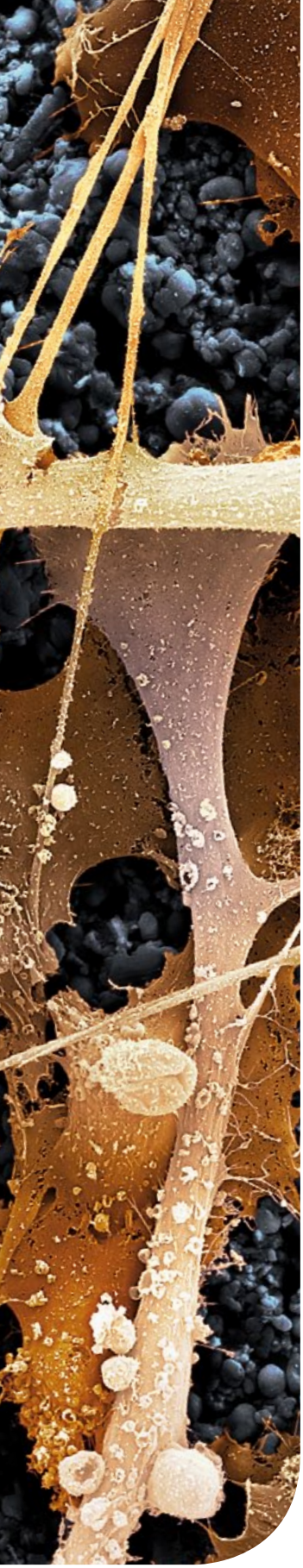

International Edition

AdipoGen®
Connecting Immunology to Metabolism™

www.adipogen.com

Stem Cell Biology

Focus: Stem Cell Fate & Cancer

Periostin — A bridge between cancer stem cells (CSCs) and their metastatic niches

Tumor metastasis is the most common cause of cancer-associated mortality. Most disseminated cancer cells are destroyed during metastasis formation and only a small subset of cancer cells are able to survive and colonize in a new environment. Specialized tumor microenvironments called metastatic niches are thought to be responsible for nurturing disseminated cancer cells from micrometastases to full macrometastases. Malanchi, et al. (2012) recently demonstrated that stromal periostin is crucial for metastatic colonization by regulating the interactions between breast cancer stem cells and their metastatic niches. Identifying the limiting factors that regulate the properties of CSCs and their colonization of metastatic niches is important for developing strategies to treat patients with metastatic tumors.

LIT: Interactions between cancer stem cells and their niche govern metastatic colonization: I. Malanchi, et al.; Nature **481,** 85 (2011) • Periostin: a bridge between cancer stem cells and their metastatic niche: Z. Wang & G. Ouyang; Cell Stem Cell **10,** 111 (2012)

Highlights!

anti-Periostin, mAb (Stiny-1)

AG-20B-0033-C100		100 µg
AG-20B-0033B-C100	Biotin	100 µg

CLONE: Stiny-1. **ISOTYPE:** Mouse IgG1κ. **IMMUNOGEN:** Full-length human periostin. **SPECIFICITY:** Recognizes human and mouse periostin. **APPLICATION:** IHC (FS, PS), WB.

Periostin (mouse) (rec.)

AG-40B-0081-C010		10 µg
AG-40B-0081-3010	MultiPack	3 x 10 µg

SOURCE: CHO cells. **SEQUENCE:** Mouse periostin (aa 24-783) (isoform 5) is fused at the C-terminus to a FLAG®-tag.

new Periostin (mouse) Matched Pair Detection Set

AG-46B-0002-KI01	1 Set

SPECIFICITY: Detects mouse periostin. Does not detect human periostin. **SENSITIVITY:** 20pg/ml. **RANGE:** 31 to 2000pg/ml. **SAMPLES:** Serum, Cell Culture Supernatant

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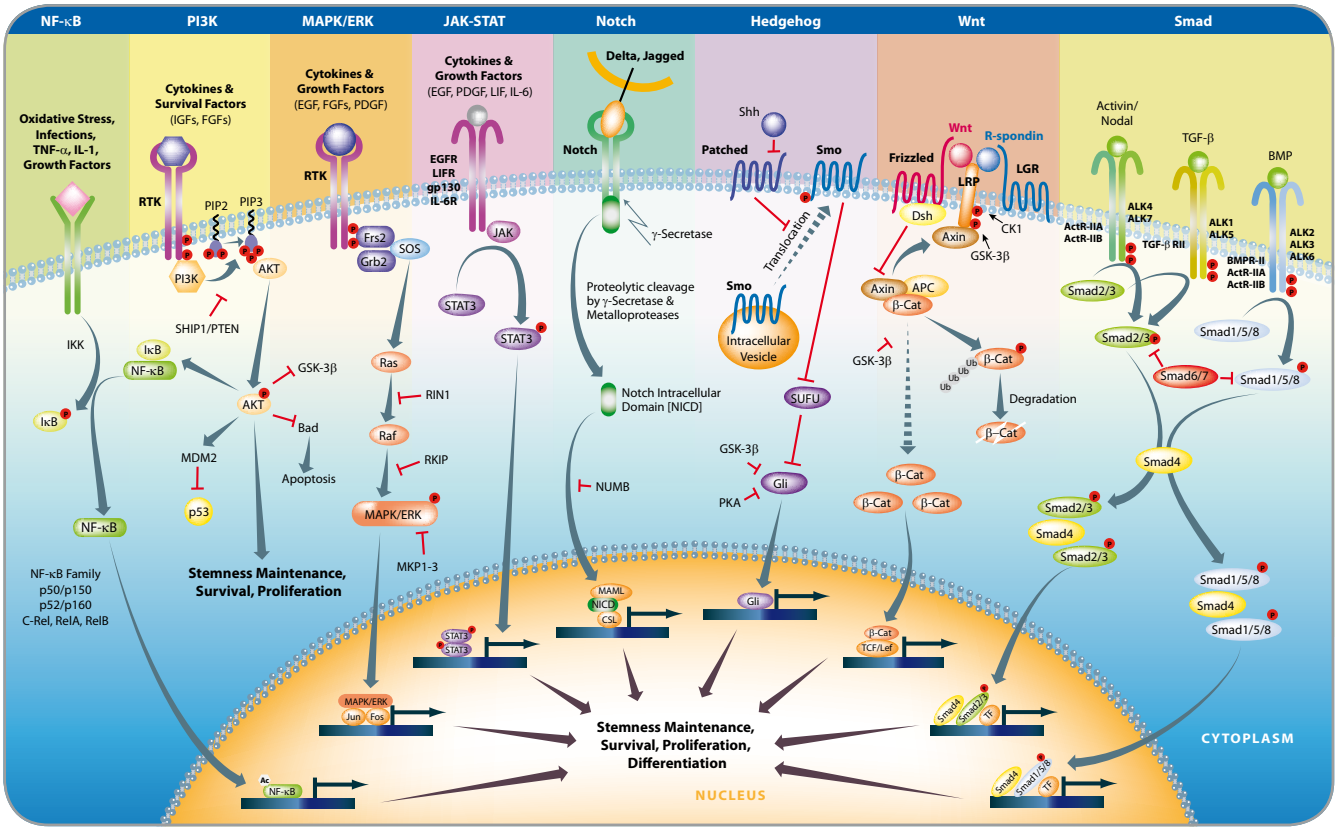
Signaling Pathways — Controlling Stem Cell Fate



Since the discovery that embryonic stem cells are maintained in a pluripotent state through the interplay of a number of key signal transduction pathways, it is becoming increasingly clear that stemness and pluripotency are defined by the complex molecular convergence of these pathways and regulated by the core stem cell transcription factors. The integration of extrinsic and intrinsic signals is required to preserve the self-renewal and tissue regenerative capacity of stem cells, while protecting them from malignant conversion or loss of proliferative potential by death, differentiation or senescence. Numerous intrinsic signals as well as microenvironmental cues from their niche allow stem cells to maintain epigenetic marks enabling their self-renewal. Furthermore, a constant communication with their niche enables adult stem cells to perceive and respond to environmental changes, balancing their growth and regenerative potential or initiating terminal differentiation programs. Several developmentally conserved signaling pathways have emerged as important control devices of stem cell fate, including Notch, Wingless-type (Wnt), Sonic hedgehog (Shh), Jak-STAT, MAPK/ERK, PI3K, NF-κB and Smad pathways, being hallmarks of stem cell and cancer signaling. These multiple pathways have been shown to be implicated in the maintenance of tissue homeostasis, proliferation or differentiation in ESCs, iPS cells, ASCs and also in tumorigenesis. Interruption of these stem cell signaling pathways has been shown to be implicated in carcinogenesis and the generation of "cancer stem cells."

The origins of cancer stem cells (CSCs) and the methods to identify them is of very high interest since the "cancer stem cell hypothesis". The existence of subpopulations of tumor cells with stem-like characteristics has significant therapeutic implications. The stem-like phenotype includes indefinite self-replication, pluripotency and importantly, resistance to chemotherapeutics. Thus, it is plausible that CSCs, regardless of their origin, may escape standard therapies and cause disease recurrences and/or metastasis after apparently complete remissions. Consequently, the idea of selectively targeting CSCs with novel therapeutics is gaining considerable interest. The stem cell fate signaling pathways are intensively studied putative therapeutic targets in CSCs, and several investigational inhibitors are being developed.

SELECTED REVIEW ARTICLES

Signaling pathways in cancer and embryonic stem cells: O. Dreesen & A.H. Brivanlou; Stem Cell Rev. **3,** 7 (2007) • Signaing pathways governing stem-cell fate: U. Blank, et al.; Blood **111,** 492 (2008) • Cancer stem cells: markers or biomarkers? W.A. Woodward & E.P. Sulman; Canc. Metast. Rev. **27,** 459 (2008) • Turning cancer stem cells inside out: an exploration of glioma stem cell signaling pathways: Z. Li, et al.; J. Biol. Chem. **284,** 16705 (2009) • Signaling circuitries controlling stem cell fate: to be or not to be: R. Iglesias-Bartolome & J.S. Gutkind; Curr. Opin. Cell Biol. **23,** 716 (2011) • Cancer stem cells: the development of new cancer therapeutics: R. Scatena, et al.; Expert Opin. Biol. Ther. **11,** 875 (2011) • Controlling the stem cell compartment and regeneration in vivo: the role of pluripotency pathways: K. Greenow & A.R. Clarke; Physiol. Rev. **92,** 75 (2012) • Cancer stem cells: distinct entities of dynamically regulated phenotypes? Y. Li & J. Laterra; Canc. Res. **72,** 576 (2012)

Notch Signaling

The Notch pathway is involved in establishing cell diversification from equipotent adjacent cells using a mechanism that requires cell-cell interaction. Notch-mediated communication depends on the differential expression of specific ligands (Jagged or Delta) and receptors (Notch1-4) in adjacent cells. Cell-cell interactions are essential players in the regulation of stem cell and tissue homeostasis of the adult but also in developing organisms. Subsequently, the Notch pathway has been shown to be a principal player on embryonic and adult stem cell regulation and differentiation, and that modulation of this pathway will open an avenue for regenerative medicine applications, including hematological and non-hematological diseases, but also for cancer treatment.

REVIEWS: Targeting Notch to target cancer stem cells: A. Pannuti, et al.; Clin. Cancer Res. **16,** 3141 (2010) • Targeting cancer stem cells by inhibiting Wnt, Notch, and Hedgehog pathways: N. Takebe, et al.; Nat. Rev. Clin. Oncol. **8,** 97 (2011)

AdipoGen® offers a wide range of biologically functional Notch ligand proteins, antibodies and selected ELISA Kits! For a comprehensive overview visit www.adipogen.com

Notch Ligand Proteins

HUMAN

PROD. NO.	PRODUCT NAME	SIZE
AG-40A-0133-C010 AG-40A-0133-C050	DLK1 (human) (rec.)	10 µg 50 µg
AG-40A-0118-C010 AG-40A-0118-C050	DLK1 (human):Fc (human) (rec.)	10 µg 50 µg
AG-40A-0073-C010 AG-40A-0073-C050	DLL1 (human) (rec.)	10 µg 50 µg
AG-40A-0113-C010	DLL3 (human):Fc (human) (rec.)	10 µg
AG-40A-0077-C010 AG-40A-0077-C050	DLL4 (human):Fc (human) (rec.)	10 µg 50 µg
AG-40A-0081-C010	Jagged-1 (human):Fc (human) (rec.)	10 µg
AG-40A-0155-C010	Jagged-2 (human):Fc (human) (rec.)	10 µg

MOUSE

PROD. NO.	PRODUCT NAME	SIZE
AG-40A-0107-C010 AG-40A-0107-C050	DLK1 (mouse):Fc (human) (rec.)	10 µg 50 µg
AG-40A-0148-C010 AG-40A-0148-C050	DLL1 (mouse):Fc (human) (rec.)	10 µg 50 µg
AG-40A-0178-C010	DLL3 (ED) (mouse):Fc (mouse) (rec.)	10 µg
AG-40A-0145-C010 AG-40A-0145-C050	DLL4 (mouse):Fc (human) (rec.)	10 µg 50 µg
AG-40A-0157-C010 AG-40A-0157-C050	Jagged-1 (mouse):Fc (human) (rec.)	10 µg 50 µg
AG-40A-0183-C010 AG-40A-0183-C050	Jagged-2 (mouse):Fc (human) (rec.)	10 µg 50 µg

Just released!

NEW Notch Receptor Proteins & Antibodies

Antibodies

anti-Notch1 (mouse), mAb (22E5)

AG-20B-0051-C100 — 100 µg

CLONE: 22E5. **ISOTYPE:** Rat IgG2aκ. **SPECIFICITY:** Recognizes endogenous mouse Notch1 receptor. **APPLICATION:** FACS.

anti-Notch2, mAb (16F11)

AG-20B-0052-C100 — 100 µg

CLONE: 16F11. **ISOTYPE:** Rat IgG1κ. **SPECIFICITY:** Recognizes human and mouse endogenous Notch2 recepto r. **APPLICATION:** FACS.

anti-DLL1 (mouse), mAb (30B11.1)

AG-20B-0053-C100 — 100 µg

CLONE: 30B11.1. **ISOTYPE:** Rat IgG2aκ. **SPECIFICITY:** Recognizes mouse DLL1. **APPLICATION:** FACS, ICC.

anti-DLL4 (mouse), mAb (9A1.5)

AG-20B-0054-C100 — 100 µg

CLONE: 9A1.5. **ISOTYPE:** Rat IgG1κ. **SPECIFICITY:** Recognizes mouse DLL4. **APPLICATION:** FACS, ICC.

Notch Proteins

Notch1 (mouse):Fc (human) (rec.)

AG-40B-0109-C050 — 50 µg
AG-40B-0109-3050 — 3 x 50 µg

SPECIFICITY: Binds to mouse DLL4.

Notch2 (mouse):Fc (human) (rec.)

AG-40B-0110-C050 — 50 µg
AG-40B-0110-3050 — 3 x 50 µg

SPECIFICITY: Binds to mouse DLL1 and DLL4.

Notch Ligand ELISA Kit

DNER, Soluble (human) ELISA Kit

AG-45A-0045EK		96 wells
AG-45A-0045TP	Twin Plex	2 x 96 wells
AG-45A-0045PP	Penta Plex	5 x 96 wells

SENSITIVITY: 358pg/ml. **RANGE:** 0.5 to 32ng/ml. **SAMPLE TYPE:** Serum, Plasma, Cell Culture Supernatant. **ASSAY TYPE:** Sandwich

Purified (PF) = Purified (Preservative free); FACS = Flow Cytometry; ICC = Immunocytochemistry; IP = Immunoprecipitation; IHC = Immunohistochemistry (FS = Frozen Sections, PS = Paraffin Sections); WB = Western blot; BP = Blocking Peptide

Hedgehog (Hh) Signaling

The Hedgehog (Hh) signaling pathway plays key roles in embryonic development, formation and maintenance of cancer stem cells (CSCs) and acquisition of epithelial-to-mesenchymal transition (EMT). Since CSCs and EMT are important biological factors responsible for cancer cell invasion, metastasis, drug resistance and tumor recurrence, inhibiton of the Hh signaling pathway is believed to be an important target for cancer therapy. Recently, several small-molecule inhibitors of Hh signaling were developed and synthesized for cancer treatment.

REVIEW: Targeting the Hedgehog signaling pathway for cancer therapy: Y. Li, et al.; Expert Opin. Ther. Targets. **16**, 49 (2012)

Hedgehog (Hh) Signaling Modulators

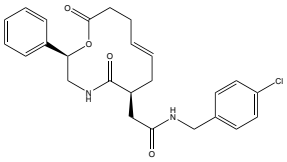
NEW Robotnikinin

AG-CR1-0069-M001 1 mg

Formula: $C_{25}H_{27}ClN_2O_4$ **MW:** 454.9

Synthetic.

Hh pathway inhibitor • Sonic Hedgehog (Shh) Modulator

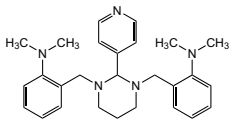


GANT61 [NSC 136476]

AG-CR1-3561-M001 1 mg
AG-CR1-3561-M005 5 mg

Formula: $C_{27}H_{35}N_5$ **MW:** 429.6 **CAS:** 500579-04-4

Hh pathway inhibitor/Gli antagonist • Cell permeable GLI antagonist

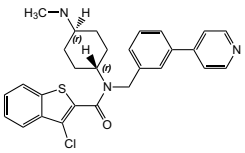


SAG

AG-CR1-3506-M001 1 mg
AG-CR1-3506-M005 5 mg

Formula: $C_{28}H_{28}ClN_3OS$ **MW:** 490.1 **CAS:** 364590-63-6

Hh pathway agonist • Cell permeable smoothened (Smo) agonist

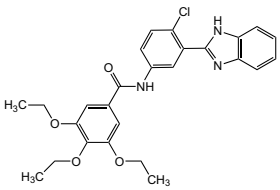


SANT-2

AG-CR1-3514-M001 1 mg
AG-CR1-3514-M005 5 mg

Formula: $C_{26}H_{26}ClN_3O_4$ **MW:** 480.0 **CAS:** 329196-48-7

Hh pathway inhibitor • Cell permeable potent smoothened (Smo) antagonist



Resveratrol

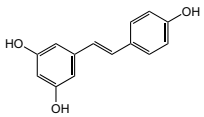
AG-CN2-0033-M050 50 mg
AG-CN2-0033-M100 100 mg
AG-CN2-0033-M500 500 mg

Resveratrol (synthetic)

AG-CN2-0036-M050 50 mg
AG-CN2-0036-M100 100 mg
AG-CN2-0036-M500 500 mg

Formula: $C_{14}H_{12}O_3$ **MW:** 228.2 **CAS:** 501-36-0

Hh signaling modulator • Gli1 mRNA expression inhibitor

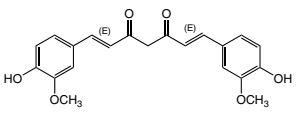


Curcumin (high purity)

AG-CN2-0059-M010 10 mg
AG-CN2-0059-M050 50 mg
AG-CN2-0059-M250 250 mg

Formula: $C_{14}H_{12}O_3$ **MW:** 228.2 **CAS:** 501-36-0

Hh signaling modulator • Downregulates Shh and Gli1



Stem Cell Modulators

PROD. NO.	PRODUCT NAME	SIZE
AG-CR1-0051-M001 AG-CR1-0051-M005 AG-CR1-0051-M025	**BIX 01294** Stem cell inducer	1 mg 5 mg 25 mg
AG-CR1-0150-M001 AG-CR1-0150-M005	**BIX 01294 . trihydrochloride** Stem cell inducer	1 mg 5 mg
AG-CR1-3502-M001 AG-CR1-3502-M005	**Shz-1** Enhancer of regenerative repair	1 mg 5 mg
AG-CR1-0056-M001 AG-CR1-0056-M005 AG-CR1-0056-M025	**6BIO** Wnt pathway antagonist • Promotes self-renewal of mouse and human ES cells	1 mg 5 mg 25 mg
AG-CN2-0028-M001 AG-CN2-0028-M005	**Cyclopamine** Hh pathway inhibitor • Inducer of stem cell differentiation towards definitive endoderm pancreatic islet cells	1 mg 5 mg
AG-CR1-0016-M005 AG-CR1-0016-M025	**DAPT** Useful in modulating Notch activity in ESC differentiation studies	5 mg 25 mg
AG-CR1-0108-M001 AG-CR1-0108-M005 AG-CR1-0108-M025	**LY-294,002** Diminishes the ability of leukemia inhibitory factor (LIF) to maintain self-renewal with cells concomitantly adopting a differentiated morphology	1 mg 5 mg 25 mg
AG-CR1-0118-M001 AG-CR1-0118-M005 AG-CR1-0118-M010 AG-CR1-0118-M050	**PD 98,059** A MEK inhibitor • Enhances the self-renewal of mouse ES cells in the presence of leukemia inhibitory factor (LIF)	1 mg 5 mg 10 mg 50 mg
AG-CR1-0029-M001 AG-CR1-0029-M005	**PD 184,352** A MEK inhibitor • In combination with the GSK-3β inhibitor CHIR99021 and FGFR inhibitor SU-5402 helps to sustain selfrenewal in human ESCs	1 mg 5 mg
AG-CR1-0004-M005 AG-CR1-0004-M010 AG-CR1-0004-M025	**Pifithrin-α . HBr** An inhibitor of p53-dependent apoptosis • Increases the survival of hemopoietic clonogenic cells	5 mg 10 mg 25 mg

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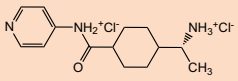
Rock Inhibitors

Human embryonic stem cells (hESCs) and human induced pluripotent stem cells (hiPSCs) promise new avenues for medical innovation. These human cells share many similarities with mouse counterparts, including pluripotency and they exhibit several unique properties. A technical problem for various cellular manipulations is the phenomenon of dissociation-induced apoptosis, which is unique to human pluripotent stem cells. This apoptosis is suppressed by ROCK inhibitors and brought a revolutionary change to this troublesome situation.

REVIEW: Lonely death dance of human pluripotent stem cells: ROCKing between metastable cell states: M. Ohgushi & Y. Sasai; Trends Cell Biol. **21,** 274 (2011)

Y-27632 . 2HCl

AG-CR1-3564-M001 1 mg
AG-CR1-3564-M005 5 mg
AG-CR1-3564-M025 25 mg

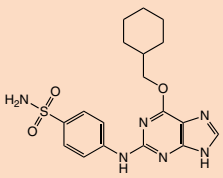


Formula: $C_{14}H_{21}N_3O$. 2HCl **MW:** 247.3 . 73.0 **CAS:** 146986-50-7

• Potent, cell permeable, selective and ATP-competitive Rho-associated protein kinases inhibitor, including p160ROCK, ROCKII and PRK2 inhibitor

NU6102

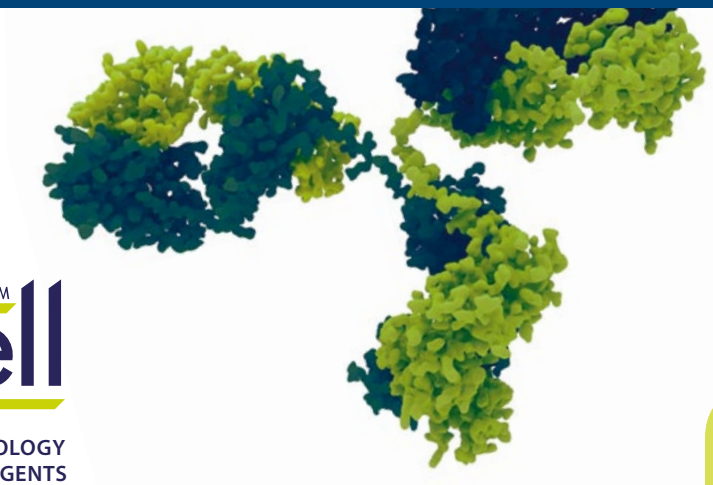
AG-CR1-0020-M001 1 mg
AG-CR1-0020-M005 5 mg



Formula: $C_{18}H_{22}N_6O_3S$ **MW:** 402.5 **CAS:** 444722-95-6

• Potent CDK1/cyclin B (IC_{50} = 9.5 nM) and CDK2/cyclin A3 (IC_{50} = 5.4 nM) inhibitor • 1'000-fold more potent than NU2058 • Selective for CDK1 and CDK2 compared to CDK4/D1 (IC_{50} = 1.6 µM), DYRK1A (IC_{50} = 0.9 µM), PDK1 (IC_{50} = 0.8 µM) and ROCKII (IC_{50} = 0.6 µM) • Inhibits cell growth

Increase the survival rate of human ESC undergoing cryopreservation!



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PID (*)	PRODUCT NAME	LABELS & DYES								FAB		APPLICATIONS						
		Preservatives	Preservative Free	Biotin	FITC	R-PE	APC	PE-Cy7	DyLight350	F(ab')2	Fab	FUNC	ELISA	FACS	ICC	IHC	IP	WB
ANC-152	CD7 (human), mAb (3A1E)	x	x	x	x	x						x		x				
ANC-156	CD9 (human), mAb (SN4)	x	x	x	x	x								x				
ANC-157	CD10 (human), mAb (SN5c)	x	x	x	x	x								x				x
ANC-163	CD14 (human), mAb (UCHM1)	x	x	x	x	x								x				
ANC-164	CD15 (human), mAb (AHN1.1)	x	x	x	x							x		x		x		
ANC-173	CD24 (human), mAb (BA-1)	x	x	x	x									x				
ANC-178	CD29 (human), mAb (4B7R)	x	x	x	x	x								x				x
ANC-179	CD30 (human), mAb (AC10)	x	x	x		x	x							x				
ANC-180	CD31 (human), mAb (158-2B3)	x	x	x	x	x						x		x				
ANC-182	CD33 (human), mAb (WM-53)	x	x	x	x	x								x				
ANC-183	CD34 (human), mAb (43A1)	x	x	x	x	x	x							x				x
ANC-187	CD38 (human), mAb (AT1)	x	x	x	x	x								x				
ANC-190	CD41a (human), mAb (96.2C1)	x	x	x	x	x								x				
ANC-193	CD44 (human), mAb (BU52)	x	x	x	x	x				x				x				
ANC-352	CD44 (human), mAb (BU75)	x	x	x	x	x						x		x				x
ANC-196	CD45 (human), mAb (C11)	x	x	x	x	x	x							x				
ANC-199	CD48 (human), mAb (5-4.8)	x	x	x	x	x								x				
ANC-200	CD49d (human), mAb (BU49)	x	x	x	x	x						x		x				
ANC-356	CD49f (human), mAb (BQ16)	x	x	x	x	x								x		x		x
ANC-202	CD51 (human), mAb (P2W7)	x	x	x	x	x								x				
ANC-205	CD54 (D1) (human), mAb (15.2)	x	x	x	x	x						x	x	x				x
ANC-206	CD54 (D2) (human), mAb (8.4A6)	x	x	x	x	x						x	x	x				
ANC-308	CD56 (human), mAb (ANC7C7)	x	x	x	x	x	x						x	x				
ANC-208	CD56 (human), mAb (ERIC-1)	x	x	x									x	x		x		x
ANC-209	CD57 (human), mAb (NK-1)	x	x	x	x									x				
ANC-261	CD62L (human), mAb (LAM1-116)	x	x	x	x	x	x					x		x				
ANC-252	CD62P (human), mAb (G1)	x	x	x	x	x				x		x		x				
ANC-223	CD71 (human), mAb (DF1513)	x	x	x	x	x								x	x			
ANC-302	CD81 (human), mAb (1.3.3.22)	x	x	x	x	x								x				x
ANC-326	CD105 (human), mAb (SN6)	x	x	x	x	x						x		x		x		
ANC-327	CD106 (human), mAb (1.G11B1)	x	x	x	x	x						x	x	x		x		x
ANC-338	CD117 (human), mAb (57A5)	x	x	x		x	x							x				
ANC-348	CD127 (human), mAb (ANC8F2)	x	x	x	x	x								x				
ANC-393	CD166 (human), mAb (3A6)	x	x	x	x	x						x		x				
ANC-271	CD271 [NGFR] (human), mAb (ANC271/3D7)	x	x										x	x				

(*) The Ancell Product # is build by the prefix (ANC-), main PID (3 digits) and a suffix (3 digits). The last 3 digits define the labels:
-020 = Preservatives | -820 = Preservative Free | -030 = Biotin | -040 = FITC | -050 = R-PE | -060 = APC | -520 = F(ab')2 | -580 = Fab | -070 = PE-Cy7 | -350 = DyLight350
FAB: Fragment Antigen Binding; **FACS:** Flow Cytometry; **FUNC:** Functional Application; **ICC:** Immunocytochemistry; **IHC:** Immunohistochemistry; **IP:** Immunoprecipitation; **WB:** Western Blot

For a comprehensive overview visit www.adipogen.com

Highlights

anti-CD28 (human), mAb (ANC28.1/5D10)

ANC-177-020		100 µg
ANC-177-820	Preservative free	100 µg
ANC-177-030	Biotin	100 µg
ANC-177-040	FITC	120 tests
ANC-177-050	R-PE	120 tests
ANC-177-520	F(ab')2	100 µg

CLONE: ANC28.1/5D10. **ISOTYPE:** Mouse IgG1κ. **SPECIES:** Human. **APPLICATION:** ELISA, FACS, FUNC (Stimulates expression of IL-2 from $CD28^+$ cells).

anti-CD105 (human), mAb (SN6)

ANC-326-020		100 µg
ANC-326-820	Preservative free	100 µg
ANC-326-030	Biotin	100 µg
ANC-326-040	FITC	120 tests
ANC-326-050	R-PE	120 tests

CLONE: SN6. **ISOTYPE:** Mouse IgG1κ. **SPECIES:** Human. **APPLICATION:** FACS, IHC, FUNC (Augments binding of TGF-β1 to CD105 expressing leukemia cells).

anti-CD117 (human), mAb (57A5)

ANC-338-020		100 µg
ANC-338-820	Preservative free	100 µg
ANC-338-030	Biotin	100 µg
ANC-338-060	APC	120 tests
ANC-338-050	RP-E	120 tests

CLONE: 57A5. **ISOTYPE:** Mouse IgG1. **SPECIES:** Human. **APPLICATION:** FACS.

anti-CD152 [CTLA-4] (human), mAb (ANC152.2/8H5)

ANC-359-020		100 µg
ANC-359-820	Preservative free	100 µg
ANC-359-030	Biotin	100 µg
ANC-359-040	FITC	120 tests
ANC-359-050	R-PE	120 tests
ANC-359-520	F(ab')2	100 µg
ANC-359-580	Fab	100 µg

CLONE: ANC152.2/8H5. **ISOTYPE:** Mouse IgG1κ. **SPECIES:** Cat, Cow, Dog, Human, Pig. **APPLICATION:** ELISA, FACS, FUNC (Blocking).

Chimerigen Laboratories

The Experts for High Quality Fusion Proteins

Broad range of Interleukins & Cytokines

PID	PRODUCT NAME	SIZE	SOURCE
Interleukin Fusion Proteins			
CHI-HR-20001B	IL-1β (human) (rec.) (His)	10 µg	*E. coli*
CHI-HR-20002	IL-2 (human) (rec.) (His)	10 µg	*E. coli*
CHI-HF-21002	IL-2 (human):Fc (human) (rec.)	50 µg	CHO cells
CHI-HF-22002	IL-2 (human):Fc (human) (rec.) (non-lytic)	50 µg	NS1 cells
CHI-MF-11002	IL-2 (mouse):Fc (mouse) (rec.)	10 µg	CHO cells
CHI-MF-12002	IL-2 (mouse):Fc (mouse) (rec.) (non-lytic)	10 µg	NS1 cells
CHI-HR-20004	IL-4 (human) (rec.) (His)	10 µg	*E. coli*
CHI-HF-22004	IL-4 (human):Fc (human) (rec.) (non-lytic)	10 µg	NS1 cells
CHI-MF-12004	IL-4 (mouse):Fc (mouse) (rec.) (non-lytic)	10 µg	NS1 cells
CHI-HF-21006	IL-6 (human):Fc (human) (rec.)	50 µg	CHO cells
CHI-HF-22006	IL-6 (human):Fc (human) (rec.) (non-lytic)	50 µg	CHO cells
CHI-MF-12006	IL-6 (mouse):Fc (mouse) (rec.) (non-lytic)	50 µg	CHO cells
CHI-HF-21006R	IL-6R (human):Fc (human) (rec.)	50 µg	CHO cells
CHI-HR-20008	IL-8 (human) (rec.) (His)	10 µg	*E. coli*
CHI-HF-22008	IL-8 (human):Fc (human) (rec.) (non-lytic)	10 µg	CHO cells
CHI-HF-21010	IL-10 (human):Fc (human) (rec.)	10 µg	CHO cells
CHI-HF-22010	IL-10 (human):Fc (human) (rec.) (non-lytic)	10 µg	NS1 cells
CHI-MF-12010	IL-10 (mouse):Fc (mouse) (rec.) (non-lytic)	10 µg	NS1 cells
CHI-MF-11112	IL-12 (mouse):Fc (human) (rec.)	25 µg	CHO cells
CHI-HF-21015M	IL-15 (mutant) (human):Fc (human) (rec.)	50 µg	CHO cells
CHI-HF-21115MBI	IL-15 (mutant) (human):Fc (mouse) (rec.) (Biotin)	1 Vial	CHO cells
CHI-HF-22021	IL-21 (human):Fc (human) (rec.) (non-lytic)	50 µg	CHO cells
CHI-HR-20021M	IL-21 (mutant) (human) (rec.) (His)	10 µg	*E. coli*
CHI-MF-12021	IL-21 (mouse):Fc (mouse) (rec.) (non-lytic)	50 µg	CHO cells
CHI-HF-21021R	IL-21R (human):Fc (human) (rec.)	100 µg	CHO cells
CHI-MF-12021R	IL-21R (mouse):Fc (mouse) (rec.) (non-lytic)	25 µg	CHO cells
CHI-HF-21022	IL-22 (human):Fc (human) (rec.)	25 µg	CHO cells
CHI-HF-22022	IL-22 (human):Fc (human) (rec.) (non-lytic)	25 µg	CHO cells
CHI-MF-11022	IL-22 (mouse):Fc (mouse) (rec.)	25 µg	CHO cells
CHI-MF-11123	IL-23 (mouse):Fc (human) (rec.)	50 µg	CHO cells
CHI-HF-21027	IL-27 (human):Fc (human) (rec.)	50 µg	CHO cells
CHI-HF-22027	IL-27 (human):Fc (human) (rec.) (non-lytic)	50 µg	CHO cells
CHI-MF-11127	IL-27 (mouse):Fc (human) (rec.)	50 µg	CHO cells
CHI-HR-20033	IL-33 (human) (rec.) (His)	20 µg	*E. coli*
CHI-HF-21035	IL-35 (human):Fc (human) (rec.)	25 µg	CHO cells
CHI-MF-11135	IL-35 (mouse):Fc (human) (rec.)	25 µg	CHO cells

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HIGHLIGHTS

Killing and Modulation – Two Forms of Mouse CD152 [CTLA-4] Fusion Proteins for *in vivo* Studies

CD152 [CTLA-4] (mouse):Fc (mouse) (rec.)

CHI-MF-110A4-C100 100 µg
CHI-MF-110A4-C500 500 µg
CHI-MF-110A4-M001 1 mg

BIOLOGICAL ACTIVITY: Binds both CD80 (B7-1) and CD86 (B7-2) with high affinity and inhibits CD28 signaling competitively. Kills the target cell completely.

LIT: Improved immunological tolerance following combination therapy with CTLA-4/Ig and AAV-mediated PD-L1/2 muscle gene transfer: S. Adriouch, et al.; Front. Microbiol. **2,** 199 (2011)
• Many more references!

CD152 [CTLA-4] (mouse):Fc (mouse) (rec.) (non-lytic)

CHI-MF-120A4-C100 100 µg
CHI-MF-120A4-C500 500 µg
CHI-MF-120A4-M001 1 mg

BIOLOGICAL ACTIVITY: Blocks the binding of mouse CD80 (B7-1) and CD86 (B7-2) to their receptors (by binding CD80 and CD86 with high affinity) and thereby prevents their T cell regulatory actions by inhibiting the CD28 signaling competitively. Shows the biological functions of the CD152 moiety and exerts a prolonged circulating half-life caused by the modified Fc domain. Useful for investigating the T cell co-stimulation.

LIT: Selective CD28 Blockade Attenuates Acute and Chronic Rejection of Murine Cardiac Allografts in a CTLA-4-Dependent Manner: T. Zhang, et al.; Am. J. Transplant. **11,** 1599 (2011)
• Many more references!

PEDF

Sufficient to maintain the self-renewal of pluripotent human embryonic stem cells

PROD. NO.	PRODUCT NAME	SIZE
AG-40B-0077-C010	PEDF (human) (rec.)	10 µg
AG-40B-0077-3010	MultiPack	3 x 10 µg

BULK Quantities of LIF

Maintains pluripotency of mouse and human embryonic stem cells (ESC)

PROD. NO.	PRODUCT NAME	SIZE
AG-40B-0093-C010	LIF (human) (rec.)	10 µg
AG-40B-0093-3010	MultiPack	3 x 10 µg
AG-40B-0093-C100	BULK	100 µg

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Progranulin

Enhances neural progenitor cells (NPCs) proliferation via inducing GSK-3β phosphorylation

- **Higher Activity**
- **Low Endotoxin Levels**

PROD. NO.	PRODUCT NAME	SIZE
AG-40A-0188-C010	Progranulin (human) (rec.) (untagged)	10 µg
AG-40A-0188-C050		50 µg
AG-40A-0188AA-C500	BULK	500 µg
AG-40A-0189-C010	Progranulin (mouse) (rec.) (untagged)	10 µg
AG-40A-0189-C050		50 µg
AG-40A-0189AA-C500	BULK	500 µg
AG-40A-0196-C010	Progranulin (rat) (rec.) (untagged)	10 µg
AG-40A-0196-C050		50 µg

Now available — BULK QUANTITIES of untagged progranulins for *in vivo* research!

ANGPTL Proteins

Recently, J. Zheng, et al. (2012) discovered LILRB2 and its mouse orthologue PIRB as receptors for several angiopoietin-like proteins (ANGPTLs). Binding of ANGPTLs to these receptors supported *ex vivo* expansion of HSCs und showed the functional significance of these classical immune-inhibitory receptors in maintenance of stemness of normal adult stem cells and in support of cancer development.

LIT: Inhibitory receptors bind ANGPTLs and support blood stem cells and leukaemia development: J. Zheng, et al.; Nature. **485,** 656 (2012)

PROD. NO.	PRODUCT NAME	SIZE
AG-40A-0087-C010	ANGPTL2 (CCD) (human) (rec.)	10 µg
AG-40A-0083-C010	ANGPTL2 (FLD) (human) (rec.)	10 µg
AG-40A-0051-C010	ANGPTL3 (human) (rec.)	10 µg
AG-40A-0082-C010	ANGPTL3 (mouse) (rec.)	10 µg
AG-40A-0069-C010	ANGPTL3 (CCD) (human) (rec.)	10 µg
AG-40A-0103-C010	ANGPTL3 (CCD) (mouse) (rec.)	10 µg
AG-40A-0071-C010	ANGPTL3 (FLD) (human) (rec.)	10 µg
AG-40A-0096-C010	ANGPTL3 (FLD) (mouse) (rec.)	10 µg

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