

Small Molecules

For Cancer Research

Small Molecules, Big Impact

Small molecules are increasingly being used as tools to understand mechanisms of cancer. Whether the aim is to identify signaling nodes essential for tumorigenic phenotypes, or to test combinatorial small molecule strategies in vitro, small molecules can transform a research project. Target key pathways in cancer biology with small molecules from STEMCELL Technologies that are widely used in high impact research. For a complete listing of the small molecules available, please visit www.stemcell.com/smallmolecules.

Why Use Small Molecules?

- Can be cell permeable and affect signaling pathways within the cell
- More stable and cost effective than growth factors
- Chemically defined: High purity and low lot-to-lot variability in activity
- Finely tune effects by varying concentration

Product Listing

PRODUCT NAME	TARGET(S)	APPLICATIONS	CATALOG #
Activin / Nodal / TGF β / BMP Pathway			
Dorsomorphin	Inhibits ALK2, ALK3, ALK6	Inhibits cell proliferation, survival, migration	72102
LDN193189	Inhibits ALK2, ALK3, ALK6	Inhibits cell proliferation, survival	72142
LY364947	Inhibits ALK5	Inhibits cell migration, invasion	72592
SB431542	Inhibits ALK5, ALK4, ALK7	Inhibits cell proliferation, migration, invasion	72232
Epigenetics			
3-Deazaneplanocin A	Inhibits EZH2 Lysine Methyltransferase	Inhibits cell proliferation, survival, migration	72322
5-Azacytidine	Inhibits DNA Methyltransferase	Inhibits cell proliferation, survival	72012
BIX 01294	Inhibits G9a Histone Methyltransferase	Inhibits cell proliferation, survival, migration, invasion	72042
Garcinol	Inhibits HATs- p300 and PCAF	Inhibits cell proliferation, survival	72452
JIB-04	Inhibits Jumonji Histone Demethylase	Inhibits cell proliferation, survival	73212
RG108	Inhibits DNA Methyltransferase (DNMT1)	Inhibits cell proliferation, survival, invasion; Demethylates and activates epigenetically-silenced tumor suppressor genes	72212
Sodium Butyrate	Inhibits Histone Deacetylases (HDACs)	Inhibits cell proliferation, survival	72242
Tranylcypromine	Inhibits Lysine-Specific Demethylase 1 (LSD1)	Inhibits cell proliferation, survival, migration, invasion	72272
Trichostatin A	Inhibits Histone Deacetylase (HDAC1)	Inhibits cell proliferation, survival, migration, invasion	72282
Valproic Acid	Inhibits Histone Deacetylase (HDAC1)	Inhibits cell proliferation, survival	72292
Zebularine	Inhibits DNA Methyltransferase	Inhibits cell proliferation, survival	72902
JAK / STAT Pathway			
AG-490	Inhibits EGFR, HER2, JAK2, JAK3 and STAT5a/b	Inhibits cell proliferation, survival, migration, invasion	72932
Ruxolitinib	Inhibits JAK1, JAK2	Inhibits cell proliferation, survival	73402
TG101348	Inhibits JAK2	Inhibits cell proliferation, survival	73472
WHI-P131	Inhibits JAK3	Inhibits cell proliferation, survival, migration	73542
WHI-P154	Inhibits JAK3	Inhibits cell proliferation, survival, migration	73552
Hedgehog Pathway			
Cyclopamine	Inhibits Smoothened	Inhibits cell migration, invasion	72072
Purmorphamine	Activates Smoothened	Increases cell migration, invasion	72202



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Product Listing (CONTINUED)

MAPK Pathway			
AZ628	Inhibits RAF	Inhibits cell proliferation, survival	72982
AZD6244	Inhibits MEK1, MEK2	Inhibits cell proliferation, survival	72992
BI-D1870	Inhibits RSK	Inhibits cell proliferation, survival	72712
BIRB-796	Inhibits p38 MAPK	Enhances effects by chemotherapeutics on cell growth or cell death	72682
Dabrafenib	Inhibits RAF	Inhibits cell proliferation, survival	73072
Paclitaxel	Activates CDK, JNK/SAPK	Inhibits cell proliferation, survival	73312
PD0325901	Inhibits MEK	Inhibits cell proliferation, survival, invasion	72182
PD98059	Inhibits MEK	Inhibits cell proliferation, survival, migration, invasion	72172
Pluripotin	Inhibits RasGAP1 and ERK1	Increases tumor formation and expression of cancer stem cell surface markers	72812
PLX4032	Inhibits RAF	Inhibits cell proliferation, survival	73332
Refametinib	Inhibits MEK1, MEK2	Inhibits cell proliferation	73372
Reversine	Inhibits MEK1	Inhibits cell proliferation, survival	72612
SB202190	Inhibits p38 MAPK	Modulates cell proliferation, survival	72632
SB203580	Inhibits p38 MAPK	Modulates cell proliferation, survival	72222
SP600125	Inhibits JNK1, JNK2, JNK3	Inhibits cell proliferation, survival	72642
Trametinib	Inhibits MEK1, MEK2	Inhibits cell proliferation, survival	73502
U-0126	Inhibits MEK1, MEK2	Inhibits cell proliferation, survival, migration, invasion	73522
mTOR Pathway			
A769662	Activates AMPK	Modulates cell survival	72922
AICAR	Activates AMPK	Modulates cell proliferation, survival, migration, invasion	72702
AZD8055	Inhibits mTOR	Inhibits cell proliferation	73002
Everolimus	Inhibits FKBP-12	Inhibits cell proliferation, survival, migration, invasion	73122
Ku-0063794	Inhibits mTORC1, mTORC2	Inhibits cell proliferation	73232
Metformin	Activates AMPK	Inhibits cell proliferation, survival, migration, invasion	73252
Rapamycin	Inhibits FKBP-12	Inhibits cell proliferation, survival, migration, invasion	73362
Torin 1	Inhibits mTOR	Inhibits cell proliferation, survival, migration, invasion	73492
NF-κB Pathway			
(S)-MG132	Inhibits Proteasome and Activates IκB	Inhibits cell proliferation, survival	73262
CAY10512	Inhibits NF-κB		73022
QNZ	Inhibits NF-κB		73352
Notch Pathway			
DAPT	Inhibits γ-Secretase	Inhibits cell proliferation, survival, migration	72082
DBZ	Inhibits γ-Secretase	Inhibits cell proliferation, survival	73092
Nuclear Receptors			
9-cis Retinoic Acid	Activates RAR and RXR	Inhibits cell proliferation	72382
All-Trans Retinoic Acid	Activates RAR	Inhibits cell proliferation, migration, invasion	72262
AM580	Activates RARα	Inhibits cell proliferation, survival	72962
Calcitriol	Activates Calcitriol / Vitamin D Receptor	Inhibits cell proliferation	72412
CD437	Activates RAR	Inhibits cell survival	72722
Dexamethasone	Activates Glucocorticoid Receptor	Modulates cell survival	72092

Small Molecules for Cancer Research

EC23	Activates RAR		73102
Raloxifene	Selective Estrogen Receptor Modulator (SERM)	Inhibits cell proliferation, survival, migration, invasion	72852
Rosiglitazone	Activates PPAR γ	Inhibits cell proliferation	72622
Tamoxifen	Selective Estrogen Receptor Modulator (SERM)	Inhibits cell proliferation, survival, migration, invasion	72662
TTNPB	Activates RAR	Inhibits cell proliferation, survival	72892
p53 Pathway			
Cyclic Pifithrin- α	Inhibits p53	Inhibits cell proliferation	72062
Pifithrin- μ	Inhibits p53	Inhibits cell proliferation, survival	72802
PI3K / AKT Pathway			
1-Oleoyl Lysophosphatidic Acid	Activates LPA1 and LPA2	Promotes cell proliferation, invasion, metastases	72692
Akt Inhibitor VIII	Inhibits AKT1, AKT2, AKT3	Inhibits cell survival	72942
Akt Inhibitor X	Inhibits AKT	Inhibits cell survival	72952
Fluoxetine	Inhibits Serotonin Transporter	Inhibits cell proliferation, survival	73142
GDC-0941	Inhibits PI3K Class I	Inhibits cell proliferation, survival, migration	73152
KP372-1	Inhibits AKT	Inhibits cell proliferation, survival	73222
LY294002	Inhibits PI3K	Inhibits cell survival	72152
Pluripotin	Inhibits RasGAP1 and ERK	Increases tumor formation and expression of cancer stem cell surface markers	72812
Wortmannin	Inhibits PI3K, PLK	Inhibits cell proliferation, survival, migration, invasion	73562
Receptor and Protein Tyrosine Kinase Pathways			
AZ628	Inhibits RAF	Inhibits cell proliferation, survival	72982
Dasatinib	Inhibits c-ABL, SRC, LCK	Inhibits cell proliferation, survival, migration, invasion	73082
FAK Inhibitor 14	Inhibits Focal Adhesion Kinase 1 (FAK1)	Inhibits cell proliferation, survival, migration, invasion	73132
Gefitinib	Inhibits EGFR	Inhibits cell proliferation, survival, migration, invasion	73162
GW2580	Inhibits CSF-1 Phosphorylation	Inhibits recruitment of tumor associated macrophages or tumor infiltrating myeloid cells	72472
Imatinib	Inhibits c-ABL, PDGFR, c-KIT	Inhibits cell proliferation, survival, migration, invasion	72532
Lapatinib	Inhibits EGFR, HER2	Inhibits cell proliferation, survival, migration, invasion	73242
Nilotinib	Inhibits BCR/ABL	Inhibits cell proliferation, survival	73302
PD173074	Inhibits FGFR1	Inhibits cell proliferation, survival	72162
PP1	Inhibits LCK, FYN, HCK, SRC	Inhibits cell proliferation, survival, migration, invasion	73112
SU11274	Inhibits c-MET	Inhibits cell proliferation, survival, migration, invasion	73432
SU5416	Inhibits VEGFR2, PDGFR, c-KIT, RET, FLT-3, c-ABL, ALK	Inhibits cell proliferation, survival	73442
Tivantinib	Inhibits c-MET	Inhibits cell proliferation, survival, migration, invasion	73482
Vandetanib	Inhibits VEGFR, EGFR, FGFR, c-ABL, RET, SRC	Inhibits cell proliferation, survival, migration, invasion; Inhibits angiogenesis	73532
RHO / ROCK Pathway			
1-Oleoyl Lysophosphatidic Acid	Activates LPA1 and LPA2	Promotes cell proliferation, invasion, metastases	72692
GSK429286A	Inhibits ROCK		73182
Thiazovivin	Inhibits ROCK		72252
Y-27632	Inhibits ROCK	Modulates cell migration, invasion	72302
WNT Pathway			
BIO	Inhibits GSK3	Inhibits cell proliferation, migration, invasion, survival	72032
CHIR98014	Inhibits GSK3	Promotes cell survival	73042

Product Listing (CONTINUED)

CHIR99021	Inhibits GSK3	Inhibits cell proliferation, survival	72052
IWP-2	Inhibits Porcupine	Inhibits cell proliferation, migration, invasion	72122
IWP-3	Inhibits Porcupine		72542
IWP-4	Inhibits Porcupine		72552
IWR-1-endo	Stabilizes AXIN2	Inhibits cell proliferation	72562
SB216763	Inhibits GSK3	Modulates cell proliferation, survival	72874
TWS119	Inhibits GSK3 β	Inhibits cell proliferation, survival	73512
XAV939	Inhibits TNKS1, TNKS2	Inhibits cell proliferation, survival, migration, invasion	72672
Other Pathways			
(-)-Blebbistatin	Inhibits Non-Muscle Myosin II ATPase	Inhibits cell migration, invasion	72402
(+)-Bay K8644	L-type Calcium Channel Blocker	Inhibits cell proliferation, survival	72362
16,16-Dimethyl Prostaglandin E2	PGE2 Analog	Promotes cell survival	72372
Brefeldin A	Inhibits Guanine Exchange Factors (GEFs)	Inhibits cell survival, migration	73012
CH223191	Inhibits Aryl Hydrocarbon Receptor (AhR)	Inhibits cell growth	72732
Doxycycline	Tetracyclin-Like Antibiotic	Used to regulate inducible gene expression in cell lines or animal models	72742
EHNA	Inhibits Adenosine Deaminase and PDE2	Inhibits cell proliferation, migration, invasion	72442
Fluoxetine	Inhibits Serotonin Transporter	Inhibits cell proliferation, survival	73142
Forskolin	Activates Adenylyl Cyclase	Inhibits cell proliferation, survival	72112
Gatifloxacin	Inhibits Bacterial DNA Gyrase	Inhibits cell proliferation	72752
L-Ascorbic Acid	Antioxidant, Reducing Agent	Modulates cell proliferation	72132
Mitomycin C	Double-Stranded DNA Alkylating Agent	Inhibits cell proliferation, survival	73272
MK0457	Inhibits Aurora A Kinase	Inhibits cell proliferation, survival	73282
PluriSIn-1	Inhibits Stearoyl-CoA Desaturase (SCD1)	Inhibits cell proliferation; Inhibits survival of undifferentiated cancer cells	72822
Puromycin	Inhibits Ribosome Peptidyl Transfer	Inhibits cell survival	73342
Resveratrol	Inhibits COX-1	Inhibits cell proliferation, survival	72862
Rolipram	Inhibits PDE4	Inhibits cell proliferation, survival	73382
Sinomenine	Anti-Inflammatory	Inhibits cell proliferation, survival	72882
StemRegenin 1	Inhibits Aryl Hydrocarbon Receptor (AhR)	Promotes maintenance of leukemic stem cells when used with UM729 in vitro	72342
Stem Regenin 1 (Hydrochloride)	Inhibits Aryl Hydrocarbon Receptor (AhR)	Promotes maintenance of leukemic stem cells when used with UM729 in vitro	72352
SU9516	Inhibits CDK1, CDK2	Inhibits cell proliferation, survival	73452
UM729 - Exclusive	Pyrimido-Indole Derivative	Promotes maintenance of leukemic stem cells when used with AhR antagonist SR1 in vitro	72332
Zoledronic acid	Inhibits Farnesyl Diphosphate (FPP) Synthase	Inhibits cell proliferation, survival, migration, invasion; Inhibits angiogenesis	73572



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