



Supporting Information

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High-Throughput Cellular Heterogeneity Analysis in Cell Migration at the Single-Cell Level

*Mengli Zhou, Yushu Ma, Chun-Cheng Chianga, Edwin C. Rock, Kathryn E. Luker, Gary D. Luker, and Yu-Chih Chen**

Title:

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Authors:

Mengli Zhou^{a,b,c}, Yushu Ma^{a,b}, Chun-Cheng Chiang^{a,b}, Edwin C. Rock^d, Kathryn E. Luker^e, Gary D. Luker^{e,f,g}, Yu-Chih Chen^{a,b,d,h*}

a UPMC Hillman Cancer Center, University of Pittsburgh, 5115 Centre Ave, Pittsburgh, PA 15232, USA;

b Department of Computational and Systems Biology, University of Pittsburgh, 3420 Forbes Avenue, Pittsburgh, PA 15260, USA;

c Xiangya Hospital, Central South University, Changsha, Hunan, 410008, China;

d Department of Bioengineering, Swanson School of Engineering, University of Pittsburgh, 3700 O'Hara Street, Pittsburgh, PA 15260, USA;

e Center for Molecular Imaging, Department of Radiology, University of Michigan, 109 Zina Pitcher Place, Ann Arbor, MI 48109-2200, USA;

f Department of Microbiology and Immunology, University of Michigan, 109 Zina Pitcher Place, Ann Arbor, MI 48109-2200, USA;

g Department of Biomedical Engineering, University of Michigan, 2200 Bonisteel, Blvd. Ann Arbor, MI 48109-2099, USA

h CMU-Pitt Ph.D. Program in Computational Biology, University of Pittsburgh, 3420 Forbes Avenue, Pittsburgh, PA 15260, USA

*Corresponding authors

Yu-Chih Chen

5115 Centre Ave, Pittsburgh, PA 15232, USA

Tel: 412-623-7701; E-mail: cheny25@upmc.edu.

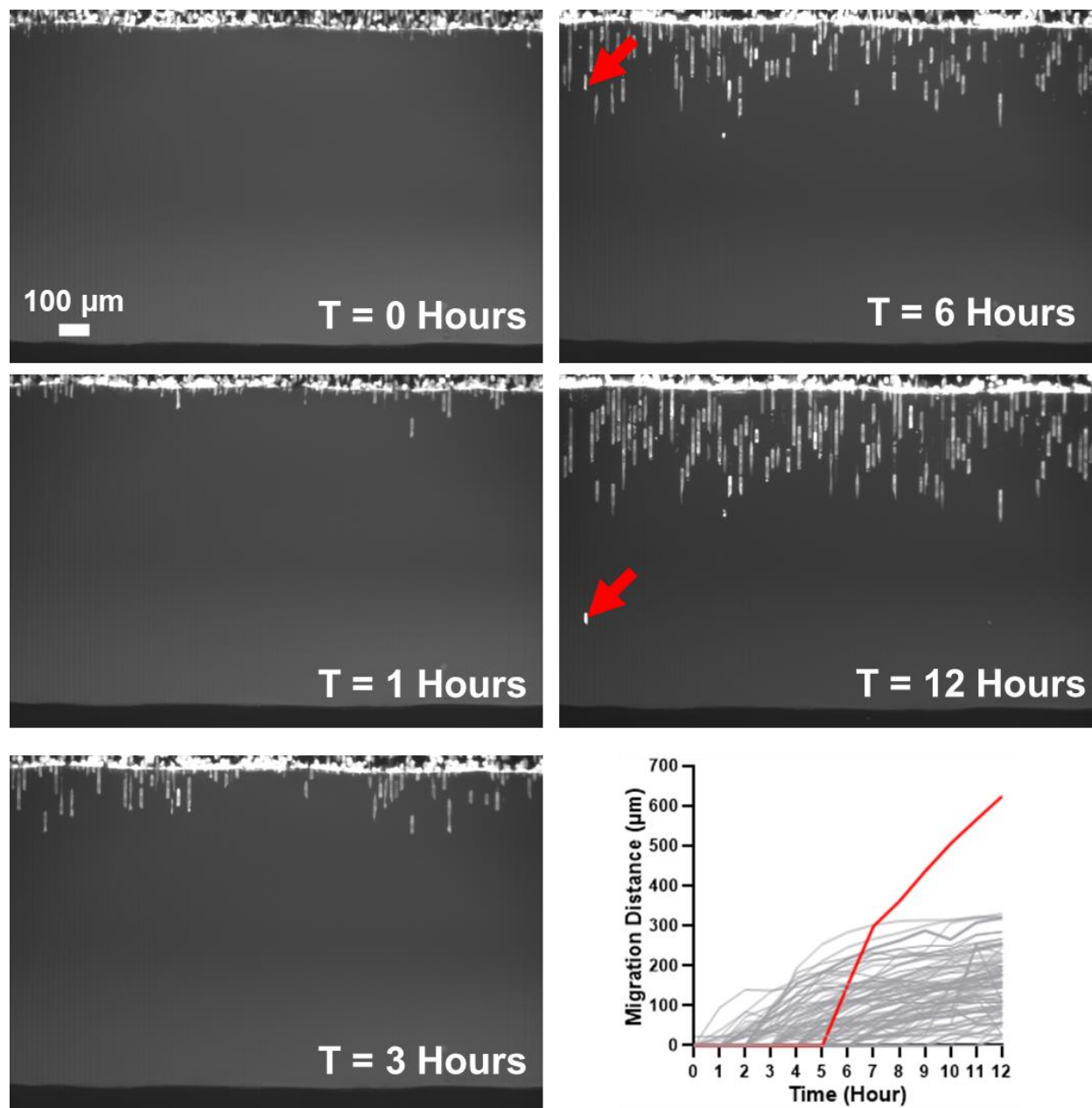


Figure S1. Tracking the migration of individual MDA-MB-231 cells for 12 hours. A fast-moving cell is highlighted with red color.

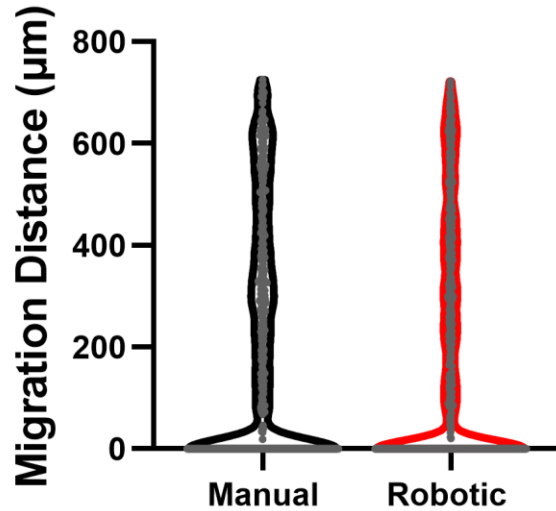


Figure S2. The comparison between manual and robotic operation of cell migration experiments. MDA-MB-231 cells without treatment were tested.

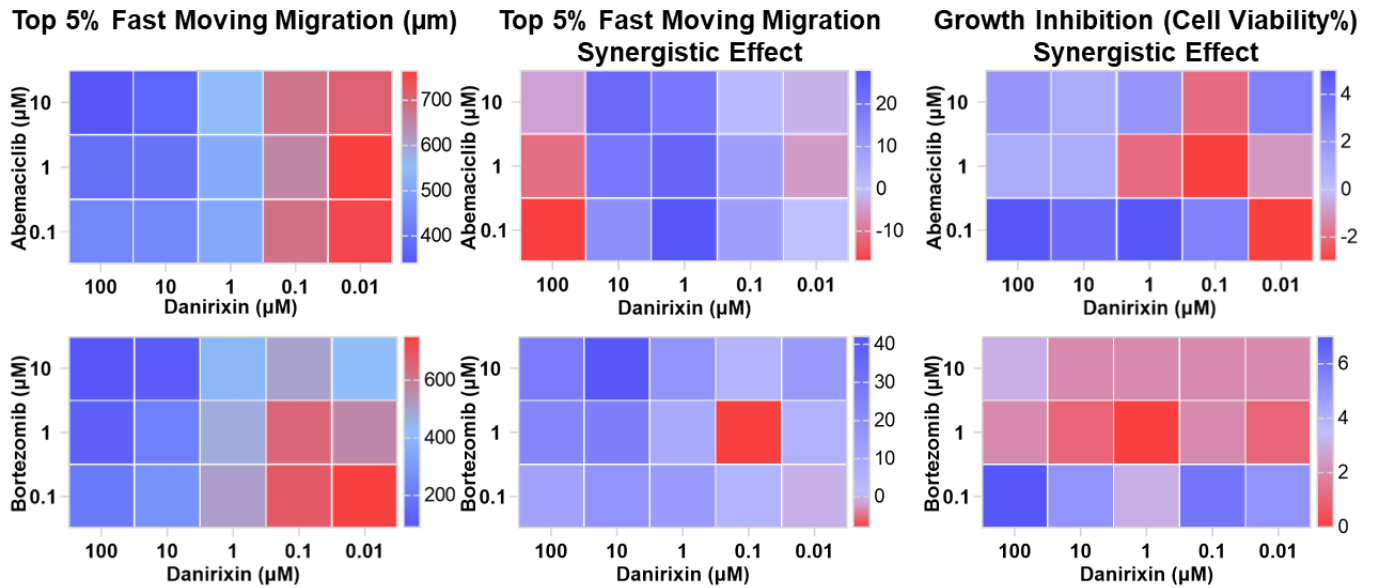


Figure S3. The combination effects on top fast-moving migration and cell viability of selected compounds. Abemaciclib or Bortezomib at three concentrations (10 µM, 1 µM, 0.1 µM) combined with Danirixin at 5 concentrations (100 µM, 10 µM, 1 µM, 0.1 µM, and 0,01 µM).

Table S1. Statistical results of transwell assay (# of cells)

Treatment	N=3			Mean	P Value
Control	2000	1962	1981	1981	
Danirixin	126	141	133	133.3	<0.0001
Abemaciclib	0	1	0	0.333	<0.0001

Table S2. Statistical results of migration assay

Treatment	P Value
Control	
Danirixin	<0.0001
Abemaciclib	0.9478

Table S3. The list of compounds.

Source	Item #	Compounds Name	Target
Cayman	11421	Actinomycin D	Chemo
Cayman	13986	Pirfenidone	TGFB
Cayman	27190	Tamoxifen	HR Inhibitor
Cayman	22964	Valrubicin	Chemo
Cayman	1E+07	Vorinostat (SAHA)	Chemo
Cayman	10483	Erlotinib	Chemo
Cayman	15008	Exemestane	Chemo
Cayman	23732	Ixabepilone	Chemo
Cayman	11493	Lapatinib	Chemo
Cayman	10461	Paclitaxel	Chemo
Cayman	1E+07	Bortezomib (PS-341)	Proteasome
Cayman	17130	Romidepsin	HDAC
Cayman	21262	Vinorelbine (tartrate)	Chemo
Cayman	22262	Cabazitaxel	Chemo
Cayman	12097	Pazopanib	EGFR
Cayman	15632	SN-38	Topoisomerase I inhibitor
Cayman	11492	Afatinib	EGFR
Cayman	13119	Cisplatin	Chemo
Cayman	14416	5-Fluorouracil	Chemo
Cayman	22266	Digoxin	HIF
Cayman	11637	Docetaxel	Chemo
Cayman	1E+07	Fulvestrant	HR Inhibitor
Cayman	15312	Galunisertib	TGFB
Cayman	9003096	Gemcitabine	Chemo

selleckchem	S7048	Talazoparib (BMN 673)	PARP
selleckchem	S2843	BI-D1870	ROS Up
selleckchem	S8974	GSK2795039	ROS Down
selleckchem	S5771	Sulforaphane	ROS Down
selleckchem	S8639	Diphenyleneiodonium chloride (DPI)	ROS Down
selleckchem	S7171	Setanaxib (GKT137831)	ROS Down
selleckchem	S7941	NCT-501	ALDH
selleckchem	S2289	Daidzin	ALDH
selleckchem	S1680	Disulfiram	ALDH
selleckchem	S7885	SBI-0206965	Autophagy inhibitor
selleckchem	S7949	MRT68921 HCl	Autophagy inhibitor
selleckchem	S2348	Rotenone (Barbasco)	ROS Up
selleckchem	S8596	Autophinib	Autophagy inhibitor
selleckchem	S1060	Olaparib (AZD2281)	PARP
selleckchem	S1004	Veliparib (ABT-888)	PARP
selleckchem	S1098	Rucaparib (AG-014699) phosphate	PARP
selleckchem	S1087	Iniparib (BSI-201)	PARP
selleckchem	S1233	2-Methoxyestradiol (2-MeOE2)	HIF
selleckchem	S1141	Tanespimycin (17-AAG)	HIF
selleckchem	S7946	KC7F2	HIF
selleckchem	S8441	LW 6	HIF
selleckchem	S5742	Deferoxamine mesylate	HIF
selleckchem	S8615	Sodium dichloroacetate (DCA)	Chemo
selleckchem	S8171	Daprodustat (GSK1278863)	HIF
selleckchem	S7309	BAY 87-2243	HIF
selleckchem	S8138	Molidustat (BAY 85-3934)	HIF
selleckchem	S7612	PX-478 2HCl	HIF
selleckchem	S2937	SYP-5	HIF
selleckchem	S2619	MG-132	Proteasome
selleckchem	S2853	Carfilzomib (PR-171)	Proteasome
selleckchem	S2181	Ixazomib Citrate (MLN9708)	Proteasome
selleckchem	S2180	Ixazomib (MLN2238)	Proteasome
selleckchem	S1008	Selumetinib (AZD6244)	MEK
selleckchem	S3238	Resibufogenin	Chemo
selleckchem	S1036	Mirdametininib (PD0325901)	MEK
selleckchem	S1020	PD184352 (CI-1040)	MEK
selleckchem	S7007	Binimetininib (MEK162)	MEK
selleckchem	S2673	Trametinib (GSK1120212)	MEK
selleckchem	S7215	Losmapimod (GW856553X)	MAPK
selleckchem	S6005	VX-702	MAPK
selleckchem	S1574	Doramapimod (BIRB 796)	MAPK
selleckchem	S2928	TAK-715	MAPK
selleckchem	S1494	Ralimetininib dimesylate	MAPK

selleckchem	S7110	(+)-JQ1	BET
selleckchem	S0056	(E/Z)-BCI	DUSP6 inhibitor
selleckchem	S7189	Molibresib (I-BET-762)	BET
selleckchem	S7360	Birabresib (OTX015)	BET
selleckchem	S1109	BI 2536	BET
selleckchem	S2780	I-BET151 (GSK1210151A)	BET
selleckchem	S1053	Entinostat (MS-275)	HDAC
selleckchem	S1030	Panobinostat (LBH589)	HDAC
selleckchem	S1122	Mocetinostat (MGCD0103)	HDAC
selleckchem	S1067	SB 431542	TGFB
selleckchem	S7530	Vactosertib	TGFB
selleckchem	S7914	Isoxazole 9 (ISX-9)	TGFB
selleckchem	S1623	Acetylcysteine (N-acetylcysteine)	ROS Down
selleckchem	S8148	PD0166285	Wee1
selleckchem	S1525	Adavosertib (MK-1775)	Wee1
selleckchem	S4076	Propranolol HCl	beta-adrenergic receptors
selleckchem	S4123	Timolol Maleate	beta-adrenergic receptors
selleckchem	S4085	Levobetaxolol HCl	beta-adrenergic receptors
selleckchem	S1130	YM155 (Sepantronium Bromide)	Survivin
selleckchem	S5600	Flavokawain A	Survivin
selleckchem	S8334	XMU-MP-1	Hippo/MST1/2
selleckchem	S1786	Verteporfin	YAP
selleckchem	S7063	LY2090314	GSK3
selleckchem	S0522	CM10	ALDH
selleckchem	S7198	BIO	GSK3
selleckchem	S1590	TWS119	GSK3
selleckchem	S1116	Palbociclib (PD-0332991) HCl	CDK4/6
selleckchem	S7440	Ribociclib (LEE011)	CDK4/6
selleckchem	S5716	Abemaciclib	CDK4/6
selleckchem	S1001	Navitoclax (ABT-263)	Bcl-2
selleckchem	S8048	Venetoclax (ABT-199)	Bcl-2
selleckchem	S1002	ABT-737	Bcl-2
selleckchem	S1025	Gefitinib	EGFR
selleckchem	S2633	NPS-2143	calcium-sensing receptor (CaSR)
selleckchem	S6999	Chloroquine	Autophagy inhibitor
selleckchem	S1413	Bafilomycin A1 (Baf-A1)	Autophagy inhibitor
selleckchem	S8078	Bardoxolone Methyl	NFKB
selleckchem	S7783	CombretastatinA4	microtubule
selleckchem	S1364	Patupilone(EpothiloneB)	microtubule
selleckchem	S2672	PF-00562271Besylate	Focal Adhesion Kinase (FAK)
selleckchem	S7654	Defactinib(VS-6063)	Focal Adhesion Kinase (FAK)
selleckchem	S7653	PND-1186(VS-4718)	Focal Adhesion Kinase (FAK)

selleckchem	S7077	Cilengitide	Integrin
selleckchem	S7540	SB273005	Integrin
selleckchem	S8454	ATN-161(Ac-PHSCN-NH2)	Integrin
selleckchem	S2885	A-205804	Integrin
selleckchem	S1006	Saracatinib(AZD0530)	Src
selleckchem	S2824	TPCA-1	NFKB
selleckchem	S2700	KX2-391(Tirbanibulin)	Src
selleckchem	S1021	Dasatinib(BMS-354825)	Src
selleckchem	S8388	ML-7 HCl	myosin
selleckchem	S1573	Fasudil(HA-1077) HCl	myosin
selleckchem	S7162	Mdivi-1	Mitochondria
		Mitochondrial Fusion Promoter	
selleckchem	S3375	M1	Mitochondria
selleckchem	S1247	Leflunomide	Mitochondria
selleckchem	S6494	CCCP	Mitochondria
selleckchem	S7922	Tiplaxtinin	Mitochondria
selleckchem	S8047	Dynasore	Mitochondria
selleckchem	S4902	QNZ	NFKB
selleckchem	S6620	Danirixin(GSK1325756)	IL8
selleckchem	S1189	Aprepitant(MK-0869)	IL8
selleckchem	S2912	WZ811	CXCR4
selleckchem	S8030	Plerixafor(AMD3100)	CXCR4
selleckchem	S1003	Linifanib(ABT-869)	CSF1R
selleckchem	S7818	Pexidartinib(PLX3397)	CSF1R
selleckchem	S7482	EHT1864-2HCl	Rac CDC42
selleckchem	S8749	MBQ-167	Rac CDC42
selleckchem	S8988	Rhosin hydrochloride	Rho
selleckchem	S3479	R243	CCR
selleckchem	S3603	Betulinic acid	NFKB
selleckchem	S8512	Cenicriviroc(TAK-652)	CCR
selleckchem	S1452	Ispinesib (SB-715992)	Kinesin
selleckchem	S2182	SB743921 HCl	Kinesin
selleckchem	S8640	Reparixin (Repertaxin)	CXCR1
selleckchem	S6636	Azaindole 1 (TC-S 7001)	ROCK
selleckchem	S1474	GSK429286A	ROCK
selleckchem	S7271	FRAX597	PAK
selleckchem	S7094	PF-3758309	PAK
selleckchem	S2788	Capmatinib (INCB28060)	WNT
selleckchem	S7143	LGK-974	WNT
selleckchem	S9634	Phenoxodiol (Haginin E)	cFlip
selleckchem	S8415	PACAP 1-38	Phagocytosis
selleckchem	S9670	Pitstop 2	Endocytosis
selleckchem	S1133	Alisertib (MLN8237)	Aurora
selleckchem	S1048	Tozasertib (VX-680, MK-0457)	Aurora
selleckchem	S1176	Plinabulin(NPI-2358)	microtubule

selleckchem	S2195	Lexibulin(CYT997)	microtubule
Cayman	27088	IKE	Ferroptosis induction
Cayman	19288	RSL3	Ferroptosis induction
Cayman	25096	FINO2	Ferroptosis induction
Cayman	20455	ML162	Ferroptosis induction
Cayman	23282	ML210	Ferroptosis induction
Cayman	11498	Dasatinib	Senolytic
Cayman	22297	M2I-1	APC inhibitors
Cayman	16426	CUDC-101	HDACi, EGFRi
Cayman	34084	Belinostat	HDACi
Cayman	18404	Neratinib	EGFRi, HER2i
Cayman	19866	Quercitrin	Senolytic
Cayman	15246	Fisetin	Senolytic
Cayman	25201	Procyanidin C1	Senolytic
Cayman	13146	CAY10603	HDAC6i
Cayman	15785	Tubastatin A	HDAC6i
Cayman	19200	Thiostrepton	FOXMI
Cayman	18193	BI-6727	PLK1
Cayman	17080	Apcin	APC inhibitors

Table S4. Screening inhibition of mean cell migration by compounds (μm)

Treatment	# of Cells				Mean	P Value		
	SUM 149	SUM159	MDA-MB 231	MDA-MB 231				
Control	308	308	280	280	260	260	283	
Actinomycin D	3	5	111	85	12	27	41	<0.0001
Pirfenidone	126	176	230	222	74	70	150	0.0008
Tamoxifen	169	63	213	236	49	176	151	0.0009
Valrubicin	75	128	227	53	209	64	126	<0.0001
Vorinostat (SAHA)	227	235	263	293	213	109	224	0.133
Erlotinib	105	226	182	175	124	58	145	0.0005
Exemestane	204	220	164	169	207	137	184	0.0121
Ixabepilone	3	64	31	54	52	19	37	<0.0001
Lapatinib	118	152	114	105	141	189	137	0.0002
Paclitaxel	3	59	53	45	23	184	61	<0.0001
Bortezomib (PS-341)	0	22	53	46	10	5	23	<0.0001
Romidepsin	17	20	74	80	115	282	98	<0.0001
Vinorelbine (tartrate)	94	31	167	141	258	75	128	<0.0001
Cabazitaxel	13	64	74	24	29	18	37	<0.0001
Pazopanib	147	183	174	299	256	53	186	0.0137

SN-38	0	0	34	38	244	204	87	<0.0001
Afatinib	37	106	159	92	42	131	95	<0.0001
Cisplatin	218	182	157	163	0	46	128	<0.0001
5-Fluorouracil	206	297	269	156	49	44	170	0.0043
Digoxin	1	1	3	12	0	3	4	<0.0001
Docetaxel	11	9	120	53	14	22	39	<0.0001
Fulvestrant	33	13	280	195	162	137	137	0.0002
Galunisertib	7	78	128	68	79	39	67	<0.0001
Gemcitabine	81	26	75	57	73	35	58	<0.0001
Talazoparib (BMN 673)	75	101	280	174	139	79	141	0.0004
BI-D1870	201	222	231	271	33	180	190	0.0185
GSK2795039	87	270	252	282	164	96	192	0.0212
Sulforaphane	3	189	293	141	204	214	174	0.006
Diphenyleiodonium chloride (DPI)	123	189	304	281	131	135	194	0.0243
Setanaxib (GKT137831)	175	265	283	161	76	30	165	0.003
NCT-501	207	233	222	241	260	167	222	0.1215
Daidzin	148	159	209	234	67	123	157	0.0014
Disulfiram	54	199	287	228	132	184	181	0.0099
SBI-0206965	269	213	231	235	72	67	181	0.0102
MRT68921 HCl	163	141	237	166	137	11	143	0.0004
Rotenone (Barbasco)	0	205	154	68	126	135	115	<0.0001
Autophinib	45	127	198	81	230	106	131	0.0001
Olaparib (AZD2281)	39	136	323	253	92	79	154	0.0011
Veliparib (ABT-888)	63	141	320	273	157	146	183	0.0118
Rucaparib (AG-014699) phosphate	298	312	330	280	250	77	258	0.5277
Iniparib (BSI-201)	90	245	245	213	274	100	195	0.0258
2-Methoxyestradiol (2-MeOE2)	187	304	307	241	288	133	244	0.3183
Tanespimycin (17-AAG)	81	241	193	118	93	266	166	0.003
KC7F2	126	83	247	222	137	115	155	0.0012
LW 6	145	180	227	310	32	59	159	0.0017
Deferoxamine mesylate	127	148	289	193	200	118	180	0.0089
Sodium dichloroacetate (DCA)	120	152	241	274	126	88	167	0.0034
Daprodustat (GSK1278863)	19	141	60	193	178	62	109	<0.0001
BAY 87-2243	140	159	271	263	167	66	178	0.0078
Molidustat (BAY 85-3934)	107	148	272	233	77	200	173	0.0054
PX-478 2HCl	91	122	250	206	165	77	152	0.001
SYP-5	224	195	185	297	85	157	191	0.0195
MG-132	0	14	255	148	7	6	72	<0.0001

Carfilzomib (PR-171)	1	186	126	180	10	0	84	<0.0001
Ixazomib Citrate (MLN9708)	2	5	151	52	13	0	37	<0.0001
Ixazomib (MLN2238)	19	49	170	140	13	0	65	<0.0001
Selumetinib (AZD6244)	24	142	206	209	116	29	121	<0.0001
Resibufogenin	31	178	322	208	92	107	157	0.0014
Mirdametinib (PD0325901)	64	77	245	300	56	86	138	0.0003
PD184352 (CI-1040)	240	245	239	265	172	172	222	0.1254
Binimetinib (MEK162)	93	131	238	150	142	39	132	0.0001
Trametinib (GSK1120212)	150	156	261	149	170	90	163	0.0024
Losmapimod (GW856553X)	7	211	252	326	198	101	183	0.0112
VX-702	146	216	305	315	183	118	214	0.0812
Doramapimod (BIRB 796)	91	250	248	263	213	94	194	0.0236
TAK-715	192	208	245	279	140	195	210	0.0643
Ralimetinib dimesylate (+)-JQ1	155	245	261	269	107	140	196	0.0284
(E/Z)-BCI	182	193	221	319	280	183	230	0.1775
Molibresib (I-BET-762)	153	239	344	274	117	137	211	0.0683
Birabresib (OTX015)	5	237	276	374	243	111	208	0.0578
BI 2536	0	280	250	370	137	221	210	0.0643
I-BET151 (GSK1210151A)	195	300	308	252	185	83	221	0.1144
Entinostat (MS-275)	306	326	359	372	162	243	295	0.767
Panobinostat (LBH589)	287	172	195	284	243	57	206	0.0525
Mocetinostat (MGCD0103)	291	261	214	377	269	46	243	0.3142
SB 431542	202	193	178	289	92	128	181	0.0096
Vactosertib	135	180	260	327	159	72	189	0.0172
Isoxazole 9 (ISX-9)	148	40	272	178	116	109	144	0.0005
Acetylcysteine (N-acetylcysteine)	62	21	293	363	104	78	154	0.0011
PD0166285	183	244	156	133	133	173	171	0.0045
Adavosertib (MK-1775)	293	258	377	415	263	124	288	0.8916
Propranolol HCl	17	56	247	283	0	71	112	<0.0001
Timolol Maleate	148	120	323	167	200	54	169	0.0039
Levobetaxolol HCl	157	132	424	293	234	37	213	0.0759
YM155 (Sepantronium Bromide)	18	122	234	121	57	74	104	<0.0001
Flavokawain A	0	1	61	66	61	34	37	<0.0001
XMU-MP-1	85	143	305	482	42	132	198	0.0324
Verteporfin	46	59	409	299	22	151	165	0.0028
	115	154	142	186	256	210	177	0.0075

LY2090314	74	94	128	107	14	113	88	<0.0001
CM10	245	181	128	284	85	1	154	0.0012
BIO	219	90	141	321	269	201	207	0.0543
TWS119	28	43	37	289	198	54	108	<0.0001
Palbociclib (PD-0332991) HCl	216	156	356	331	183	164	235	0.2207
Ribociclib (LEE011)	124	137	332	422	166	151	222	0.124
Abemaciclib	233	208	286	266	251	61	218	0.0972
Navitoclax (ABT-263)	1	14	205	289	185	131	138	0.0003
Venetoclax (ABT-199)	61	267	341	415	96	208	231	0.1908
ABT-737	332	365	400	328	230	97	292	0.8139
Gefitinib	99	100	269	296	84	172	170	0.0044
NPS-2143	107	103	316	286	196	100	185	0.0134
Chloroquine	243	88	326	188	131	117	182	0.011
Bafilomycin A1 (Baf-A1)	70	204	176	299	233	138	187	0.0148
Bardoxolone Methyl	1	130	309	271	181	140	172	0.0051
CombretastatinA4	67	83	79	130	163	176	117	<0.0001
Patupilone(Epothilone B)	3	38	18	14	55	30	27	<0.0001
PF-00562271Besylate	0	37	200	29	29	2	50	<0.0001
Defactinib(VS-6063)	124	63	292	384	83	166	186	0.0139
PND-1186(VS-4718)	181	193	304	380	105	128	215	0.0875
Cilengitide	169	211	161	236	83	121	164	0.0026
SB273005	171	187	309	452	59	72	208	0.0593
ATN-161(Ac-PHSCN-NH2)	124	171	144	109	78	87	119	<0.0001
A-205804	136	143	137	159	46	175	133	0.0002
Saracatinib(AZD0530)	18	88	133	254	10	35	90	<0.0001
TPCA-1	39	102	315	398	144	93	182	0.0107
KX2-391(Tirbanibulin)	70	65	81	102	80	78	79	<0.0001
Dasatinib(BMS-354825)	0	0	13	5	2	0	3	<0.0001
ML-7 HCl	189	213	198	303	34	126	177	0.0075
Fasudil(HA-1077) HCl	225	214	218	334	1	158	192	0.0213
Mdivi-1	186	193	194	204	195	159	189	0.017
Mitochondrial Fusion Promoter M1	164	180	250	213	98	30	156	0.0013
Leflunomide	99	169	301	271	33	100	162	0.0023
CCCP	40	1	305	142	117	0	101	<0.0001
Tiplaxtinin	29	178	329	198	196	170	184	0.0121
Dynasore	217	252	373	325	120	33	220	0.112
QNZ	30	212	395	233	32	187	182	0.0105
Danirixin(GSK1325756)	196	150	220	279	21	114	163	0.0025
Aprepitant(MK-0869)	165	196	255	227	142	11	166	0.0032
WZ811	163	154	270	231	132	147	183	0.0114

Plerixafor(AMD3100)	161	205	330	211	110	35	176	0.0066
Linifanib(ABT-869)	191	169	192	196	121	211	180	0.0093
Pexidartinib(PLX3397)	133	115	191	245	207	74	161	0.0021
EHT1864-2HCl	39	92	140	339	40	196	141	0.0003
MBQ-167	71	156	201	317	91	38	146	0.0005
Rhosin hydrochloride	129	71	250	304	201	48	167	0.0035
R243	47	138	183	269	44	99	130	0.0001
Betulinic acid	167	94	333	222	47	87	158	0.0017
Cenicriviroc(TAK-652)	138	44	256	400	13	164	169	0.004
Ispinesib (SB-715992)	65	150	226	278	172	135	171	0.0047
SB743921 HCl	47	36	195	427	167	58	155	0.0012
Reparixin (Repertaxin)	105	74	254	215	182	82	152	0.0009
Azaindole 1 (TC-S 7001)	120	115	264	97	76	184	143	0.0004
GSK429286A	141	83	186	133	37	238	136	0.0002
FRAX597	59	130	276	193	221	115	166	0.0031
PF-3758309	5	1	81	33	102	165	65	<0.0001
Capmatinib (INCB28060)	8	173	262	213	96	190	157	0.0015
LGK-974	261	167	106	259	180	43	170	0.0041
Phenoxodiol (Hagin E)	99	79	440	295	119	183	203	0.042
PACAP 1-38	116	99	128	199	52	107	117	<0.0001
Pitstop 2	29	95	290	194	3	105	120	<0.0001
Alisertib (MLN8237)	14	0	268	105	207	99	116	<0.0001
Tozasertib (VX-680, MK-0457)	108	174	240	159	68	109	143	0.0004
Plinabulin(NPI-2358)	180	190	261	193	109	131	178	0.0077
Lexibulin(CYT997)	84	104	208	235	66	79	129	0.0001
IKE	0	0	161	193	99	243	116	<0.0001
RSL3	2	0	0	4	5	7	3	<0.0001
FINO2	231	28	83	131	108	123	118	<0.0001
ML162	83	118	96	118	99	183	117	<0.0001
ML210	111	128	171	122	232	193	160	0.0018
Dasatinib	79	72	98	122	130	193	116	<0.0001
M2I-1	113	128	155	131	97	122	124	<0.0001
CUDC-101	78	128	379	280	215	252	222	0.1229
Belinostat	245	278	345	285	198	186	256	0.5004
Neratinib	26	27	20	24	33	31	27	<0.0001
Quercitrin	101	122	360	136	143	122	164	0.0026
Fisetin	0	5	6	10	12	11	7	<0.0001
Procyanidin C1	160	173	162	148	88	107	140	0.0003
CAY10603	329	343	368	338	171	180	288	0.8941
Tubastatin A	163	213	365	298	91	115	208	0.0564
Thiostrepton	3	5	7	5	7	10	6	<0.0001
BI-6727	195	258	450	239	188	201	255	0.4839

Apcin 67 75 87 105 74 83 82 <0.0001

Table S5. Screening inhibition of cell growth by compounds

Treatment	# of Cells			Mean	P Value
	SUM 149	SUM159	MDA-MB 231		
Control	3099	4948	5962	4670	
Actinomycin D	39	375	411	275	<0.0001
Pirfenidone	2131	4257	3268	3219	0.1045
Tamoxifen	2201	3866	3699	3255	0.1136
Valrubicin	743	1853	1254	1283	0.0002
Vorinostat (SAHA)	265	807	687	586.3	<0.0001
Erlotinib	2087	4634	5963	4228	0.6206
Exemestane	2563	5034	5715	4437	0.7946
Ixabepilone	192	303	513	336	<0.0001
Lapatinib	2200	4326	5320	3949	0.4192
Paclitaxel	401	378	897	558.7	<0.0001
Bortezomib (PS-341)	18	39	195	84	<0.0001
Romidepsin	90	121	127	112.7	<0.0001
Vinorelbine (tartrate)	270	287	167	241.3	<0.0001
Cabazitaxel	381	286	473	380	<0.0001
Pazopanib	2324	4560	4377	3754	0.3049
SN-38	625	375	695	565	<0.0001
Afatinib	1523	3770	2019	2437	0.0127
Cisplatin	1247	2920	2793	2320	0.0088
5-Fluorouracil	1870	3989	6086	3982	0.4408
Digoxin	255	263	616	378	<0.0001
Docetaxel	151	205	355	237	<0.0001
Fulvestrant	1921	2736	2966	2541	0.0175
Galunisertib	1928	4268	3056	3084	0.0762
Gemcitabine	605	577	748	643.3	<0.0001
Talazoparib (BMN 673)	1204	1979	1608	1597	0.0006
BI-D1870	3383	4505	6530	4806	0.8785
GSK2795039	3105	5040	5330	4492	0.8419
Sulforaphane	2972	4934	5435	4447	0.8029
Diphenyleneiodonium chloride (DPI)	1679	2077	3131	2296	0.0081
Setanaxib (GKT137831)	3250	5112	6382	4915	0.7836
NCT-501	3247	5021	6322	4863	0.8282

Daidzin	3231	4315	4561	4036	0.4775
Disulfiram	1859	3648	3306	2938	0.0529
SBI-0206965	1984	4905	5471	4120	0.5379
MRT68921 HCl	2254	5987	645	2962	0.0563
Rotenone (Barbasco)	2192	4425	4131	3583	0.2236
Autophinib	2735	4328	4143	3735	0.2954
Olaparib (AZD2281)	2871	4647	5436	4318	0.6935
Veliparib (ABT-888)	2226	4510	4281	3672	0.2641
Rucaparib (AG- 014699) phosphate	2800	5560	5751	4704	0.9696
Iniparib (BSI-201)	2670	5886	5649	4735	0.9416
2-Methoxyestradiol (2-MeOE2)	441	430	621	497.3	<0.0001
Tanespimycin (17- AAG)	590	523	1073	728.7	<0.0001
KC7F2	2983	3737	4345	3688	0.2718
LW 6	3256	4307	5955	4506	0.8545
Deferoxamine mesylate	3110	4112	4207	3810	0.3354
Sodium dichloroacetate (DCA)	2787	5420	6190	4799	0.8847
Daprodustat (GSK1278863)	3284	4467	6379	4710	0.9639
BAY 87-2243	2694	3930	5997	4207	0.6041
Molidustat (BAY 85- 3934)	3017	4130	5912	4353	0.7227
PX-478 2HCl	3113	4003	5137	4084	0.5119
SYP-5	4332	5318	3513	4388	0.752
MG-132	127	131	102	120	<0.0001
Carfilzomib (PR-171)	67	114	107	96	<0.0001
Ixazomib Citrate (MLN9708)	40	33	135	69.33	<0.0001
Ixazomib (MLN2238)	154	41	160	118.3	<0.0001
Selumetinib (AZD6244)	1832	2641	5580	3351	0.14
Resibufogenin	2163	2955	5885	3668	0.2618
Mirdametinib (PD0325901)	1220	2305	2901	2142	0.0049
PD184352 (CI-1040)	2710	4776	5936	4474	0.8264
Binimetinib (MEK162)	1733	2965	4899	3199	0.0999
Trametinib (GSK1120212)	1095	2453	3789	2446	0.0131
Losmapimod	2766	5736	5848		

(GW856553X)				4783	0.8986
VX-702	2684	5797	6074	4852	0.8384
Doramapimod (BIRB 796)	2721	5648	5486	4618	0.9541
TAK-715	2682	5920	4992	4531	0.8768
Ralimetinib dimesylate	2202	4917	4096	3738	0.2969
(+)-JQ1	1096	1251	2016	1454	0.0004
(E/Z)-BCI	2791	5433	5278	4501	0.8498
Molibresib (I-BET-762)	1432	2621	4066	2706	0.0283
Birabresib (OTX015)	1390	1809	3558	2252	0.007
BI 2536	384	510	632	508.7	<0.0001
I-BET151 (GSK1210151A)	1388	2518	4577	2828	0.0396
Entinostat (MS-275)	423	1330	4727	2160	0.0052
Panobinostat (LBH589)	164	578	476	406	<0.0001
Mocetinostat (MGCD0103)	1441	1845	3859	2382	0.0107
SB 431542	2923	6308	5914	5048	0.6713
Vactosertib	2809	6647	5746	5067	0.6558
Isoxazole 9 (ISX-9)	2651	6046	5187	4628	0.9628
Acetylcysteine (N-acetylcysteine)	2728	5970	6302	5000	0.7112
PD0166285	323	711	272	435.3	<0.0001
Adavosertib (MK-1775)	973	896	314	727.7	<0.0001
Propranolol HCl	2630	5844	5847	4774	0.9072
Timolol Maleate	2827	6693	5516	5012	0.7012
Levobetaxolol HCl	2676	5864	5337	4626	0.9607
YM155 (Sepantronium Bromide)	4	347	647	332.7	<0.0001
Flavokawain A	2670	6854	4829	4784	0.8977
XMU-MP-1	1021	3765	3943	2910	0.0492
Verteporfin	2678	6670	4818	4722	0.9532
LY2090314	730	2985	4356	2690	0.0271
CM10	4444	4890	3802	4379	0.7443
BIO	2310	5347	4933	4197	0.5961
TWS119	2195	6025	6173	4798	0.8859
Palbociclib (PD-0332991) HCl	1422	1806	1774	1667	0.0008
Ribociclib (LEE011)	1374	2238	2178	1930	0.0023

Abemaciclib	1005	1201	775	993.7	<0.0001
Navitoclax (ABT-263)	1820	5463	4346	3876	0.3742
Venetoclax (ABT-199)	2024	4962	4007	3664	0.2603
ABT-737	1654	4185	2813	2884	0.046
Gefitinib	1942	3838	3176	2985	0.0597
NPS-2143	2173	4216	3219	3203	0.1008
Chloroquine	3637	3987	2559	3394	0.1535
Bafilomycin A1 (Baf-A1)	2320	1986	1938	2081	0.0039
Bardoxolone Methyl	70	173	867	370	<0.0001
CombretastatinA4	309	231	361	300.3	<0.0001
Patupilone(Epothilon eB)	425	236	788	483	<0.0001
PF-00562271Besylate	3915	153	1989	2019	0.0032
Defactinib(VS-6063)	4594	4673	3200	4156	0.5646
PND-1186(VS-4718)	3278	3728	4229	3745	0.3004
Cilengitide	3675	3277	3223	3392	0.1526
SB273005	2263	410	1231	1301	0.0002
ATN-161(Ac-PHSCN-NH2)	3783	4865	1116	3255	0.1134
A-205804	4210	4302	3057	3856	0.3623
Saracatinib(AZD0530)	2787	3700	3403	3297	0.1245
TPCA-1	2946	3728	3795	3490	0.1865
KX2-391(Tirbanibulin)	351	267	392	336.7	<0.0001
Dasatinib(BMS-354825)	946	1997	1467	1470	0.0004
ML-7 HCl	4615	5257	3533	4468	0.8215
Fasudil(HA-1077) HCl	3921	4118	2497	3512	0.195
Mdivi-1	2633	3976	469	2359	0.01
Mitochondrial Fusion Promoter M1	2506	2650	1045	2067	0.0037
Leflunomide	3435	4084	243	2587	0.0201
CCCP	1130	4797	2732	2886	0.0463
Tiplaxtinin	4315	4419	1687	3474	0.1806
Dynasore	3846	3901	2817	3521	0.1986
QNZ	3317	3451	3676	3481	0.1834
Danirixin(GSK1325756)	3758	5254	5530	4847	0.8422
Aprepitant(MK-0869)	3653	4716	2757	3709	0.2818
WZ811	2977	3900	1302	2726	0.03

Plerixafor(AMD3100)	4068	4264	1542	3291	0.123
Linifanib(ABT-869)	3131	4584	1679	3131	0.0853
Pexidartinib(PLX3397)	4173	4581	1674	3476	0.1815
EHT1864-2HCl	4086	4968	386	3147	0.0885
MBQ-167	344	465	1652	820.3	<0.0001
Rhosin hydrochloride	4621	5056	2494	4057	0.4924
R243	3597	4737	2181	3505	0.1923
Betulinic acid	3305	3683	3968	3652	0.2545
Cenicriviroc(TAK-652)	2467	3320	1523	2437	0.0127
Ispinesib (SB-715992)	399	299	379	359	<0.0001
SB743921 HCl	363	223	464	350	<0.0001
Reparixin (Repertaxin)	3533	4065	1894	3164	0.0922
Azaindole 1 (TC-S7001)	3617	4102	2272	3330	0.1339
GSK429286A	3789	3995	2028	3271	0.1175
FRAX597	3591	4022	2958	3524	0.1995
PF-3758309	812	614	475	633.7	<0.0001
Capmatinib (INCB28060)	3486	3869	3635	3663	0.2598
LGK-974	3001	3929	3388	3439	0.1685
Phenoxodiol (Hagin E)	3150	3031	3677	3286	0.1216
PACAP 1-38	4382	5092	317	3264	0.1157
Pitstop 2	4180	5150	352	3227	0.1066
Alisertib (MLN8237)	922	114	310	448.7	<0.0001
Tozasertib (VX-680, MK-0457)	978	88	177	414.3	<0.0001
Plinabulin(NPI-2358)	3195	3598	2140	2978	0.0586
Lexibulin(CYT997)	247	230	430	302.3	<0.0001
IKE	892	17	516	475	<0.0001
RSL3	0	9	34	14.33	<0.0001
FINO2	0	3	0	1	<0.0001
ML162	1	30	39	23.33	<0.0001
ML210	27	3	580	203.3	<0.0001
Dasatinib	2454.4	1731.6	4221.7	2803	0.037
M2I-1	2467.4	2403.7	6166.79	3679	0.2674
CUDC-101	811.2	858	1670.55	1113	<0.0001
Belinostat	1424.8	1235	1844.08	1501	0.0004
Neratinib	2116.4	1489.8	761.46	1456	0.0004
Quercitrin	3988.4	5486	6653.71	5376	0.4287

Fisetin	821.6	492.7	1447.81	920.7	<0.0001
Procyanidin C1	3003	3152.5	4773.37	3643	0.2503
CAY10603	4063.8	5800.6	6335.14	5400	0.4133
Tubastatin A	3026.4	4404.4	4825.17	4085	0.5126
Thiostrepton	291.2	413.4	484.33	396.3	<0.0001
BI-6727	457.6	486.2	1497.02	813.6	<0.0001
Apcin	3770	1781	5024.6	3525	0.2001

Table S6. The list of migration and growth inhibitors

Inhibitors		
Migration		
Pirfenidone	Defactinib(VS-6063)	Ixabepilone
Tamoxifen	Cilengitide	Paclitaxel
Erlotinib	ATN-161(Ac-PHSCN-NH2)	Bortezomib (PS-341)
Exemestane	A-205804	Romidepsin
Lapatinib	Saracatinib(AZD0530)	Vinorelbine (tartrate)
Pazopanib	TPCA-1	Cabazitaxel
5-Fluorouracil	ML-7 HCl	SN-38
Galunisertib	Fasudil(HA-1077) HCl	Afatinib
BI-D1870	QNZ	Cisplatin
GSK2795039	Danirixin(GSK1325756)	Digoxin
Sulforaphane	Aprepitant(MK-0869)	Docetaxel
Diphenyleneiodonium chloride (DPI)	Plerixafor(AMD3100)	Fulvestrant
Setanaxib (GKT137831)	Linifanib(ABT-869)	Gemcitabine
Daidzin	Pexidartinib(PLX3397)	Talazoparib (BMN 673)
Disulfiram	EHT1864-2HCl	Tanespimycin (17-AAG)
SBI-0206965	Rhosin hydrochloride	MG-132
MRT68921 HCl	R243	Carfilzomib (PR-171)
Rotenone (Barbasco)	Betulinic acid	Ixazomib Citrate (MLN9708)
Autophinib	Reparixin (Repertaxin)	Ixazomib (MLN2238)
Olaparib (AZD2281)	Azaindole 1 (TC-S 7001)	Mirdametinib (PD0325901)
Veliparib (ABT-888)	GSK429286A	Trametinib (GSK1120212)
Apcin	FRAX597	Mocetinostat (MGCD0103)
Iniparib (BSI-201)	Capmatinib (INCB28060)	YM155 (Sepantronium Bromide)
KC7F2	LGK-974	XMU-MP-1
LW 6	Phenoxodiol (Haginin E)	LY2090314
Deferoxamine mesylate	PACAP 1-38	Bafilomycin A1 (Baf-A1)
Sodium dichloroacetate (DCA)	Pitstop 2	Bardoxolone Methyl
Daprodustat (GSK1278863)	Plinabulin(NPI-2358)	CombretastatinA4
	M2I-1	Patupilone(EpothiloneB)

BAY 87-2243	Quercitrin	PF-00562271 Besylate
Molidustat (BAY 85-3934)	Procyanidin C1	KX2-391 (Tirbanibulin)
PX-478 2HCl		Dasatinib (BMS-354825)
SYP-5	Cell Growth	Mdivi-1
Selinmetinib (AZD6244)	Vorinostat (SAHA)	Mitochondrial Fusion
Resibufogenin	2-Methoxyestradiol (2-MeOE2)	Promoter M1
Binimetinib (MEK162)	(+)-JQ1	Leflunomide
Losmapimod (GW856553X)	Molibresib (I-BET-762)	CCCP
Doramapimod (BIRB 796)	Birabresib (OTX015)	WZ811
Ralimetinib dimesylate	BI 2536	MBQ-167
SB 431542	I-BET151 (GSK1210151A)	Cenicriviroc (TAK-652)
Vactosertib	Entinostat (MS-275)	Ispinesib (SB-715992)
Isoxazole 9 (ISX-9)	Panobinostat (LBH589)	SB743921 HCl
Acetylcysteine (N-acetylcysteine)	PD0166285	PF-3758309
Adavosertib (MK-1775)	Palbociclib (PD-0332991) HCl	Alisertib (MLN8237)
Propranolol HCl	Ribociclib (LEE011)	Tozasertib (VX-680, MK-0457)
Levobetaxolol HCl	Abemaciclib	Lexibulin (CYT997)
Flavokawain A	ABT-737	IKE
Verteporfin	SB273005	RSL3
CM10	CUDC-101	FINO2
TWS119	Belinostat	ML162
Navitoclax (ABT-263)	BI-6727	ML210
Gefitinib	Both	Dasatinib
NPS-2143	Actinomycin D	Neratinib
Chloroquine	Valrubicin	Fisetin
		Thiostrepton

Table S7. Inhibition of motility of the top 5% fast-moving cells by compounds (μm)

Treatment	# of Cells						Mean	P Value
	SUM 149	SUM159	MDA-MB 231					
Control	778	778	728	728	581	581	696	
Actinomycin D	89	121	468	474	198	229	263	<0.0001
Pirfenidone	567	650	551	553	312	553	531	0.036
Tamoxifen	693	394	856	557	283	544	555	0.0722
Valrubicin	605	640	560	525	447	348	521	0.0262
Vorinostat (SAHA)	576	581	846	599	691	395	615	0.304
Erlotinib	825	701	698	683	492	287	614	0.3003
Exemestane	729	657	558	530	541	516	589	0.1731
Ixabepilone	87	435	208	273	295	174	246	<0.0001
Lapatinib	637	757	507	526	462	101	499	0.0121

Paclitaxel	65	413	379	230	189	312	265	<0.0001
Bortezomib (PS-341)	577	641	605	579	453	400	543	0.0505
Romidepsin	296	267	571	527	709	652	504	0.0146
Vinorelbine (tartrate)	685	193	815	523	139	575	488	0.0083
Cabazitaxel	264	387	388	330	226	159	293	<0.0001
Pazopanib	682	635	780	624	603	332	610	0.2723
SN-38	293	332	418	338	361	107	308	<0.0001
Afatinib	531	397	501	406	495	532	477	0.0054
Cisplatin	742	620	533	549	391	347	530	0.0352
5-Fluorouracil	700	776	567	626	364	570	601	0.2274
Digoxin	50	33	78	70	9	62	50	<0.0001
Docetaxel	220	181	639	299	139	180	276	<0.0001
Fulvestrant	640	269	614	640	691	672	588	0.1694
Galunisertib	123	122	500	526	332	304	318	<0.0001
Gemcitabine	512	341	423	397	388	250	386	<0.0001
Talazoparib (BMN 673)	477	527	736	602	637	428	568	0.1037
BI-D1870	626	628	804	703	204	500	578	0.1325
GSK2795039	460	689	690	668	373	468	558	0.0796
Sulforaphane	64	566	734	567	103	356	399	0.0002
Diphenyleneiodonium chloride (DPI)	809	532	785	675	591	71	577	0.1315
Setanaxib (GKT137831)	822	717	740	532	497	227	589	0.1755
NCT-501	649	583	620	603	586	580	604	0.2408
Daidzin	716	580	718	642	587	569	636	0.4456
Disulfiram	399	707	683	683	650	638	627	0.3822
SBI-0206965	770	612	661	624	603	564	639	0.4704
MRT68921 HCl	728	587	701	637	429	172	542	0.0508
Rotenone (Barbasco)	15	741	616	326	529	477	451	0.0018
Autophinib	420	531	587	344	121	567	429	0.0007
Olaparib (AZD2281)	365	557	725	694	507	514	561	0.0851
Veliparib (ABT-888)	538	570	810	591	591	549	608	0.2663
Rucaparib (AG-014699) phosphate	205	228	158	202	134	374	217	<0.0001
Iniparib (BSI-201)	731	781	556	627	516	372	597	0.2101
2-Methoxyestradiol (2-MeOE2)	853	759	734	608	152	527	606	0.2521
Tanespimycin (17-AAG)	555	734	581	463	467	454	543	0.051
KC7F2	602	464	624	592	555	494	555	0.0736
LW 6	616	637	774	780	446	280	589	0.1749
Deferoxamine mesylate	635	644	543	531	518	640	585	0.1599
Sodium dichloroacetate (DCA)	727	639	681	650	636	502	639	0.4723
Daprodustat (GSK1278863)	218	252	577	494	605	487	439	0.0011
BAY 87-2243	649	562	682	503	536	531	577	0.1315
Molidustat (BAY 85-	516	527	808	664	611	524	609	0.2675

3934)								
PX-478 2HCl	444	463	536	529	510	432	486	0.0076
SYP-5	596	637	570	557	448	431	540	0.0471
MG-132	269	233	772	540	153	81	342	<0.0001
Carfilzomib (PR-171)	48	52	559	481	97	13	208	<0.0001
Ixazomib Citrate (MLN9708)	57	108	465	428	156	14	205	<0.0001
Ixazomib (MLN2238)	302	271	697	455	148	8	314	<0.0001
Selumetinib (AZD6244)	243	267	598	487	298	185	347	<0.0001
Resibufogenin	313	709	739	615	484	442	550	0.0642
Mirdametinib (PD0325901)	327	343	609	555	399	317	425	0.0006
PD184352 (CI-1040)	674	642	626	540	548	475	585	0.1569
Binimetinib (MEK162)	482	537	540	479	388	284	452	0.0019
Trametinib (GSK1120212)	579	508	601	579	518	470	543	0.0511
Losmapimod (GW856553X)	164	703	683	607	574	416	525	0.0295
VX-702	591	726	743	627	576	463	621	0.3432
Doramapimod (BIRB 796)	456	760	711	560	638	375	584	0.1537
TAK-715	655	597	686	578	525	514	593	0.1902
Ralimetinib dimesylate	569	748	618	594	543	526	600	0.2226
(+)-JQ1	649	596	722	576	652	551	625	0.3655
(E/Z)-BCI	726	739	754	688	571	528	668	0.7224
Molibresib (I-BET-762)	116	705	733	641	617	607	570	0.1093
Birabresib (OTX015)	5	783	815	651	643	606	584	0.1545
BI 2536	715	819	709	596	524	433	633	0.4256
I-BET151 (GSK1210151A)	756	661	785	651	807	650	718	0.7687
Entinostat (MS-275)	731	674	645	596	638	397	614	0.2973
Panobinostat (LBH589)	726	642	664	627	651	328	607	0.2567
Mocetinostat (MGCD0103)	571	523	625	549	527	473	545	0.0548
SB 431542	605	600	689	643	454	378	562	0.0883
Vactosertib	724	440	658	575	454	407	543	0.0522
Isoxazole 9 (ISX-9)	619	301	695	678	425	334	509	0.0174
Acetylcysteine (N- acetylcysteine)	781	669	548	533	483	380	566	0.0978
PD0166285	650	656	798	679	609	514	651	0.5713
Adavosertib (MK-1775)	339	653	756	657	567	389	561	0.0851
Propranolol HCl	713	687	653	423	516	307	550	0.0638
Timolol Maleate	780	583	819	655	535	211	598	0.2112
Levobetaxolol HCl	247	267	705	583	287	497	431	0.0008
YM155 (Sepantronium Bromide)	0	46	271	297	295	157	178	<0.0001

Flavokawain A	643	677	635	850	287	457	592	0.1858
XMU-MP-1	490	583	779	588	265	485	532	0.0367
Verteporfin	109	92	122	109	132	136	117	<0.0001
LY2090314	634	579	361	293	167	391	404	0.0002
CM10	754	649	512	742	361	5	504	0.0146
BIO	734	421	554	665	651	480	584	0.1563
TWS119	363	532	249	585	548	300	430	0.0007
Palbociclib (PD-0332991) HCl	676	625	753	642	579	534	635	0.4411
Ribociclib (LEE011)	613	592	562	804	605	426	601	0.226
Abemaciclib	603	616	563	584	606	430	567	0.1001
Navitoclax (ABT-263)	46	296	648	586	430	472	413	0.0003
Venetoclax (ABT-199)	594	579	601	797	675	518	628	0.3859
ABT-737	642	635	837	666	524	447	625	0.3711
Gefitinib	563	416	561	759	411	422	522	0.0271
NPS-2143	734	668	610	699	458	529	617	0.3135
Chloroquine	756	499	770	687	365	549	604	0.2452
Bafilomycin A1 (Baf-A1)	574	588	611	787	828	512	651	0.5661
Bardoxolone Methyl	560	576	709	568	463	528	568	0.1024
CombretastatinA4	513	533	630	633	85	97	415	0.0004
Patupilone(EpothiloneB)	265	369	136	182	323	230	251	<0.0001
PF-00562271Besylate	213	243	306	271	182	61	213	<0.0001
Defactinib(VS-6063)	677	412	676	867	380	393	568	0.1033
PND-1186(VS-4718)	675	579	663	832	339	267	559	0.0825
Cilengitide	668	660	659	663	349	293	549	0.0612
SB273005	663	637	677	856	388	343	594	0.1958
ATN-161(Ac-PHSCN-NH2)	638	524	566	586	377	343	506	0.0157
A-205804	560	556	568	588	390	556	537	0.0428
Saracatinib(AZD0530)	300	637	532	647	143	254	419	0.0004
TPCA-1	380	653	673	850	410	455	570	0.11
KX2-391(Tirbanibulin)	410	449	334	486	642	344	444	0.0014
Dasatinib(BMS-354825)	7	29	156	117	103	72	81	<0.0001
ML-7 HCl	646	634	612	650	260	449	542	0.0499
Fasudil(HA-1077) HCl	648	727	648	707	30	510	545	0.0551
Mdivi-1	612	592	479	642	620	440	564	0.0942
Mitochondrial Fusion Promoter M1	655	638	744	707	388	347	580	0.1409
Leflunomide	512	625	724	642	325	318	525	0.0293
CCCP	161	27	415	364	332	6	218	<0.0001
Tiplaxtinin	429	624	718	651	654	453	588	0.1711
Dynasore	729	663	846	638	412	284	596	0.2024
QNZ	456	468	843	607	295	518	531	0.0363
Danirixin(GSK1325756)	633	620	655	616	211	354	515	0.0214
Aprepitant(MK-0869)	696	645	727	531	167	161	488	0.0082

WZ811	642	659	676	578	384	423	561	0.0851
Plerixafor(AMD3100)	629	725	760	560	322	273	545	0.0547
Linifanib(ABT-869)	686	586	732	450	367	535	560	0.0832
Pexidartinib(PLX3397)	748	691	662	619	412	345	580	0.1392
EHT1864-2HCl	460	658	575	657	269	474	516	0.022
MBQ-167	544	663	652	703	500	278	557	0.0768
Rhosin hydrochloride	769	560	694	610	555	286	579	0.1384
R243	392	378	568	602	310	473	454	0.0021
Betulinic acid	703	553	631	592	297	397	529	0.0339
Cenicriviroc(TAK-652)	679	329	618	770	204	450	508	0.0171
Ispinesib (SB-715992)	681	642	681	859	518	625	668	0.7256
SB743921 HCl	582	366	662	865	506	303	548	0.0594
Reparixin (Repertaxin)	632	514	644	696	92	421	500	0.0127
Azaindole 1 (TC-S 7001)	602	643	695	465	466	486	560	0.0836
GSK429286A	744	652	588	579	313	332	535	0.0405
FRAX597	522	670	638	653	531	521	589	0.1749
PF-3758309	87	28	403	584	337	390	305	<0.0001
Capmatinib (INCB28060)	143	660	586	546	425	550	485	0.0073
LGK-974	720	661	542	649	447	342	560	0.0844
Phenoxodiol (Haginin E)	557	551	872	634	594	518	621	0.3436
PACAP 1-38	595	620	483	634	622	560	586	0.1625
Pitstop 2	386	340	694	594	559	395	495	0.0105
Alisertib (MLN8237)	227	3	807	416	631	468	426	0.0006
Tozasertib (VX-680, MK-0457)	599	588	642	512	341	351	506	0.0155
Plinabulin(NPI-2358)	665	638	586	606	408	391	549	0.0621
Lexibulin(CYT997)	535	520	639	672	388	338	516	0.0219
IKE	0	6	33	26	52	85	34	<0.0001
RSL3	37	3	0	5	5	256	51	<0.0001
FINO2	800	324	224	252	620	588	468	0.0038
ML162	7	0	0	9	539	381	156	<0.0001
ML210	670	8	591	586	531	521	485	0.0072
Dasatinib	222	267	423	404	526	487	388	<0.0001
M2I-1	607	614	726	663	462	427	583	0.1512
CUDC-101	585	558	701	663	752	681	657	0.6198
Belinostat	707	637	683	677	687	637	672	0.7582
Neratinib	208	198	252	221	319	326	254	<0.0001
Quercitrin	491	468	727	702	559	527	579	0.1377
Fisetin	0	13	22	31	111	105	47	<0.0001
Procyanidin C1	696	663	663	637	490	461	602	0.2319
CAY10603	743	700	718	651	552	530	649	0.554
Tubastatin A	683	651	688	651	425	436	589	0.1745
Thiostrepton	66	73	81	83	123	136	94	<0.0001
BI-6727	707	651	705	651	663	637	669	0.738

Table S8. The compounds that inhibited the mean cell migration and that of fast-moving cells

Migration Inhibitors		
Mean Migration		
	Linifanib(ABT-869)	YM155 (Sepantronium Bromide)
Bortezomib (PS-341)	Pexidartinib(PLX3397)	Isoxazole 9 (ISX-9)
Tamoxifen	Rhosin hydrochloride	LY2090314
Erlotinib	Azaindole 1 (TC-S 7001)	Levobetaxolol HCl
Exemestane	Mdivi-1	Verteporfin
Pazopanib	Mitochondrial Fusion Promoter M1	CM10
5-Fluorouracil	WZ811	TWS119
BI-D1870	FRAX597	Navitoclax (ABT-263)
GSK2795039	LGK-974	Gefitinib
Diphenyleneiodonium chloride (DPI)	Phenoxodiol (Hagin E)	CombretastatinA4
Setanaxib (GKT137831)	PACAP 1-38	Patupilone(EpothiloneB)
Daidzin	Plinabulin(NPI-2358)	PF-00562271Besylate
Disulfiram	M2I-1	ATN-161(Ac-PHSCN-NH2)
SBI-0206965	Quercitrin	A-205804
MRT68921 HCl	Procyanidin C1	Saracatinib(AZD0530)
Olaparib (AZD2281)	Top Fast-moving Migration	ML-7 HCl
Veliparib (ABT-888)	Rucaparib (AG-014699) phosphate	QNZ
Iniparib (BSI-201)	Both	Danirixin(GSK1325756)
KC7F2	Pirfenidone	Aprepitant(MK-0869)
LW 6	Actinomycin D	KX2-391(Tirbanibulin)
Deferoxamine mesylate	Valrubicin	Dasatinib(BMS-354825)
Sodium dichloroacetate (DCA)	Ixabepilone	EHT1864-2HCl
BAY 87-2243	Lapatinib	R243
Molidustat (BAY 85-3934)	Paclitaxel	Betulinic acid
Afatinib	Romidepsin	Reparixin (Repertaxin)
Fulvestrant	Galunisertib	GSK429286A
Talazoparib (BMN 673)	Vinorelbine (tartrate)	MBQ-167
Tanespimycin (17-AAG)	Cabazitaxel	Capmatinib (INCB28060)
Resibufogenin	Sulforaphane	Leflunomide
Doramapimod (BIRB 796)	SN-38	CCCP
Trametinib (GSK1120212)	Cisplatin	Pitstop 2
Ralimetinib dimesylate	Digoxin	Cenicriviroc(TAK-652)
SB 431542	Docetaxel	PF-3758309
Vactosertib	Gemcitabine	Apcin

Acetylcysteine (N-acetylcysteine)	Rotenone (Barbasco)	Cenicriviroc(TAK-652)
Adavosertib (MK-1775)	Autophinib	PF-3758309
Propranolol HCl	Daprodustat (GSK1278863)	Tozasertib (VX-680, MK-0457)
Mocetinostat (MGCD0103)	PX-478 2HCl	Alisertib (MLN8237)
Flavokawain A	SYP-5	Lexibulin(CYT997)
NPS-2143	Selumetinib (AZD6244)	IKE
Chloroquine	Binimetinib (MEK162)	RSL3
Bafilomycin A1 (Baf-A1)	Losmapimod (GW856553X)	FINO2
Bardoxolone Methyl	MG-132	ML162
Defactinib(VS-6063)	Carfilzomib (PR-171)	ML210
Cilengitide	Ixazomib Citrate (MLN9708)	Dasatinib
TPCA-1	Ixazomib (MLN2238)	Neratinib
Fasudil(HA-1077) HCl	Mirdametininib (PD0325901)	Fisetin
Plerixafor(AMD3100)	XMU-MP-1	Thiostrepton

Table S9. Statistical results of filopodia numbers

Treatment	N=4				Mean	P Value
Control	73	81	84	90	82	
Abemaciclib	90	81	89	70	82.5	ns
Danirixin	3	6	7	4	5	<0.0001
Bortezomib	30	2	4	16	13	<0.0001

Supplementary Video S1. Robotic operation of a cell migration device. The step 1 is 2 times faster than the real time, and the step 2 is 3 times faster than the real time