total)	human	DYC1043-2	.2 Plates
		DYC1043-5	.5 Plates
■ STAT 1p91 (Active)	human/mouse	DYC1490-2	.2 Plates
		DYC1490-5	.5 Plates
XIAP	human	DYC822-2	.2 Plates
		DYC822-5	.5 Plates

- TNF Superfamily
- ◆ Chemokines & Receptors

- Signal Transduction
- ▲ Interleukin-1 Family

Transcription Factor DuoSet® IC

Recent advances in intracellular research have increased interest in sequence-specific DNA-binding protein (transcription factor) activity. Current methods employed to investigate transcription factors are immunoprecipitation/western blot (IP/WB), electrophoretic mobility shift assays (EMSA), DNA footprinting, and nitrocellulose filter binding assays. These methods are slow, labor intensive, may produce radioactive waste, and in general, are not very sensitive.

R&D Systems has developed a colorimetric assay using a modified ELISA format that is fast, simple, sensitive, and can be easily adapted to high throughput analysis. The active human/mouse STAT 1p91 DuoSet IC kit contains the basic components required for the development of an assay to measure DNA binding activity of human or mouse STAT 1p91. Typical results show excellent correlation with IP/WB and EMSA data (Figure 1).

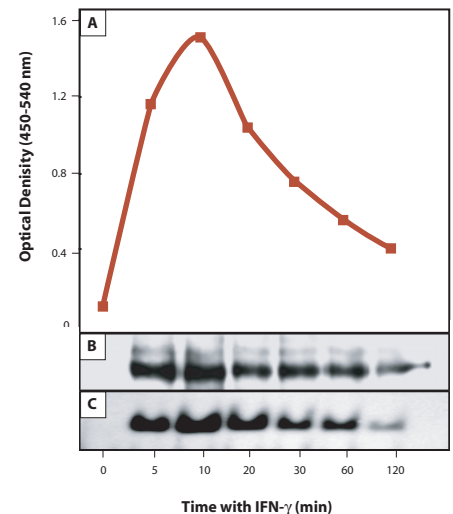


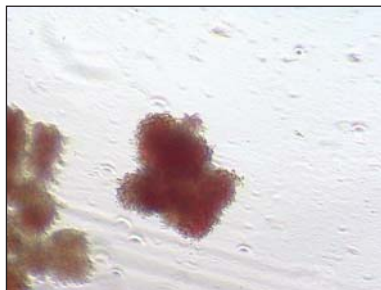
Figure 1. Active STAT 1p91. Human U937 cells were treated with 100 ng/mL IFN-γ for the indicated times. **A.** For DuoSet IC, nuclear extracts were assayed at 5 μg/well. **B.** For IP/WB, 20 μg nuclear extract was immunoprecipitated using a goat anti-human STAT 1p91 polyclonal antibody and active STAT 1p91 was detected on western blot using a rabbit anti-human pSTAT 1 polyclonal antibody. **C.** For EMSA, 10 μg nuclear extract was incubated with labeled oligo and electrophoresed on a 5% nondenaturing polyacrylamide gel.

Methylcellulose-based Reagents for Colony Forming Cell Assays

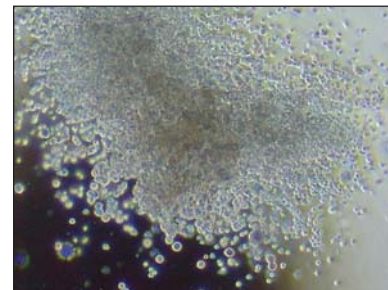
The colony forming cell (CFC) assay, also known as the clonal culture assay, is the standard *in vitro* assay for quantitation of clonogenic progenitors present in human, murine and primate bone marrow, umbilical cord blood, peripheral blood, and mobilized peripheral blood. This assay relies on the ability of hematopoietic progenitors to proliferate and differentiate into distinct colonies in a semi-solid media in response to growth factor stimulation. The unique morphology of the resulting colonies enables enumeration and characterization of the progenitors. Since methylcellulose has replaced agar as the immobilizing agent used in the CFC assay, this assay is also known as the methylcellulose assay.

R&D Systems has developed various methylcellulose-based reagents suitable for the diverse needs of hematopoietic stem cell research:

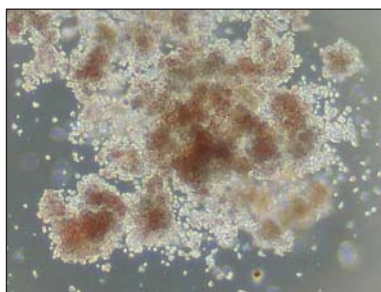
- **Methylcellulose Stock Solution**
Methylcellulose in IMDM
- **Methylcellulose Base Media (Human)**
FBS-containing methylcellulose media
- **Methylcellulose Complete Media (Human)**
FBS and recombinant human cytokine (GM-CSF, IL-3, SCF and Epo) supplemented methylcellulose media
- **Methylcellulose Complete Media without EPO (Human)**
FBS and recombinant human cytokine (GM-CSF, IL-3 and SCF) supplemented methylcellulose media



BFU-E



CFU-GM



CFU-GEMM

Figure 1. Colony morphology of human PBMCs after 14 days of culture in Methylcellulose Complete Media (Cat. # HSC003).

Reagents for Colony Forming Cell Assays

PRODUCT	SPECIES	CATALOG #
Methylcellulose Stock Solution		HSC001
Methylcellulose Base Media	human	HSC002
Methylcellulose Complete Media	human	HSC003
Methylcellulose Complete Media without EPO	human	HSC004



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