

Chemokine Receptors: Focus on Decoy Receptors

Chemokines regulate cell trafficking by binding and signaling via 7-transmembrane G protein-coupled receptors. However, there is a category of chemokine receptors termed decoy receptors that do not signal and do not mediate chemotaxis. Instead, they affect ligand internalization and degradation. Currently, there are three known decoy receptors in mammals and more than two dozen associated with viruses. Mammalian D6 only interacts with inflammatory chemokines of the CC subfamily, whereas CCX CKR binds hemostatic CC chemokines, and DARC binds both CXC and CC chemokines. Viral CCI is a soluble poxvirus-encoded molecule that binds to almost all CC chemokines. The effects of decoy receptors may be context-dependent. For example, while chemokine sequestration may inhibit cells from traveling into an area of inflammation, they may also block cells from leaving an area of inflammation. Additionally, DARC on endothelial cells is proposed to bind chemokines and transport them through the cell for presentation on the vessel cell surface where they are accessible to circulating leukocytes.

R&D Systems offers a variety of reagents to investigate this expanding field of research including chemokine-related antibodies, proteins, ELISAs, and tools for multi-analyte profiling. The table highlights products that are currently available for chemokine receptor research.

CCR1 Expression in Human Tonsil

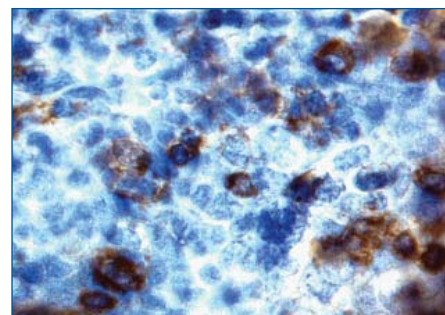


Figure 1. CCR1 was detected in a paraffin-embedded section of human tonsil using R&D Systems anti-human CCR1 monoclonal antibody (Catalog # MAB145). Tissues were stained using R&D Systems anti-mouse HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS002; brown) and counterstained with hematoxylin (blue).

Chemokine Receptor Products

MOLECULE	ANTIBODIES	PRIMER PAIRS	MOLECULE	ANTIBODIES	PRIMER PAIRS	MOLECULE	ANTIBODIES	PRIMER PAIRS
CCI	V		CCR8	H	H M	CXCR4	H M	H M
CCR1	H	H M R	CCR9	H M		CXCR5	H	H M R
CCR2	H	H M	CCR10	H M		CXCR6	H M	
CCR3	H M	H M R	Chem R23	H		D6	H	
CCR4	H	H M R	CX3CR1		H M R	HCR/CRAM-A/B	H	
CCR5	H	H M R	CXCR1/IL-8 RA	H	H M R	HM74A	H	
CCR6	H M	H M R	CXCR2/IL-8 RB	H M	H M R	XCR1		H M
CCR7	H M	H M	CXCR3	H M	H M R			

Key: H Human M Mouse R Rat V Viral

Viral CCI Suppression of JE-mediated Chemotaxis & Inhibition by Anti-Viral CCI

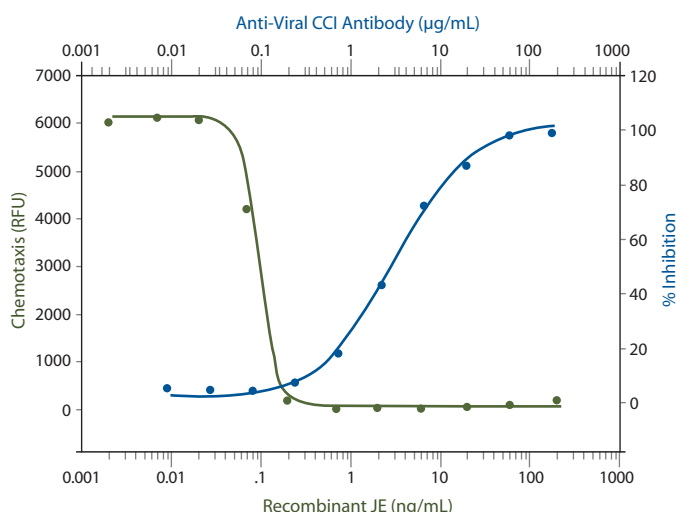


Figure 2. R&D Systems recombinant viral CCI (Catalog # 696-CC) inhibits the chemotaxis of CCR2-transfected BaF/3 cells toward of R&D Systems recombinant mouse JE (Catalog # 479-JE; green). The inhibitory effect of recombinant viral CCI on JE-induced chemotaxis is neutralized by R&D Systems anti-viral CCI monoclonal antibody (Catalog # MAB6961; blue). Chemotaxis was assessed using a polycarbonate filter with a 5 µm pore size. Cells migrating through the filter were stained with resazurin (Catalog # AR002) and the relative fluorescence units (RFU) were measured using a spectrofluorometer.

D6 Detection by Flow Cytometry

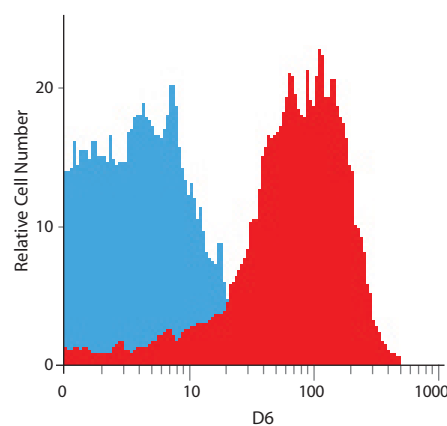


Figure 3. D6 was detected by flow cytometry in D6-transfected NS0 cells using R&D Systems phycoerythrin-conjugated anti-human D6 monoclonal antibody (Catalog # FAB1364P; red histogram). Non-transfected control cells were also stained with the same antibody and assessed by flow cytometry (blue histogram).

For an updated listing of all chemokine-related products, please visit our website at www.RnDSystems.com/go/Chemokine.