Supplementary data

1,3,4-Oxadiazole/chalcone hybrids: Design, synthesis, and inhibition of leukemia cell growth and EGFR, Src, IL-6 and STAT3 activities

Marwa Ali A. Fathi^{a,¶}, Amer Ali Abd El-Hafeez^{b,c,d,¶,*}, Dalia Abdelhamid^a, Samar H. Abbas^{a, *}, Monica M. Montano^d, Mohamed Abdel-Aziz^a

^aMedicinal Chemistry Department, Faculty of Pharmacy, Minia University, Minia 61519, Egypt.

^bPharmacology and Experimental Oncology Unit, Cancer Biology Department, National

Cancer Institute, Cairo University, Cairo, 11796, Egypt.

^cPharmacotherapy Department, Graduate School of Biomedical and Health Sciences,

Hiroshima University, Hiroshima 734-8553, Japan,

^dPharmacology Department, Case Western Reserve University School of Medicine, 10900

Euclid Avenue, Cleveland, Ohio 44106, USA.

List of Figures			
Fig.		Page	
No		No.	
1	¹ H NMR of compound 8a (500 MHz, DMSO- <i>d</i> ₆)	7	
2	¹³ C NMR of compound 8a (125 MHz, DMSO- <i>d</i> ₆)	8	
3	¹ H NMR of compound 8b (500 MHz, DMSO- <i>d</i> ₆)	9	
4	¹³ C NMR of compound 8b (125 MHz, DMSO- <i>d</i> ₆)	10	
5	¹ H NMR of compound 8c (500 MHz, DMSO- <i>d</i> ₆)	11	
6	¹³ C NMR of compound 8c (125 MHz, DMSO- <i>d</i> ₆)	12	
7	¹ H NMR of compound 8d (500 MHz, DMSO- <i>d</i> ₆)	13	
8	¹³ C NMR of compound 8d (125 MHz, DMSO- <i>d</i> ₆)	14	
9	¹ H NMR of compound 8e (500 MHz, DMSO- <i>d</i> ₆)	15	
10	¹³ C NMR of compound 8e (125 MHz, DMSO- <i>d</i> ₆)	16	
11	¹ H NMR of compound 8f (500 MHz, DMSO- <i>d</i> ₆)	17	
12	¹³ C NMR of compound 8f (125 MHz, DMSO- <i>d</i> ₆)	18	
13	¹ H NMR of compound 8g (500 MHz, DMSO- <i>d</i> ₆)	19	
14	¹³ C NMR of compound 8g (125 MHz, DMSO-d ₆)	20	
15	¹ H NMR of compound 8h (500 MHz, DMSO- <i>d</i> ₆)	21	
16	¹³ C NMR of compound 8h (125 MHz, DMSO- <i>d</i> ₆)	22	
17	¹ H NMR of compound 8i (500 MHz, DMSO- <i>d</i> ₆)	23	
18	¹³ C NMR of compound 8i (125 MHz, DMSO- <i>d</i> ₆)	24	
19	¹ H NMR of compound 8j (500 MHz, DMSO- <i>d</i> ₆)	25	
20	¹³ C NMR of compound 8j (125 MHz, DMSO- <i>d</i> ₆)	26	
21	¹ H NMR of compound 8k (500 MHz, DMSO- <i>d</i> ₆)	27	
22	¹³ C NMR of compound 8k (125 MHz, DMSO- <i>d</i> ₆)	28	
23	¹ H NMR of compound 8l (500 MHz, DMSO- <i>d</i> ₆)	29	
24	¹³ C NMR of compound 8l (125 MHz, DMSO- <i>d</i> ₆)	30	
25	¹ H NMR of compound 8m (500 MHz, DMSO- <i>d</i> ₆)	31	
26	¹³ C NMR of compound 8m (125 MHz, DMSO- <i>d</i> ₆)	32	
27	¹ H NMR of compound 8n (500 MHz, DMSO- <i>d</i> ₆)	33	

28	¹³ C NMR of compound 8n (125 MHz, DMSO- <i>d</i> ₆)	34
29	¹ H NMR of compound 80 (500 MHz, DMSO- <i>d</i> ₆)	35
30	¹³ C NMR of compound 80 (125 MHz, DMSO- <i>d</i> ₆)	36
31	¹ H NMR of compound 8p (500 MHz, DMSO- <i>d</i> ₆)	37
32	¹³ C NMR of compound 8p (125 MHz, DMSO- <i>d</i> ₆)	38
33	¹ H NMR of compound 8q (500 MHz, DMSO- <i>d</i> ₆)	39
34	¹³ C NMR of compound 8q (125 MHz, DMSO- <i>d</i> ₆)	40
35	¹ H NMR of compound 8r (500 MHz, DMSO- <i>d</i> ₆)	41
36	¹³ C NMR of compound 8r (125 MHz, DMSO- <i>d</i> ₆)	42
37	¹ H NMR of compound 8s (500 MHz, CDCl ₃)	43
38	¹³ C NMR of compound 8s (125 MHz, CDCl ₃)	44
39	¹ H NMR of compound 8t (500 MHz, DMSO- <i>d</i> ₆)	45
40	¹³ C NMR of compound 8t (125 MHz, DMSO- <i>d</i> ₆)	46
41	¹ H NMR of compound 8u (500 MHz, DMSO- <i>d</i> ₆)	47
42	¹³ C NMR of compound 8u (125 MHz, DMSO- <i>d</i> ₆)	48
43	¹ H NMR of compound 8v (500 MHz, DMSO- <i>d</i> ₆)	49
44	¹³ C NMR of compound 8v (125 MHz, DMSO- <i>d</i> ₆)	50
45	¹ H NMR of compound 8w (500 MHz, DMSO- <i>d</i> ₆)	51
46	¹³ C NMR of compound 8w (125 MHz, DMSO- <i>d</i> ₆)	52
47	¹ H NMR of compound 8x (500 MHz, DMSO- <i>d</i> ₆)	53
48	¹³ C NMR of compound 8x (125 MHz, DMSO- <i>d</i> ₆)	54
49	One dose mean graph of nine different cancer cell line panels for compound 8a	55
50	One dose mean graph of nine different cancer cell line panels for compound 8b	56
51	One dose mean graph of nine different cancer cell line panels for compound 8c	57
52	One dose mean graph of nine different cancer cell line panels for compound 8d	58
53	One dose mean graph of nine different cancer cell line panels for compound 8e	59

54	One dose mean graph of nine different cancer cell line panels for compound 8f	60
55	One dose mean graph of nine different cancer cell line panels for compound 8g	61
56	One dose mean graph of nine different cancer cell line panels for compound 8h	62
57	One dose mean graph of nine different cancer cell line panels for compound 8i	63
58	One dose mean graph of nine different cancer cell line panels for compound 8j	64
59	One dose mean graph of nine different cancer cell line panels for compound 8k	65
60	One dose mean graph of nine different cancer cell line panels for compound 81	66
61	One dose mean graph of nine different cancer cell line panels for compound 8m	67
62	One dose mean graph of nine different cancer cell line panels for compound 8n	68
63	One dose mean graph of nine different cancer cell line panels for compound 80	69
64	One dose mean graph of nine different cancer cell line panels for compound 8p	70
65	One dose mean graph of nine different cancer cell line panels for compound 8q	71
66	One dose mean graph of nine different cancer cell line panels for compound 8r	72
67	One dose mean graph of nine different cancer cell line panels for compound 8s	73
68	One dose mean graph of nine different cancer cell line panels for compound 8t	74
69	One dose mean graph of nine different cancer cell line panels for compound 8u	75
70	One dose mean graph of nine different cancer cell line panels for compound 8v	76
71a	Five dose mean graph of nine different cancer cell line panels for compound 8v	77
71b	Five dose mean graph of nine different cancer cell line panels for compound 8v	78
71c	Five dose mean graph of nine different cancer cell line panels for compound 8v	79
71d	Five dose mean graph of nine different cancer cell line panels for compound 8v	80
72	One dose mean graph of nine different cancer cell line panels for compound 8w	81
73	One dose mean graph of nine different cancer cell line panels for compound 8x	82

74	Chromatogram of compound 8a	83
75	Chromatogram of compound 8e	84
76	Chromatogram of compound 80	85
77	LC-MS spectrum of compound 8a.	86
78	LC-MS spectrum of compound 8n.	87
79	LC-MS spectrum of compound 8v.	88

List of Tables

Table		Page
No.		No.
1	Cell growth inhibition % from the NCI's in vitro human tumor cell screen for compounds 8a-l.	89
2	Cell growth inhibition % from the NCI's in vitro human tumor cell screen	
	for compounds 8m-8x.	87



Fig.1. ¹H NMR of compound 8a (500 MHz, DMSO-*d*₆)



Fig.2. ¹³C NMR of compound 8a (125 MHz, DMSO-*d*₆)



Fig.3. ¹H NMR of compound 8b (500 MHz, DMSO-*d*₆)



Fig.4. ¹³C NMR of compound 8b (125 MHz, DMSO-*d*₆)



Fig.5. ¹H NMR of compound 8c (500 MHz, DMSO-*d*₆)



Fig.6. ¹³C NMR of compound 8c (125 MHz, DMSO-*d*₆)



Fig.7. ¹H NMR of compound 8d(500 MHz, DMSO-d6)



Fig.8. ¹³C NMR of compound 8d (125 MHz, DMSO-*d*₆)



Fig.9. ¹H NMR of compound 8e (500 MHz, DMSO-*d*₆)



Fig.10. ¹³C NMR of compound 8e (125 MHz, DMSO-*d*₆)



Fig.11. ¹H NMR of compound 8f (500 MHz, DMSO-*d*₆)



Fig.12. ¹³C NMR of compound 8f (125 MHz, DMSO-d₆)



Fig.13. ¹H NMR of compound 8g (500 MHz, DMSO-*d*₆)



Fig.14. ¹³C NMR of compound 8g (125 MHz, DMSO-*d*₆)



Fig.15. ¹H NMR of compound 8h (500 MHz, DMSO-*d*₆)



Fig.16. ¹³C NMR of compound 8h (125 MHz, DMSO-*d*₆).



Fig.17. ¹H NMR of compound 8i (500 MHz, DMSO-*d*₆)



Fig.18. ¹³C NMR of compound 8i (125 MHz, DMSO-*d*₆).



Fig.19. ¹H NMR of compound 8j (500 MHz, CDCl₃)



Fig.20. ¹³C NMR of compound 8j (125 MHz, CDCl₃)



Fig.21. ¹H NMR of compound 8k (500 MHz, DMSO-*d*₆)



Fig.22. ¹³C NMR of compound 8k (125 MHz, DMSO-*d*₆)



Fig.23. ¹H NMR of compound 8l (500 MHz, DMSO-*d*₆)



Fig.24. ¹³C NMR of compound 8l (125 MHz, DMSO-*d*₆)



Fig.25. ¹H NMR of compound 8m (500 MHz, DMSO-*d*₆).



Fig.26. ¹³C NMR of compound 8m (125 MHz, DMSO-*d*₆).



Fig.27. ¹H NMR of compound 8n (500 MHz, DMSO-*d*₆).



Fig.28. ¹³C NMR of compound 8n (125 MHz, DMSO-*d*₆)



Fig.29. ¹H NMR of compound 80 (500 MHz, DMSO-*d*₆).



Fig.30. ¹³C NMR of compound 80 (125 MHz, DMSO-*d*₆)


Fig.31. ¹H NMR of compound 8p (500 MHz, DMSO-*d*₆)



Fig.32. ¹³C NMR of compound 8p (125 MHz, DMSO-*d*₆)



Fig.33. ¹H NMR of compound 8q (500 MHz, DMSO-*d*₆)



Fig.34. ¹³C NMR of compound 8q (125 MHz, DMSO-*d*₆)



Fig.35. ¹H NMR of compound 8r (500 MHz, DMSO-*d*₆)



Fig.36. ¹³C NMR of compound 8r (125 MHz, DMSO-*d*₆)



Fig.37. ¹H NMR of compound 8s (500 MHz, CDCl₃)



Fig.38. ¹³C NMR of compound 8s (125 MHz, CDCl₃)



Fig.39. ¹H NMR of compound 8t (500 MHz, DMSO-*d*₆)



Fig.40. ¹³C NMR of compound 8t (125 MHz, CDCl₃)



Fig.41. ¹H NMR of compound 8u (500 MHz, DMSO-*d*₆)



Fig.42. ¹³C NMR of compound 8u (125 MHz, DMSO-*d*₆)



Fig.43. ¹H NMR of compound 8v (500 MHz, DMSO-*d*₆)



Fig.44. ¹³C NMR of compound 8v (125 MHz, DMSO-*d*₆)



Fig.45. ¹H NMR of compound 8w (500 MHz, DMSO-*d*₆)



Fig.46. ¹³C NMR of compound 8w (125 MHz, DMSO-*d*₆)



Fig.47. ¹H NMR of compound 8x (500 MHz, CDCl₃)



Fig.48. ¹³C NMR of compound 8x (125 MHz, CDCl₃)

Developmental Therapeutics Program		NSC: D-793819/1	NSC: D-793819 / 1 Conc: 1.00E-5 Molar	
One Dose Mea	an Graph	Experiment ID: 1610	Experiment ID: 1610OS04	
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Perc	cent
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-92 NCI-H226 NCI-H226 NCI-H226 NCI-H227 NCI-H460 NCI-H322M NCI-H460 NCI-H322 Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-28 SK	Growth Percent 55.45 71.01 8.02 59.01 2.35 28.75 60.25 79.66 72.39 60.65 85.43 77.60 71.13 48.38 65.15 79.22 46.55 25.84 32.45 30.16 39.45 65.85 77.28 84.67 64.87 33.47 69.76 66.39 55.46 99.19 96.96 78.89 113.11 82.30 37.95 41.81 30.91 101.52 60.05 53.61 107.98 84.77 83.79 93.07 81.66 91.02 55.73 77.02 62.72 7.77 88.51 79.37	Mean Growth	Percent - Growth Perc	report Date: Nov 24, 2015
Mean Delta	62.23 64.38			
Range	115.26	100 50	0 -50	-100 -150

Fig.49. one dose mean graph of nine different cancer cell line panels for compound 8a

Fig.50.One dose mean graph of nine different cancer cell line panels for compound 8b

Developmental Ther	apeutics Program	NSC: D-793820/1	Conc: 1.00E-5 Molar	Test Date: Oct 24, 2016
One Dose Me	an Graph	Experiment ID: 1610OS04		Report Date: Nov 24, 2016
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Per	cent
Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer	104.00 90.87 101.00 79.36 107.37 94.12		-	
A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H228 NCI-H23 NCI-H23 NCI-H460 NCI-H522	96.19 98.48 94.66 126.02 100.80 91.15 91.78 100.66 92.92			
Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer	105.03 92.90 90.93 104.81 98.71 96.95 100.87			
SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma LOX IMVI	93.74 98.73 104.00 104.53 87.49 105.64 95.15		-	
MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-28 SK-MEL-28 UACC-257 UACC-62 Ovanian Cancer	81.38 86.03 100.04 108.10 100.77 101.37 101.37 101.76 100.73			
IGROV1 OVCAR-3 OVCAR-4 OVCAR-5 OVCAR-8 NCI/ADR-RES SK-OV-3 Renal Cancer Z8 0	92.35 104.24 99.58 102.12 101.12 94.58 114.28		-	
A498 RXF 393 SN12C TK-10 UO-31 Prostate Cancer PC-3	76.14 114.30 103.64 97.26 82.90		1	
DU-145 Breast Cancer MCF7 MDA-MB-231/ATCC HS 578T BT-549 T-47D MDA-MB-468	109.02 89.39 120.24 92.81 87.43 110.30 105.51			
Mean Delta Range	98.65 22.51 49.88			
	150	100 50	0 -50	-100 -150

Fig.51. one dose mean graph of nine different cancer cell line panels for compound 8c

Developmental Therapeutics Program		NSC: D-791837 / 1	Conc: 1.00E-5 Molar	Test Date: Aug 01, 2016
One Dose Mea	an Graph	Experiment ID: 1608	Experiment ID: 1608OS57	
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Perc	cent
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H226 NCI-H226 NCI-H322M NCI-H322M NCI-H322ZM NCI-H322M NCI-H3522 Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-3 UACC-257 UACC-62 OvcAR-4 OVCAR-4 OVCAR-5 OVCAR-4 OVCAR-5 NCI/ADR-RES SK-OV-3 Renal Cancer T66-0 A498 ACHN RXF 393 SN12C TK-10 UO-31 Prostate Cancer PC-3 DU-145 Breast Cancer MCF7 MDA-MB-231/ATCC HS 578T BT-549 T-47D MDA-MB-231/ATCC HS 578T BT-549 T-47D MDA-MB-468	Growth Percent 67.04 68.88 58.45 60.59 46.20 49.21 72.18 86.27 103.87 95.77 103.87 95.77 103.87 95.77 103.71 94.89 80.54 93.51 86.74 95.77 103.71 94.89 85.08 87.60 77.64 83.61 104.69 95.81 91.02 91.02 91.25 94.43 106.27 113.90 100.42 98.37 100.92 84.18 83.42 129.34 81.15 76.89 95.56 48.44 87.73 100.23 73.29 87.67	Mean Growth	Percent - Growth Perc	
Delta Range	45.87 101.31	+-		
	150	100 50	0 -50	-100 -150

Fig.52. one dose mean graph of nine different cancer cell line panels for compound 8d

Developmental Therapeutics Program		NSC: D-793938 / 1	NSC: D-793938 / 1 Conc: 1.00E-5 Molar	
One Dose Mea	an Graph	Experiment ID: 1611	Experiment ID: 1611OS12	
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Per	cent
Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer	86.10 97.10 99.32 93.07 68.71 60.43			
A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H223 NCI-H322M NCI-H322M NCI-H460 NCI-H522	96.01 97.97 107.36 105.92 106.68 93.28 90.53 97.68 86.73			
Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer	115.75 106.29 65.67 96.65 98.05 99.96 101.39			
SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma	103.01 104.53 105.66 86.94 90.35 99.28		Ē	
LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-28 SK-MEL-5 UACC-257 UACC-62 Ovarian Cancer	85.26 105.51 96.04 91.42 92.85 104.57 98.00 100.87 85.57			
IGROV1 OVCAR-3 OVCAR-4 OVCAR-5 OVCAR-5 NCI/ADR-RES SK-OV-3 Renal Cancer 786-0	95.70 107.99 100.59 106.43 97.28 88.12 116.99			
A498 RXF 393 SN12C TK-10 UO-31 Prostate Cancer PC-3	95.68 112.07 95.46 93.69 80.11		-	
DU-145 Breast Cancer MCF7 MDA-MB-231/ATCC HS 578T BT-549 T-47D MDA-MB-468	100.90 53.14 99.07 100.91 99.79 106.55 98.66			
Mean Deita Range	95.98 42.84 63.85			
	150	100 50	0 -50	-100 -150

Fig.53.One dose mean graph of nine different cancer cell line panels for compound 8e

Developmental Ther	Developmental Therapeutics Program		NSC: D-792842 / 1 Conc: 1.00E-5 Molar		Test Date: Aug 15, 2016	
One Dose Mea	One Dose Mean Graph		Experiment ID: 1608OS60		Report Date: Nov 24, 2016	
Panel/Cell Line	Growth Percent		Mean Growth	Percent - Growth Pe	rcent	
Leukemia						
HL-60(TB) K-562	84.39 93.45			_		
MOLT-4	92.63			–		
RPMI-8226	92.49					
Non-Small Cell Lung Cancer	98.29					
A549/ATCC	95.57			-		
EKVX	128.67					
HOP-92	105.70			- I		
NCI-H226	93.28					
NCI-H23	87.66					
NCI-H522	86.78					
Colon Cancer	440.70					
HCC-2998	93.09					
HCT-116	102.80			•		
HCT-15	106.70					
KM12	97.80			• I		
SW-620	100.61			1 1		
SE-268	99 74					
SF-295	101.23					
SF-539 SNB-19	116.74					
SNB-75	98.08			F		
U251	103.81					
LOX IMVI	97.99					
MALME-3M	113.73			_		
M14 MDA-MB-435	103.99			1		
SK-MEL-2	100.88					
SK-MEL-28	110.23					
UACC-257	94.10					
UACC-62	87.61					
Ovanan Cancer	108.24					
OVCAR-3	103.23			•		
OVCAR-4	89.34					
OVCAR-5 OVCAR-8	100.23					
NCI/ADR-RES	96.42			- E		
SK-OV-3 Renal Cancer	90.64					
786-0	99.93					
A498	94.73					
RXF 393	99.12					
SN12C	95.95					
UO-31	69.38					
Prostate Cancer				L		
PG-3 DU-145	92.79			I		
Breast Cancer						
MCF7 MDA-MB-231/ATCC	77.98					
HS 578T	95.90					
BT-549	132.87					
MDA-MB-468	116.31					
	400.00					
Delta	30.62					
Range	63.49					
	150) 1	00 50	0 -5	0 -100 -150	
				-		

Fig.54.One dose mean graph of nine different cancer cell line panels for compound 8f

Developmental Ther	Developmental Therapeutics Program		NSC: D-792843 / 1 Conc: 1.00E-5 Molar		Test Date: Aug 15, 2016	
One Dose Mea	an Graph	Exper	Experiment ID: 1608OS60		Report Date: Nov 24, 2016	
Panel/Cell Line	Growth Percent	N	lean Growth I	Percent - Growth Pe	rcent	
Leukemia	71.80					
K-562	74.91					
MOLT-4	79.01					
RPMI-8226	70.16					
Non-Small Cell Lung Cancer	09.01					
A549/ATCC	90.96			-		
EKVX HOD 62	132.73					
HOP-92	97.15					
NCI-H226	92.47			-		
NCI-H23	95.77					
NCI-H522	80.98					
Colon Cancer	400.00					
COLO 205 HCC-2998	126.26					
HCT-116	79.37					
HCT-15	102.57			• •		
H129 KM12	98.76					
SW-620	102.78			• 1		
CNS Cancer	112.60					
SF-200 SF-295	112.00					
SF-539	119.83					
SNB-19 SNB 75	99.78					
U251	106.16			3		
Melanoma	00.05					
LOX IMVI MALME-3M	89.35 97.47					
M14	92.25			-		
MDA-MB-435	89.85			-		
SK-MEL-2 SK-MEL-28	111.53					
SK-MEL-5	93.50			-		
UACC-257	98.81					
Ovarian Cancer	00.00					
IGROV1	104.67			_		
OVCAR-3 OVCAR-4	99.44					
OVCAR-5	118.35					
OVCAR-8	104.80					
SK-OV-3	109.77					
Renal Cancer						
786-0 A498	98.82 86.43					
ACHN	114.46					
RXF 393	108.80					
TK-10	122.39					
UO-31	77.25					
Prostate Cancer PC-3	79.31					
DU-145	105.97			-		
Breast Cancer	60.25					
MDA-MB-231/ATCC	111.72					
HS 578T	101.52			<u> </u>		
BT-549 T-47D	105.34					
MDA-MB-468	122.40					
Moon	08 49					
Delta	38.43					
Range	72.48					
	150	100) 50	0 -5	0 -100	-150
	100			- 0		
1						

Fig.55.One dose mean graph of nine different cancer cell line panels for compound 8g

Developmental Therapeutics Program		NSC: D-793816 / 1 Conc: 1.00E-5 Molar		Test Date: Oct 24, 2016	
One Dose Mea	an Graph	Experiment ID: 16100	Experiment ID: 1610OS04		
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Perc	cent	
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-92 NCI-H228 NCI-H228 NCI-H228 NCI-H322M NCI-H322M NCI-H322M NCI-H322C Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-28 SK-ME	Growth Percent 90.46 86.30 87.49 87.37 83.19 79.52 105.93 97.10 102.13 129.38 95.16 91.02 92.78 104.72 78.43 122.16 99.17 84.56 95.66 95.11 95.14 104.42 102.63 101.91 102.63 101.91 102.63 101.91 102.63 101.91 102.63 101.91 102.63 101.91 105.55 96.35 103.51 101.13 105.05 96.35 117.83 99.47 100.53 117.83 99.47 100.53 117.83 99.47 100.53 117.83 99.47 100.53 117.83 99.47 100.53 117.83 99.47 100.53 117.83 99.47 100.53 117.83 99.47 100.53 117.83 99.47 100.53 117.83 99.47 100.53 117.83 99.47 100.53 111.62 92.64 101.77 108.59 97.10 124.32 91.25 90.61 114.48 99.28 103.28 94.18 104.25 106.50 81.95 114.44 108.04 78.04 93.96 108.17 98.84 20.80 51.34		Percent - Growth Per		
	150	100 50	0 -50	-100 -150	

Fig.56.One dose mean graph of nine different cancer cell line panels for compound 8h

Developmental Therapeutics Program		NSC: D-793942 / 1	NSC: D-793942 / 1 Conc: 1.00E-5 Molar		
One Dose Me	an Graph	Experiment ID: 1611	OS15	Report Date: Jan 15, 2017	
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Per	cent	
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322Z Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-539 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-ME	Growth Percent 90.69 97.71 89.34 91.63 87.75 67.15 90.56 94.20 96.72 111.33 98.39 91.83 95.34 93.40 79.06 100.83 93.02 84.78 94.46 89.84 93.61 103.44 100.38 98.01 100.47 100.03 91.32 90.25 98.00 102.66 88.89 97.97 96.38 104.80 86.47 81.18 92.02 99.28 102.77 98.35 96.46 94.57 101.74 93.90 100.71 108.97 120.45 96.73 110.51 88.50 96.41 97.77 90.70 60.41 103.34 85.53 89.47 103.94	Mean Growth	Percent - Growth Per	cent	
Mean Delta Range	94.91 34.50 60.04				
- Tanys	150	100 50	0 -50	-100 -150	

Fig.57.One dose mean graph of nine different cancer cell line panels for compound 8i

Developmental Therapeutics Program		NSC	NSC: D-793939 / 1 Conc: 1.00E-5 Molar		Test Date: Nov 07, 2016	
One Dose Mea	an Graph	Exp	Experiment ID: 16110S12		Report Date: Nov 24, 2016	
Panel/Cell Line	Growth Percent		Mean Growth I	Percent - Growth Per	cent	
Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H226 NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H320 Colon Cancer GOLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-28 SK-M	87.26 95.40 79.52 87.53 45.71 62.95 96.01 90.07 81.18 90.03 89.84 88.21 86.68 71.84 115.55 100.24 17.54 92.35 94.55 84.52 99.26 84.85 99.12 92.40 77.99 97.31 92.85 75.17 97.29 97.71 72.82 90.34 105.04 96.35 106.38 79.61 75.70 91.04 87.26 101.60 93.31 80.95 113.33 97.91 94.53 86.34 81.51 80.95 87.32 89.88 34.98 84.25 91.29 96.53 96.56 86.39 68.85 98.01					
Range	98.01	10	00 50	0 -50	-100 -150	

Fig.58.One dose mean graph of nine different cancer cell line panels for compound 8j

Developmental Therapeutics Program		NSC: D-793010/1	NSC: D-793010 / 1 Conc: 1.00E-5 Molar	
One Dose Mean Graph		Experiment ID: 1608	Experiment ID: 1608OS70	
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Per	cent
Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR	101.85 78.16 83.47 92.67 65.68 44.23		-	
A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H23 NCI-H23 NCI-H460 NCI-H460 NCI-H522	85.21 98.71 86.23 96.43 98.13 88.82 98.98 79.62 89.63			
Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer	110.35 101.75 68.45 98.59 94.90 93.33 94.51			
SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma L OX IMVI	93.40 93.81 95.77 98.99 93.45 102.21 90.26			
MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-28 SK-MEL-5 UACC-257 UACC-62 Ovarian Cancer	105.06 98.91 104.41 108.98 109.64 103.14 96.31 95.34			
IGROV1 OVCAR-3 OVCAR-4 OVCAR-5 OVCAR-8 NCI/ADR-RES SK-OV-3 Renal Cancer	88.76 100.76 109.40 108.05 92.66 87.38 91.10			
786-0 A498 ACHN RXF 393 SN12C TK-10 UO-31 Prostate Cancer PC-3	100.90 100.85 100.99 120.47 97.92 112.52 72.90 79.74			
DU-145 Breast Cancer MCF7 MDA-MB-231/ATCC HS 578T BT-549 T-47D MDA-MB-468	100.01 61.32 94.11 106.36 92.77 79.36 108.41			
Mean Deita Range	94.00 49.77 76.24			
	150	100 50	0 -50	-100 -150

Fig.59.One dose mean graph of nine different cancer cell line panels for compound 8k

Developmental Therapeutics Program		NSC: D-793941/1	Conc: 1.00E-5 Molar	Test Date: Nov 14, 2016
One Dose Mea	an Graph	Experiment ID: 16110	Experiment ID: 1611OS15	
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Perc	cent
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H226 NCI-H227 Colon Cancer Colon Cancer Colon Cancer Colon Cancer Colon Cancer SF-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-253 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-M	Growth Percent 76.61 71.14 77.55 64.78 67.29 89.05 81.08 93.29 87.64 86.69 86.82 96.44 99.80 50.88 108.93 98.74 72.67 92.79 84.02 91.17 98.36 97.36 100.35 97.36 100.35 97.36 100.35 97.36 100.35 97.36 100.35 97.36 100.35 97.36 100.382 91.65 90.45 96.47 97.18 79.35 102.77 100.17 108.55 102.77 100.17 90.95 96.07 <	Mean Growth	Percent - Growth Perc	
Kange	58.05	100 50		-100 -150
	150	100 30	UC- U	-100 -130

Fig.60.One dose mean graph of nine different cancer cell line panels for compound 81

Developmental Therapeutics Program		NSC: D-793940/1	Conc: 1.00E-5 Molar	Test Date: Nov 14, 2016
One Dose Mean Graph		Experiment ID: 1611	Experiment ID: 16110S15	
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Perc	cent
One Dose Mea Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H236 NCI-H236 NCI-H237 NCI-H322M NCI-H460 NCI-H322 Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-539 SNB-19 SNB-75 UZ51 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-28 SK-MEL	Graph Growth Percent 77.67 74.70 61.69 68.12 60.07 60.07 89.95 73.56 81.30 99.95 73.56 81.30 95.08 68.37 101.52 101.62 101.62 101.52 101.62 95.08 68.37 101.52 101.62 97.81 74.81 87.12 98.16 96.45 95.97 98.956 87.48 66.93 77.07 100.29 104.75 94.19 94.14 99.47 75.93 73.75 82.91 85.94 100.34 90.08 84.61 105.70 <tr< th=""><th>Experiment ID: 1611</th><th>OS15 Percent - Growth Percent</th><th>Report Date: Jan 15, 2017</th></tr<>	Experiment ID: 1611	OS15 Percent - Growth Percent	Report Date: Jan 15, 2017
BT-549 T-47D MDA-MB-468	113.07 75.02 88.69			
Mean Delta Range	86.97 35.39 72.32			
	150	100 50	0 -50	-100 -150

Fig.61.One dose mean graph of nine different cancer cell line panels for compound 8m

One Dose Mean Graph Experiment ID: 16100S04 Panel/Cell Line Growth Percent Mean Growth Percent - Growth Percent Leukemia CCRF-CEM HL-60(TB) 34.86 59.70 K-562 Mean Growth Percent - Growth Percent Not.7-4 44.33 RPMI-8226 25.71 22.86 SR SR 22.86 SR 22.86 SR Non-Small Cell Lung Cancer A549/ATCC 85.43 80.99 HOP-62 HOP-62 112.52 HOP 92	Report Date: Nov 24, 2016
Panel/Cell Line Growth Percent Mean Growth Percent - Growth Percent Leukemia CCRF-CEM 34.86 HL-60(TB) 59.70 K-562 25.71 MOLT-4 44.33 RPMI-82266 22.86 SR 28.29 Non-Small Cell Lung Cancer 85.43 EKVX 80.99 HOP-62 112.52 HOP.92 144.44	cent
Leukemia CCRF-CEM 34.86 HL-60(TB) 59.70 K-562 25.71 MOLT-4 44.33 RPMI-8226 22.86 SR 28.29 Non-Small Cell Lung Cancer A549/ATCC 85.43 EKVX 80.99 HOP-62 112.52 HOP 92 104.44	
INCL-#226 193 89 NCL+#23 77.11 NCL+#322M 77.11 NCL+#60 78.39 NCL+#60 78.39 NCL+#60 78.39 NCL+#60 78.39 MCC-2055 98.73 HCC-2086 72.60 HCC-115 22.44 HTZ9 59.00 CNS Cancer 71.56 SF-265 95.30 SNE-75 71.56 SF-265 95.39 SNE-75 74.63 UZ51 64.33 MALME-3M 76.42 MALME-3A 76.55 SK-MEL-5 96.18 UACC-62 71.49 OvcaR-4 86.90 SK-MEL-5 86.91 UACC-62 71.49 OvcAR-3 91.92 NY12C 80.24 MCF 7 27.7 UACC-62 71.49 OvcAR-3 93.82 A488 88.79 SY12C	-100 -150

Fig.62.One dose mean graph of nine different cancer cell line panels for compound 8n

Developmental Therapeutics Program		NSC: D-793936 / 1	Conc: 1.00E-5 Molar	Test Date: Nov 07, 2016
One Dose Mean Graph		Experiment ID: 1611	Experiment ID: 16110S12	
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Perc	cent
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H23 NCI-H23 NCI-H23 NCI-H23 NCI-H460 NCI-H522 Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-28 SK-MEL-28 SK-MEL-28 SK-MEL-28 SK-MEL-25 UACC-62 Ovarian Cancer IGROV1 OVCAR-3 OVCAR-4 OVCAR-5 OVCAR-5 OVCAR-8 NCI/ADR-RES SK-OV-3 Renal Cancer 786-0 A498 RXF 393 SN12C TK-10 U-31 Prostate Cancer PC-3 DU-145 Breast Cancer MCF7 MDA-MB-468 Mean Delta Range	Growth Percent	Mean Growth	Percent - Growth Perc	
	150	100 50	v -50	-100 -150

Fig.63. One dose mean graph of nine different cancer cell line panels for compound 80

Developmental Therapeutics Program		NSC: D-793934 / 1	Conc: 1.00E-5 Molar	Test Date: Nov 07, 2016
One Dose Mean Graph		Experiment ID: 16110	Experiment ID: 16110S12	
Panel/Cell Line	Growth Percent	Mean Growth I	Percent - Growth Perc	cent
Leukemia CCRF-CEM HL-80(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H23 NCI-H23 NCI-H23 NCI-H23 NCI-H322M NCI-H460 NCI-H522 Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-288 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-28 S	65.10 93.08 51.99 41.13 59.40 24.18 90.71 80.17 71.80 29.75 85.72 78.98 87.36 70.02 16.73 115.76 95.98 75.85 81.26 89.80 97.88 100.79 82.16 80.44 54.59 71.45 84.7 79.03 5.79 81.10 72.04 82.21 56.71 91.41 62.74 70.42 105.86 -17.08 90.46 37.40 38.38 87.37 70.81 86.7 95.88 47.77 52.77 72.30 84.59 71.80 82.84	100 50		

Fig.64. One dose mean graph of nine different cancer cell line panels for compound 8p

Developmental Therapeutics Program		NSC: D-793835 / 1	Conc: 1.00E-5 Molar	Test Date: Oct 24, 2016
One Dose Mean Graph		Experiment ID: 1610OS04		Report Date: Nov 24, 2016
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Per	cent
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H23 NCI-H322M NCI-H322M NCI-H322M NCI-H322Z Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-295 SF-295 SF-539 SNB-75 U251 Melanoma LOX IMV1 MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-2 SK-MEL-2 SK-MEL-28 SK-MEL-28 SK-MEL-25 UACC-62 Ovarian Cancer IGROV1 OVCAR-3 OVCAR-4 OVCAR-5 OVCAR-8 NCI/ADR-RES SK-OV-3 Renal Cancer 786-0 A498 RXF 393 SN12C TK-10 UO-31 Prostate Cancer PC-3 DU-145 Breast Cancer MCF7 MDA-MB-231/ATCC HS 578T BT-549 T-47D MDA-MB-468 Mean Delta Range	Growth Percent 99.74 88.59 80.10 75.64 76.02 77.43 102.08 97.19 104.77 105.16 96.21 98.75 76.81 100.87 97.56 69.16 81.96 100.07 91.49 95.55 91.65 101.23 98.35 96.89 89.14 94.76 72.03 92.40 88.26 92.94 111.23 93.39 92.40 88.62 92.40 88.62 92.33 89.00 97.18 100.26 106.07 107.70 97.42 88.26 96.38 93.04 58.31 108.52 87.78	Mean Growth	Percent - Growth Perc	
	150	100 50	v -50	-100 -150

Fig.65. One dose mean graph of nine different cancer cell line panels for compound 8q

Developmental Therapeutics Program		NSC: D-793935/1	Conc: 1.00E-5 Molar	Test Date: Nov 07, 2016
One Dose Mean Graph		Experiment ID: 1611	Experiment ID: 1611OS12	
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Per	cent
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-92 NCI-H23 NCI-H23 NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322M NCI-H322 Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-539 SNB-75 UZ51 Melanoma LOX IMV1 MALME-3M M14 MDA-MB-435 SK-MEL-28 SK-	Growth Percent 99.28 97.26 104.00 103.68 100.77 105.83 99.24 101.33 104.83 115.74 108.54 94.78 89.44 101.11 93.73 110.58 105.27 89.18 98.23 101.45 105.27 89.18 98.23 101.45 101.54 97.20 94.29 100.01 102.59 92.39 88.15 94.82 100.19 101.20 98.60 97.95 96.59 102.81 95.47 104.45 91.94 102.45 101.95 102.85 108.45 97.58 102.85 108.45 97.58 102.56 90.27 103.29 93.06 101.09 105.22 106.14 100.56 12.41 27.59	Mean Growth	Percent - Growth Per	
	150	100 50	0 -50	-100 -150

Fig.66. One dose mean graph of nine different cancer cell line panels for compound 8r
Developmental Ther	apeutics Program	NSC: D-793837 / 1	Conc: 1.00E-5 Molar	Test Date: Oct 24, 2016				
One Dose Me	an Graph	Experiment ID: 1610	Experiment ID: 1610OS04 Report Date					
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Perc	cent				
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H226 NCI-H23 NCI-H322M NCI-H322M NCI-H322 Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-28 SK	Growth Percent	Mean Growth	Percent - Growth Perc					

Fig.67.One dose mean graph of nine different cancer cell line panels for compound 8s

Developmental Ther	apeutics Program	NSC: D-793815/1	Conc: 1.00E-5 Molar	Test Date: Oct 24, 2016
One Dose Mea	an Graph	Experiment ID: 1610	OS04	Report Date: Nov 24, 2016
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Per	cent
One Dose Mea Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H23 NCI-H23 NCI-H23 NCI-H23 NCI-H226 NCI-H23 NCI-H23 NCI-H226 NCI-H23 NCI-H23 NCI-H23 NCI-H23 NCI-H23 NCI-H23 NCI-H23 NCI-H23 NCI-H23 NCI-H226 Colon Cancer COLO 205 HCC-2998 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-288 SF-295 SF-339 SNB-75 U251 Melanoma	an Graph Growth Percent 100.29 88.76 87.83 87.83 83.12 91.86 88.61 103.80 97.45 87.00 111.34 98.70 93.88 95.76 108.30 81.86 105.66 102.60 81.23 101.76 95.51 96.20 108.46 93.82 97.65 96.44 104.80 84.18 101.47 89.81 90.04 87.60 97.12 93.20 100.19 79.50 114.49 100.79 104.05 102.96 101.42 100.72 108.01 92.75 108 108 108 108 108 108 108 108	Experiment ID: 1610	OS04	cent
Prostate Cancer PC-3 DU-145 Breast Cancer MCF7 MDA-MB-231/ATCC HS 578T BT-549 T-47D MDA MB 468	100.11 99.97 76.63 101.82 95.07 82.44 94.23 96.06			
Mean Delta Range	96.27 19.64 37.86			
	150	100 50	0 -50	-100 -150

Fig.68. One dose mean graph of nine different cancer cell line panels for compound 8t

Developmental Ther	apeutics Program	NSC: D-793818/1	NSC: D-793818 / 1 Conc: 1.00E-5 Molar					
One Dose Mea	an Graph	Experiment ID: 1610	Experiment ID: 1610OS04 Report Da					
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Per	cent				
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H23 NCI-H322M NCI-H322M NCI-H322M NCI-H522 Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-2 SK-MEL-28 SK-MEL-27 UACC-62 Ovarian Cancer IGROV1 OVCAR-3 OVCAR-4 OVCAR-5 OVCAR-8 NCI/ADR-RES SK-OV-3 Renal Cancer 786-0 A498 RXF 393 SN12C TK-10 UO-31 Prostate Cancer PC-3 DU-145 Breast Cancer MCF7 MDA-MB-231/ATCC HS 578T BT-549 T-47D MDA-MB-468	Growth Percent 96.90 85.65 96.54 92.93 89.94 97.27 97.29 90.32 88.20 94.42 93.32 94.42 93.32 94.89 89.46 101.73 82.11 110.11 103.73 94.89 87.79 96.52 98.73 86.72 92.28 91.45 102.84 78.16 93.71 86.34 103.84 93.86 94.26 99.67 95.17 86.35 107.26 91.12 78.90 95.75 97.40 93.88 102.08 92.92 93.81 102.30 87.59	Mean Growth	Percent - Growth Per					
	150	100 50	0 -50	-100 -150				

Fig.69. One dose mean graph of nine different cancer cell line panels for compound 8u

One Dose Mean Graph Experiment ID: 16100S04 Report D			
	Report Date: Nov 24, 2016		
Panel/Cell Line Growth Percent Mean Growth Percent - Growth Percent			
Laukarni en -1.51 Laukarni en -3.42 Hossi en -3.42 Hossi en -2.534 BMB-222 -4.374 Hossi en -90.49 Non-Shari Cell Lung Cancer -7.85 EXX -2.2337 HOSSI en -2.634 HOSSI en -2.637 HOSSI en -7.644 HCT-116 -7.644 HCT-15 -7.963 SF-538 -9.053 SNK-80 -8153 SNK-75 -88.63 SNK-75 -88.63 SNK-75 -48.63 OVGAR-5 -7.44 HCT-116 -7.626 SK-538 -9.035 SNK-75 -88.63 SNK-75 -1.83.62 SK-MEL-23 -9.774 SK-MEL-23 -9.774 SK-2	00 -150		

Fig.70. One dose mean graph of nine different cancer cell line panels for compound 8v



Fig.71a. Five dose mean graph of nine different cancer cell line panels for compound 8v

	National Cancer Institute Developmental Therapeutics Program In-Vitro Testing Results															
NSC : D - 79	3836 / 1				Exp	perime	nt ID : 1	612NS25	5			Test	Туре : 08	Units : N	Nolar	
Report Date	: January	y 15, 20	17		Tes	t Date	: Decer	mber 12,	2016			QNS	QNS: MC:			
COMI : CP23	3				Sta	in Rea	gent : S	RB Dual	-Pass	Related	ł	SSP	SSPL : 0ZYV			
	Time			Log10 Concentration												
Panel/Cell Line	Zero	Ctrl	-8.0	-7.0	-6.0	-5.0	-4.0	-8.0	-7.0	-6.0	-5.0	-4.0	GI50	TGI	LC50	
CCRF-CEM HL-60(TB)	0.571 0.963	2.502 2.703	2.600 2.726	2.643 2.766	2.181 2.678	0.325 0.362	0.370 0.561	105 101	107 104	83 99	-43 -62	-35 -42	1.84E-6 2.00E-6	4.56E-6 4.10E-6	> 1.00E-4	
MOLT-4 RPMI-8226 SR	0.675 0.927 0.618	2.260 2.379 2.052	2.503 2.423 2.133	2.402 2.458 2.134	2.066 2.092 1.916	0.447 0.498 0.250	0.415 0.620 0.299	115 103 106	109 105 106	88 80 91	-34 -46 -60	-39 -33 -52	2.05E-6 1.73E-6 1.86E-6	5.27E-6 4.31E-6 4.01E-6	> 1.00E-4 > 1.00E-4 8.64E-6	
Non-Small Cell Lur A549/ATCC	ng Cancer 0.273	1.521	1.536	1.516	1.482	0.055	0.042	101	100	97	-80	-85	1.84E-6	3.53E-6	6.78E-6	
EKVX HOP-62	0.714 0.628	2.216 1.918	1.997 1.809	2.069 1.915	2.014 1.919	0.302	0.403 0.298	85 92	90 100	87 100	-58 -52	-44 -53	1.79E-6 2.13E-6	3.98E-6 4.53E-6	9.63E-6	
HOP-92 NCI-H226	0.913	1.385 1.523	1.390 1.551	1.373 1.580	1.347	0.412	0.375	101 104	97 107	92 115	-55 -37	-59 -52	1.93E-6 2.67E-6	4.23E-6 5.69E-6	9.26E-6 6.97E-5	
NCI-H23 NCI-H322M	0.663	2.117	2.082	2.055	2.001	0.254	0.242	98 93	96 90	92 87	-62 -96	-64 -97	1.88E-6 1.59E-6	3.97E-6 2.98E-6	8.39E-6 5.58E-6	
NCI-H460 NCI-H522	0.278	2.640	2.875	2.932	2.840	0.076	0.056	92	107	103	-78	-80 -57	2.00E-6 1.55E-6	3.85E-6 3.21E-6	7.41E-6 6.68E-6	
Colon Cancer COLO 205	0.429	1.592	1.549	1.590	1.572	0.129	0.133	96	100	98	-70	-69	1.94E-6	3.84E-6	7.61E-6	
HCC-2998 HCT-116	1.101 0.212	3.129 1.862	3.089 1.725	3.074 1.732	3.076 0.739	0.267 0.045	0.069 0.117	98 92	97 92	97 32	-76 -79	-94 -45	1.88E-6 5.01E-7	3.65E-6 1.94E-6	7.10E-6	
HCT-15 HT29	0.335 0.308	1.899 1.881	1.770 1.902	1.739 1.871	1.673 1.786	0.057	0.113 0.107	92 101	90 99	86 94	-83 -74	-66 -65	1.63E-6 1.83E-6	3.22E-6 3.62E-6	6.37E-6 7.18E-6	
KM12 SW-620	0.603 0.335	3.117 2.320	3.071 2.352	3.023 2.383	2.961 2.255	0.105 0.076	0.124 0.069	98 102	96 103	94 97	-83 -77	-80 -80	1.77E-6 1.86E-6	3.40E-6 3.60E-6	6.53E-6 6.97E-6	
CNS Cancer SF-268	0.715	2.267	2.227	2.219	2.061	0.299	0,355	97	97	87	-58	-50	1.79E-6	3.96E-6	8.77E-6	
SF-295 SF-539	0.662	2.828	2.650	2.725	2.718 2.489	0.095	0.045	92 92	95 95	95 90	-86 -97	-93 -97	1.77E-6 1.64E-6	3.35E-6 3.03E-6	6.34E-6 5.61E-6	
SNB-19 SNB-75	0.492	2.074	2.042	2.061	1.942	0.125	0.148	98 78	99 84	92 75	-75 -76	-70	1.78E-6 1.47E-6	3.56E-6 3.15E-6	7.11E-6 6.76E-6	
U251	0.352	1.657	1.657	1.678	1.538	0.035	0.038	100	102	91	-90	-89	1.68E-6	3.18E-6	6.00E-6	
LOX IMVI	0.319	2.302	2.225	2.145	0.493	0.088	0.126	96	92	.9	-73	-61	3.20E-7	1.28E-6	5.28E-6	
MALME-3M M14	0.741	2.008	1.887	1.365	1.354	0.192	0.228	92	94	82	-74	-69	1.60E-6	3.45E-6 3.30E-6	6.80E-6	
MDA-MB-435 SK-MEL-2	0.510	2.495 2.657	2.380 2.545	2.438 2.486	2.261 2.311	0.114	0.005	94 93	97 90	88	-78 -37	-99 -73	1.70E-6 1.79E-6	3.40E-6 4.82E-6	6.81E-6 2.28E-5	
SK-MEL-28 SK-MEL-5	0.762 0.705	2.374 2.790	2.263 2.744	2.318 2.772	2.234 2.633	0.150 0.451	0.105 0.061	93 96	97 99	91 92	-80 -36	-86 -91	1.74E-6 2.14E-6	3.40E-6 5.24E-6	6.65E-6 1.79E-5	
UACC-257 UACC-62	1.184 0.667	2.539 2.592	2.473 2.531	2.548 2.606	2,533 2,398	0.607 0.146	-0.024 0.171	95 97	101 101	100 90	-49 -78	-100 -74	2.16E-6 1.73E-6	4.69E-6 3.43E-6	1.06E-5 6.80E-6	
Ovarian Cancer IGROV1	0.476	1.916	1.881	1,798	1.545	0.214	0.241	98	92	74	-55	-49	1.54E-6	3.75E-6		
OVCAR-3 OVCAR-4	0.515	1.695	1.746	1.685	1.640	0.077	0.124	104 94	99 96	95 92	-85 -46	-76 -34	1.78E-6 2.00E-6	3.38E-6 4.62E-6	6.39E-6 > 1.00E-4	
OVCAR-5 OVCAR-8	0.557	1.490	1.368	1.417	1.412	0.082	0.164	87	92 105	92	-85	-71	1.72E-6 2.32E-6	3.30E-6 5.73E-6	6.32E-6	
NCI/ADR-RES SK-OV-3	0.575	1.782	1.735	1.711	1.680	0.480	0.518	96 92	94 105	92 102	-17 -33	-10 -100	2.42E-6 2.42E-6	7.03E-6 5.68E-6	> 1.00E-4 1.79E-5	
Renal Cancer 786-0	0.553	2,177	2.015	2.058	1,995	0.111	0.171	90	93	89	-80	-69	1.70E-6	3.36E-6	6.65E-6	
A498 ACHN	1.621	2.684	2.673	2.645	2.627	2.220	0.085	99 95	96 100	95 93	56 -90	-95 -82	1.10E-5 1.72E-6	2.36E-5 3.22E-6	5.06E-5 6.02E-6	
RXF 393 SN12C	0.991	1.635	1.656	1.683	1.564	0.267	0.135	103	107	89	-73	-86	1.74E-6 1.83E-6	3.54E-6	7.20E-6	
TK-10 UO-31	0.876	1.550	1.477	1.416 1.614	1.417	0.119	-0.004 0.077	89 92	80 87	80 77	-86 -85	-100 -86	1.52E-6 1.46E-6	3.03E-6 2.97E-6	6.04E-6 6.04E-6	
Prostate Cancer PC-3	0.481	1.787	1.807	1.821	1.708	0,061	0.089	102	103	94	-87	-82	1.75E-6	3.30E-6	6.22E-6	
DU-145 Breast Cancer	0,499	2,006	2,032	2,000	1,947	0,032	-0,009	102	100	96	-94	-100	1.75E-6	3,21E-6	5,89E-6	
MCF7 MDA-MB-231/ATC	0.454 CC 0.548	2.501 1.547	2.238 1.533	2.288	1.707	0.241	0.218	87 99	90 101	61 96	-47 -80	-52 -71	1.27E-6 1.82E-6	3.68E-6 3.50E-6	3.86E-5 6.73E-6	
HS 578T BT-549	1.054	2.057	2.056	2.063	2.009	0,930	0.946	100 84	101 93	95 74	-12	-10 -90	2.65E-6 1.40E-6	7.76E-6 2.81E-6	> 1.00E-4 5.65E-6	
T-47D MDA-MB-468	0.737 0.939	1.704 1.582	1.602 1.533	1.625 1.572	1.602 1.536	0.463 0.568	0.513 0.546	89 92	92 98	89 93	-37 -40	-30 -42	2.05E-6 2.10E-6	5.08E-6 5.02E-6	> 1.00E-4 > 1.00E-4	

Fig.71b. Five dose mean graph of nine different cancer cell line panels for compound **8v**



Fig.71c. Five dose mean graph of nine different cancer cell line panels for compound 8v



Fig.71d. Five dose mean graph of nine different cancer cell line panels for compound 8v

Developmental Ther	apeutics Program	NSC: D-793812/1	Conc: 1.00E-5 Molar	Test Date: Oct 24, 2016			
One Dose Mea	an Graph	Experiment ID: 1610	Experiment ID: 1610OS04				
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Per	cent			
Panel/Cell Line Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR Non-Small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H226 NCI-H227 Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer SF-268 SF-295 SF-399 SNB-75 U251 Melanoma LOX IMVI MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-2 SK-MEL-25 UACC-257 UACC-257 UACC-257 UACC-257 UACC-257 UACC-257 UACC-42 OVCAR-8 <th>Growth Percent</th> <th>Mean Growth</th> <th>Percent - Growth Per</th> <th></th>	Growth Percent	Mean Growth	Percent - Growth Per				
Mean Delta Range	98.43 17.30 46.33						
	150	 100 50	0 -50	-100 -150			

Fig.72.One dose mean graph of nine different cancer cell line panels for compound 8w

Developmental Ther	apeutics Program	NSC: D-793017 / 1	Conc: 1.00E-5 Molar	Test Date: Aug 29, 2016
One Dose Mea	an Graph	Experiment ID: 1608	OS70	Report Date: Nov 24, 2016
Panel/Cell Line	Growth Percent	Mean Growth	Percent - Growth Per	cent
Leukemia CCRF-CEM HL-60(TB) K-562 MOLT-4 RPMI-8226 SR	75.37 79.27 84.64 82.18 32.07 44.81		E.	-
Non-small Cell Lung Cancer A549/ATCC EKVX HOP-62 HOP-92 NCI-H226 NCI-H223 NCI-H322M NCI-H322M NCI-H322	98.85 92.88 97.04 82.79 93.71 86.32 97.83 94.03 86.20			
Colon Cancer COLO 205 HCC-2998 HCT-116 HCT-15 HT29 KM12 SW-620 CNS Cancer	115.35 102.81 66.26 79.56 102.47 88.14 105.27			
SF-268 SF-295 SF-539 SNB-19 SNB-75 U251 Melanoma LOX IMVI	91.01 103.58 91.88 95.33 74.79 92.52 91.36			
MALME-3M M14 MDA-MB-435 SK-MEL-2 SK-MEL-28 SK-MEL-5 UACC-257 UACC-62 Ourdia Cancor	97.97 97.79 89.70 105.05 102.82 95.91 89.26 93.33		n H	
OVCAR-3 OVCAR-3 OVCAR-5 OVCAR-5 OVCAR-8 NCI/ADR-RES SK-OV-3 Renal Cancer	93.57 96.44 108.84 104.53 91.40 100.98 104.02			
786-0 A498 ACHN RXF 393 SN12C TK-10 UO-31 Prostate Cancer	92.16 110.76 98.19 110.67 93.27 127.70 76.91		<u> </u>	
DU-145 DU-145 Breast Cancer MCF7 MDA-MB-231/ATCC HS 578T F40	90.75 59.41 85.73 90.97 75 17		-	
T-47D MDA-MB-468	73.15 97.32			
Mean Delta Range	90.72 58.65 95.63			
	150	100 50	0 -50	-100 -150

Fig.73.One dose mean graph of nine different cancer cell line panels for compound 8x



Fig.74. Chromatogram of compound 8a.



Fig.75. Chromatogram of compound 8e.



Fig.76. Chromatogram of compound 80.



Fig. 77. LC-MS spectrum of compound 8a.



Fig. 78. LC-MS spectrum of compound 8n.



Fig. 79. LC-MS spectrum of compound 8v.

Panel/Cell Line		Compounds												
	8 a	8b	8c	8d	8e	8 f	8g	8h	8 i	8j	8k	81		
Leukemia								_				1		
CCRF-CEM	44.55	5.22	6.32	32.96	13.9	nd	nd	9.54	9.31	12.74	0	23.39		
HL-60(TB)	28.99	32.05	7.69	31.12	2.9	15.61	28.11	13.7	2.29	4.6	21.84	28.86		
K-562	91.98	10.73	3.94	41.55	0.68	6.55	25.09	12.51	10.66	20.48	16.53	22.45		
MOLT-4	40.99	13.01	2.44	39.41	6.93	7.37	20.99	12.63	8.37	12.47	7.33	35.22		
RPMI-8226	97.65	11.18	26.72	53.8	31.29	7.51	29.84	16.81	12.25	54.29	34.32	32.71		
SR	71.25	9.8	23.74	50.79	39.57	1.71	10.99	20.48	32.85	37.05	55.77	10.95		
Non-Small Cell L	ung Canco	er						1				1		
A549/ATCC	39.75	16.96	1.67	27.82	3.99	4.43	9.04	-5.93	9.44	3.99	14.79	18.92		
EKVX	20.34	6.91	0	13.73	2.03	0	0	2.9	5.8	8.31	1.29	6.71		
HOP-62	27.61	14.51	0	0	0	4.19	0	0	3.28	9.93	13.77	12.36		
НОР-92	39.35	7.65	0	4.23	0	0	2.85	0	0	18.82	3.57	13.31		
NCI-H226	14.57	12.35	0	10.36	0	6.72	7.53	4.84	1.61	9.97	1.87	13.18		
NCI-H23	22.4	2.97	6.21	11.52	6.72	12.34	4.23	8.98	8.17	10.16	11.18	3.51		
NCI-H322M	28.87	2.2	12.85	0	9.47	nd	nd	7.22	4.66	11.79	1.02	3.56		
NCI-H460	51.62	0	0	17.49	2.32	1.83	1.41	0	6.6	13.32	20.38	0.2		
NCI-H522	34.85	16.4	11.21	21.9	13.27	13.22	19.02	21.57	20.94	28.16	10.37	49.12		

Table 1. Cell growth inhibition % from the NCI's in vitro human tumor cell screen for compounds 8a-l

Panel/Cell Line		Compounds											
	8 a	8b	8c	8d	8e	8f	8g	8h	8i	8j	8k	81	
Colon Cancer									<u> </u>				
COLO 205	20.78	0	0	0	0	0	0	0	0	0	0	0	
НСС-2998	53.45	0	0	0.87	0	6.91	3.76	0.83	6.98	-0.24	0	1.26	
НСТ-116	102.15	10.78	22.41	58.2	34.33	0	20.63	15.44	15.22	82.46	31.55	27.33	
HCT-15	74.16	2.54	2.94	25.05	3.35	0	0	4.34	5.54	7.65	1.41	7.21	
НТ29	67.55	12.07	0	19.46	1.95	0.95	1.24	4.89	10.16	5.45	5.1	15.98	
KM12	69.84	1.87	2.89	6.49	0.04	2.2	2.92	4.86	6.39	15.48	6.67	8.83	
SW-620	60.55	5.12	0	13.26	0	0	0	0	0	0.74	5.49	1.64	
CNS cancer		I											
SF-268	34.15	10.65	0	4.23	0	0.26	0	0	0	15.15	6.6	2.64	
SF-295	22.72	2.53	0	0	0	0	0	0	1.99	0.88	6.19	0	
SF-539	15.33	3.12	0	5.11	0	0	0	0	0	7.6	4.23	2.84	
SNB-19	35.13	14.95	18.1	14.92	13.06	5.4	0	0.47	0	22.01	1.01	6.32	
SNB-75	66.53	14.48	18.93	12.4	9.65	1.92	0	6.66	8.68	26.69	6.55	3.43	
U251	55.93	24.92	6.8	22.36	0.72	0	0	0	9.75	7.15	0	26.25	

Table 1 (continuous). Cell growth inhibition % from the NCI's in vitro human tumor cell screen for compounds 8a-l.

Panel/Cell Line		Compounds												
	8 a	8b	8c	8d	8e	8 f	8g	8h	8i	8j	8 k	81		
Melanoma														
LOX IMVI	75.63	14.4	8.89	16.39	14.74	2.01	10.65	7.29	2.00	24.83	9.74	8.3		
MALME-3M	30.24	2.5	4.66	0	0	0	2.53	5.39	0	2.71	0	0		
M14	33.61	5.61	0	4.19	3.96	0	7.75	10.45	11.11	2.29	1.09	8.35		
MDA-MB-435	44.54	0	5.69	8.34	8.58	1.87	10.15	0	2.03	27.18	0	9.55		
SK-MEL-2	0.81	2.1	0	8.98	7.15	0	0	0	3.62	9.66	0	3.53		
SK-MEL-28	3.04	0	0	0	0	0	0	0	0	0	0	2.82		
SK-MEL-5	21.11	21.03	7.17	1.43	2	5.9	6.5	3.65	13.53	3.65	0	20.65		
UACC-257	0	21.25	0.78	28.34	0	1.34	1.19	0	18.82	0	3.69	15.66		
UACC-62	17.7	1.02	16.98	6.32	14.43	12.39	11.14	0.53	7.98	20.39	4.66	17.85		
Ovarian Cancer		·			- -									
IGROV1	62.05	0	0	2.75	4.3	0	0	0	0.72	24.3	11.24	0		
OVCAR-3	58.19	3.42	0	5.57	0	0	0	0	0	8.96	0	0		
OVCAR-4	69.09	0	0	0	0	10.66	0.56	7.36	1.65	12.74	0	0		
OVCAR-5	0	0.22	0	0	0	0	0	0	3.54	0	0	0		
OVCAR-8	39.95	3.32	0.51	19.73	2.72	0	0	0	5.43	6.69	7.34	16.09		
NCI/ADR-RES	46.39	0	0.83	9.28	11.88	3.58	0.27	2.9	0	19.05	12.62	9.05		
SK-OV-3	0	0	0	0	0	9.36	0	0	6.1	0	8.9	3.93		

Table 1 (continuous). Cell growth inhibition % from the NCI's in vitro human tumor cell screen for compounds 8a-l.

Panel/Cell Line	Compounds											
	8 a	8b	8c	8d	8 e	8 f	8g	8h	8 i	8j	8k	81
Renal Cancer												
786-0	15.23	0	0	0	2.19	0	1.18	8.75	0	2.09	0	3.51
A498	16.21	0	2.01	1.63	4.32	5.27	13.57	9.39	0	5.47	0	7.82
RXF 393	6.93	0	0	15.82	0	0.88	0	0	0	13.66	0	0
SN12C	18.34	5.51	10.66	16.58	4.54	4.05	5.04	0.72	3.27	18.49	2.08	6.09
TK-10	8.98	0	1.18	0	6.31	0	0	0	0	19.53	0	1.99
UO-31	44.27	1.48	8.6	18.85	19.89	30.62	22.75	5.82	11.5	13.05	27.1	22.28
Prostate Cancer												
PC-3	22.98	24.62	0	23.11	0.61	7.21	20.69	0	3.59	12.68	20.26	29.44
DU-31	37.28	0	0.96	4.44	0	0	0	0	2.23	10.12	0	1.39
Breast Cancer												
MCF7	92.23	10.34	30.85	51.56	46.86	22.02	39.75	18.05	9.3	65.02	38.68	25.6
MDA- MB231/ATCC	16.09	7.15	0	12.27	0.93	0	0	0	39.59	11.75	5.89	6.53
HS 578T	11.49	6.08	0.74	0	0	4.1	0	0	0	8.71	0	0
BT-549	25.53	5.73	3.72	26.71	0.21	0	0	21.96	14.47	3.47	7.23	23.00
T-47D	20.63	13.52	6.93	15.03	0	1.37	18.07	6.04	10.53	7.11	20.64	34.97
MDA-MB-468	41.72	3.68	5.89	25.22	1.34	0	0	0	0	30.44	0	8.72

 Table 1 (continuous). Cell growth inhibition % from the NCI's in vitro human tumor cell screen for compounds 8a-l.

nd= not detected

Panel/Cell Line		Compounds												
	8 m	8 n	80	8 p	8 q	8r	8 s	8 t	8u	8v	8 w	8 x		
leukemia														
CCRF-CEM	22.33	65.14	-2.04	34.9	0.26	0.72	14.36	0	3.1	101.51	0	24.63		
HL-60(TB)	25.3	40.3	10.05	6.92	11.41	2.74	13.6	11.24	14.35	153.42	11.42	20.73		
K-562	38.31	74.29	4.63	48.01	19.9	0	35.8	12.17	3.46	152.18	1.79	15.36		
MOLT-4	31.88	55.67	10.93	58.87	24.36	0	15.49	16.88	7.07	125.94	14.38	17.82		
RPMI-8226	39.93	77.14	29.49	40.6	23.98	0	43.49	8.14	10.06	143.74	5.73	67.93		
SR	39.93	71.71	11.87	75.82	22.57	0	37.91	11.39	2.73	160.49	7.31	55.19		
Non-Small Cell Lung	Cancer	1			1	I	1	1	1		1			
A549/ATCC	22.31	14.57	2.26	9.29	0	0.76	5.28	0	2.71	92.15	0	1.15		
EKVX	10.05	19.01	0	19.83	2.81	0	8.37	2.55	9.68	102.83	6.19	7.12		
HOP-62	26.44	0	0	28.20	0	0	0	13	11.8	56.23	15.87	2.96		
НОР-92	18.7	0	0	70.25	0	0	0	0	5.58	155.37	0	17.21		
NCI-H226	13.75	6.01	10.96	14.28	3.41	0	0	1.30	6.68	87.10	0	6.29		
NCI-H23	8.06	25.71	12.01	21.02	9.69	5.22	15.15	6.12	9.12	117.01	7.45	13.68		
NCI-H322M	5.42	22.89	9.20	12.64	3.79	10.56	11.01	4.24	10.54	79.76	8.53	2.17		
NCI-H460	4.92	21.61	0	29.98	1.25	0	6.18	0	0	85.54	0	5.97		
NCI-H522	31.63	43.83	8.64	83.27	23.19	6.27	15.58	18.14	17.89	176.37	14.69	13.80		

Table 2. Cell growth inhibition % from the NCI's *in vitro* human tumor cell screen for compounds 8m-x

Panel/Cell Line	Compounds											
	8m	8n	80	8 p	8q	8r	8 s	8t	8u	8v	8 w	8 x
Colon Cancer												
COLO 205	0	1.27	0	0	0	0	0	0	0	161.07	0	0
HCC-2998	0	20.4	0	4.02	2.44	0	7.47	0	0	172.05	0	0
HCT-116	22.19	74.66	48.19	24.42	30.84	10.82	34.06	18.77	5.11	176.44	9.45	33.74
НСТ-15	25.19	57.06	5.43	18.74	18.04	1.77	30.3	0	15.01	191.80	0	20.44
НТ29	12.88	40.82	6.64	10.2	0	0	6.22	4.49	2.21	161.53	0	0
KM12	15.53	33.84	0.45	2.12	8.51	0	13.74	1.8	3.48	161.07	1.00	11.86
SW-620	7.28	41	0	0	4.45	2.8	1.41	-8.46	1.27	172.05	0	0
CNS cancer												
SF-268	1.84	28.44	2.41	17.84	8.35	5.71	9.37	6.18	13.28	176.70	8.69	8.99
SF-295	3.55	4.63	0	19.56	0	0	0	2.35	7.72	42.35	1.56	0
SF-539	4.03	8.84	4.30	45.53	1.65	0	9.72	3.56	8.55	190.35	1.50	8.12
SNB-19	10.44	20.79	7.84	15.41	3.11	7.61	5.55	0	0	148.75	0	4.67
SNB-75	12.52	25.37	7.19	28.55	10.86	11.85	18.99	15.82	21.84	189.68	16.94	25.21
U251	33.07	35.67	2.04	11.53	5.24	5.18	9.67	-1.47	6.29	190.06	3.38	7.48

Table 2 (continuous). Cell growth inhibition % from the NCI's in vitro human tumor cell screen for compounds 8m-x.

Panel/Cell Line	Compounds											
	8 m	8 n	80	8p	8 q	8 r	8 s	8 t	8 u	8 v	8 w	8 x
Melanoma												
LOX IMVI	22.93	49.14	14.15	20.97	27.97	0	21.61	10.19	13.66	169.37	8.06	8.64
MALME-3M	0	23.58	0	94.21	7.60	0	25.92	9.96	0	170.75	18.87	2.03
M14	0	20.44	0	18.30	11.78	1.40	16.52	12.4	6.14	160.12	11.32	2.21
MDA-MB-435	5.81	29.45	7.26	18.90	14.38	2.05	15.29	2.88	5.74	139.23	0	10.3
SK-MEL-2	5.86	13.09	2.02	27.96	7.06	3.41	4.81	6.8	0.33	62.26	0	0
SK-MEL-28	0.53	6.4	0	17.79	0	0	3.16	0	4.83	120.95	0	0
SK-MEL-5	24.07	30.82	12.93	43.29	13.82	4.53	33.88	20.5	13.65	184.20	0	4.09
UACC-257	26.25	7.28	0	8.59	0	0	8.45	0	0	59.91	0	10.74
UACC-62	17.09	28.51	7.62	37.26	7.67	8.06	10.32	0	8.88	146.35	0	6.67
Ovarian Cancer												
IGROV1	14.06	52.52	0	29.58	11	0	19.82	0	21.1	139.19	4.01	6.43
OVCAR-3	0	39.42	0	0	2.82	0	6.97	0	4.25	193.82	0	3.56
OVCAR-4	13.1	15.16	0	117.08	0	0	6.61	0	2.6	50.12	5.51	0
OVCAR-5	0	2.03	0	9.54	0	0	1.6	0	6.12	92.52	0	0
OVCAR-8	11.94	22.75	1.16	62.6	0	0	3.44	0	0	114.33	0	8.6
NCI/ADR-RES	9.92	25.01	6.46	61.62	8.04	2.48	11.05	7.86	12.41	96.87	4.07	0
SK-OV-3	15.39	0	0	12.63	0	0	0	0	0	14.75	0	0

Table 2 (continuous). Cell growth inhibition % from the NCI's in vitro human tumor cell screen for compounds 8m-x.

Panel/Cell Line	Compounds											
	8 m	8 n	80	8 p	8 q	8r	8 s	8 t	8 u	8 v	8 w	8 x
Renal Cancer												
786-0	0	6.18	0	29.19	4.42	0	7.3	7.16	2.21	158.41	9.29	7.84
A498	0	11.21	4.33	11.33	19.53	0	7.94	8.51	22.69	9.5	0	0
RXF 393	0	24.89	0	4.12	0	0	7.92	0	0	184.28	0	0
SN12C	7.69	19.76	0	52.23	2.54	0	6.69	0	7.08	143.51	0	6.73
TK-10	4.09	0	3.89	47.23	2.58	1.85	0	1.25	7.59	21.23	3.73	0
UO-31	26.25	34.58	16.15	27.7	11.74	3.57	21.18	11.24	27.31	185.28	13.46	23.09
Prostate Cancer												
PC-3	20.15	0.04	0	15.41	3.62	2.42	0	0	9.06	134.69	0	29.7
DU-31	6.25	48.72	3.34	21.09	6.96	0	13.00	0	2.68	95.96	0	9.25
Breast Cancer												
MCF7	48.42	77.22	43.98	42.49	41.69	9.73	46.14	23.37	24.61	130.79	11.71	40.59
MDA-MB231/ATCC	3.41	23.40	0	23.74	0	0	4.13	0	7.74	180.72	0	14.27
HS 578T	6.59	4.55	0	0	12.22	6.94	6.58	4.93	20.81	54.69	0	9.03
BT-549	0	32.33	1.67	42.66	12.63	0	18.62	17.56	15.06	103.02	16.19	24.83
T-47D	24.98	20.48	1.30	9.88	0.68	0	0	5.77	0	144.48	8.33	26.85
MDA-MB-468	11.31	27.43	8.86	0.62	8.03	0	21.52	3.94	4.38	160.52	0	2.68

Table 2 (continuous). Cell growth inhibition % from the NCI's in vitro human tumor cell screen for compounds 8m-x.

nd= not detect