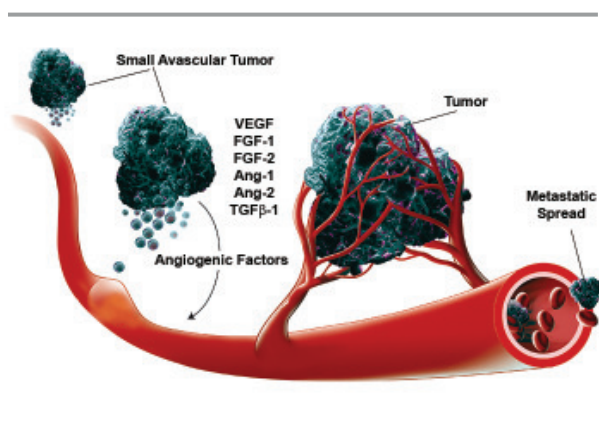


Angiogenesis Research Tools



Angiogenesis is a vital and complex biological process, forming new capillaries from pre-existing blood vessels and infusing tissue with supplies of oxygen and nutrients. It plays an important role in physiological conditions such as reproduction, development, wound healing and tissue repair. Aberrant angiogenesis is a crucial mediator in a growing list of diseases such as cancer, chronic inflammatory diseases, atherosclerosis and diabetic retinopathy. The process of angiogenesis is tightly regulated with the involvement of several cell types interacting with each other as well as with the surrounding microenvironment.

Angiogenesis, especially also in tumor, is induced by hypoxia, leading to expression and stabilization of HIF-1 α , a transcription factor that responds to changing oxygen levels, and consequently the transcription of angiogenesis-promoting genes, leading to the upregulation of pro-angiogenic factors, such as VEGF, PDGF,

FGF or TGF β . Pro-angiogenic factors activate signaling pathways, such as PI3K/Akt, Erk1/2, Smad and Notch, which result in endothelial cells (ECs) proliferation and migration of the pre-existing vasculature to sprout and increase vascularization of the tissue. Extensive research continues on anti-angiogenic therapies (biologicals or small molecules) that combat cancer by preventing access to the blood supply that is critical for tumor growth and survival.

SELECTED REVIEWS: Cancer prevention by targeting angiogenesis: A. Albini, et al.; Nat. Rev. Clin. Oncol. 9, 498 (2012) • Angiogenesis in cancer – general pathways and their therapeutic implications; I. Dimova, et al.; JBUON 19, 15 (2014)

BULK

Potent Human & Mouse Ang-2 Blocking Antibodies

anti-Angiopoietin-2, mAb (rec.) (blocking) (Angy-2-1)

AG-27B-0016-C100 100 μ g
AG-27B-0016PF Preservative Free 100 μ g | 500 μ g | 1 mg

Isotype: Human IgG2 λ **Application:** ELISA, FUNC (Blocking)

Functional Application:

Mouse: Inhibits the binding of mouse angiopoietin-2 to mouse Tie-2.

ND_{50}^* = 50-60ng/ml (for 10ng/ml of mouse angiopoietin-2)

Human: Inhibits the binding of human angiopoietin-2 to human Tie-2.

ND_{50}^* = 8-12ng/ml (for 10ng/ml of human angiopoietin-2)

* ND_{50} : = 50% neutralizing dose of antibody for a given concentration of ligand.

anti-Angiopoietin-2 (human), mAb (rec.) (blocking) (Angy-1-4)

AG-27B-0015-C100 100 μ g
AG-27B-0015PF Preservative Free 100 μ g | 500 μ g | 1 mg

Isotype: Mouse IgG2b λ **Application:** ELISA, FUNC (Blocking)

Functional Application: **Human:** Inhibits the binding of human angiopoietin-2 to human Tie-2. ND_{50}^* = 600-800ng/ml (for 10ng/ml of human angiopoietin-2)

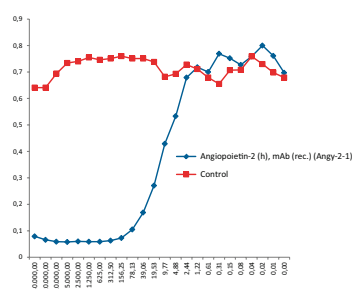


FIGURE: Binding of human angiopoietin-2 (Prod. No. AG-40B-0114) to Tie-2 (human):Fc is inhibited by Angy-2-1 (Prod. No. AG-27B-0016). Tie-2 (human):Fc was coated on an ELISA plate at 1 μ g/ml. Angy-2-1 or an unrelated mAb (recombinant) (Control) was added (starting at 40 μ g/ml with a twofold serial dilution) together with 20ng/ μ l of angiopoietin-2 (human). After incubation for 1h at RT, the binding was detected using an anti-FLAG antibody (HRP).



COMP:Ang-1 – Soluble, Stable & Potent Ang-1 Variant

COMP (rat):Angiopietin-1 (human) (rec.)

AG-40B-0147

BULK

Produced in CHO cells. Binds to human angiotensin-1 receptor (Tie-2).
More potent than native angiotensin-1. The protein forms pentameric structures.

Functionally Active Ang-1 & Ang-2 Proteins

PRODUCT NAME	PID	SOURCE	SIZE
Angiopietin-1 (human) (rec.)	AG-40A-0014	CHO cells	10 µg 50 µg
Angiopietin-2 (human) (rec.)	AG-40B-0114	HEK 293 cells	10 µg 3 x 10 µg
Angiopietin-2 (mouse) (rec.)	AG-40B-0131	HEK 293 cells	10 µg 3 x 10 µg

Human Tie-2 Specific Antibodies

PRODUCT NAME	PID	ISOTYPE	APPLICATION	SIZE
anti-Tie-2 (human), mAb (tek2)	AG-20T-0102	Mouse IgG1	ELISA, FACS, IHC (FS), WB	100 µg
anti-Tie-2 (human), mAb (tek9)	AG-20T-0103	Mouse IgG1	ELISA, FACS, IHC (FS), WB	100 µg
anti-Tie-2 (human), mAb (tek16)	AG-20T-0104	Mouse IgG1	ELISA, FACS, IHC (FS), WB	100 µg

Notch & Angiogenesis

Notch 1&2 Receptor Products

anti-Notch1 (mouse), mAb (22E5)	AG-20B-0051	Notch1 (mouse):Fc (human) (rec.)	AG-40B-0109
anti-Notch2, mAb (16F11)	AG-20B-0052	Notch2 (mouse):Fc (human) (rec.)	AG-40B-0110



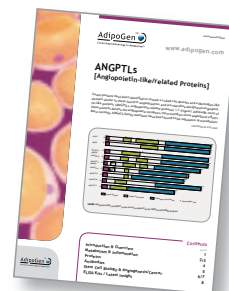
Biologically Active Notch Ligands

BULK

DLK1 (human) (rec.)	AG-40A-0133	DLL3 (human) (rec.)	AG-40B-0151
DLK1 (human):Fc (human) (rec.)	AG-40B-0152	DLL3 (ED) (mouse):Fc (human) (rec.)	AG-40A-0178
DLK1 (mouse):Fc (human) (rec.)	AG-40A-0107Y	DLL4 (human):Fc (human) (rec.)	AG-40A-0077Y
DLL1 (human) (rec.)	AG-40A-0073	DLL4 (mouse):Fc (human) (rec.)	AG-40A-0145
DLL1 (human):Fc (human) (rec.)	AG-40A-0116Y	Jagged-1 (human):Fc (human) (rec.)	AG-40A-0081
DLL1 (mouse):Fc (human) (rec.)	AG-40A-0148	Jagged-2 (human):Fc (human) (rec.)	AG-40A-0155Y

Visit www.adipogen.com for an Overview on Notch Signaling Proteins, Antibodies and ELISA Kits!

**ANGPTL Proteins & Antibodies –
Visit www.adipogen.com for an Overview!**



VEGF – Potent Pro-Angiogenic Factor

VEGF family members are the most important direct pro-angiogenic factors. They show proliferative effect on target endothelial cells, which start growing under its influence, increasing their survival and decreasing the apoptotic rate. In addition, they enhance vascular permeability which is connected to extravasation and migration of different cells from/into circulation and induce vasodilatation. Inhibition of the VEGF/VEGFR pathway with small molecules is of highest relevance in discovering new cancer treatments.

anti-VEGF-A (human), mAb (3(6D3))

AG-20T-0105-C200

200 µg

Application: ELISA, WB, FUNC (Neutralizing). **Functional Application:** Inhibits VEGF-A signaling.

FUNCTIONAL

Other Antibodies & Recombinant Proteins

anti-VEGFR-1 (human), mAb (EWC)	AG-20T-0106	VEGF 164 (mouse) (rec.)	AG-40T-0044
anti-VEGFR-1 (human), mAb (EWF)	AG-20T-0107	VEGF 165 (human) (rec.)	AG-40T-0045
anti-VEGFR-2/KDR (human), mAb (EIC)	AG-20T-0108	VEGF-C (human) (rec.) (His)	AG-40T-0046
anti-VEGFR-2/KDR (human), mAb (3(4H3))	AG-20T-0109	VEGF-C (rat) (rec.) (His)	AG-40T-0048
		VEGFR-1, Soluble (human) (rec.)	AG-40T-0049

Small Molecule Inhibitors for Angiogenic Factors

THE SOURCE

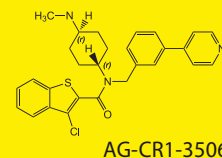
PRODUCT NAME	PID	INHIBITION
AG-13958	SYN-1004	VEGF
AMG-Tie2-1	SYN-1008	Tie-2
Axitinib	SYN-1014	VEGFR1-3
BMS-2	SYN-1022	VEGFR2
BMS-540215	SYN-1134	VEGFR2
Brivanib alaninate	SYN-1135	VEGFR2
Cabozantinib	SYN-1138	VEGFR2
CYC116	SYN-1034	VEGFR2
E-7080	SYN-1038	VEGFR2/3
Foretinib	SYN-1129	VEGFR2
JNJ-38158471	SYN-1133	VEGFR2
Ki20227	SYN-1049	VEGFR2 PDGFRβ
Imatinib mesylate	SYN-1046	PDGFR
Motesanib	SYN-1055	VEGFR1-3 PDGFR

PRODUCT NAME	PID	INHIBITION
Pazopanib . HCl	SYN-1058A	VEGFR1-3 PDGFR
PD-0173074	SYN-1176	FGFR1
Ponatinib	SYN-1116	PDGFRα VEGFR2 FGFR1
Regorafenib	SYN-1169	VEGFR1-3 PDGFR
Salinosporamide A	AG-CN2-0444	VEGF
SAR-131675	SYN-1165	VEGFR3
Sorafenib	SYN-1082	VEGFR2
SU-5402	SYN-1084	VEGFR2 FGFR1
SU-6668	SYN-1085	PDGFR VEGF FGFR
Sunitinib malate	SYN-1086	PDGFRβ VEGFR2
Suramin . 6Na	AG-CR1-3575	VEGF
Takeda-6d	SYN-1168	VEGFR2
Tivozanib	SYN-1013	VEGFR1-3
Vandetanib	SYN-1090	VEGFR EGFR

SAG – Shh Agonist & Potent Activator of VEGF

LIT: Potent small molecule Hedgehog agonists induce VEGF expression in vitro: K. Seifert, et al.; Bioorg. Med. Chem. 20, 6465 (2012)

SAG	AG-CR1-3506	SAG Analog (LowTox)	AG-CR1-3517
SAG . 2HCl (water soluble)	AG-CR1-3585	SAG Analog (highly active)	AG-CR1-3518



Other Angiogenesis Inhibitors

Ageladine A | Alsterpaullone | BAY 43-9006 | Beauvericin | bpV(phen) | Borrelidin | Ciglitazone | Curcumin | (-)-Epigallocatechin gallate | 17-DMAG | Eupatilin | FK-866 | Fumagillin | Genistein | GW1929 | MS-275 | PLX4720 | Psammaplin A | Pseudolaric acid B | Streptochlorin | Terrein | Thapsigargin | Wortmannin | YC-1

Biologically Active Human Netrin-1

BULK

Pro-angiogenic factor that modulates various biological processes including morphogenesis, tumorigenesis and angiogenesis.

Netrin-1 (human):Fc (human) (rec.)

AG-40B-0075-C010 10 µg

- Full biological activity (tested by the key experts)
- Does not aggregate – Does not precipitate
- Large batch sizes are available for reproducible results

Also Available:

anti-Netrin-4, mAb (Nely-1)	AG-20B-0039
Netrin-1 (human) (rec.)	AG-40B-0040
UNC5B (human):Fc (human) (rec.)	AG-40B-0037

Periostin [OSF2] – Tumor Angiogenesis Marker

THE STANDARD

Periostin is known to interact with several integrin molecules on cell surfaces and activating the PI3K/Akt and MAPK pathways during tissue development and remodelling. It functions as a cell adhesion molecule for pre-osteoblasts and is thought to be involved in osteoblast recruitment, attachment and spreading. It is involved in processes such as cell motility, adhesion, metastatic growth, angiogenesis and wound healing.

Periostin (human) ELISA Kit	AG-45B-0004
Periostin (mouse) ELISA Kit	AG-45B-0005
Periostin (human) Matched Pair Detection Set	AG-46B-0005
Periostin (mouse) Matched Pair Detection Set	AG-46B-0002
anti-Periostin, mAb (Stiny-1)	AG-20B-0033
anti-Periostin, mAb (Stiny-3)	AG-20B-0055
Periostin (mouse) (rec.)	AG-40B-0081

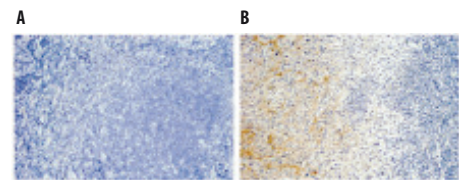


FIGURE: Immunohistochemical staining of endogenous human Periostin in normal breast (A) and human breast cancer (B) tissues (paraffin sections) by using Periostin, mAb (Stiny-1) (Prod. No. AG-20B-0033).

Other Tools for Angiogenesis Research

BULK

Antibodies

anti-ACE2 (human), mAb (AC18F)	AG-20A-0032	anti-PROX1 (human), pAb	AG-25T-0104
anti-ACE2 (human), mAb (AC384)	AG-20A-0037	anti-PROX1, pAb	AG-25T-0105
anti-ACE2 (human), pAb	AG-25A-0042	anti-NFATc1, pAb (IG-205)	AG-25T-0110
anti-PEDF, pAb (IN104)	AG-25B-0029	anti-NFATc2 (human), pAb (IG-209)	AG-25T-0111
anti-PEDF (human), mAb (rec.) (Serpy-1-4)	AG-27B-0014		

Recombinant Proteins

ACE2 (human) (rec.)	AG-40A-0048	PEDF (human) (rec.)	AG-40B-0077
ACE2 (mouse) (rec.)	AG-40A-0184	PEDF (mouse) (rec.)	AG-40B-0118
Angioidin (human) (rec.)	AG-40B-0061	TGFβ1 (mutant) (human):Fc (human) (rec.)	CHI-HF-210TGFBM