Cancer and Inflammatory Responses

Resident tumor-infiltrating lymphocytes (TILs) and tumor-associated macrophages (TAMs) contribute to the pro-inflammatory micro-environment of a growing tumor. This inflammatory response can facilitate the ongoing anti-tumor immune response or, conversely, result in enhanced tumor growth and angiogenesis.

Resident TILs and TAMs respond to growth factors, cytokines, and chemokines that are produced by the tumor cells. Signaling through cell surface receptors activates the lymphoid and myeloid cells to produce additional cytokines and chemokines. In addition, necrotic tumor cell components and the hypoxic environment of the tumor can signal the activation of TILs and TAMs that, in turn, secrete additional inflammatory mediators. The proteases, growth factors, cytokines, and chemokines produced by activated TILs and TAMs can stimulate tumor cell growth, proliferation, and migration.

The expression of cell surface cytokine and chemokine receptors on a variety of tumor cell types is often prognostic and correlates with disease progression. Moreover, the accumulation of TAMs within the tumor site is most often correlated with poor outcomes. Currently, there are many investigations into potential immune-based therapies that prevent the activation of inflammatory cells by cancer-derived products, or block the ability of growth factors produced by inflammatory cells to stimulate angiogenesis, tumor growth, and tumor cell survival.

Angiopoietin-2 Expression in Gastrointestinal Cancer

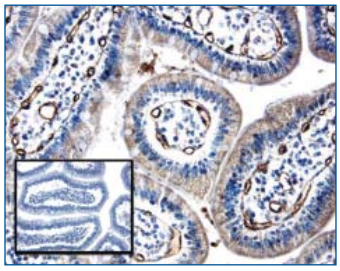

Figure 1. Detection of angiopoietin-2 in paraffin-embedded human gastrointestinal cancer using R&D Systems goat anti-human angiopoietin-2 (Catalog # AF623). Tissues were stained using R&D Systems mouse HRP-DAB Cell and Tissue Staining Kit (Catalog #CTS002; brown) and counterstained with hematoxylin (blue). Control staining without primary antibody is shown in the inset.

CCL2/MCP-1 Detection by Flow Cytometry

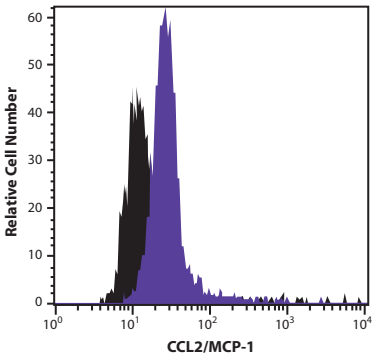

Figure 2. Reactivity of peripheral blood mononuclear cells cultured in the presence of LPS and monensin using R&D Systems Fluorescein-conjugated mouse anti-human CCL2/MCP-1 monoclonal antibody (Catalog # IC2791F). Isotype control staining is shown in black.

Products for Inflammation in Cancer

MOLECULES	ANTIBODIES	PROTEINS	ELISAs/ASSAYS	Multiplex
Angiopoietin-1	H	H	H	
Angiopoietin-2	H	H	H	
CCL2/MCP-1/JE	H M R Ca	H M Ca CR	H M Ca	H M
CCL3/MIP-1α	H M CR	H M CR	H M	H
CCL4/MIP-1β	H M CR	H M CR	H M	H
CCL7/MCP-3/ MARC	H M	H M	H	
CCL8/MCP-2	H	H M	H	
CXCL1/GR0α	H	H	H	
CXCL2/GR0β	H	H		
CXCL3/GR0γ	H	H		
CXCL4/PF4	H M	H M	M	
CXCL8/IL-8	H P Ca F	H Ca P	H P	H
CXCL9/MIG	H M	H M	H M	
EGF	H M R	H M R	H M	H
Gas6	H M	M		
GM-CSF	H M R Ca F P	H M R Ca F P	H M R F	H M
HIF-1α		H M R	H M	
IL-1β/IL-1F2	H M R Ca CR E F P Pr	H M R Ca CR F P	H M R P	H M
IL-4	H M R B Ca CR E F P Pr	H M R B Ca CR E F P	H M R Ca CR F P	H M
IL-6	H M R Ca CR E F P	H M R Ca CR E F P	H M R Ca P	H M
M-CSF	H M	H M	H M	
MIF	H	H M	H	
MMP-2	H M	H M R	H M R	H
MMP-7	H M	H M	H	H
MMP-9	H M	H M	H M	H
MSP	H	H	H	
PDGF (A, B, C, & D)	H M R P	H M R	H M R	
RAGE	H M R	H M R		
TACE/ADAM17	H	H M	H	
TFPI	H M	H M		
TGF-β1	H P	Ms	H M R Ca P	
TIMP-1	H M R	H M R	H M R	
TIMP-2	H	H	H	
TIMP-3	H	H		
TIMP-4	H	H	H	H M
TNF-α/ TNFSF1A	H M R B Ca CR E F P Pr	H M R B Ca CR E Pr	H M R Ca P Pr	H M
uPA	H	H		
VEGF	H M R Ca Z	H M R Ca Z	H M R	H M

Key: B Bovine Ca Canine CR Cotton Rat E Equine F Feline H Human M Mouse Ms Multi-species P Porcine Pr Primate R Rat Z Zebrafish