

Angiogenesis

Angiogenesis, or the process of new blood vessel formation, is a natural event that occurs under both normal and pathological conditions. In the normal state, two distinct processes can be seen. One process utilizes endothelial progenitor cells. These are usually derived from bone marrow and initiate endothelial growth and vascular tube formation. The second process utilizes existing vasculature to generate new vessels, and is highly dependent on endothelial cell activation and protease secretion. Under pathological conditions, many of the same steps involved in normal vessel formation are repeated. However, the structures formed are often functionally abnormal, possibly due to an imbalance in the angiogenic process. Multiple factors contribute to angiogenesis, including soluble growth and differentiative factors, extracellular matrix components, membrane-bound receptors, and intracellular signaling molecules. R&D Systems has an extensive and diverse offering of reagents for studying proteins that are known to be involved in both angiogenesis and its natural counterpart, anti-angiogenesis.

Pro-Angiogenic				Anti-Angiogenic			
ANALYTE	ANTIBODIES	ELISAs/ASSAYS	PROTEINS	ANALYTE	ANTIBODIES	ELISAs/ASSAYS	PROTEINS
Angiopoietins	H	H	H	Angiostatin	H		
Collagen I			R B	CXCL14/BRAK	H M	H	H M
EGF	H M R	H M	H M R	N-Cadherin			H
Erythropoietin	H M	H M R	H M R Ca	CCR2	H		
FGFs	H M B	H	H M B R	CD44	H		H
Fibronectin	H		H B	Endostatin	H M	H	
CX ₃ CL1/Fractalkine	H M R	H M R	H M R	EphBs	H M R		H M R
GM-CSF	H M R Ca F P	H M R F	H M R Ca F P	Ephrin-A1	M		M
HGF	H M	H	H M Ca	FGF R1	H		H
HIF-1 α	H M R	H M		ICAM-1/CD54	H M R	H M R	H M R
IGF-I	H M	H M	H M	IFN- α	H M C R P	H M	H M R C R F
IL-6	H M R Ca C R E F P	H M R Ca P	H M R Ca C R E F P	IL-4	H M R B Ca C R E F P	H M R C R F P	H M R B Ca C R E F P Pr
CXCL8/IL-8	H Ca F P	H P	H Ca F P	Integrins	H M		H
IL-13	H M R	H M	H M R Pr	CXCL10/IP-10/CRG-2	H M C R	H M	H M C R
CCL2/MCP-1	H M Ca C R	H M Ca	H M R Ca	LIF	H M	H M	
MMPs	H M R	H M R	H M	MMP-12	H M		H M
PD-ECGF	H		H	CXCL4/PF4	H M	H M	H M
PDGF-B	H Ms	H M R	H R	E-Selectin	H M R	H M	H M R
PGE2		Ms		Serpin F1	H M		
PIGF	H	H	H	SPARC	H M		
CXCL12/SDF-1	H M	H M	H M F R M	Thrombospondins	H	H	H
Tenascins	H M R			Ties	H M Z	H M	H M R Z
TGF- α	H	H	H	TIMPs	H M R	H M R	H M R
TGF- β 1	Ms	H M R Ca P	H P	TL1A/TNFSF15	H		H M
uPA	H		H	VCAM-1	H M	H M	H M
VEGFs	H M R Ca Z	H M R	H M R Ca Z	VEGF Rs	H M	H M	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 RM Rhesus/Macaque Z Zebrafish

For a more complete listing of angiogenesis related products please visit our website at: www.RnDSystems.com/go/Angiogenesis

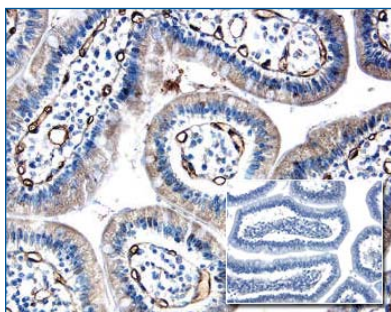


Figure 1. Detection of Angiopoietin-2 in paraffin-embedded human gastrointestinal cancer tissue sections using R&D Systems goat anti-human Angiopoietin-2 affinity purified polyclonal antibody (Catalog # AF623). Tissues were stained with R&D Systems anti-goat HRP-DAB Cell and Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). Inset shows control staining without primary antibody.

Neutralization of rhVEGF R2 Activity

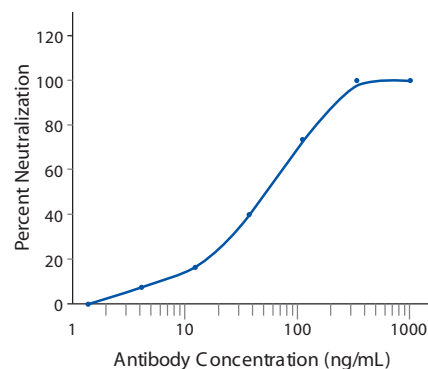


Figure 2. Human VEGF R2/Fc chimera (R&D Systems Catalog # 357-KD) inhibits hVEGF-stimulated ³H-thymidine incorporation by human umbilical vein endothelial cells (data not shown). This activity is blocked by addition of R&D Systems mouse anti-human VEGF R2 monoclonal antibody (Catalog # MAB3572).