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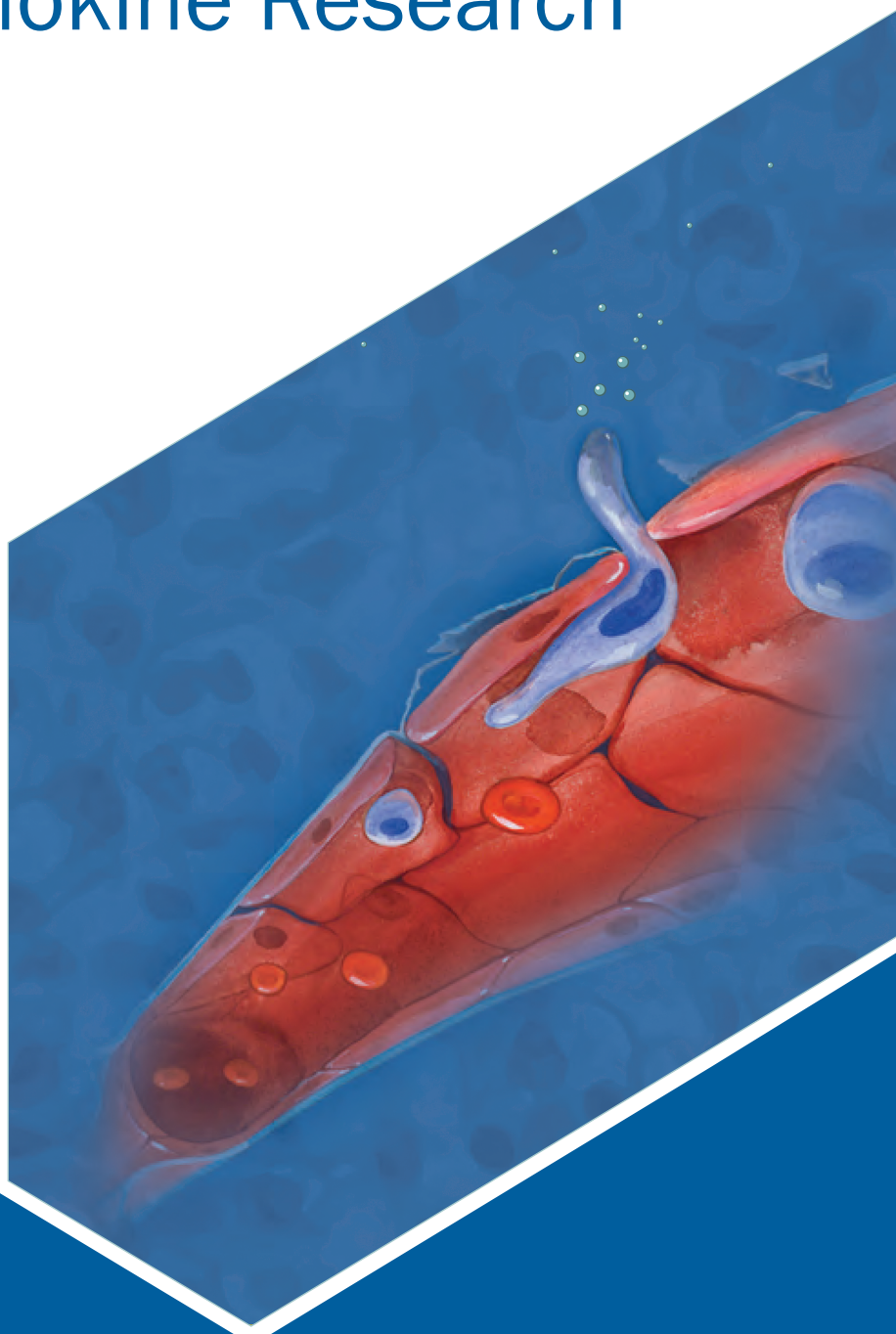
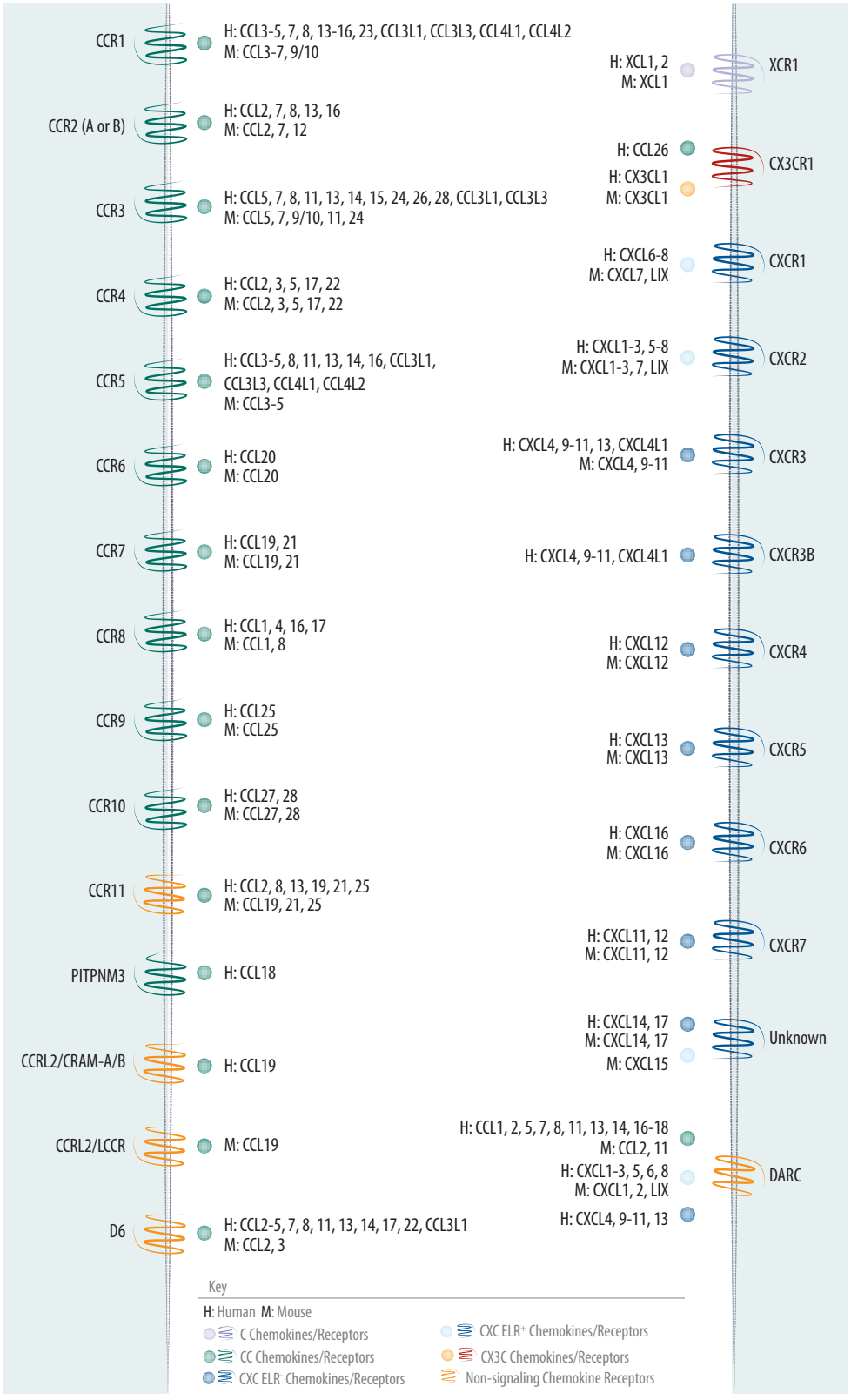
Products for Chemokine Research



The Chemokine Superfamily

Chemokines are small cell surface-localized or secreted chemotactic cytokines that bind to and activate specific G protein-coupled chemokine receptors. Most chemokines have at least four conserved N-terminal cysteine residues that form two intramolecular disulfide bonds. Four chemokine subfamilies (CXC, CC, C and CX3C) have been defined based upon the placement of the first two cysteine residues. The CXC chemokine subfamily is characterized by two cysteine residues separated by one amino acid. Within this subfamily, two CXC classes are further defined by the presence or absence of an ELR motif sequence. ELR$^-$ CXC chemokines act as chemoattractants for lymphocytes, while ELR$^+$ CXC chemokines are chemoattractants for neutrophils. Additionally, CXC chemokines can mediate angiogenesis.[1] The CC chemokine subfamily is defined by two adjacent cysteine residues. CC chemokines induce inflammatory responses via regulation of monocyte, macrophage, mast cell, and T cell migration.[2] C chemokines are characterized by a single cysteine residue and are constitutively expressed in the thymus where they regulate T cell differentiation.[3] The CX3C chemokine subfamily is defined by two cysteine residues separated by three amino acids. Cell surface-localized CX3CL1/Fractalkine mediates leukocyte adhesion while soluble CX3CL1/Fractalkine is chemotactic for leukocytes.[4] CX3CL1/Fractalkine is also a critical regulator of microglia-neuron communication during neural development.[5]

While chemokine receptors generally bind only one subfamily of chemokines, within those subfamilies, most chemokines display promiscuous receptor binding patterns. The redundancy of chemokine ligand-receptor binding may ensure robust signaling. In addition, promiscuous binding and non-signaling chemokine receptors offer mechanisms by which chemokine signaling can be regulated by either subtle differences in receptor signaling or differences in ligand-receptor expression patterns.[6] Select chemokine ligands and receptors are implicated in HIV infection and persistence, while aberrant chemokine expression and signaling is associated with pathological conditions including inflammatory diseases and cancer.[7-9]



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2. Ono, S.J. *et al.* (2003) J. Allergy Clin. Immunol. **111**:1185.
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7. Evans, V.A. *et al.* (2012) Cytokine Growth Factor Rev. **23**:151.
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For additional information
>RnDSystems.com/ChemokineInfoTable

CXC Chemokines

Molecule	Recombinant & Natural Proteins	Antibodies	ELISAs	Recombinant Human Protein Sampler Packs
CXCL1/2/3/GRO	CR	H (B/N, FC, WB) CR (B/N, WB)		
CXCL1/GROα/KC/CINC-1	H M R	H (B/N, E, FC, WB) M (B/N, E, WB) R (B/N, IHC, WB)	H M R	
CXCL2/GROβ/MIP-2/CINC-3	H M R CR	H (B/N, FC, WB) M (B/N, E, ICC, IHC, WB) R (B/N, E, WB)	M R	
CXCL3/GROγ/CINC-2/DCIP-1	H M R	H (B/N, FC, WB) M (B/N, WB) R (B/N, E, WB)	R	
CXCL4/PF4	H M	H (E, FC, WB) M (E, WB)	H M	
CXCL5/ENA-70	H			
CXCL5/ENA-74	H			
CXCL5/ENA-78	H	H (B/N, E, FC, IHC, WB)	H	
CXCL6/GCP-2	H	H (B/N, E, FC, WB)	H	
CXCL7/NAP-2	H	H (B/N, E, WB)	H	
CXCL7/Thymus Chemokine-1	M R	M (B/N, E, IHC, WB) R (B/N, E, IHC, WB)	M R	
CXCL8/IL-8	H P Ca F	H (B/N, E, FC, ICC, IHC, WB) P (B/N, E, WB) Ca (B/N, E, ICC, WB) F (B/N, E, ICC, WB)	H P Ca F	
CXCL9/MIG	H M	H (B/N, E, FC, ICC, WB) M (B/N, E, WB)	H M	
CXCL10/IP-10/CRG-2	H M CR	H (B/N, E, FC, ICC, WB) M (B/N, E, IHC, WB) CR (B/N, WB)	H M	✓
CXCL11/I-TAC	H M	H (B/N, E, WB) M (B/N, E, WB)	H M	✓
CXCL12/SDF-1	H M F RM	H (B/N, E, FC, IHC, WB) M (B/N, E, FC, IHC, WB)	H M	✓
CXCL12/SDF-1α	H M F RM		H M	
CXCL12/SDF-1β	H F	H (B/N, E, WB)		✓
CXCL12/SDF-1γ	H			
CXCL13/BLC/BCA-1	H M	H (B/N, E, FC, IHC, WB) M (B/N, E, IHC, WB)	H M	
CXCL14/BRAK	H M	H (E, WB) M (WB)	H	
CXCL15/Lungkine	M	M (E, WB)	M	
CXCL16	H M	H (B/N, E, FC, IHC, WB) M (B/N, E, FC, WB)	H M	
CXCL17/VCC-1	H M	H (FC, ICC, WB) M (WB)		✓
LIX	M R	M (B/N, E, WB) R (B/N, E, WB)	M R	

CXC Chemokine Receptors

Molecule	Antibodies	Tocris Biochemicals & Peptides
CXCR1/IL-8 RA	H (B/N, FC, IHC)	
CXCR2/IL-8 RB	H (B/N, FC, IHC) M (B/N, FC)	✓
CXCR3	H (B/N, FC, IHC) M (FC)	
CXCR4	H (B/N, FC, IHC) M (B/N, FC, ICC, IHC) F (FC, ICC)	✓
CXCR5	H (B/N, FC, ICC, IHC) M (FC, ICC)	
CXCR6	H (FC) M (FC)	
CXCR7/RDC-1	H (FC, IHC) M (FC, WB)	✓
DARC	H (FC, ICC) M (FC, WB) R (FC, WB)	

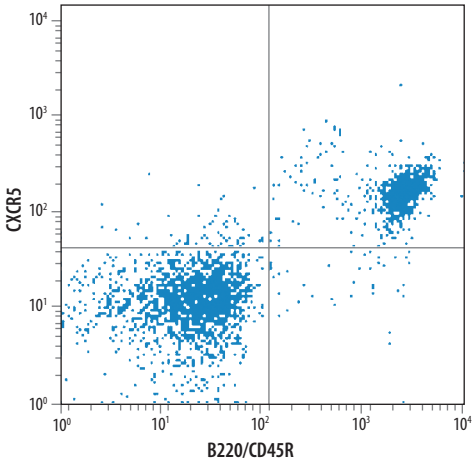
Species Key: **H** Human, **M** Mouse, **R** Rat, **B** Bovine, **Ca** Canine, **CR** Cotton Rat, **F** Feline, **P** Porcine, **RM** Rhesus Macaque, **V** Viral
Application Key: **B/N** Blocking/Neutralization, **E** ELISA (Cap. or Det.), **FC** Flow Cytometry, **ICC** Immunocytochemistry, **IHC** Immunohistochemistry, **IP** Immunoprecipitation, **WB** Western Blot

CXC Chemokines

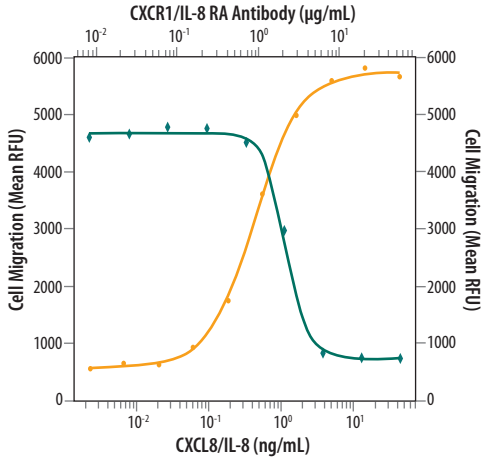
CXC chemokines, also known as α chemokines, are critical regulators of normal development and immune responses. The CXC chemokine subfamily consists of nineteen ligands and seven receptors. CXC chemokines that contain an ELR motif are potent angiogenic factors, while ELR⁻CXC chemokines are angiostatic. Select CXC chemokines and receptors regulate hematopoietic stem cell migration. They are also involved in regulating tumor progression and are of interest as targets for therapeutic intervention.[1-3]

References

1. Zhu, Q. *et al.* (2012) J. Mol. Histol. **43**:699.
2. Vinader, V. & K. Afarinkia (2012) Future Med. Chem. **4**:853.
3. Owen, J.L. & M. Mohamadzadeh (2013) Front. Physiol. **4**:159.



Detection of CXCR5 and B220/CD45R on Mouse Splenocytes by Flow Cytometry. Mouse splenocytes were stained for CXCR5 and B220/CD45R expression using a PE-conjugated Rat Anti-Mouse CXCR5 Monoclonal Antibody (Catalog # FAB6198P) and an APC-conjugated Rat Anti-Mouse B220/CD45R Monoclonal Antibody (Catalog # FAB1217A). Quadrants were set based on isotype controls.



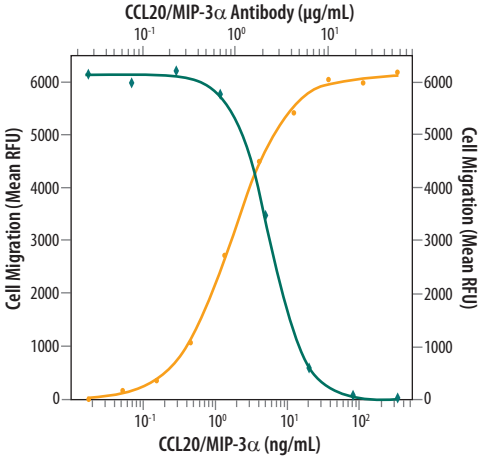
Chemotaxis Induced by CXCL8/IL-8 and Neutralization using a Human CXCR1/IL-8 RA Antibody. Recombinant Human CXCL8/IL-8 (Catalog # 208-IL) chemoattracts the BaF3 mouse pro-B cell line transfected with human CXCR1/IL-8 RA in a dose-dependent manner (orange line). The amount of cells that migrated through to the lower chemotaxis chamber was measured by Resazurin (Catalog # AR002). Chemotaxis elicited by 1 ng/mL Recombinant Human CXCL8/IL-8 was neutralized by increasing concentrations of Human CXCR1/IL-8 RA Monoclonal Antibody (Catalog # MAB330; green line).

CC Chemokines

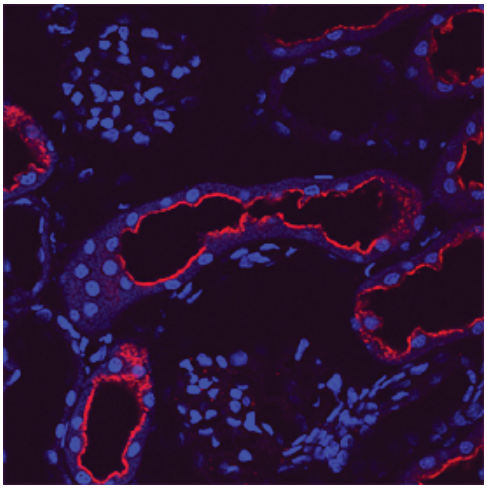
CC chemokines, also known as β chemokines, are critical mediators of the inflammatory response. The CC subfamily contains thirty-four ligands and eleven receptors. Many of these are implicated in chronic inflammatory diseases including rheumatoid arthritis, atherosclerosis, and metabolic syndrome.[1] CC chemokines also regulate the recruitment of leukocytes to the tumor microenvironment, particularly tumor-associated macrophages and myeloid-derived suppressor cells.[2]

References

1. White, G.E. *et al.* (2013) Pharmacol. Rev. **65**:47.
2. Mantovani, A. *et al.* (2010) Cytokine Growth Factor Rev. **21**:27.



Chemotaxis Induced by CCL20/MIP-3α and Neutralization using a Human CCL20/MIP-3α Antibody. Recombinant Human CCL20/MIP-3α (Catalog # 360-MP) chemoattracts the BaF3 mouse pro-B cell line transfected with human CCR6 in a dose-dependent manner (orange line). The amount of cells that migrated through to the lower chemotaxis chamber was measured by Resazurin (Catalog # AR002). Chemotaxis elicited by 10 ng/mL Recombinant Human CCL20/MIP-3α is neutralized by increasing concentrations of Human CCL20/MIP-3α Monoclonal Antibody (Catalog # MAB360; green line).



Detection of CCL3/MIP-1α in Rat Kidney. Perfusion-fixed frozen sections of rat kidney were stained for CCL3/MIP-1α expression using a Mouse Anti-Rat CCL3/MIP-1α Monoclonal Antibody (Catalog # MAB66251). The tissue was stained using the NorthernLights™ 557-conjugated Donkey Anti-Mouse IgG Secondary Antibody (Catalog # NL007; red) and counterstained with DAPI (blue). Specific staining was localized to the plasma membranes of epithelial cells in convoluted tubules.

CC Chemokines

Molecule	Recombinant & Natural Proteins	Antibodies	ELISAs	Recombinant Human Protein Sampler Packs
CCL1/I-309/TCA-3	H M	H (B/N, E, WB) M (B/N, E, WB)	H M	✓
CCL2/JE/MCP-1	H M R Ca	H (B/N, E, FC, IHC, WB) M (B/N, E, FC, WB) Ca (B/N, E, ICC, WB) CR (WB)	H M R Ca	✓
CCL3/MIP-1α	H M R CR	H (B/N, E, FC, ICC, IHC, WB) M (B/N, E, FC, ICC, IHC, WB) R (B/N, IHC, WB) Ca (WB) CR (B/N, WB)	H M Ca	✓
CCL3L1/MIP-1α Isoform LD78β	H			
CCL4/MIP-1β	H M R Ca CR	H (B/N, E, FC, ICC, IHC, WB) M (B/N, IHC, WB) R (B/N, WB) Ca (ICC, WB) CR (B/N, WB)	H M	✓
CCL4L1/LAG-1	H			
CCL5/RANTES	H M Ca CR F	H (B/N, E, FC, ICC, IHC, WB) M (B/N, E, ICC, WB) Ca (B/N, ICC) CR (B/N, WB) F (B/N, E, WB)	H M R Ca F	✓
CCL6/C10	M	M (B/N, E, FC, WB)	M	
CCL7/MCP-3/MARC	H M	H (B/N, E, FC, WB) M (B/N, WB)	H	
CCL8/MCP-2	H	H (B/N, E, WB) M (WB)	H M	
CCL9/10/MIP-1γ	M	M (B/N, E, WB)	M	
CCL11/Eotaxin	H M	H (B/N, E, FC, IHC, WB) M (B/N, E, IHC, WB)	H M	✓
CCL12/MCP-5	M	M (B/N, E, WB)	M	
CCL13/MCP-4	H	H (B/N, E, FC, WB)	H	
CCL14/HCC-1/HCC-3		H (B/N, E, WB)		
CCL14a/HCC-1	H	H (B/N, E, WB)	H	
CCL14b/HCC-3		H (B/N, E, WB)		
CCL15/MIP-1δ	H	H (B/N, E, WB)	H	
CCL16/HCC-4	H	H (B/N, E, FC, IHC, WB)	H	
CCL17/TARC	H M	H (B/N, E, FC, IHC, WB) M (B/N, E, WB)	H M	✓
CCL18/PARC	H	H (E, FC, WB)	H	
CCL19/MIP-3β	H M R	H (B/N, E, FC, ICC, IHC, WB) M (B/N, E, ICC, WB)	H M	✓
CCL20/MIP-3α	H M R	H (B/N, E, FC, ICC, IHC, WB) M (B/N, E, FC, WB) R (B/N, E, WB)	H M R	✓
CCL21/6Ckine	H M R	H (B/N, E, ICC, WB) M (B/N, E, FC, IHC, WB)	H M	✓
CCL22/MDC	H M	H (B/N, E, FC, WB) M (B/N, E, WB)	H M	✓
CCL23/Ckβ8-1	H	H (B/N, E, WB)	H	
CCL23/MPIF-1	H	H (B/N, E, FC, WB)	H	✓
CCL24/Eotaxin-2/MPIF-2	H M	H (B/N, E, IHC, WB) M (B/N, E, WB)	H M	✓
CCL25/TECK	H M	H (B/N, E, WB) M (B/N, E, IHC, WB)	H M	
CCL26/Eotaxin-3	H	H (B/N, E, IHC, WB)	H	✓
CCL26-like/Eotaxin-3-like		R (WB)		
CCL27/CTACK	H M R	H (B/N, E, IHC, WB) M (B/N, E, IHC, WB)	H M	
CCL28	H M	H (B/N, E, WB) M (B/N, E, WB)	H M	

Species Key: **H** Human, **M** Mouse, **R** Rat, **B** Bovine, **Ca** Canine, **CR** Cotton Rat, **F** Feline, **P** Porcine, **RM** Rhesus Macaque, **V** Viral
Application Key: **B/N** Blocking/Neutralization, **E** ELISA (Cap. or Det.), **FC** Flow Cytometry, **ICC** Immunocytochemistry, **IHC** Immunohistochemistry, **IP** Immunoprecipitation, **WB** Western Blot

CC Chemokine Receptors

Molecule	Antibodies	Tocris Biochemicals & Peptides
CCR1	H (FC, IHC) M (FC, WB)	✓
CCR2	H (FC) M (FC)	✓
CCR3	H (B/N, FC, IHC) M (FC)	✓
CCR4	H (FC, WB) M (WB) R (FC)	✓
CCR5	H (B/N, FC, ICC, IHC, IP, WB) M (FC, WB) R (FC)	✓
CCR6	H (FC, IHC) M (FC, IHC)	
CCR7	H (B/N, FC, ICC) M (B/N, FC, ICC)	
CCR8	H (B/N, FC) M (WB) R (FC, WB)	✓
CCR9	H (FC, ICC, IHC) M (FC) R (FC)	
CCR10	H (FC) M (FC) R (FC)	
CCR11	H (FC)	
CCRL2/CRAM-A/B	H (FC)	
CCRL2/LCCR	M (FC, ICC)	
D6	H (FC)	

CC Chemokine-related Molecules

Molecule	Recombinant & Natural Proteins	Antibodies
CCI	V	V (B/N, WB)
MCK-2		V (WB)
MCV-type II Chemokine-like Protein	V	V (B/N, WB)
MIP-I	V	V (B/N, WB)
MIP-II	V	V (WB)
MIP-III		V (WB)
TAFA1/FAM19A1	H	H (B/N, IHC, WB)
TAFA2/FAM19A2	H	H (B/N, IHC, WB)
TAFA3/FAM19A3		H (FC, WB)
TAFA4/FAM19A4	H	H (FC, WB)
TAFA5/FAM19A5	H	H (FC, IHC, WB) M (FC, WB) R (FC, WB)

C Chemokine & Receptor

Molecule	Recombinant & Natural Proteins	Antibodies	ELISAs
XCL1/Lymphotactin	H M	H (B/N, E, WB) M (B/N, E, IHC, WB)	H M
XCR1		H (FC, ICC, WB)	

CX3C Chemokine & Receptor

Molecule	Recombinant & Natural Proteins	Antibodies	ELISAs
CX3CL1/Fractalkine	H M R	H (B/N, E, FC, IHC, WB) M (B/N, E, WB) R (B/N, E, IHC, WB)	H M R
CX3CR1		H (FC, WB) M (FC, WB)	

Other Chemotactic Molecules

Molecule	Recombinant & Natural Proteins	Antibodies	ELISAs
Chemerin	H M	H (E, FC, WB) M (B/N, E, FC, WB)	H M
ChemR23		H (FC) M (FC)	

C Chemokines

C chemokines, also known as γ chemokines, mediate homing and leukocyte maturation within lymphoid tissues. This subfamily consists of two ligands, XCL1 and XCL2, which both bind to XCR1. The XCR1 receptor is expressed on a unique subset of dendritic cells (DCs) that cross-presents antigens to T cells.[1-3] The specificity of XCR1 expression on cross-presenting DCs makes it an attractive target for antigen delivery by DC-targeted cancer vaccines.[1,4]

References

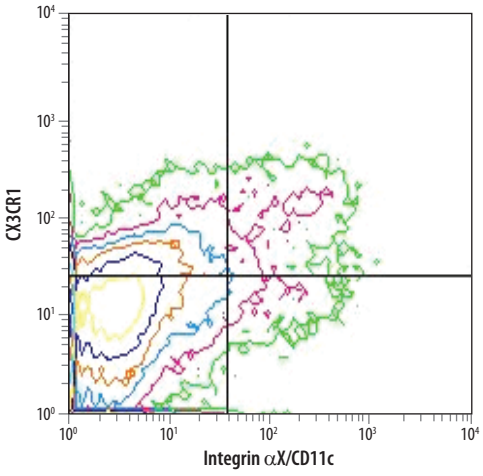
1. Kroczek, R.A. & V. Henn (2012) Front. Immunol. **3**:14.
2. Yamazaki, C. *et al.* (2013) J. Immunol. **190**:6071.
3. Bachem, A. *et al.* (2012) Front. Immunol. **3**:214.
4. Haniffa, M. *et al.* (2013) Oncoimmunology **2**:e23140.

CX3C Chemokines

The CX3C chemokine subfamily, also known as the δ subfamily, regulates leukocyte homing and adhesion. There is only one CX3C chemokine ligand, CX3CL1/Fractalkine, which binds to CX3CR1. CX3CL1/Fractalkine mediates an inflammatory response and appears to play a significant role in inflammatory disorders including atherosclerosis, allergen-induced asthma, and neuro-inflammation.[1-4]

References

1. Bordon, Y. (2010) Nat. Rev. Immunol. **10**:810.
2. Flierl, U. & A. Schafer (2012) Thromb. Haemost. **108**:457.
3. Julia, V. (2012) Allergy **67**:1106.
4. Kiguchi, N. *et al.* (2012) Curr. Opin. Pharmacol. **12**:55.



Detection of CX3CR1 and Integrin αX/CD11c on Mouse Splenocytes by Flow Cytometry. Mouse splenocytes were stained with an APC-conjugated Goat Anti-Mouse CX3CR1 Antigen Affinity-purified Polyclonal Antibody (Catalog # FAB5825A) and a PE-conjugated anti-mouse Integrin αX/CD11c antibody.

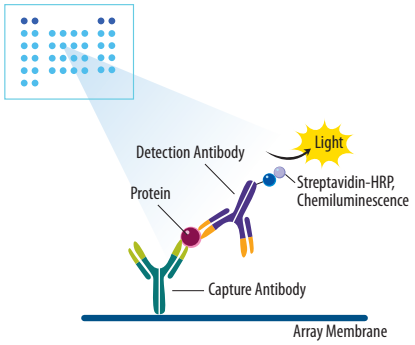
Multianalyte Profiling Kits for Chemokine Research

R&D Systems offers both membrane-based and bead-based multianalyte profiling kits for chemokine research. These kits offer highly efficient, economical assays for simultaneously detecting multiple chemokines in a single sample.

Proteome Profiler™ Antibody Arrays

The Proteome Profiler™ Human and Mouse Chemokine Antibody Arrays are nitrocellulose membrane-based arrays that allow for the simultaneous detection of 31 human or 25 mouse chemokines in a single sample. Proteome Profiler Antibody Arrays eliminate the need for multiple immunoprecipitation/Western blot experiments and require no specialized equipment. For additional information, please visit RnDSystems.com/ProteomeProfiler.

Proteome Profiler Antibody Arrays
Human Chemokine Antibody Array (Catalog # ARY017) Contains 4 membranes – each spotted in duplicate with 31 different chemokine antibodies
CCL1/I-309, CCL2/MCP-1, CCL3/CCL4 (MIP-1α/MIP-1β), CCL5/RANTES, CCL7/MCP-3, CCL14/HCC-1/HCC-3, CCL15/MIP-1δ/LKN-1, CCL17/TARC, CCL18/PARC, CCL19/MIP-3β, CCL20/MIP-3α, CCL21/6Ckine, CCL22/MDC, CCL26/Eotaxin-3, CCL28, CX3CL1/Fractalkine, CXCL1/GROα, CXCL4/PF4, CXCL5/ENA-78, CXCL7/NAP-2, CXCL8/IL-8, CXCL9/MIG, CXCL10/IP-10, CXCL11/I-TAC, CXCL12/SDF-1, CXCL16, CXCL17/VCC-1, XCL1/Lymphotactin, Chemerin, IL-16, Midkine
Mouse Chemokine Antibody Array (Catalog # ARY020) Contains 4 membranes – each spotted in duplicate with 25 different chemokine antibodies
CCL2/JE/MCP-1, CCL3/CCL4 (MIP-1α/MIP-1β), CCL5/RANTES, CCL6/C10, CCL8/MCP-2, CCL9/10/MIP-1γ, CCL11/Eotaxin, CCL12/MCP-5, CCL21/6Ckine, CCL22/MDC, CCL27/CTACK, CCL28, CX3CL1/Fractalkine, CXCL1/KC, CXCL2/MIP-2, CXCL9/MIG, CXCL10/IP-10/CRG-2, CXCL11/I-TAC, CXCL12/SDF-1, CXCL13/BLC/BCA-1, CXCL16, Chemerin, Complement Component C5/C5a, IL-16, LIX

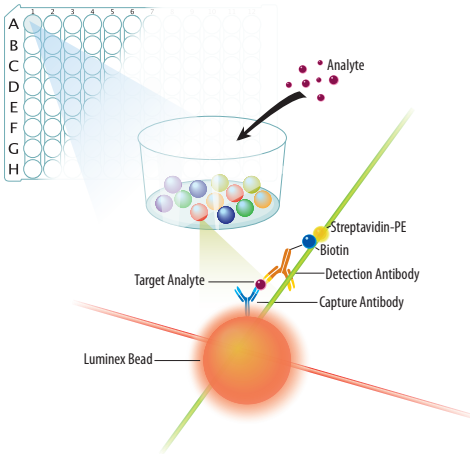


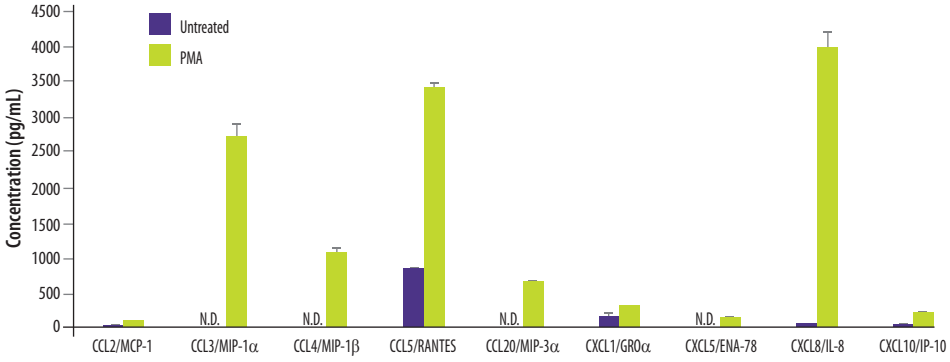
Luminex Screening and Performance Assays

Luminex Screening and Performance Assays are bead-based multianalyte profiling kits. These kits utilize color-coded polystyrene or superparamagnetic microparticles that are coated with analyte-specific antibodies. Captured analytes are subsequently detected using a cocktail of biotinylated detection antibodies and a streptavidin-phycoerythrin conjugate. Luminex Screening Assays are our most flexible kits for multianalyte profiling of up to 100 human or 42 mouse analytes. Luminex Performance Assays are our most accurate and precise bead-based multianalyte profiling kits. These assays are optimized for select panels of analytes. For additional information, please visit RnDSystems.com/Luminex.

Chemokine Luminex Screening and Performance Assay Analytes
Human Luminex Screening Assay Analytes
CCL2/MCP-1, CCL3/MIP-1α, CCL4/MIP-1β, CCL5/RANTES, CCL8/MCP-2, CCL13/MCP-4, CCL17/TARC, CCL20/MIP-3α, CXCL1/GROα, CXCL4/PF4, CXCL5/ENA-78, CXCL8/IL-8, CXCL9/MIG, CXCL10/IP-10, CXCL11/I-TAC, CXCL13/BLC/BCA-1
Mouse Luminex Screening Assay Analytes
CCL2/JE, CCL3/MIP-1α, CCL4/MIP-1β, CCL5/RANTES, CCL20/MIP-3α, CXCL1/KC, CXCL2/MIP-2, CXCL10/IP-10/CRG-2, CXCL12/SDF-1α, LIX
Human Cytokine Panel A Luminex Performance Assay Analytes*
CCL2/MCP-1, CCL3/MIP-1α, CCL4/MIP-1β, CCL5/RANTES, CXCL5/ENA-78, CXCL8/IL-8, FGF basic, G-CSF, GM-CSF, IFN-γ, IL-1α/IL-1F1, IL-1β/IL-1F2, IL-1ra/IL-1F3, IL-2, IL-4, IL-5, IL-6, IL-10, IL-17, TNF-α, Thrombopoietin/Tpo, VEGF
Mouse Cytokine Panel Luminex Performance Assay Analytes
CCL2/JE/MCP-1, CXCL1/KC, CXCL2/MIP-2, GM-CSF, IFN-γ, IL-1β/IL-1F2, IL-2, IL-4, IL-5, IL-6, IL-10, IL-12, p70, IL-13, IL-17, TNF-α, VEGF
Rat Cytokine Panel Luminex Performance Assay Analytes
CXCL2/CINC-3, CXCL3/CINC-2α/β, GM-CSF, ICAM-1/CD54, IFN-γ, IL-1α/IL-1F1, IL-1β/IL-1F2, IL-2, IL-4, IL-6, IL-10, IL-13, IL-18/IL-1F4, L-Selectin/CD62L, TIMP-1, TNF-α, VEGF

* Analytes in this panel are available in both the polystyrene and magnetic bead formats.





Detection of Multiple Chemokines in Cell Culture Supernates Using the Human Luminex Screening Assay. The human THP-1 monocytic leukemia cell line was treated with phorbol 12-myristate 13-acetate (PMA) for 24 hours. Cell culture supernates were collected from untreated and treated cells and the levels of multiple chemokines were simultaneously determined using the Human Luminex Screening Assay (Catalog # LXSAH). Of the 16 chemokines tested, 9 gave measurable values in each of the PMA-stimulated samples. The average values and standard deviations for the detectable analytes are shown. N.D. Not Detected. (Figure on left).

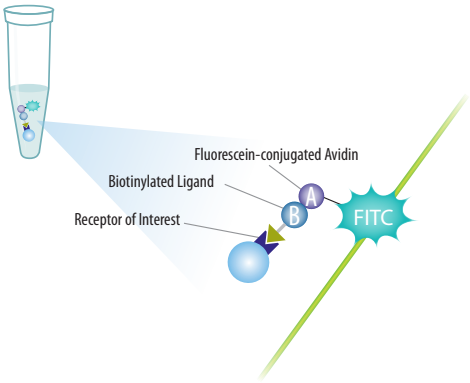
Fluorokine® Receptor Detection Kits for Chemokine Research

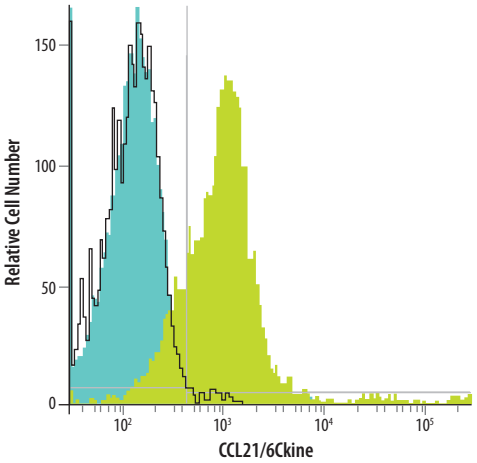
Fluorokine Receptor Detection Kits utilize recombinant biotinylated ligands to identify cytokine receptors by flow cytometry. These kits can be used to determine the percentage of cells expressing a specific target receptor within a population of cells or to estimate the density of the target receptor on the cell surface. For additional information, please visit RnDSystems.com/FluoroReceptorKit.

Kit	Species	Catalog #
CCL1/I-309	Human	NFCC10
CCL2/MCP-1/JE	Human	NFCP0
	Mouse	NFJE0
CCL3/MIP-1α	Human	NFLD0
	Mouse	NFM1A0
CCL4/MIP-1β	Human	NFBM0
CCL5/RANTES	Human	NFRN0
CCL11/Eotaxin	Human	NFE00
CCL17/TARC	Human	NFTC0
	Mouse	NFMTC0
CCL19/MIP-3β	Human	NFCCL19
CCL21/6Ckine	Human	NFCCL21
CCL25/TECK	Human	NFTK0
CX3CL1/Fractalkine	Human	NFCX310
CXCL8/IL-8	Human	NF800
CXCL12/SDF-1α	Human	NNS00

Features

- Biotinylated ligands mirror physiological ligand/receptor interactions
- Determine the percentage of cells expressing target receptors within a population
- Estimate the target receptor density on cell surfaces
- Optimized for use with both cultured cells and peripheral blood cells





Detection of CCL21/6Ckine Expression on Human CD4⁺ T cells. Human CD4⁺ T cells were isolated from peripheral blood mononuclear cells using the MagCellect Human CD4⁺ T Cell Isolation Kit (Catalog # MAGH102). Within the isolated CD4⁺ T cell population, the Human CCL21/6Ckine Biotinylated Fluorokine Kit (Catalog # NFCCL21) was used to detect CCL21/6Ckine receptor positive cells. The cells were stained with biotinylated recombinant human CCL21/6Ckine (light green histogram) or with the biotinylated negative control protein (open histogram). The specificity of the assay was demonstrated by staining the cells in the presence of the anti-human CCL21/6Ckine blocking antibody provided in the kit (dark green histogram).

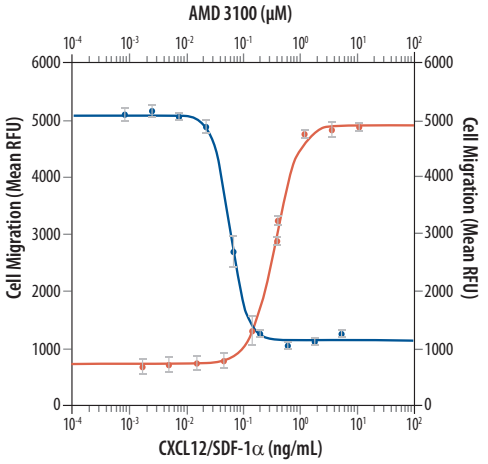
Biochemicals and Peptides for Chemokine Research

Chemokine receptor activity can be studied *in vivo* and *in vitro* using biochemical and peptide agonists and antagonists which modulate their activity. These G protein-coupled receptors (GPCRs) are highly targetable, and a variety of potent and selective agonists and antagonists have been developed to facilitate chemokine research. Chemokine receptor products available from Tocris Bioscience are listed below.

Chemokine Receptor Agonists		
Receptor	Product Name	Catalog #
CCR8	ZK 756326	2565
CXCR7	TC 14012	4300

Chemokine Receptor Antagonists		
Receptor	Product Name	Catalog #
CCR1	BX 471	3496
	BX 513 hydrochloride	2769
	J 113863	2595
	UCB 35625	2757
CCR2	BMS CCR2 22	3129
	INCB 3284 dimesylate	4306
	RS 504393	2517
CCR2B	RS 102895 hydrochloride	2089
	Teijin compound 1	3664

Chemokine Receptor Antagonists		
Receptor	Product Name	Catalog #
CCR3	SB 297006	4213
	SB 328437	3650
	UCB 35625	2757
CCR4	C 021 dihydrochloride	3581
CCR5	DAPTA	2423
	Maraviroc	3756
CXCR2	SB 225002	2725
	SB 265610	2724
CXCR4	AMD 3100 octahydrochloride	3299
	AMD 3465 hexahydrobromide	4179
	FC 131	4320
	IT1t dihydrochloride	4596
	TC 14012	4300
	WZ 811	3951



CXCL12/SDF-1α-induced Chemotaxis Is Antagonized by AMD 3100 Octahydrochloride. Increasing concentrations of Recombinant Human/Feline/Rhesus Macaque CXCL12/SDF-1α (Catalog # 350-NS) were used to stimulate chemotaxis of the BaF3 mouse pro-B cell line transfected with human CXCR4. Cells that migrated to the lower compartment of a chemotaxis chamber were measured using the redox sensitive dye, Resazurin (Catalog # AR002; red line). The effect induced by 1 ng/mL Recombinant Human/Feline/Rhesus Macaque CXCL12/SDF-1α was antagonized with increasing concentrations of the highly selective CXCR4 inhibitor, AMD 3100 octahydrochloride (Catalog # 3299; blue line).

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