Supplementary data

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

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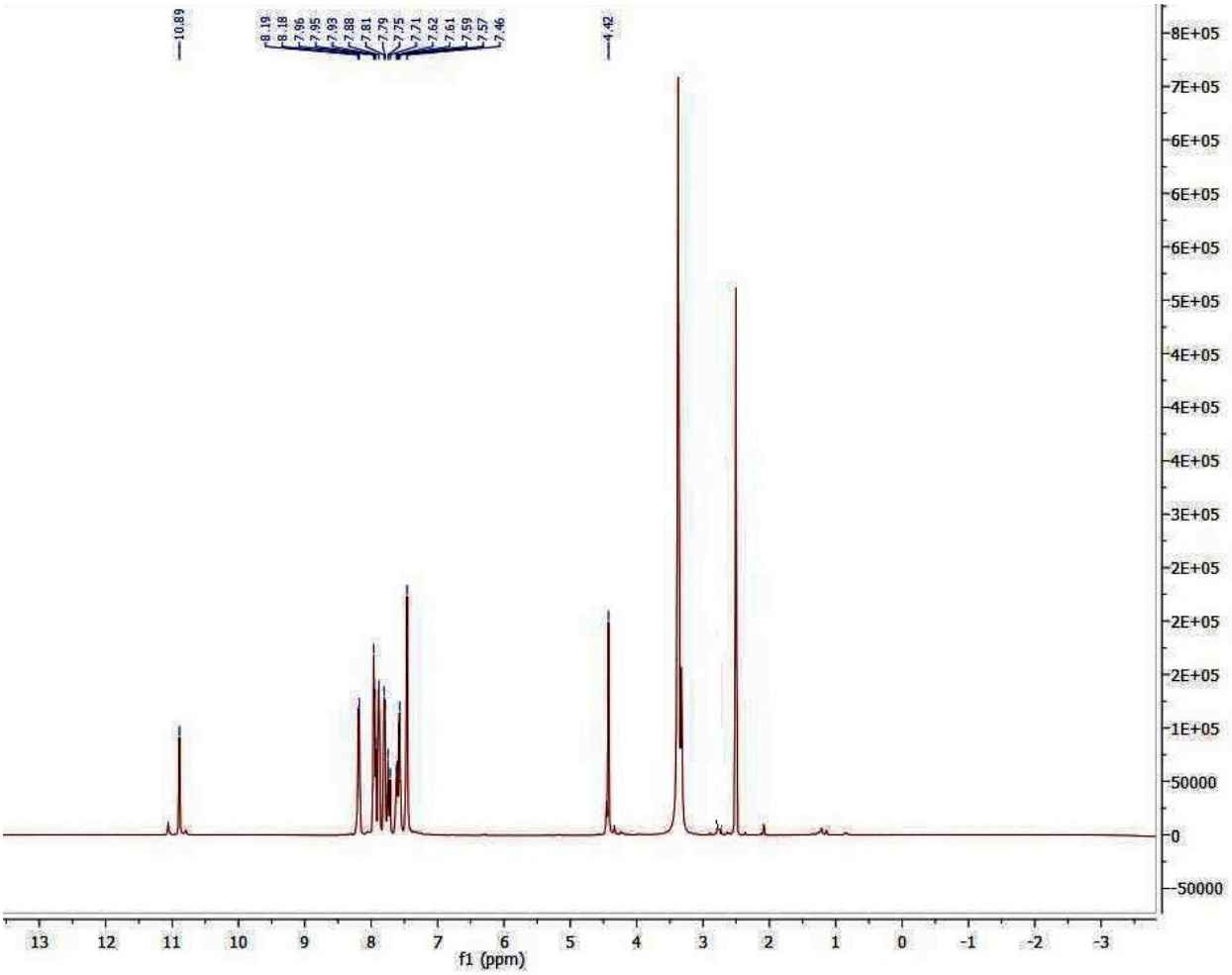

Fig.1. ^{1}H NMR of compound 8a (500 MHz, DMSO-d_6)

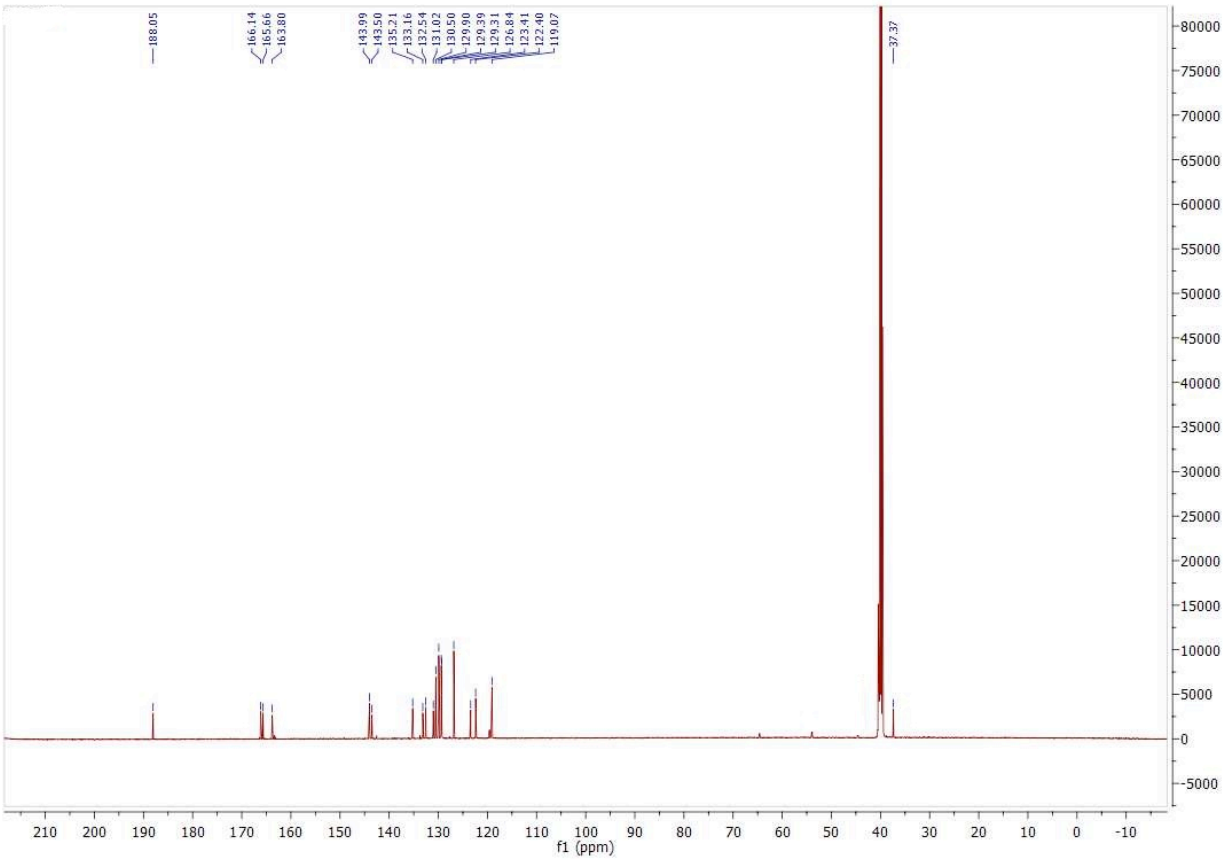

Fig.2. ^{13}C NMR of compound 8a (125 MHz, DMSO-d_6)

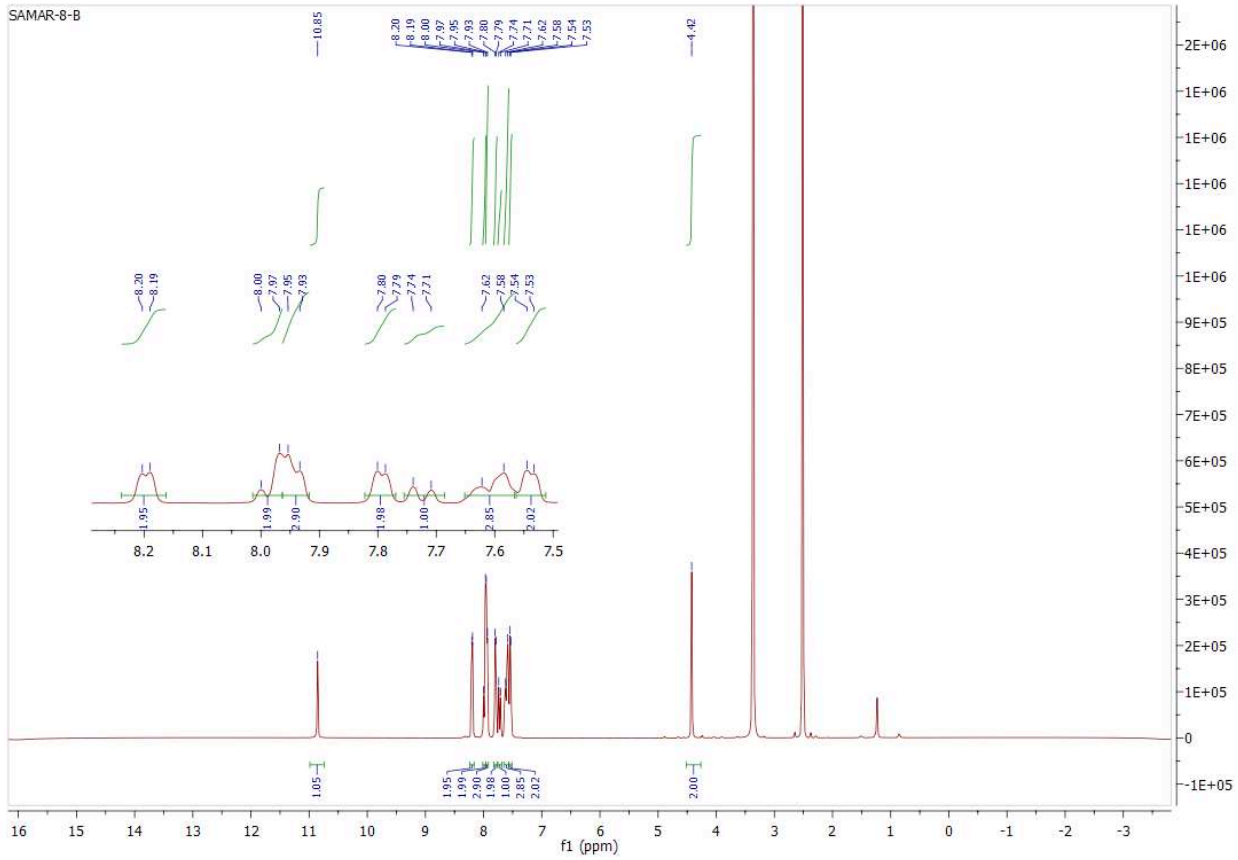

Fig.3. ^{1}H NMR of compound 8b (500 MHz, DMSO-d_6)

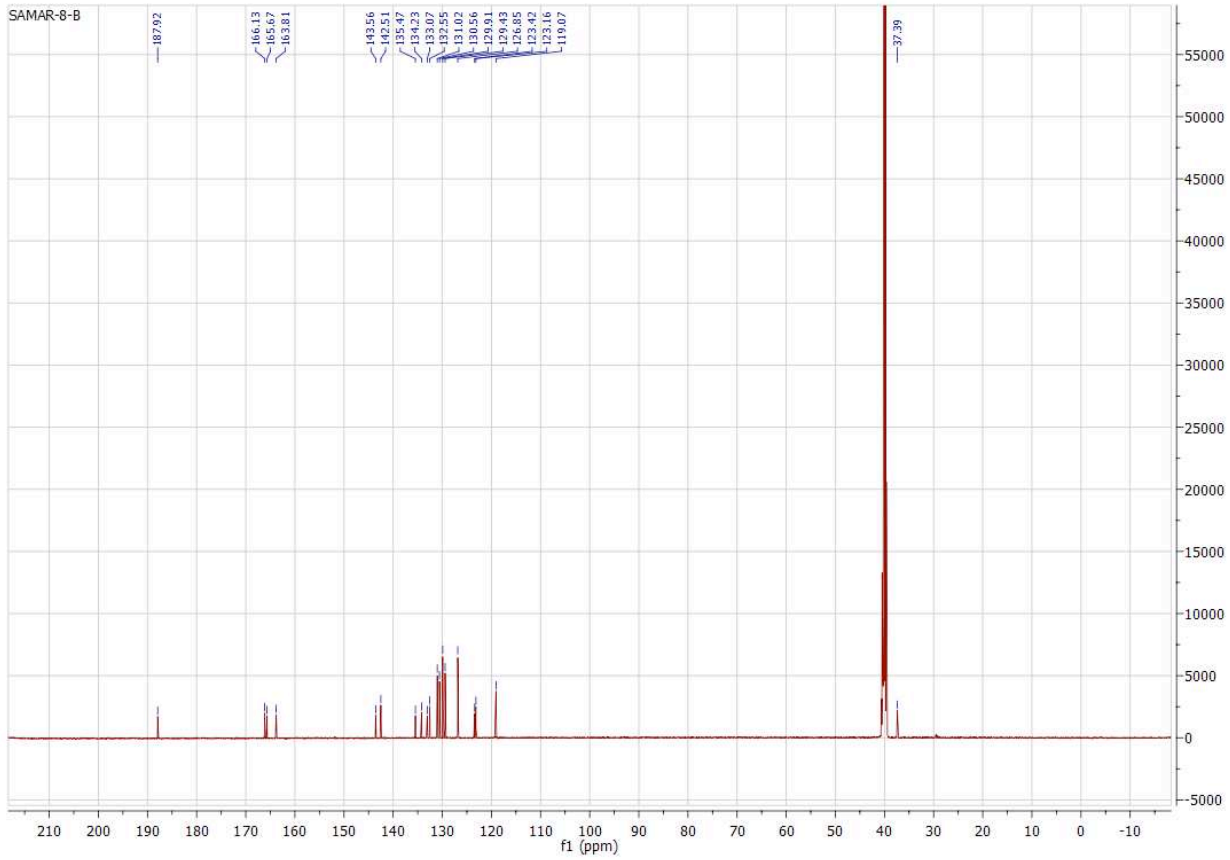

Fig.4. ^{13}C NMR of compound 8b (125 MHz, DMSO-d_6)

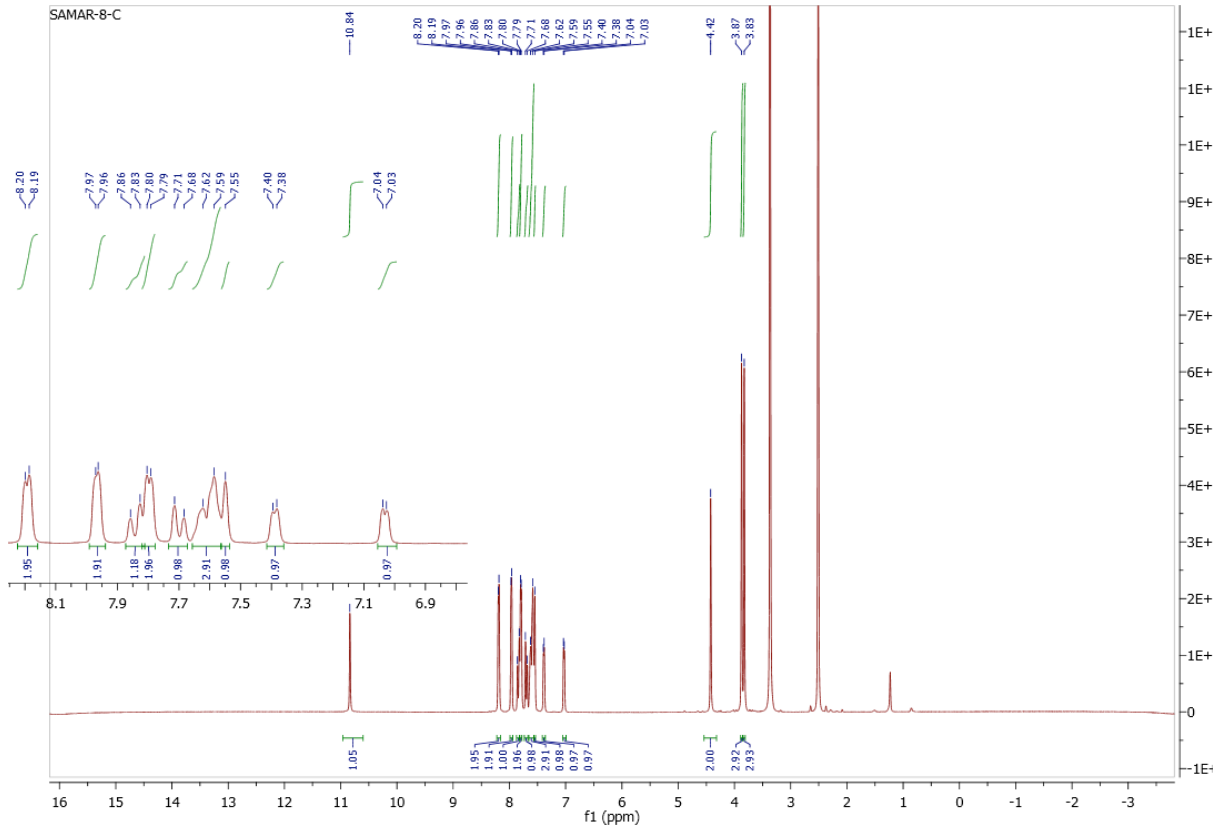

Fig.5. ^{1}H NMR of compound 8c (500 MHz, DMSO-d_6)

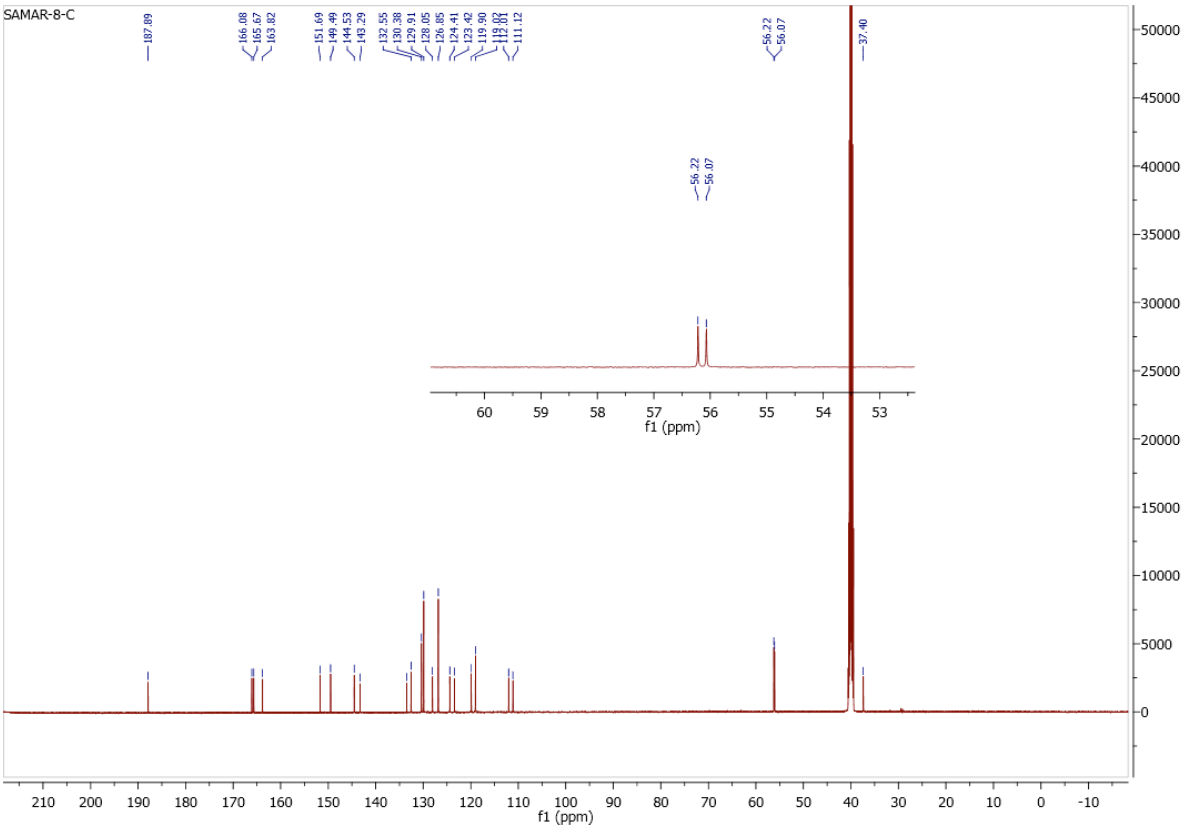

Fig.6. ^{13}C NMR of compound 8c (125 MHz, DMSO-d_6)

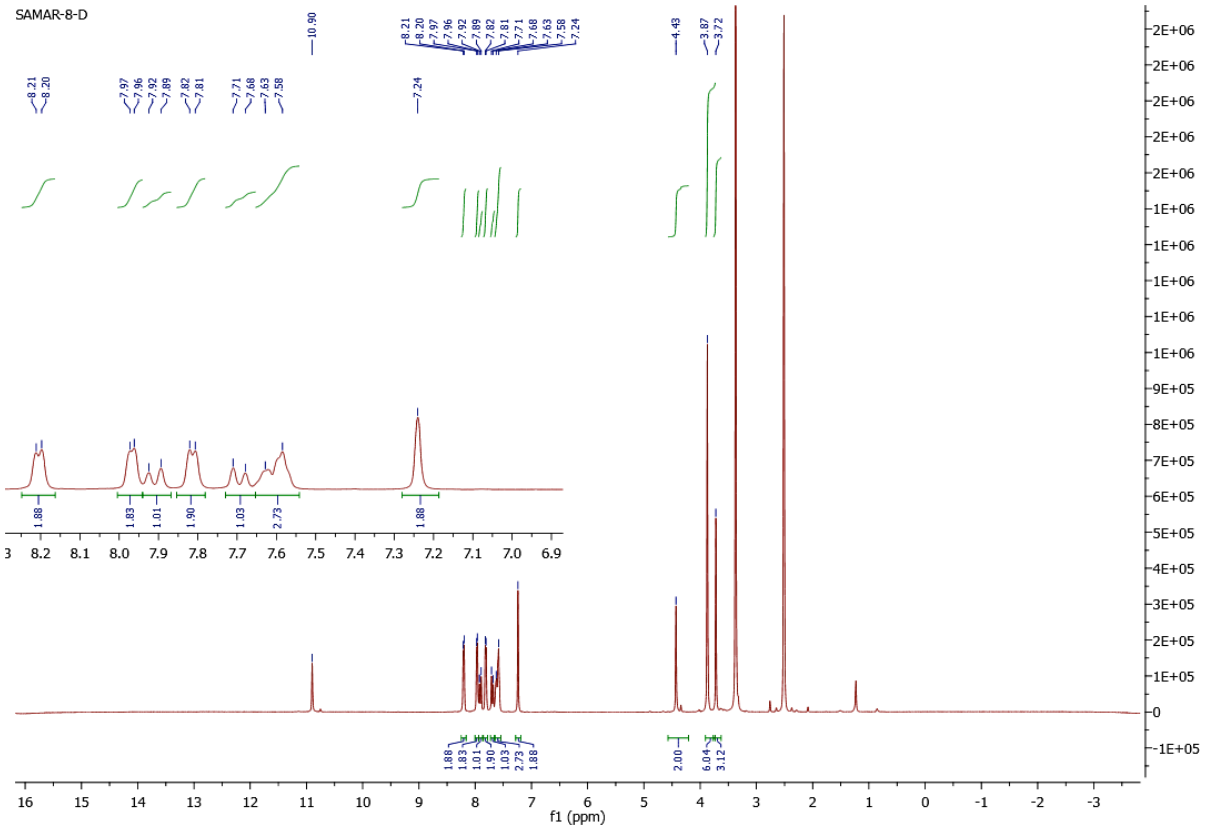

Fig.7. ^{1}H NMR of compound 8d(500 MHz, DMSO-d6)

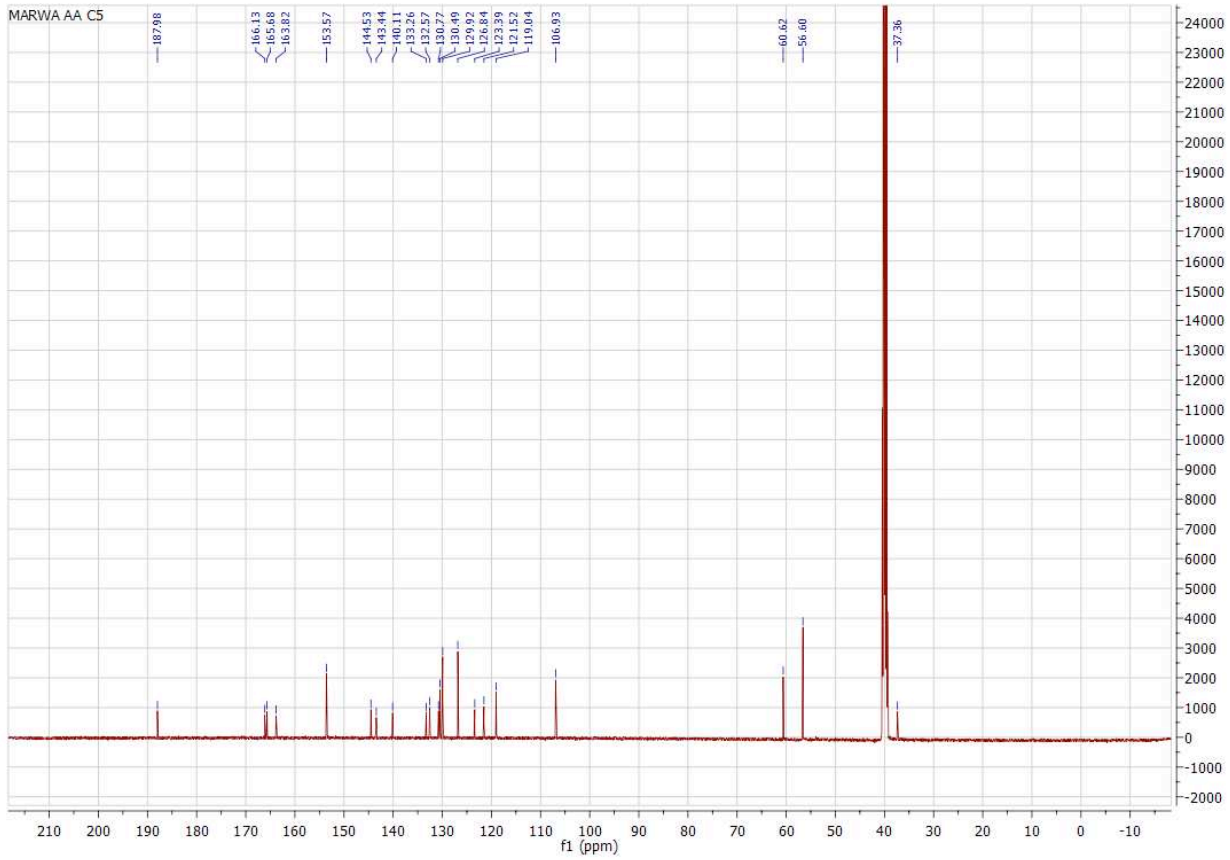

Fig.8. ^{13}C NMR of compound 8d (125 MHz, DMSO-d_6)

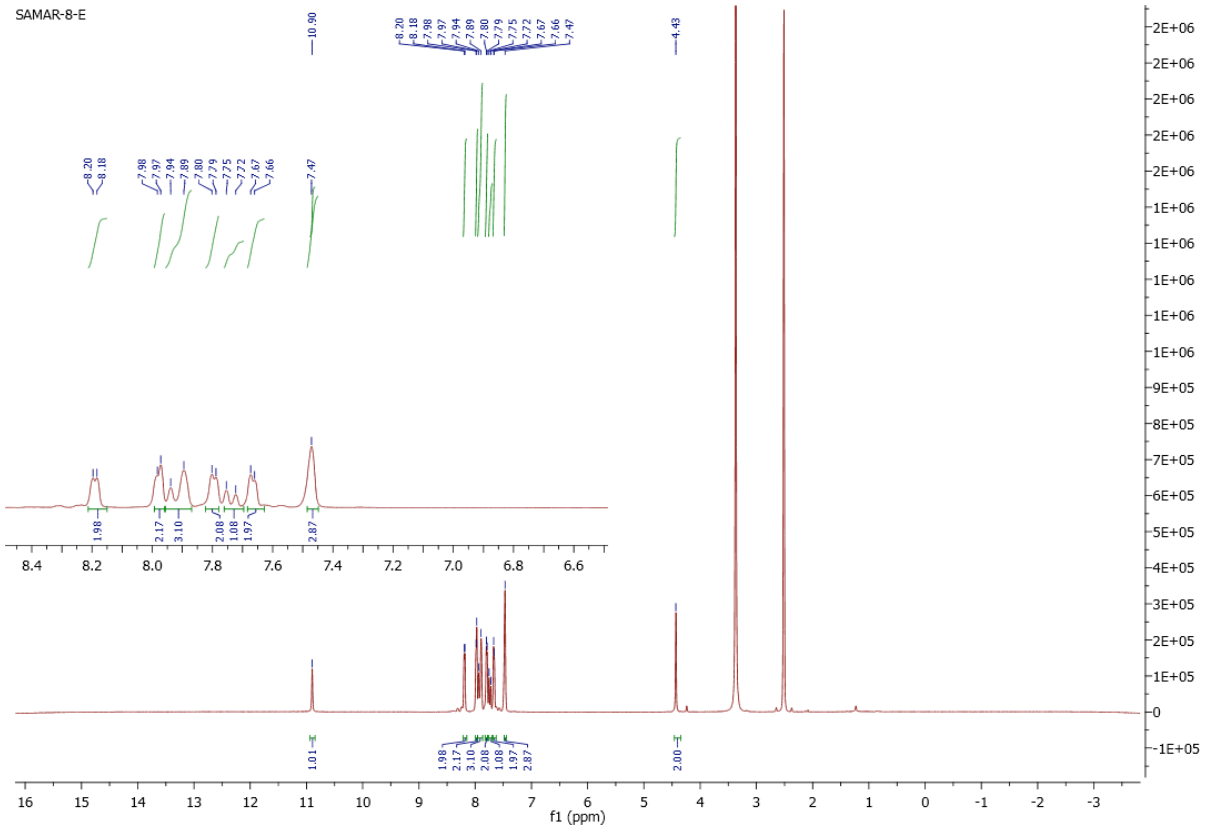

Fig.9. ^{1}H NMR of compound 8e (500 MHz, DMSO-d_6)

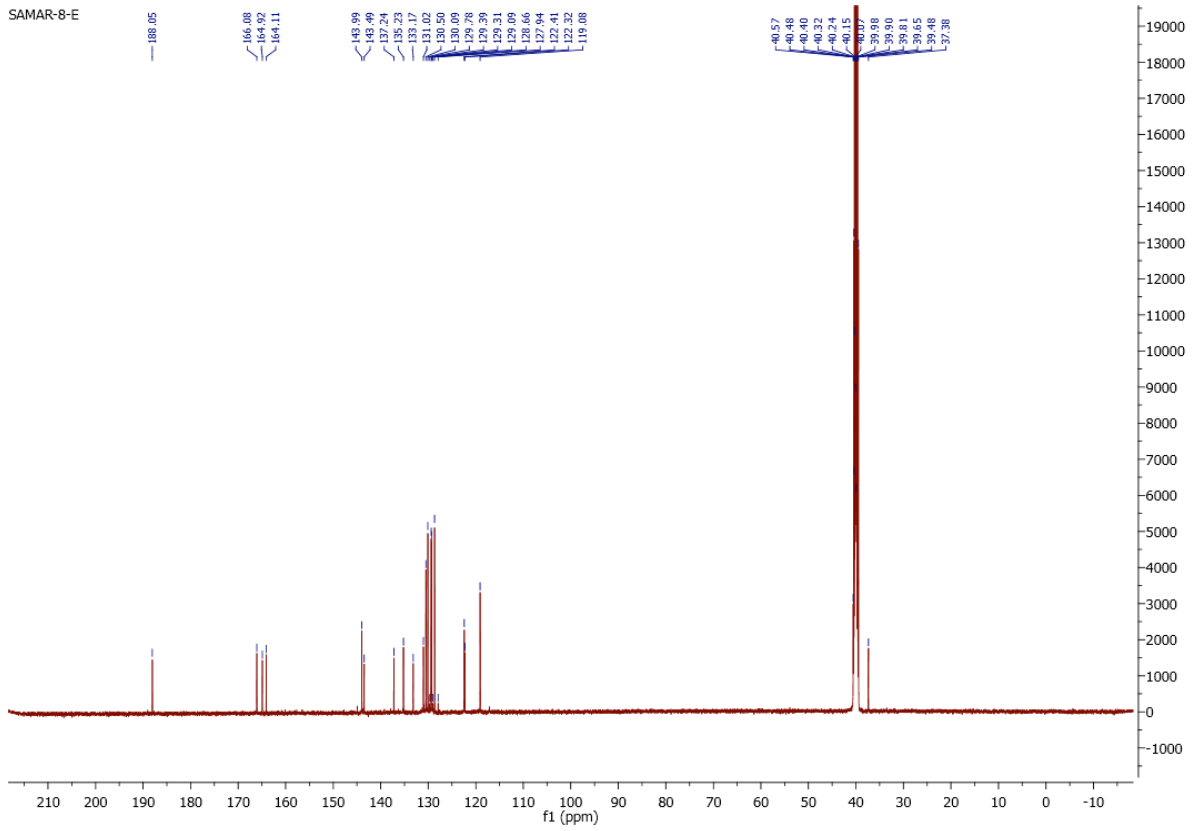

Fig.10. ^{13}C NMR of compound 8e (125 MHz, DMSO-d_6)

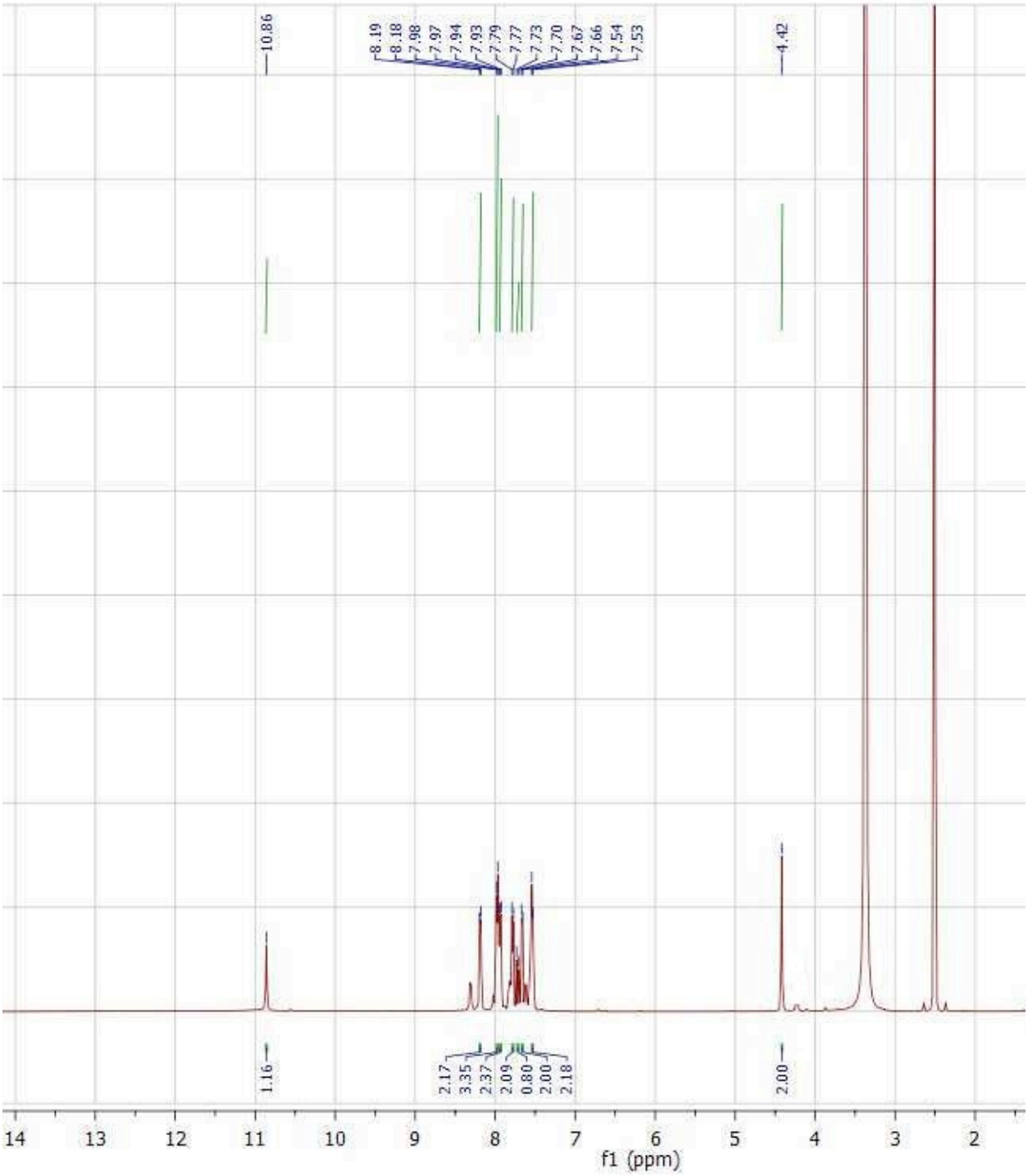

Fig.11. ^{1}H NMR of compound 8f (500 MHz, DMSO-d_6)

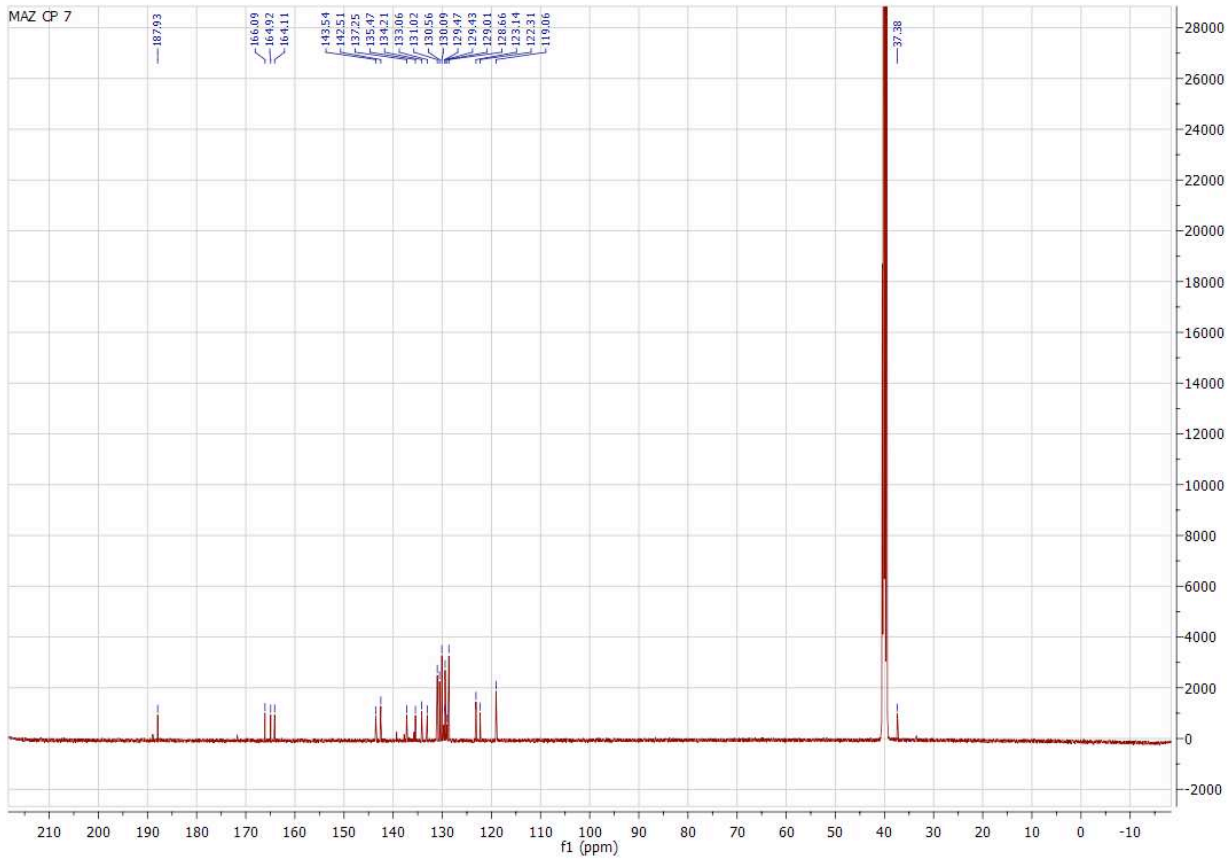

Fig.12. ^{13}C NMR of compound 8f (125 MHz, DMSO-d_6)

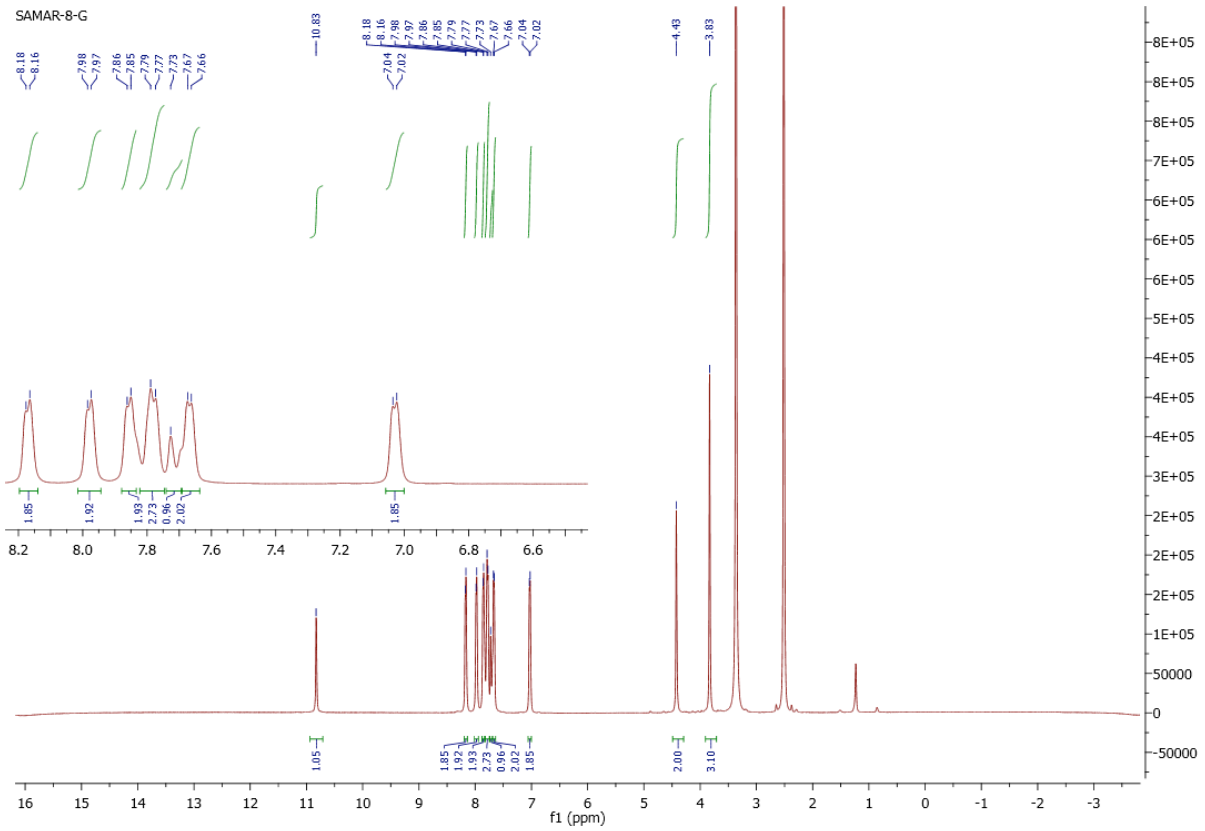

Fig.13. ^{1}H NMR of compound 8g (500 MHz, DMSO-d_6)

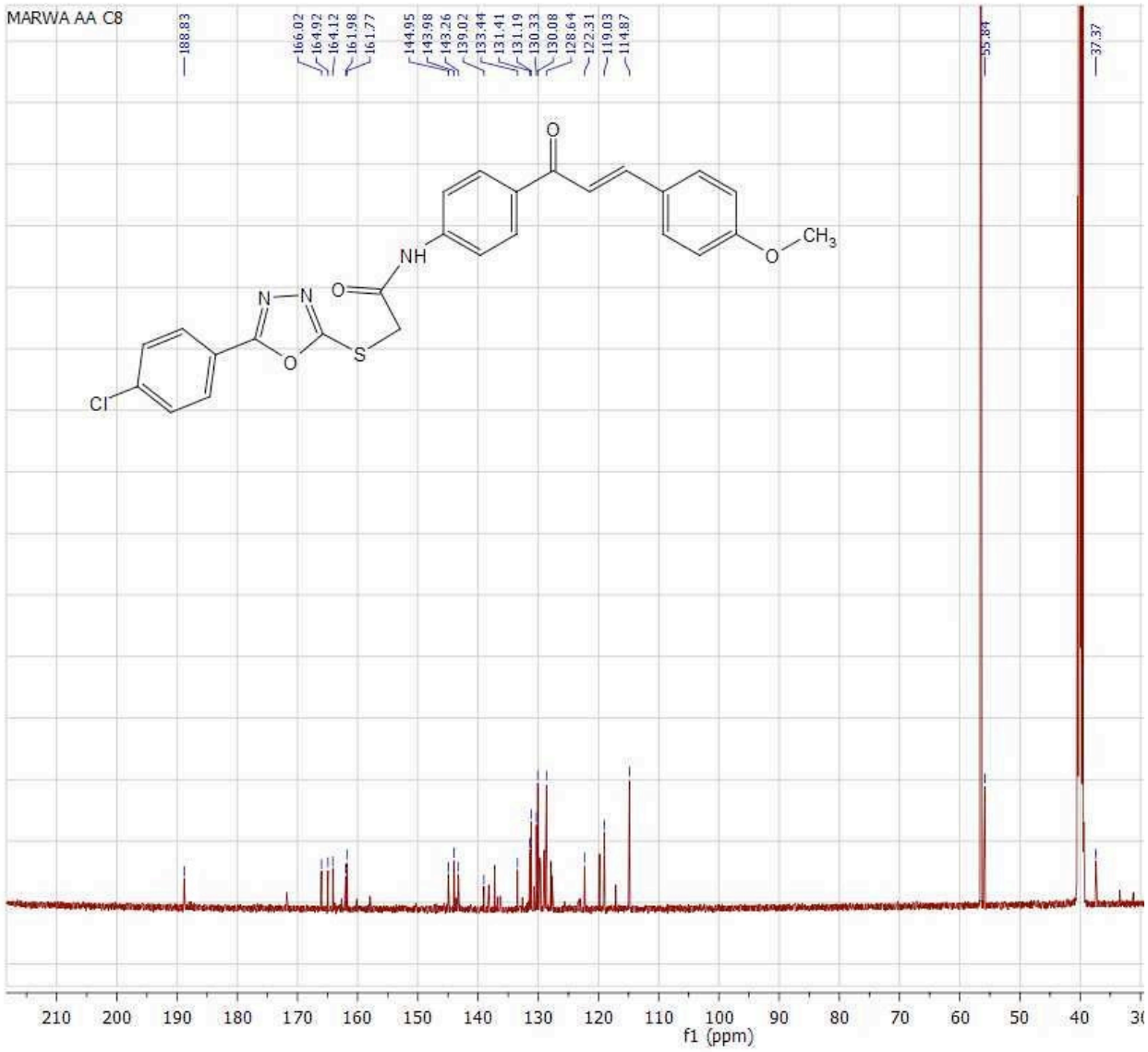

Fig.14. ^{13}C NMR of compound 8g (125 MHz, DMSO-d_6)

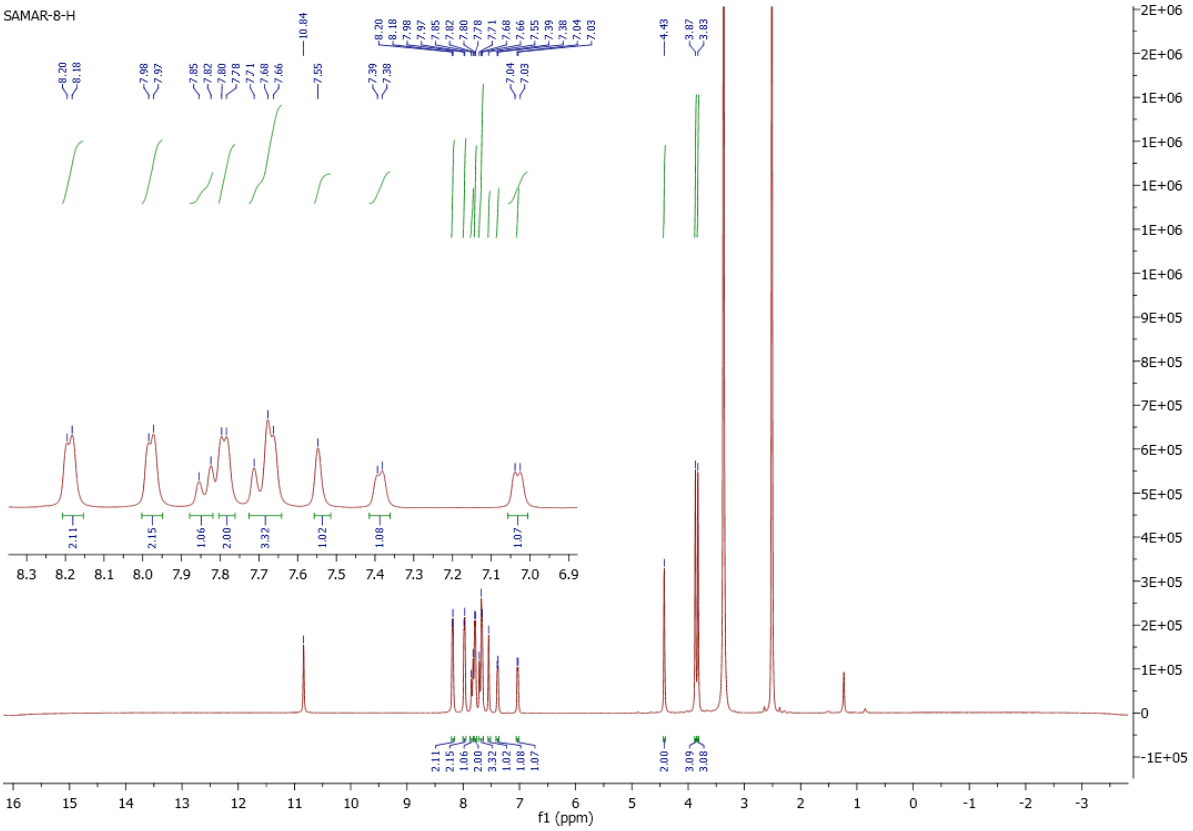

Fig.15. ^{1}H NMR of compound 8h (500 MHz, DMSO-d_6)

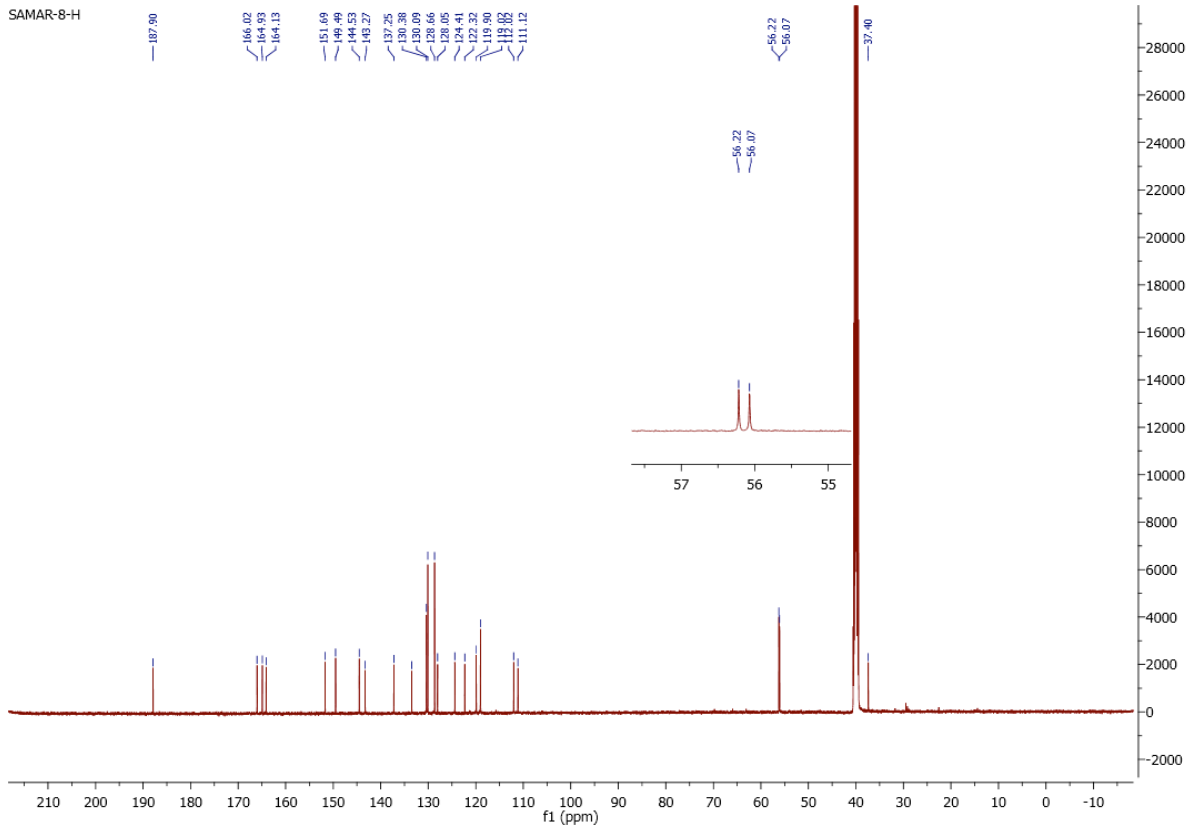

Fig.16. ^{13}C NMR of compound 8h (125 MHz, DMSO-d_6).

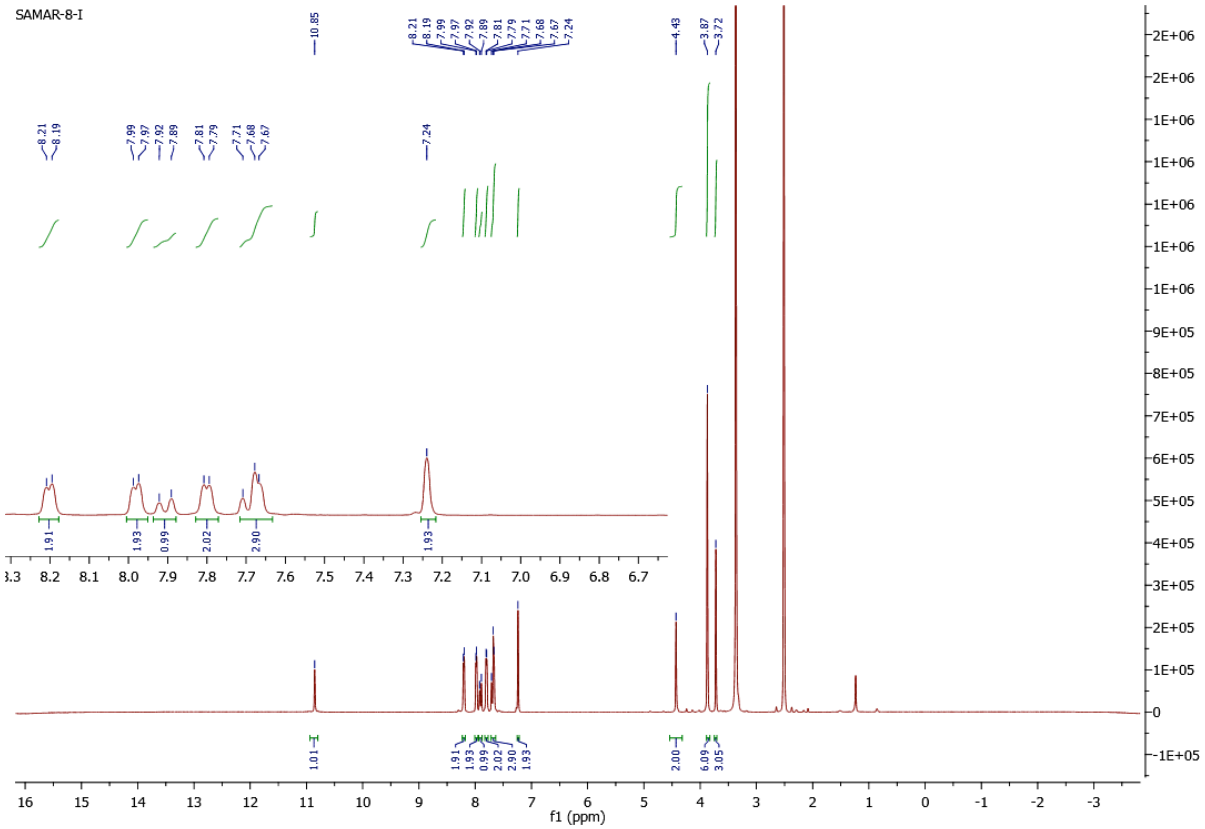

Fig.17. ^{1}H NMR of compound 8i (500 MHz, DMSO-d_6)

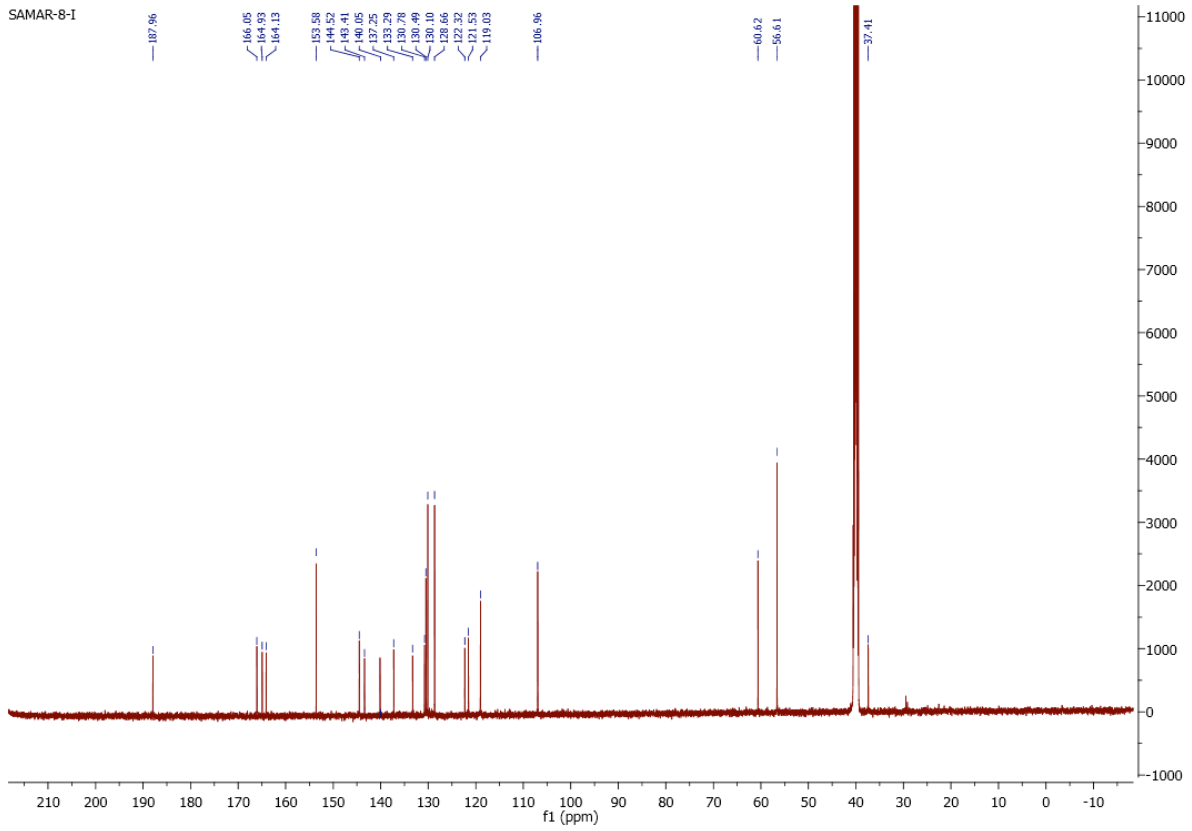

Fig.18. ^{13}C NMR of compound 8i (125 MHz, DMSO-d_6).

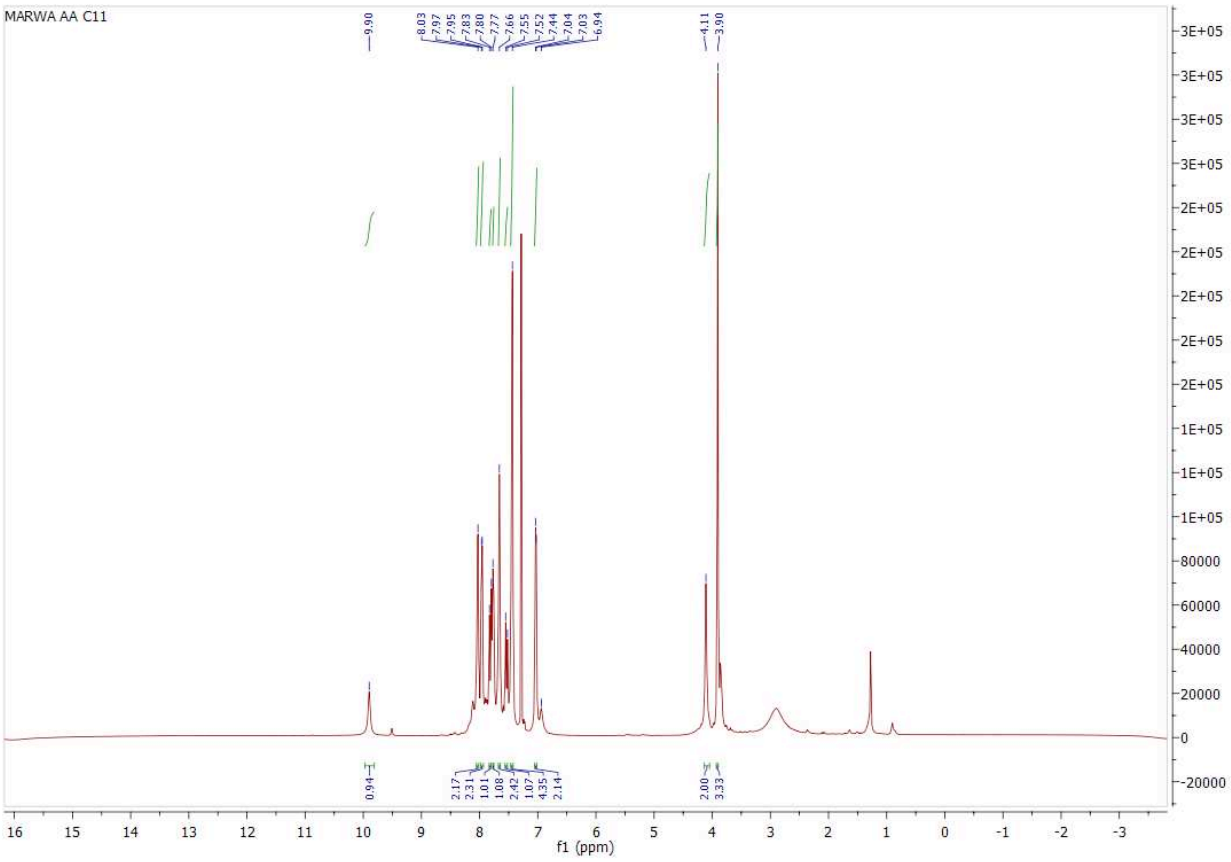

Fig.19. ^{1}H NMR of compound 8j (500 MHz, $CDCl_3$)

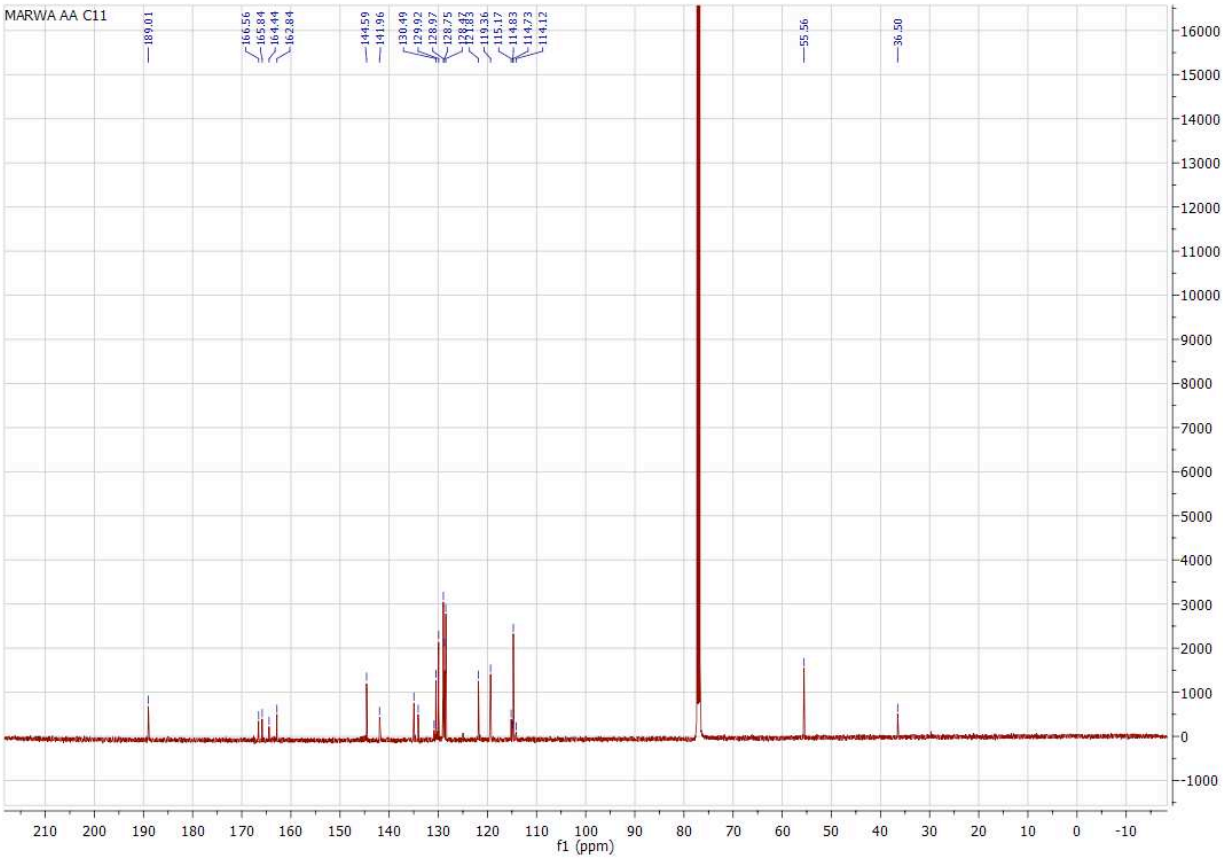

Fig.20. ^{13}C NMR of compound 8j (125 MHz, $CDCl_3$)

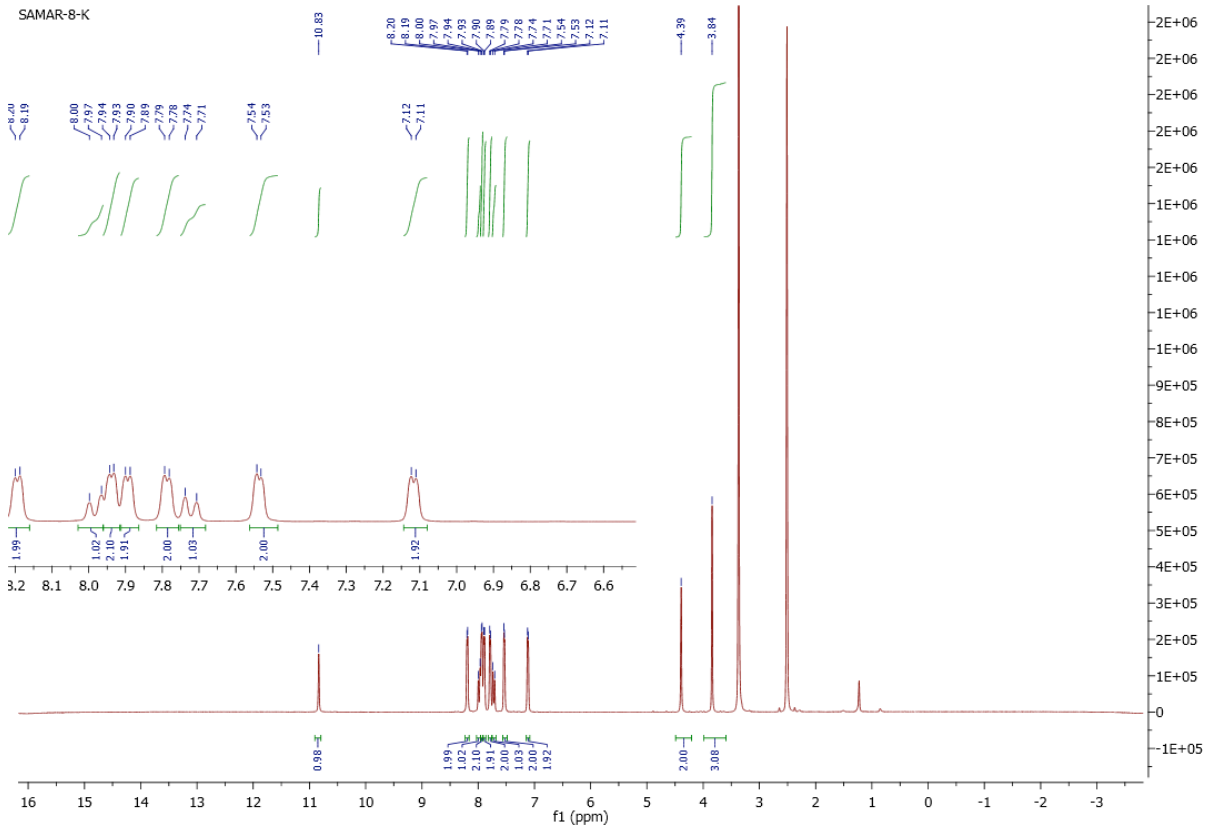

Fig.21. ^{1}H NMR of compound 8k (500 MHz, DMSO-d_6)

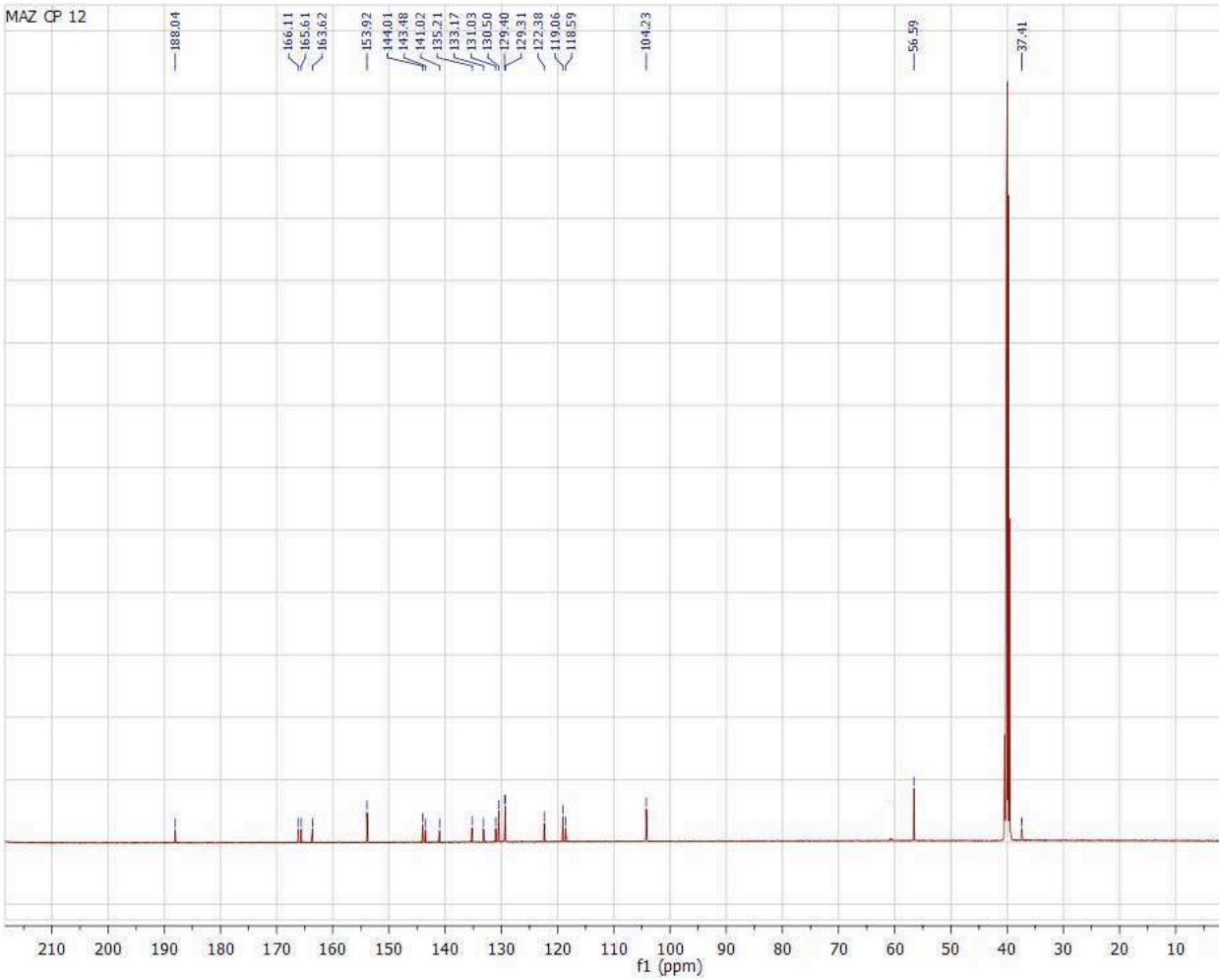

Fig.22. ^{13}C NMR of compound 8k (125 MHz, DMSO-d_6)

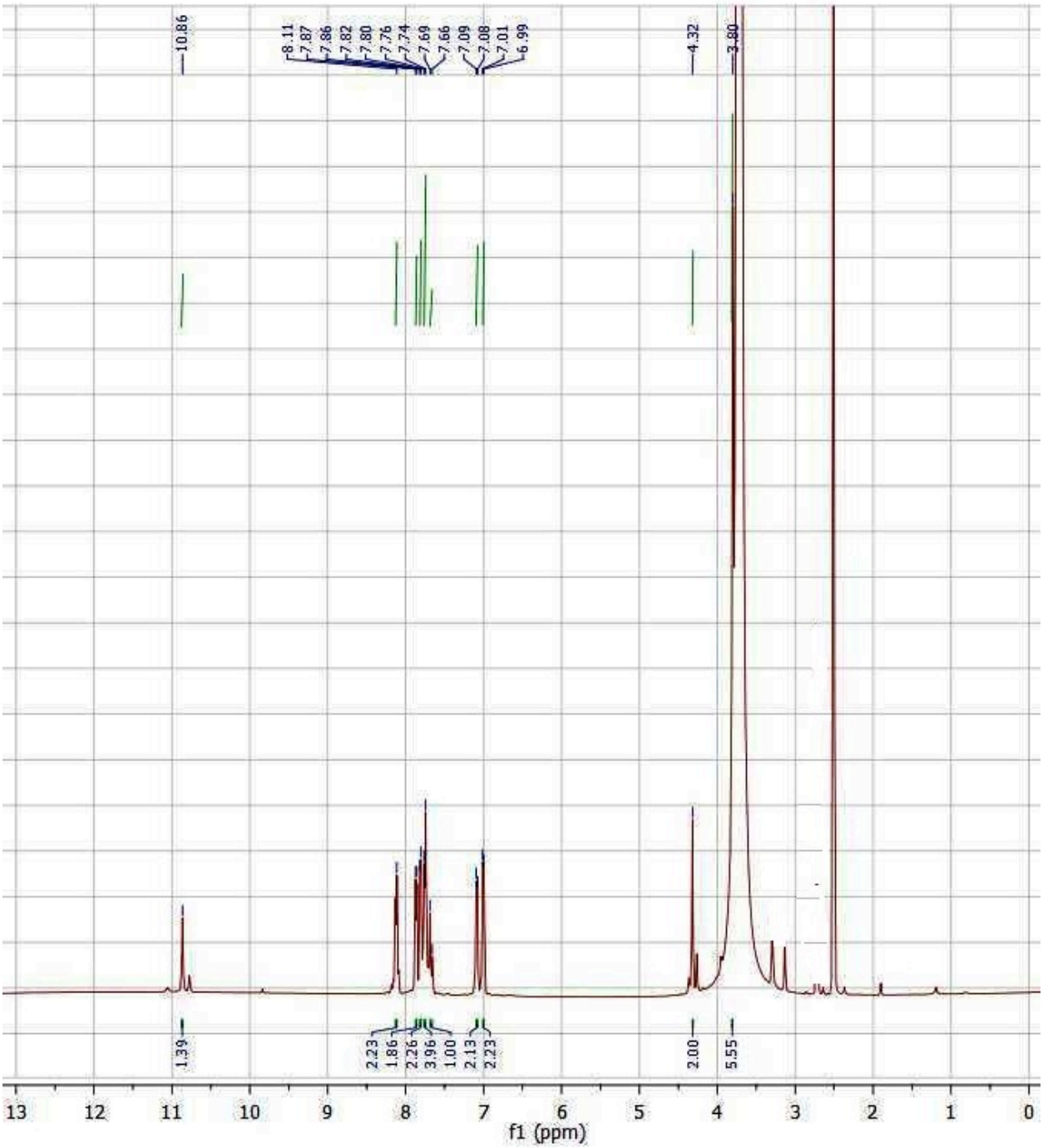

Fig.23. ^{1}H NMR of compound 8l (500 MHz, DMSO-d_6)

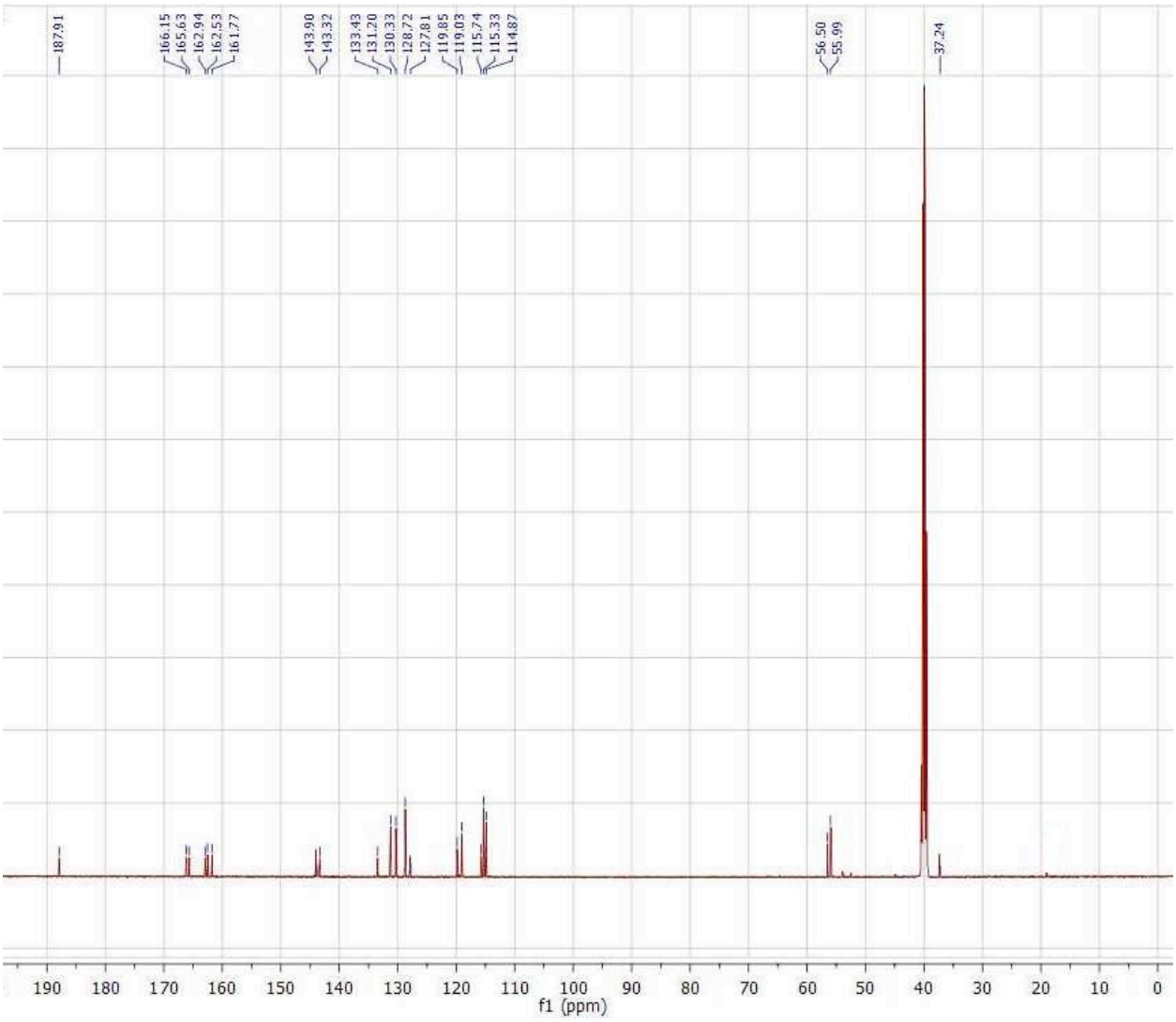

Fig.24. ^{13}C NMR of compound 8l (125 MHz, DMSO-d_6)

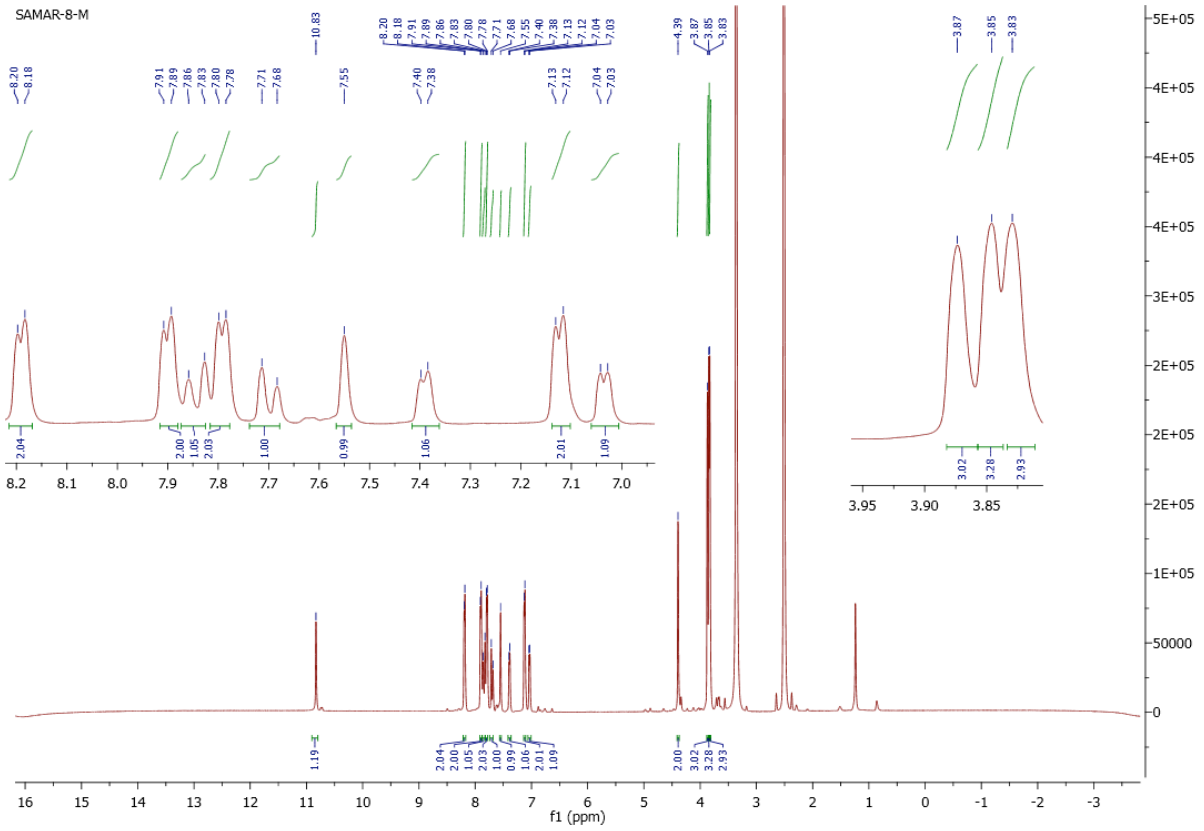

Fig.25. ^{1}H NMR of compound 8m (500 MHz, DMSO-d_6).

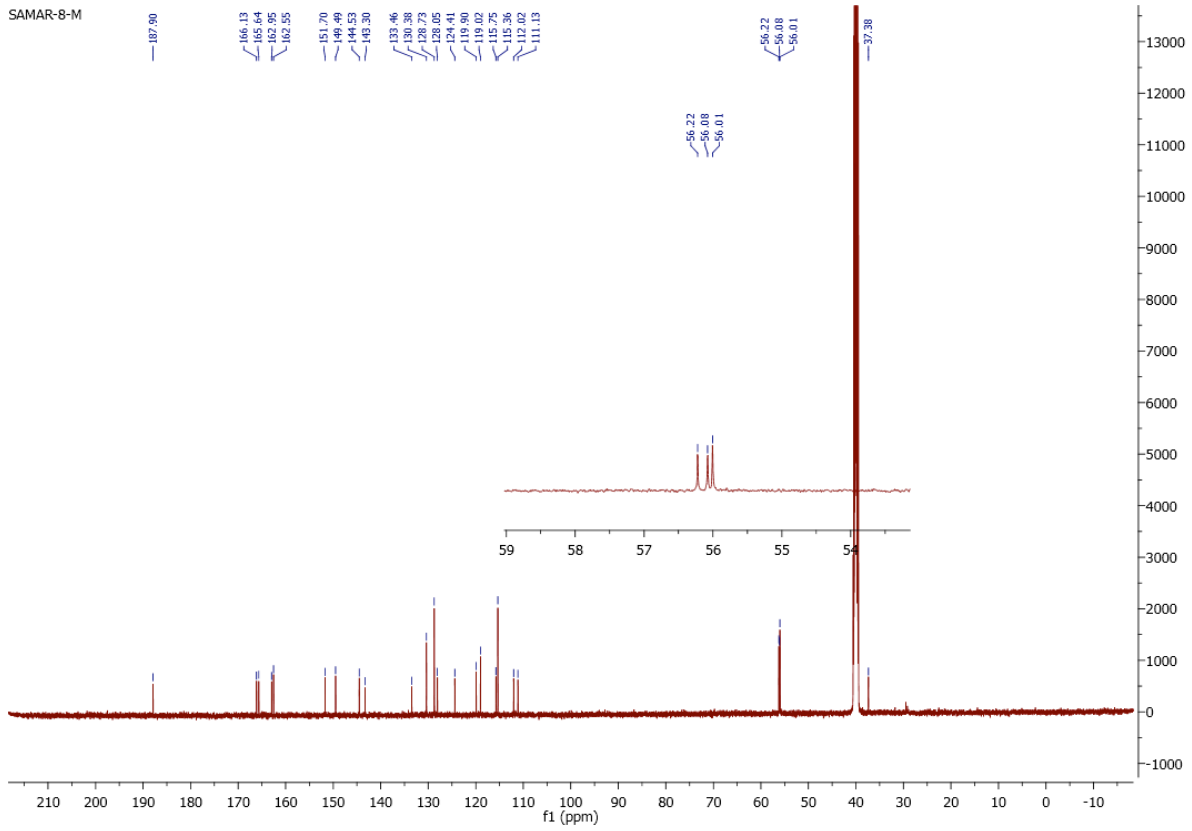

Fig.26. ^{13}C NMR of compound 8m (125 MHz, DMSO-d_6).

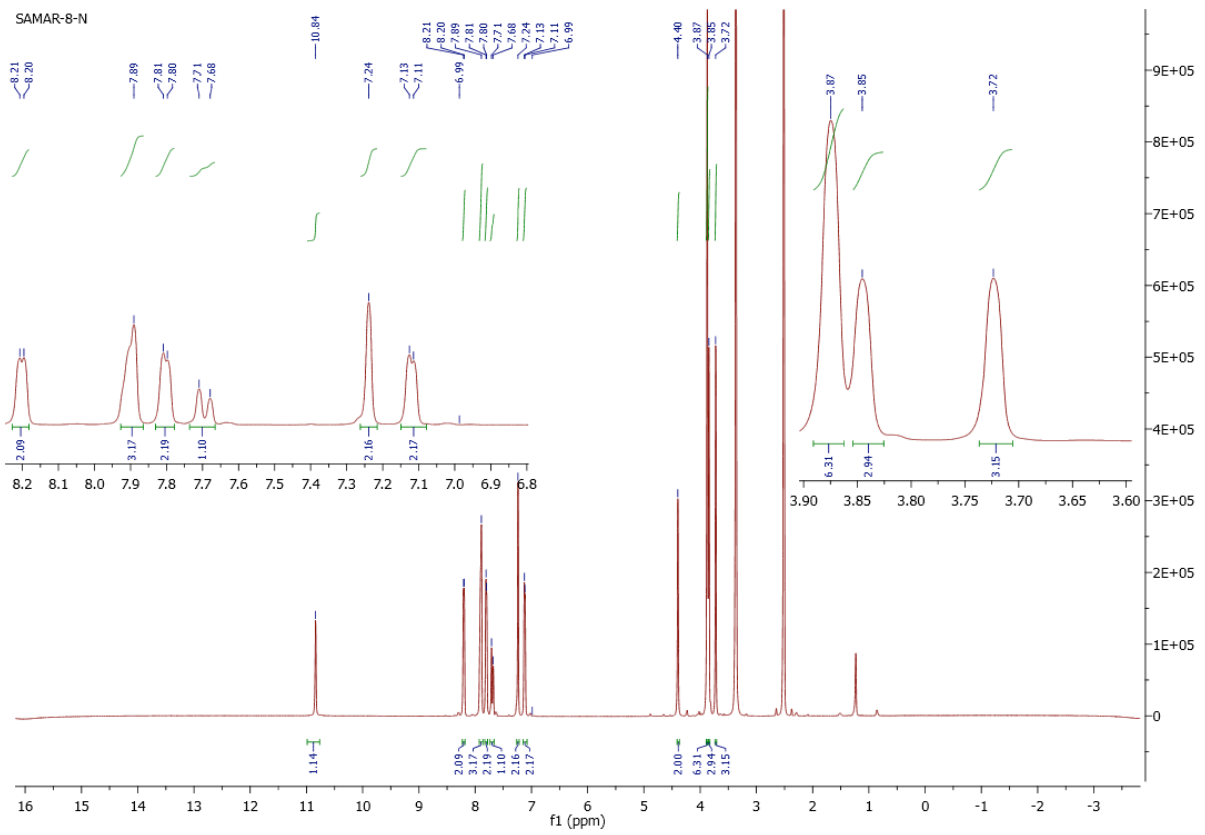

Fig.27. ^{1}H NMR of compound 8n (500 MHz, DMSO-d_6).

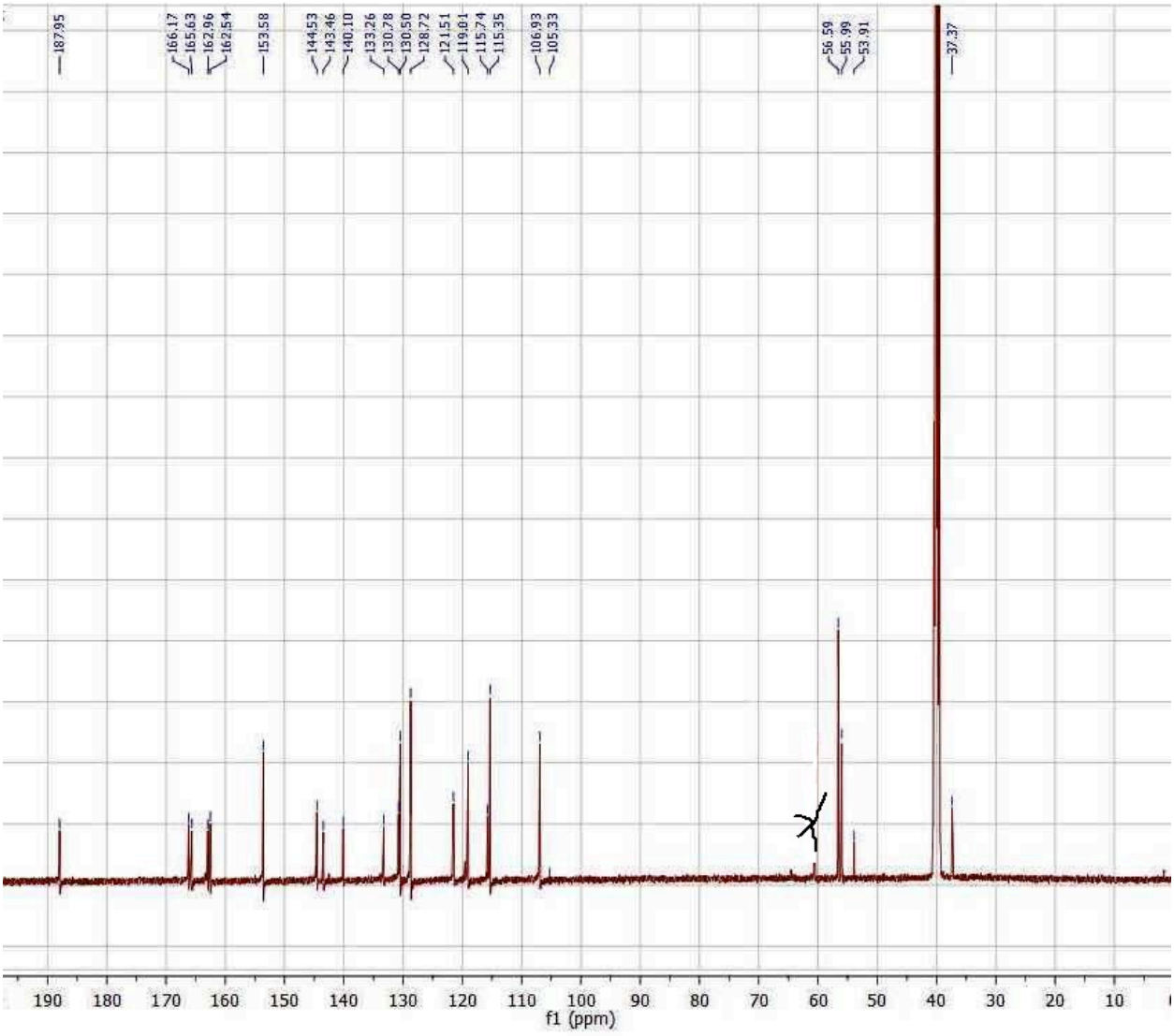

Fig.28. ^{13}C NMR of compound 8n (125 MHz, DMSO-d_6)

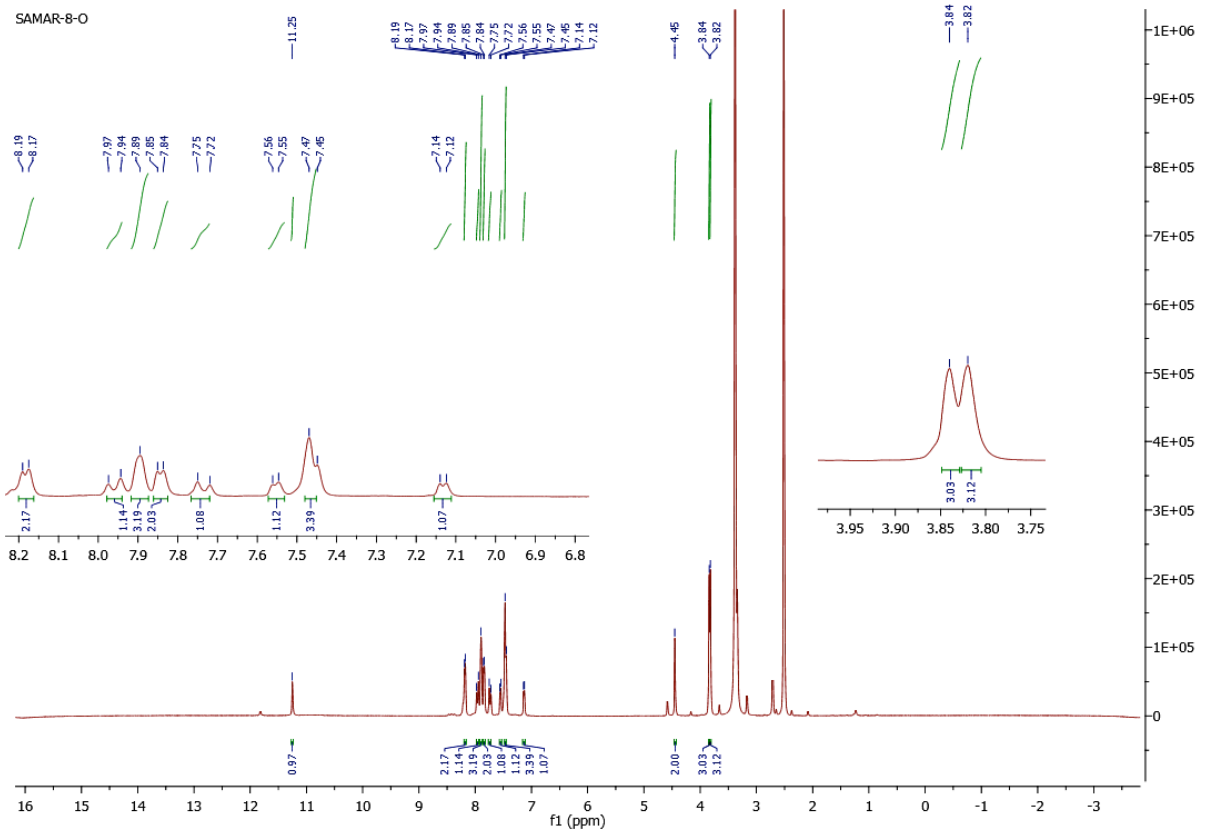

Fig.29. ^{1}H NMR of compound 8o (500 MHz, DMSO-d_6).

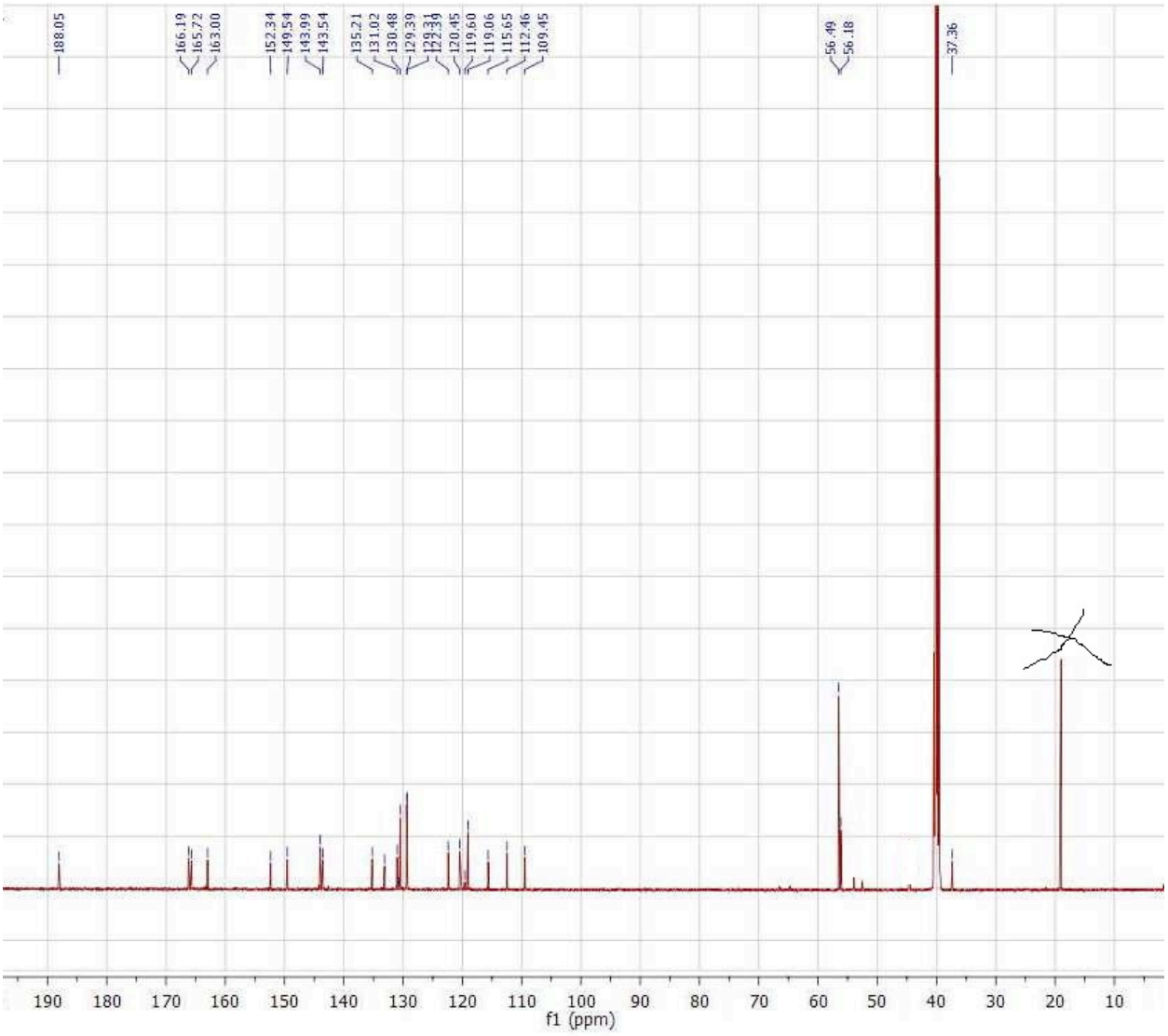

Fig.30. ^{13}C NMR of compound 8o (125 MHz, DMSO-d_6)

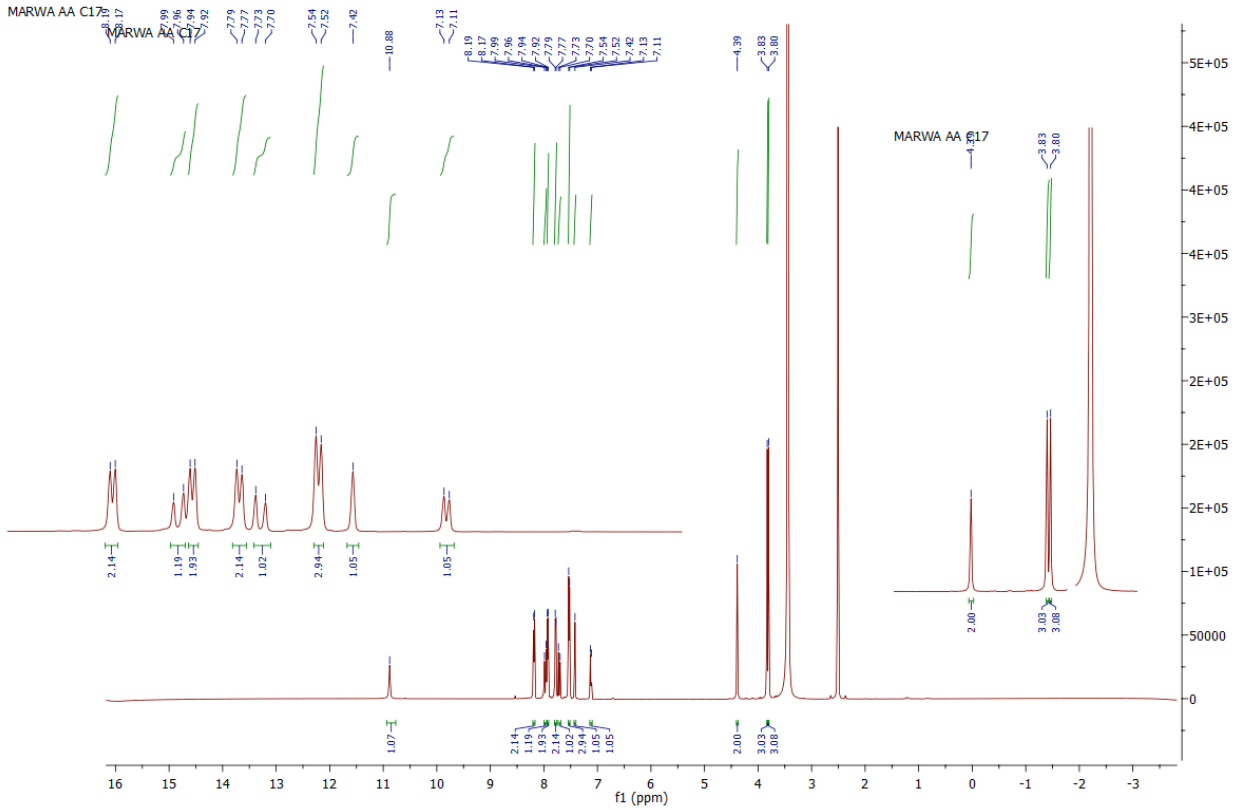

Fig.31. ^{1}H NMR of compound 8p (500 MHz, DMSO-d_6)

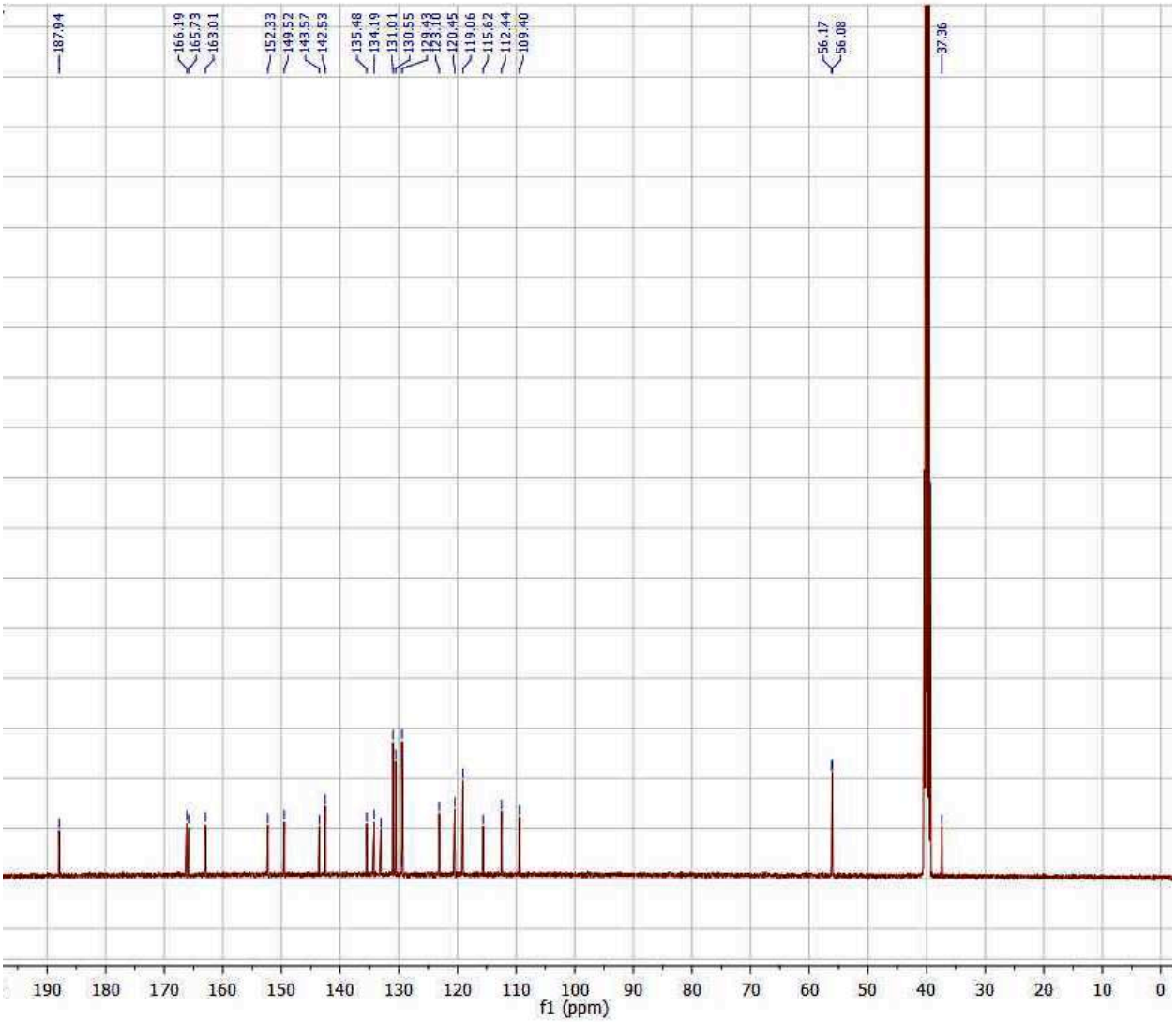

Fig.32. ^{13}C NMR of compound 8p (125 MHz, DMSO-d_6)

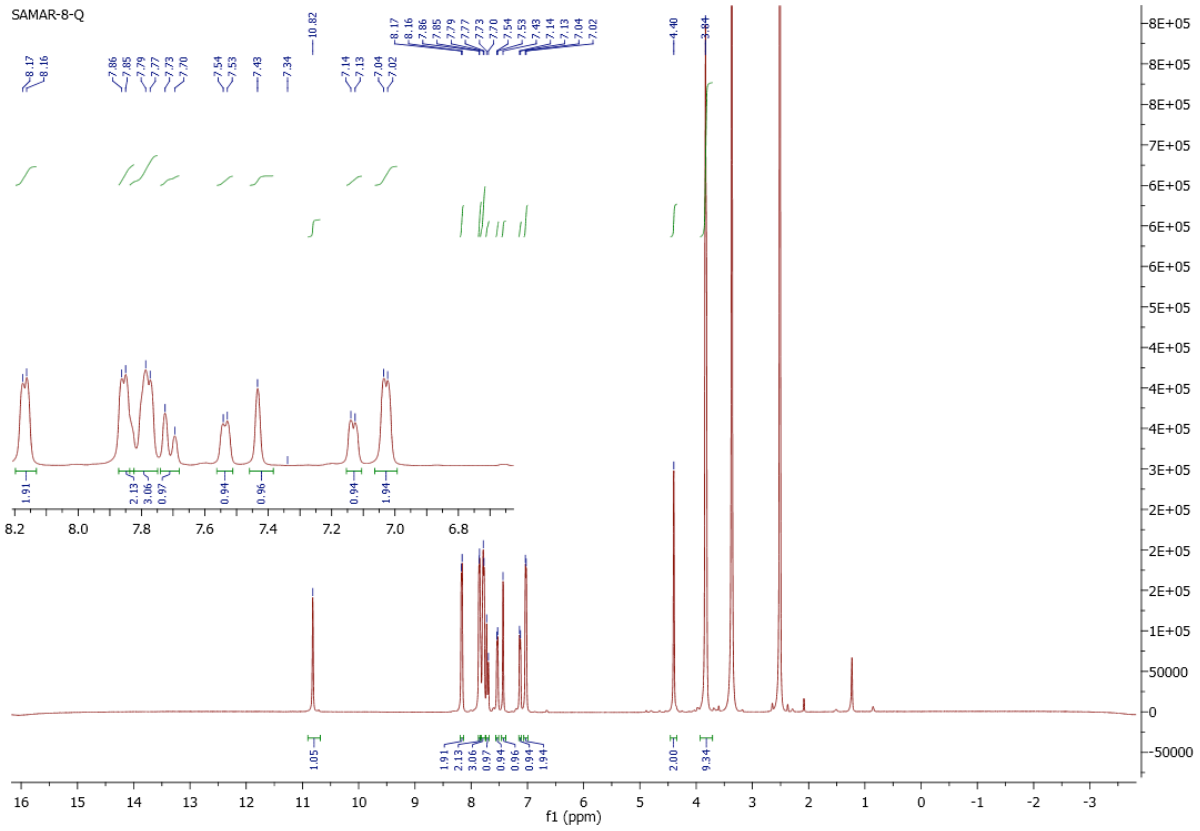

Fig.33. ^{1}H NMR of compound 8q (500 MHz, DMSO-d_6)

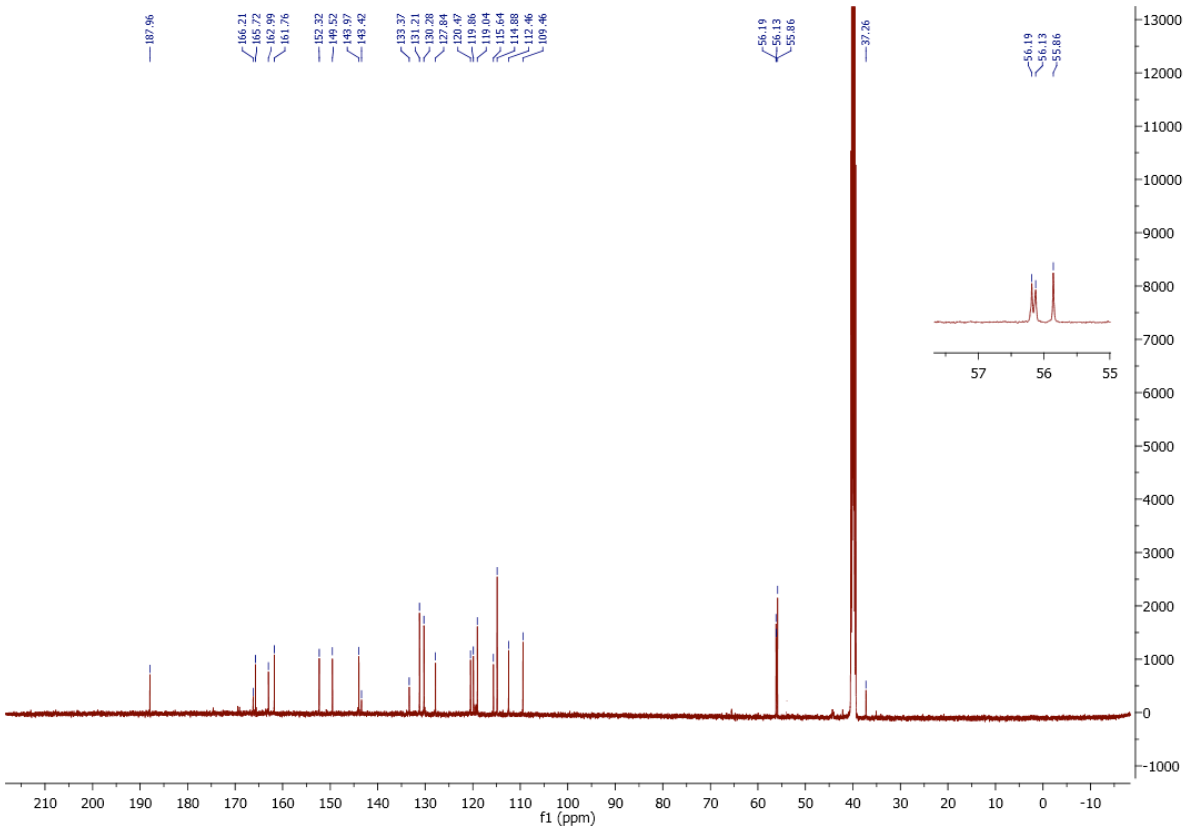

Fig.34. ^{13}C NMR of compound 8q (125 MHz, DMSO-d_6)

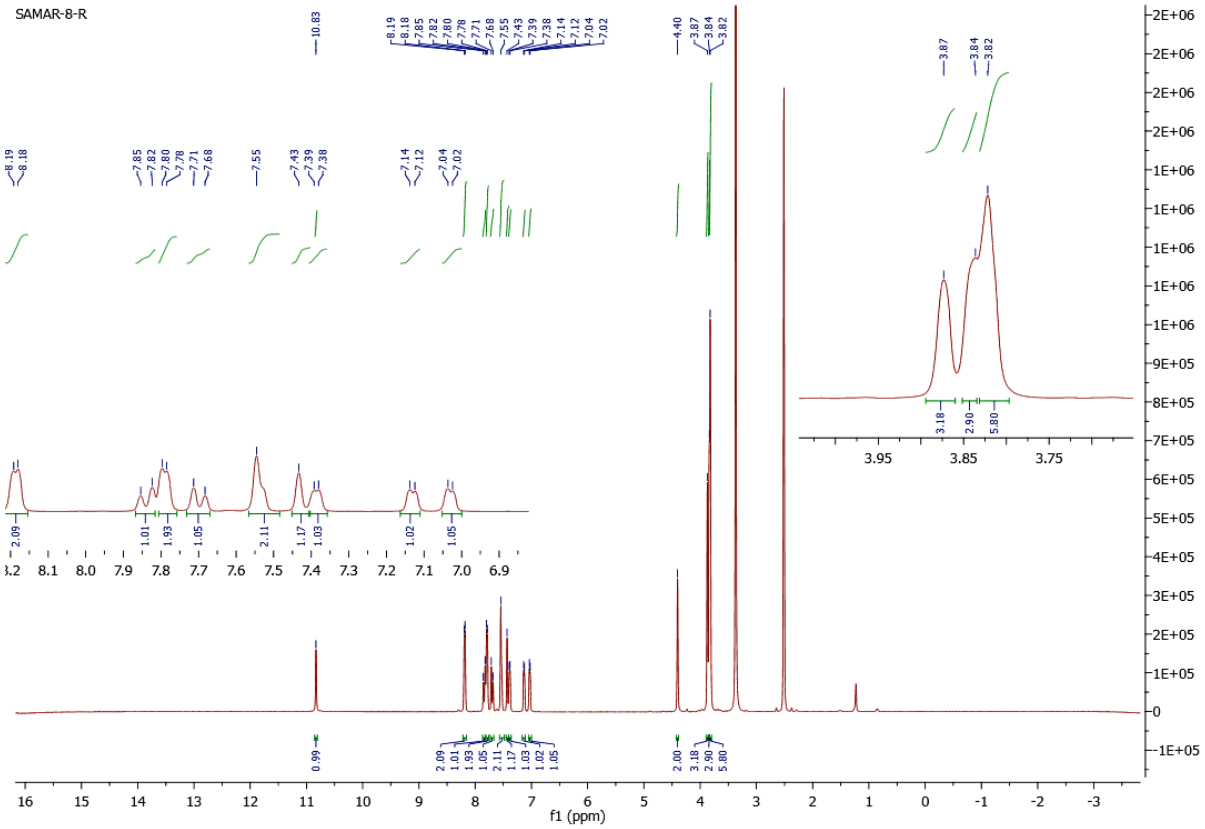

Fig.35. ^{1}H NMR of compound 8r (500 MHz, DMSO-d_6)

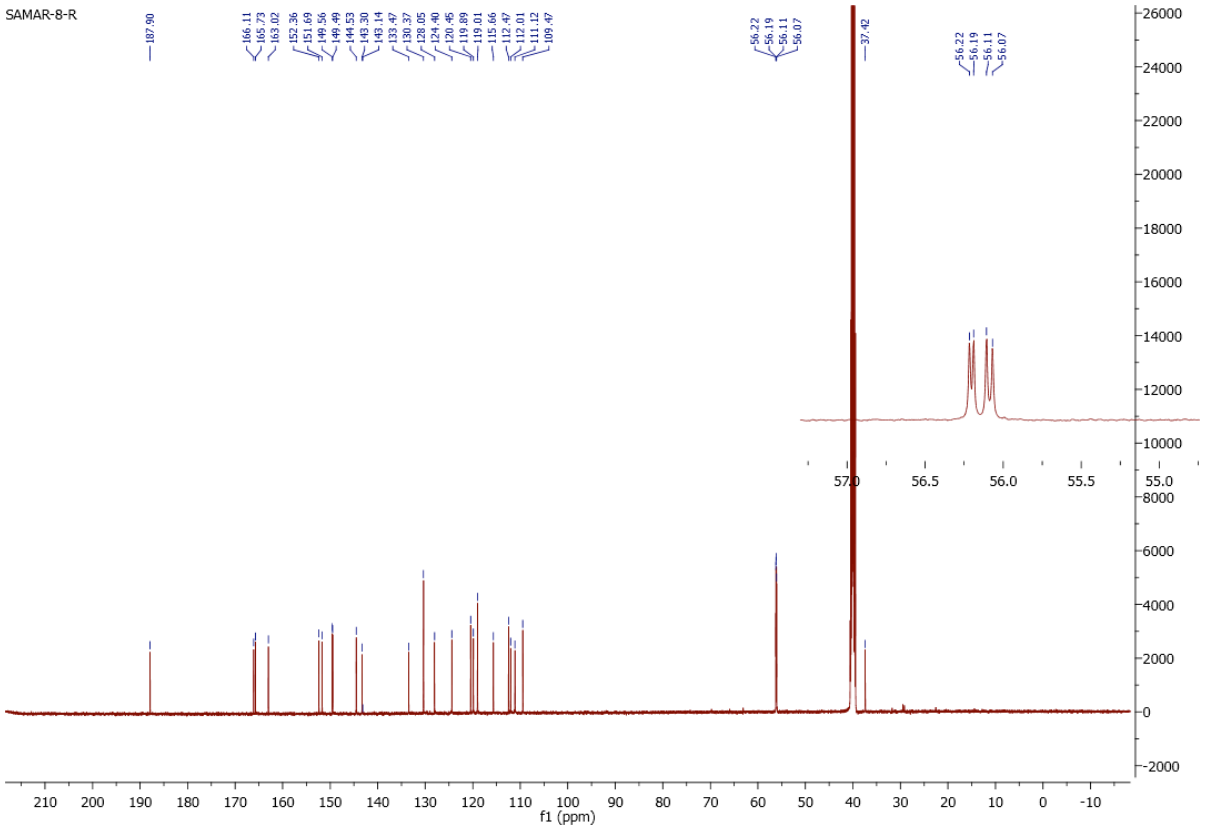

Fig.36. ^{13}C NMR of compound 8r (125 MHz, DMSO-d_6)

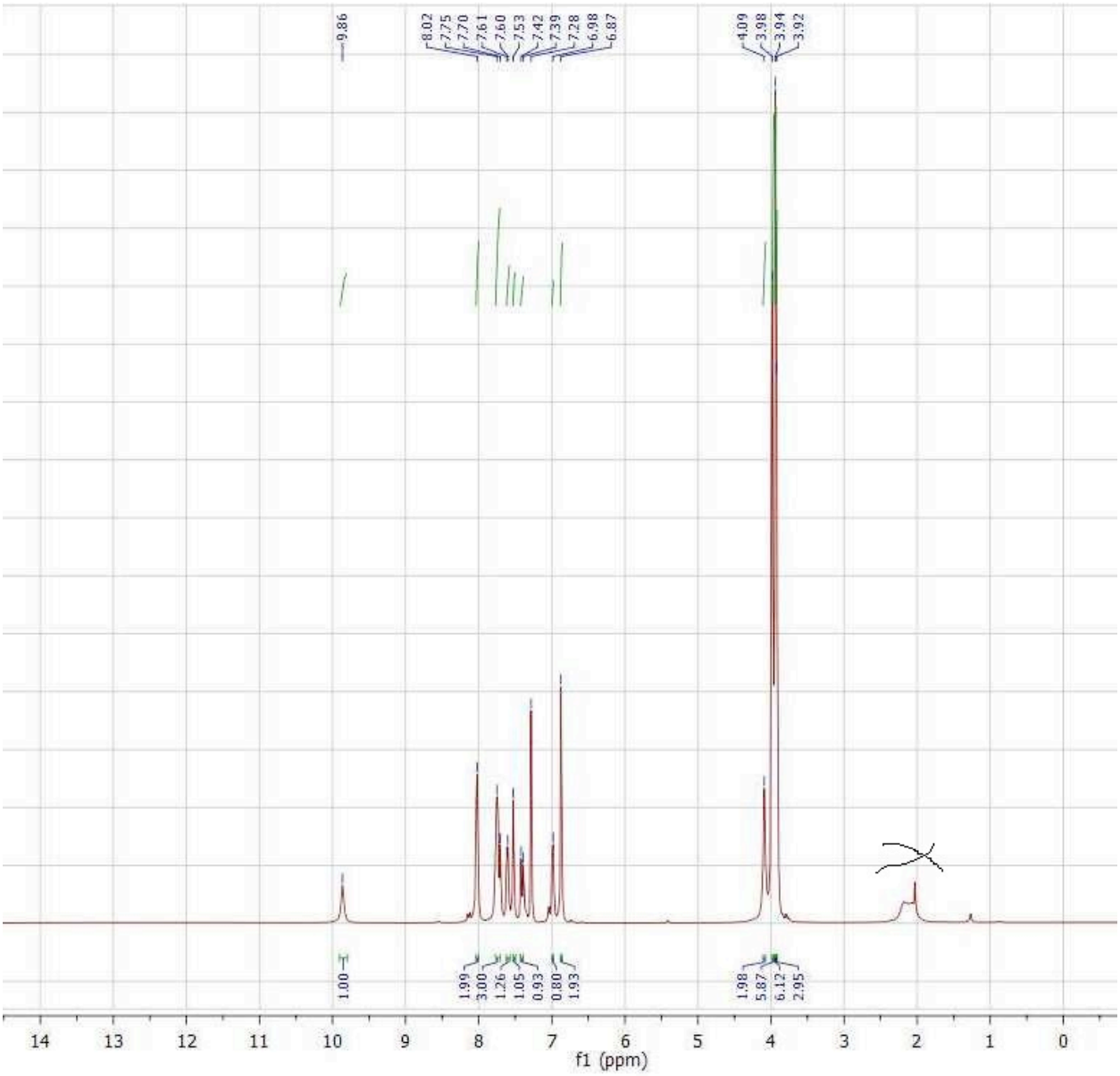

Fig.37. ^{1}H NMR of compound 8s (500 MHz, $CDCl_3$)

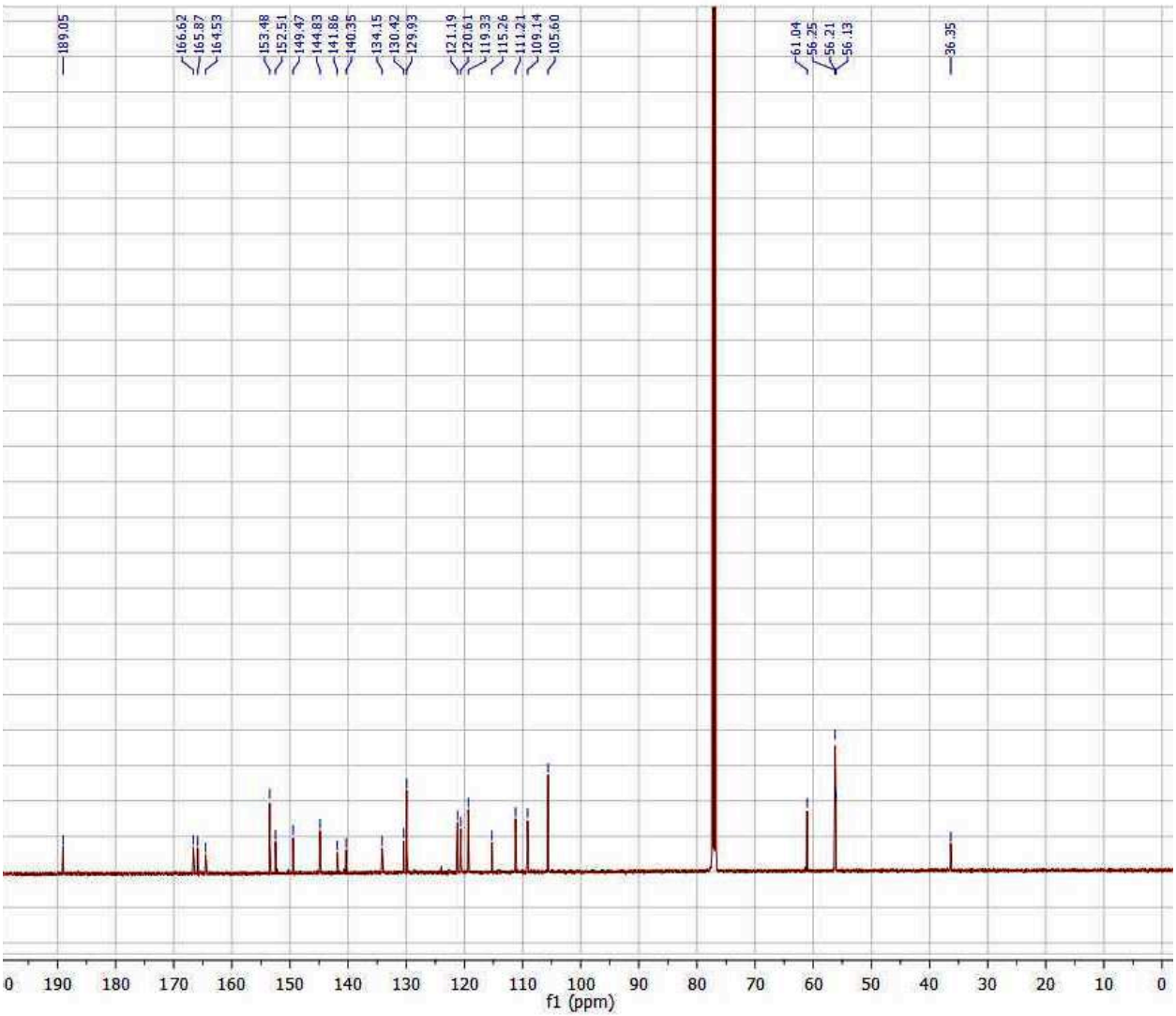

Fig.38. ^{13}C NMR of compound 8s (125 MHz, $CDCl_3$)

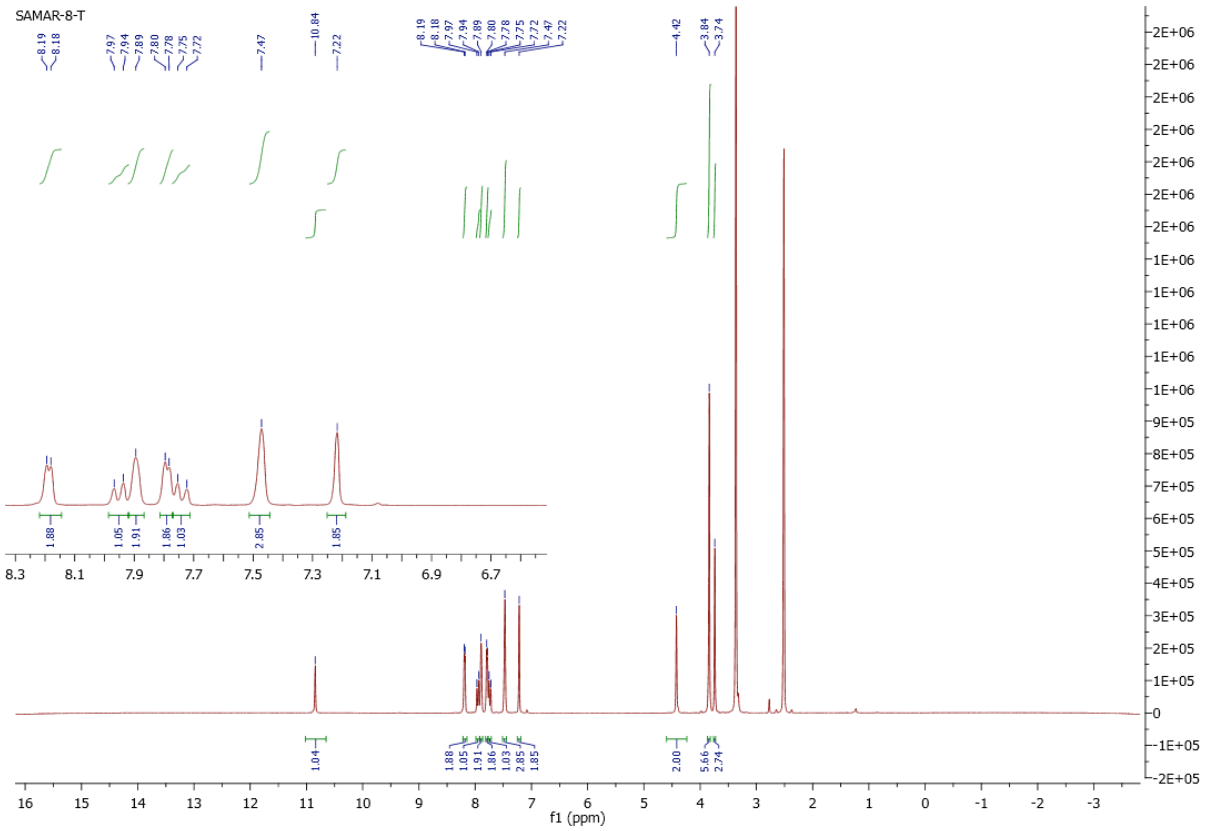

Fig.39. ^{1}H NMR of compound 8t (500 MHz, DMSO-d_6)

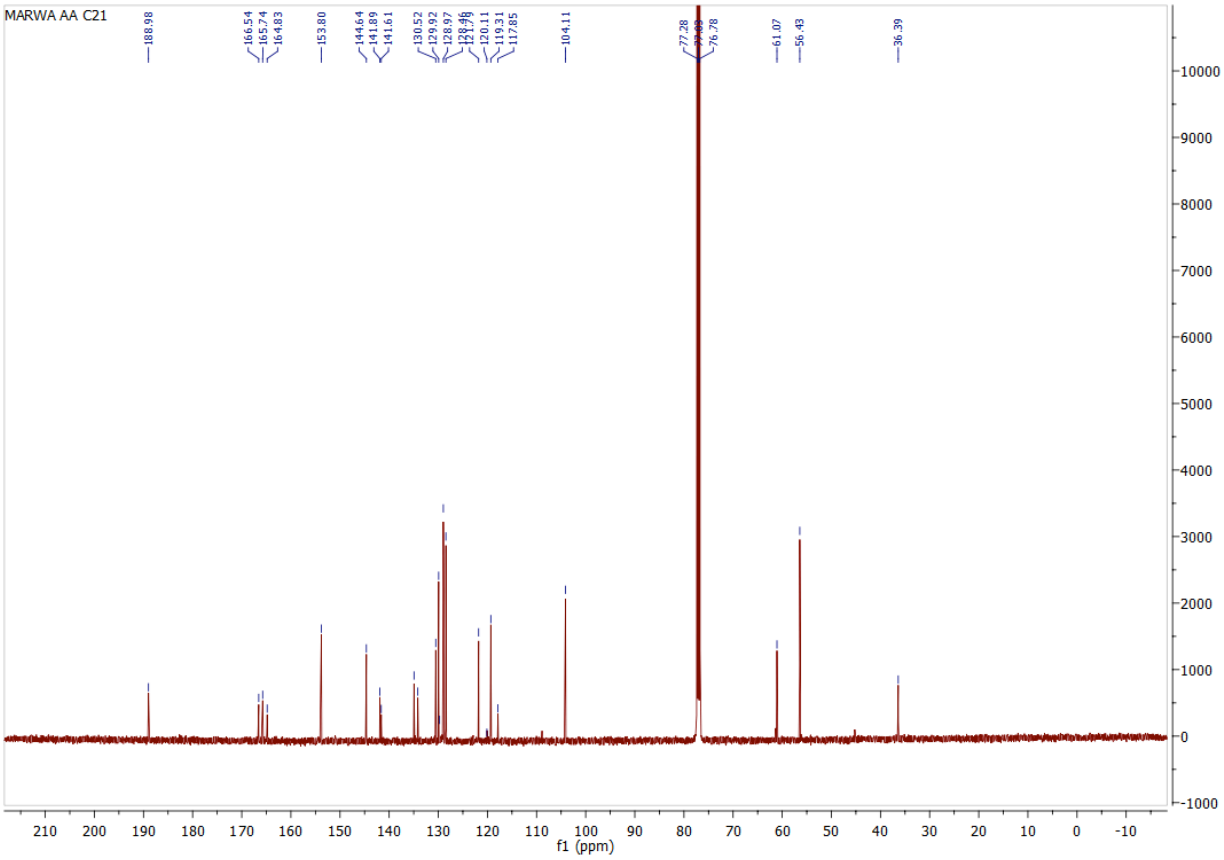

Fig.40. ^{13}C NMR of compound 8t (125 MHz, $CDCl_3$)

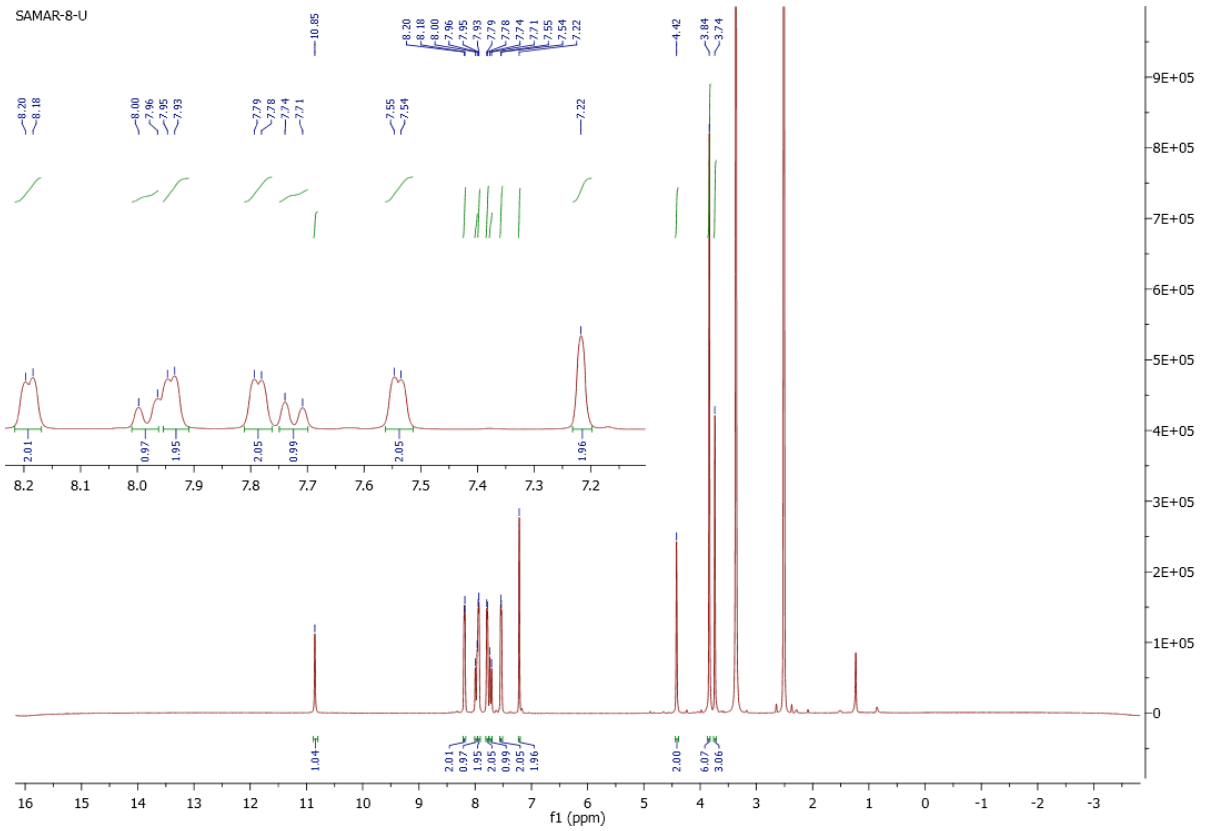

Fig.41. ^{1}H NMR of compound 8u (500 MHz, DMSO-d_6)

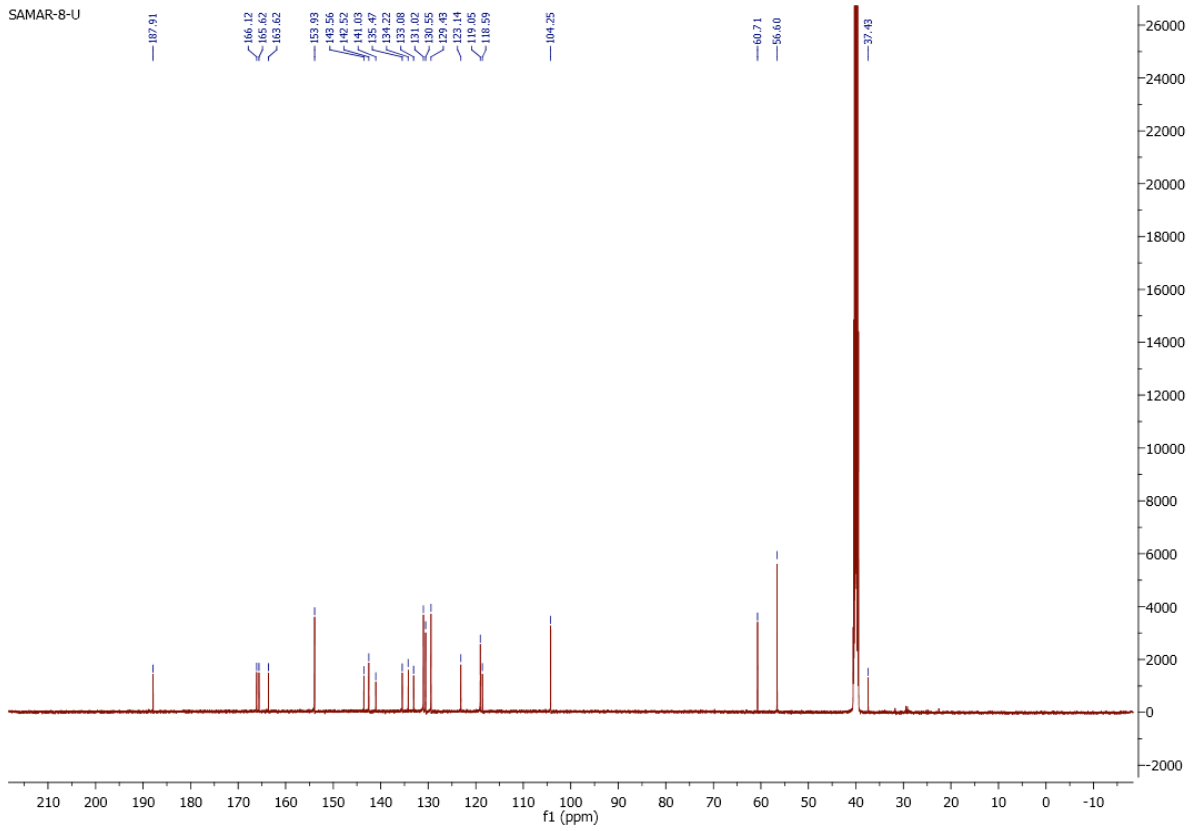

Fig.42. ^{13}C NMR of compound 8u (125 MHz, DMSO-d_6)

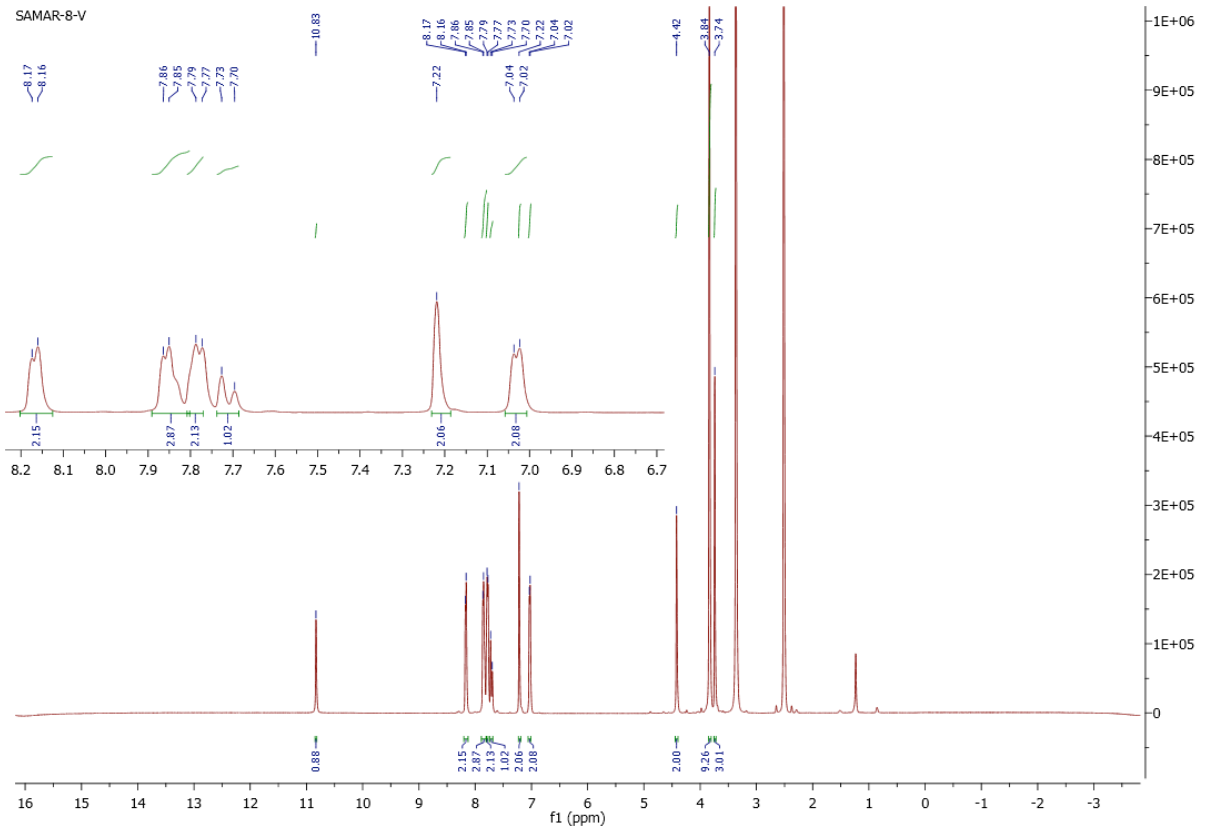

Fig.43. ^{1}H NMR of compound 8v (500 MHz, DMSO-d_6)

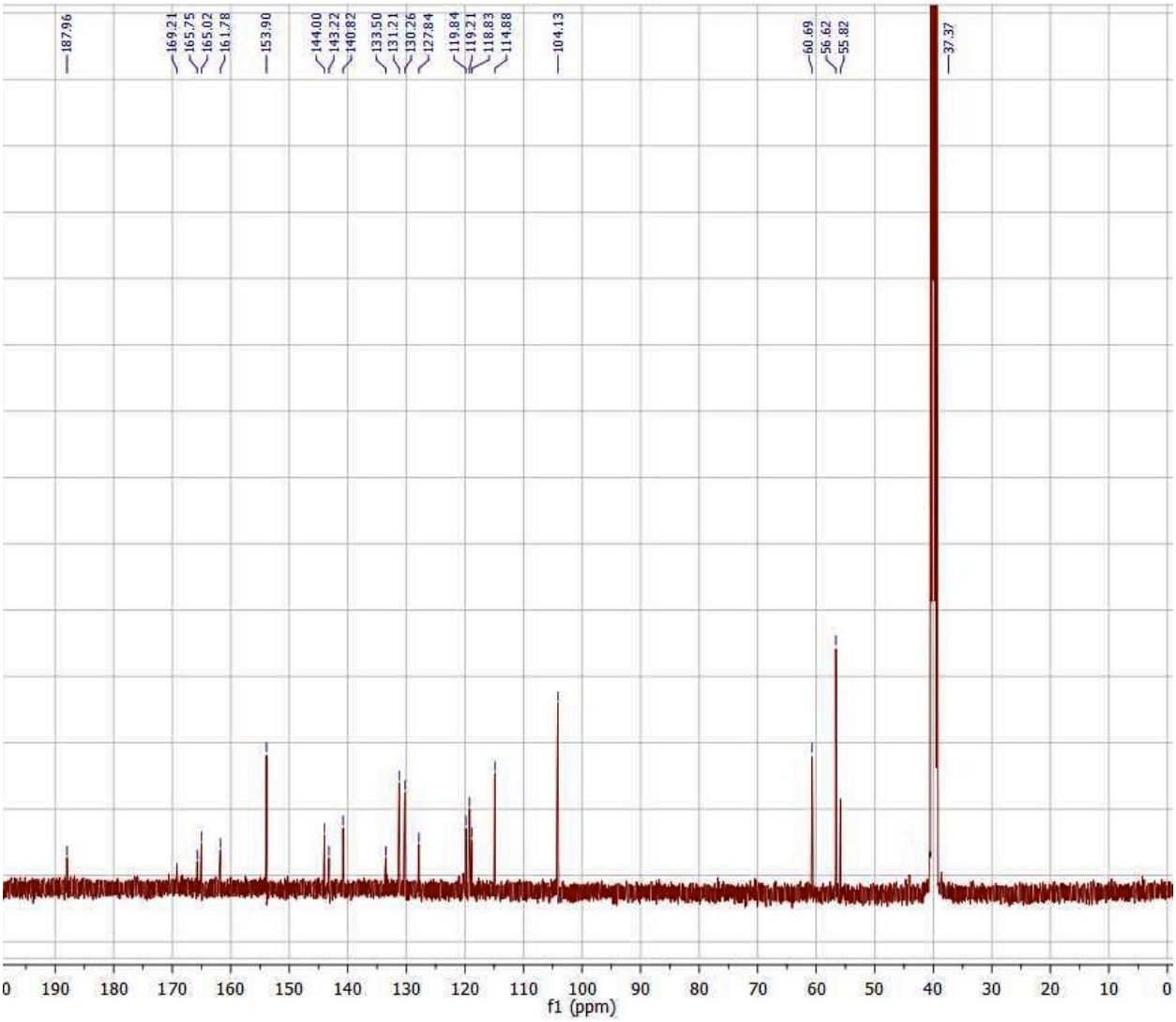

Fig.44. ^{13}C NMR of compound 8v (125 MHz, DMSO-d_6)

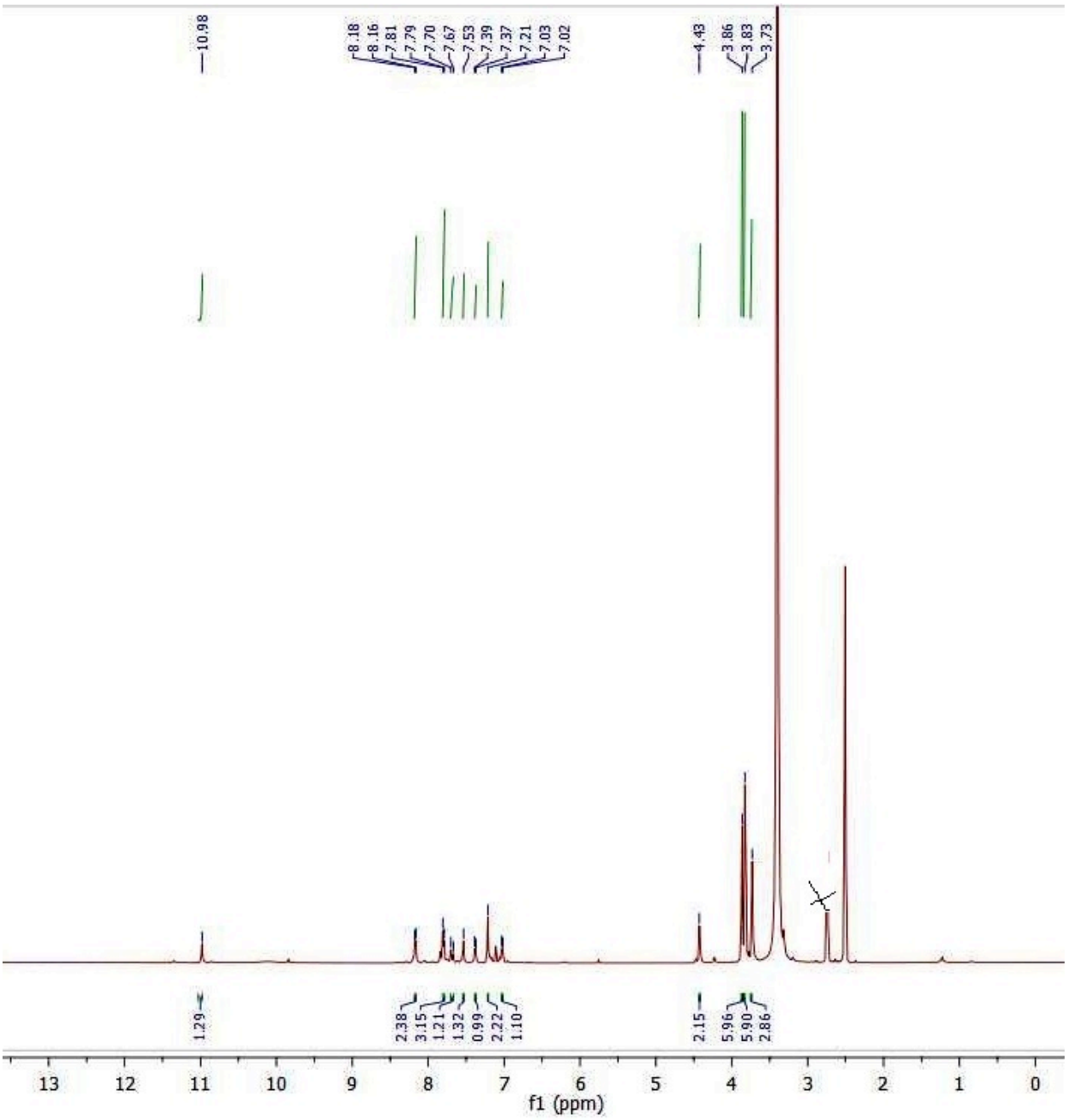

Fig.45. ^{1}H NMR of compound 8w (500 MHz, DMSO-d_6)

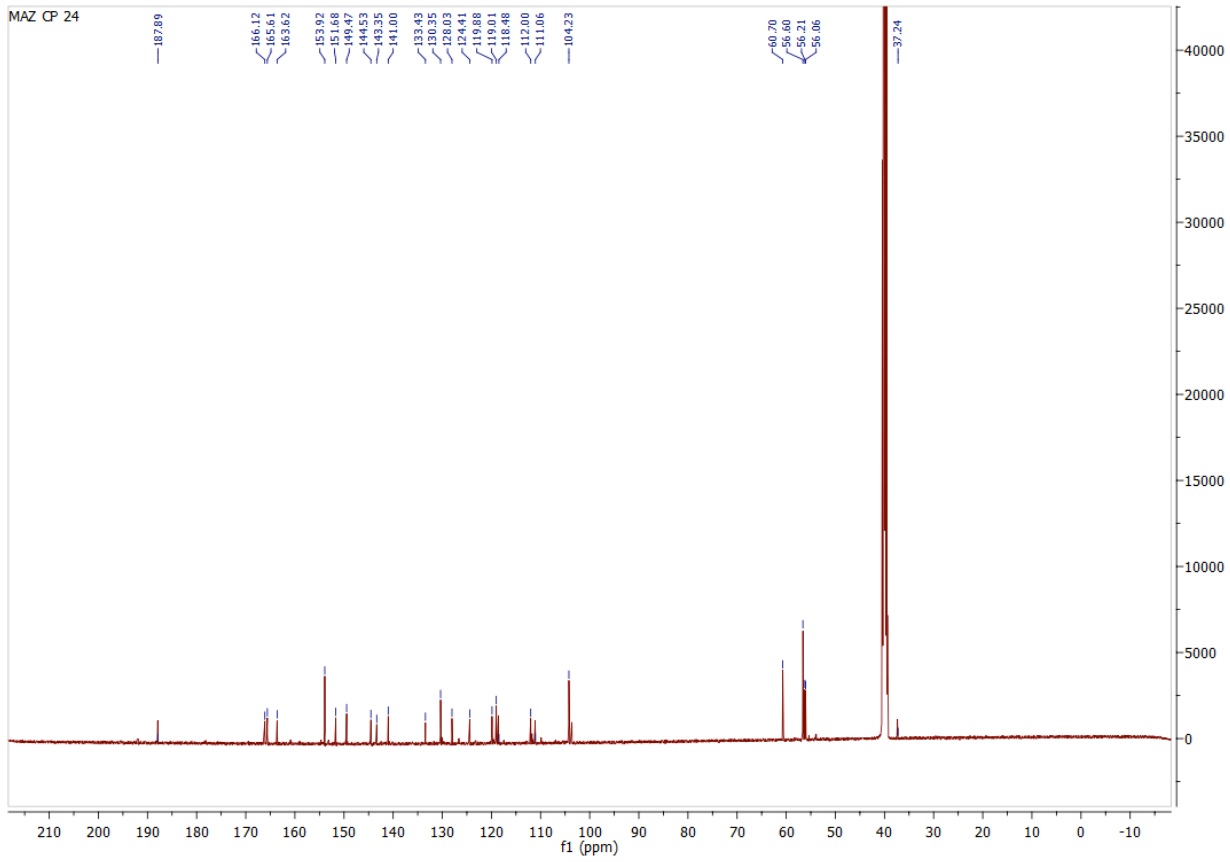

Fig.46. ^{13}C NMR of compound 8w (125 MHz, DMSO-d_6)

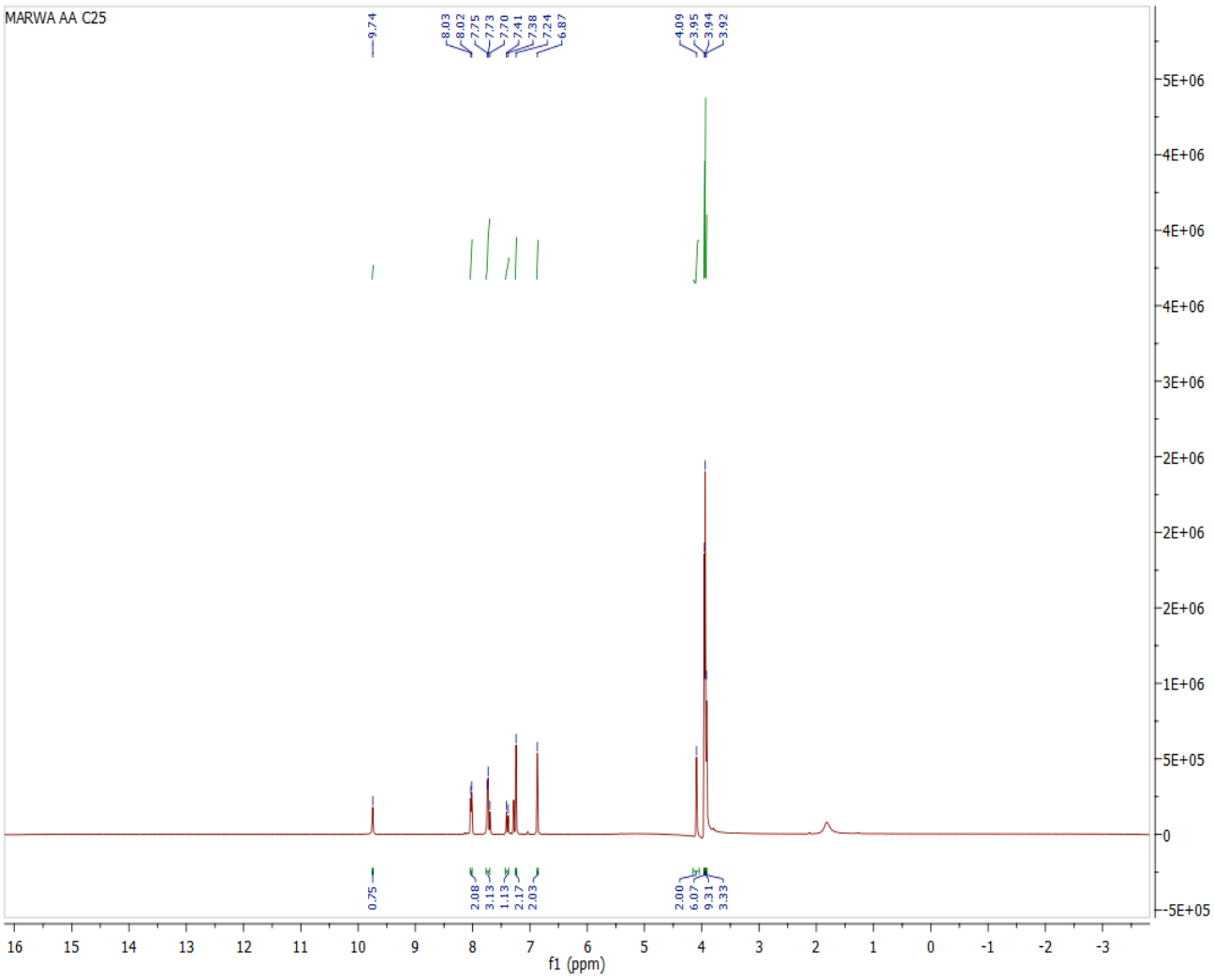

Fig.47. ^{1}H NMR of compound 8x (500 MHz, $CDCl_3$)

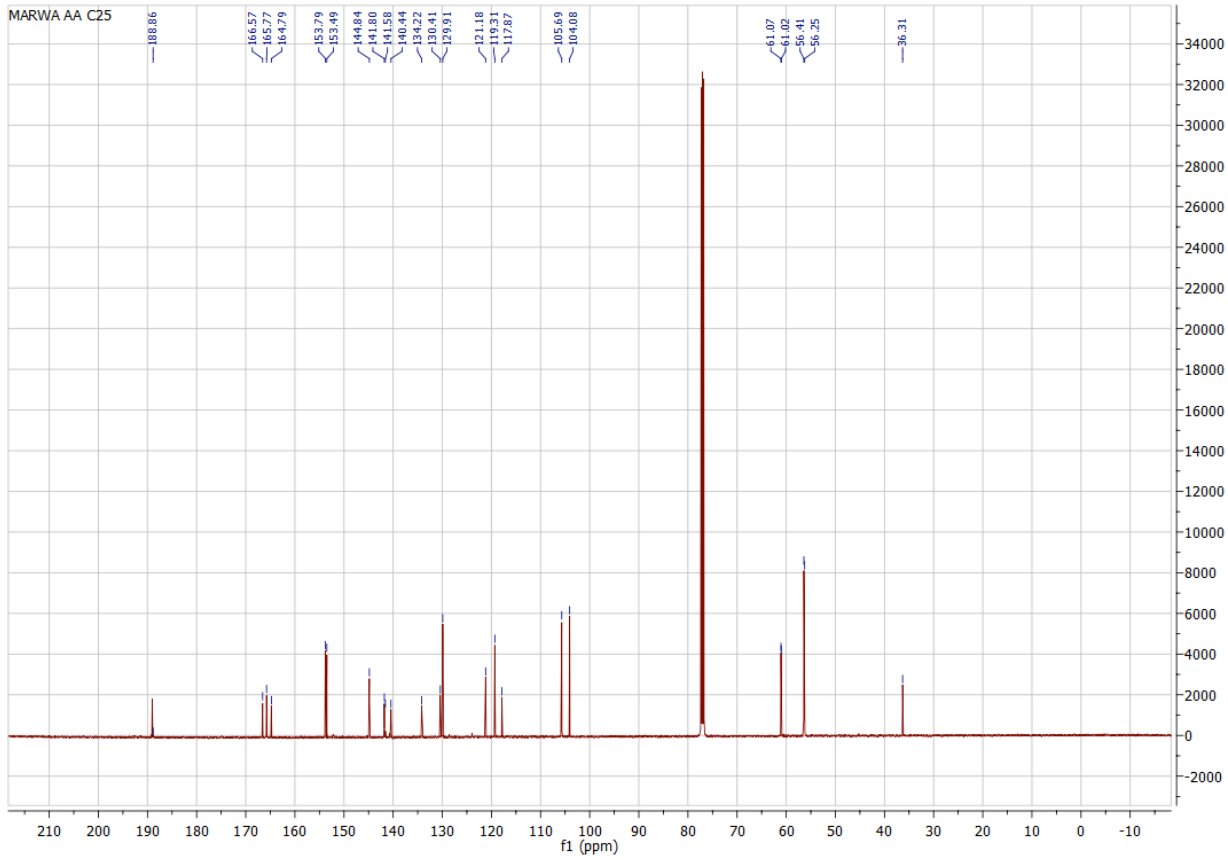

Fig.48. ^{13}C NMR of compound 8x (125 MHz, $CDCl_3$)

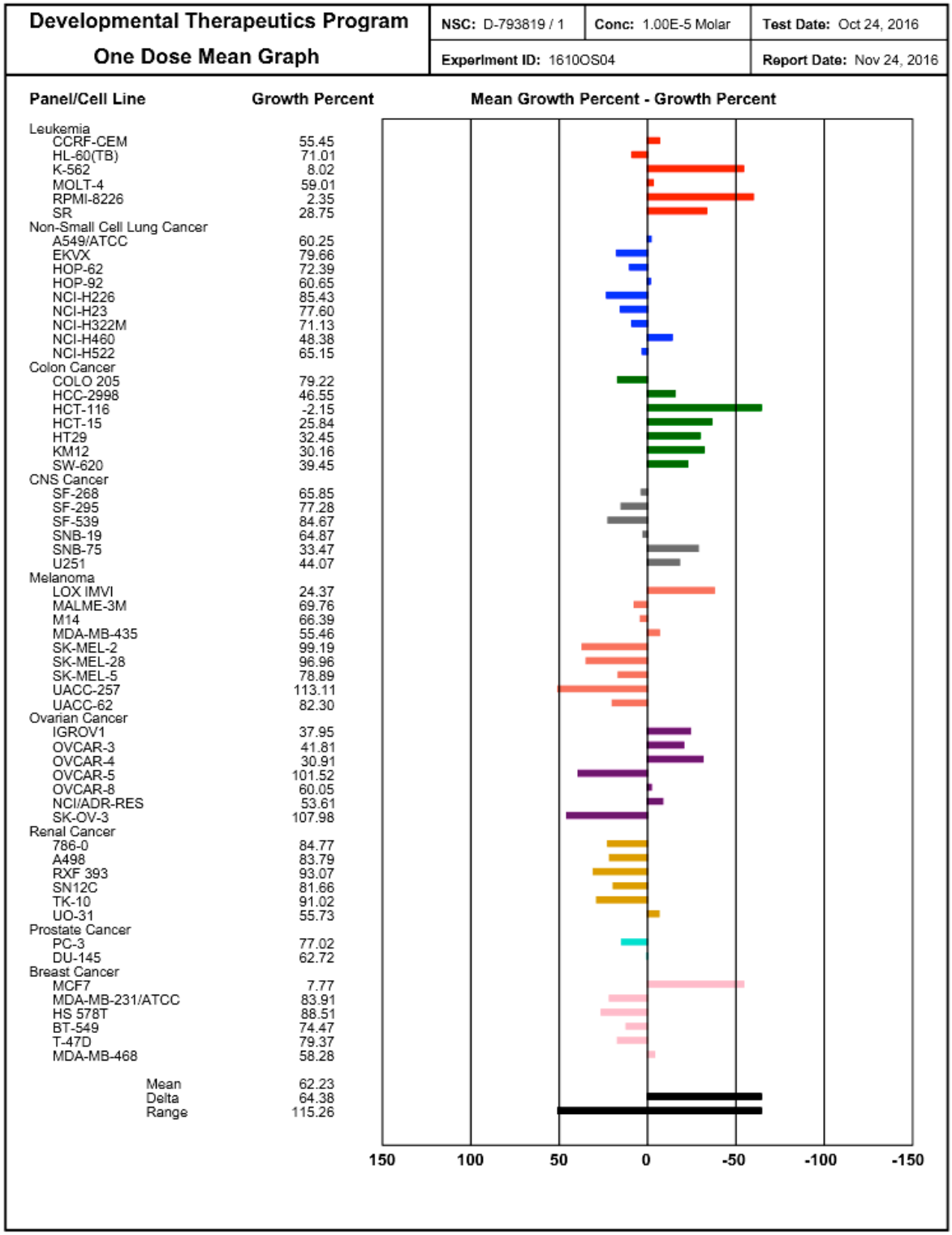

Fig.49. one dose mean graph of nine different cancer cell line panels for compound **8a**

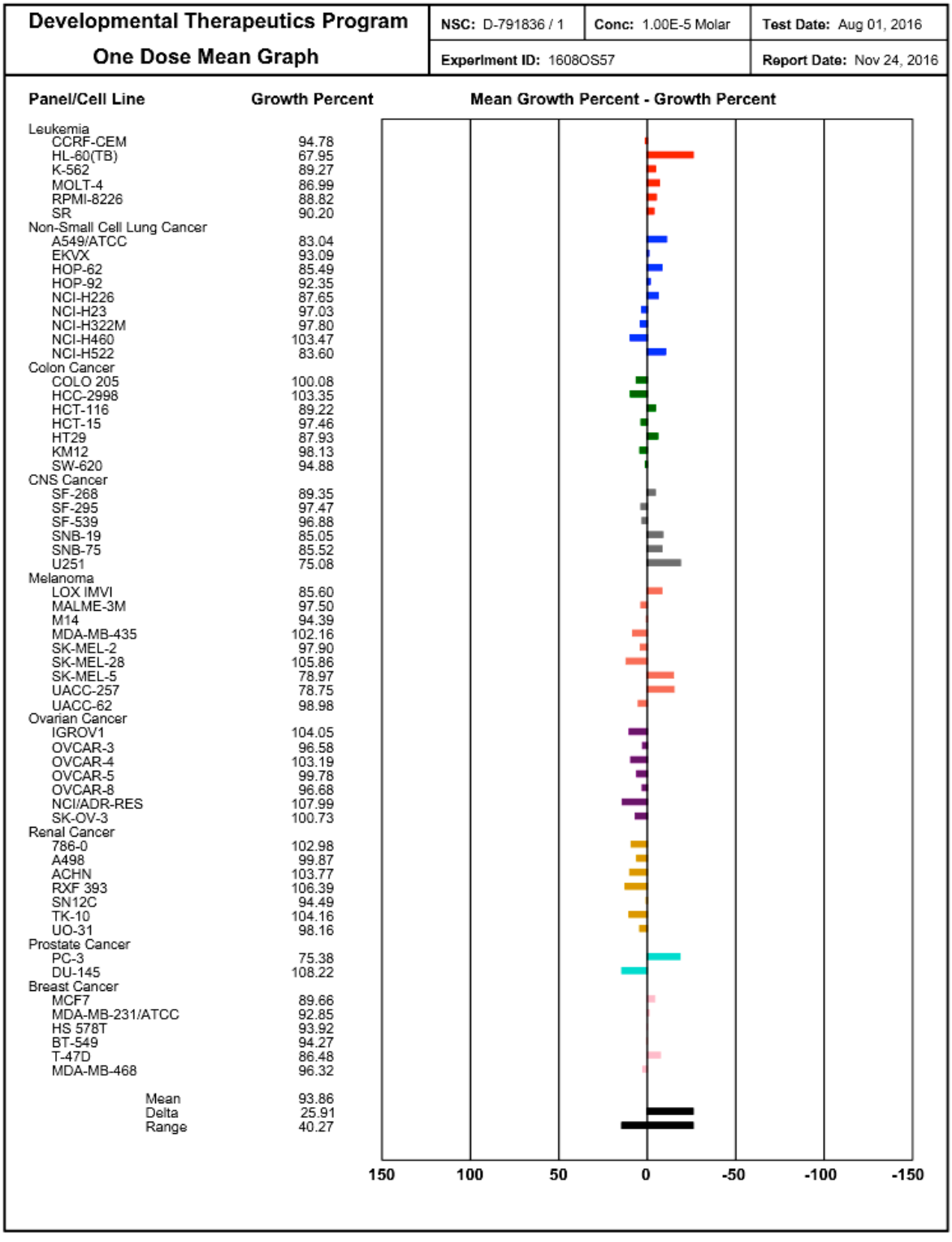

Fig.50. One dose mean graph of nine different cancer cell line panels for compound **8b**

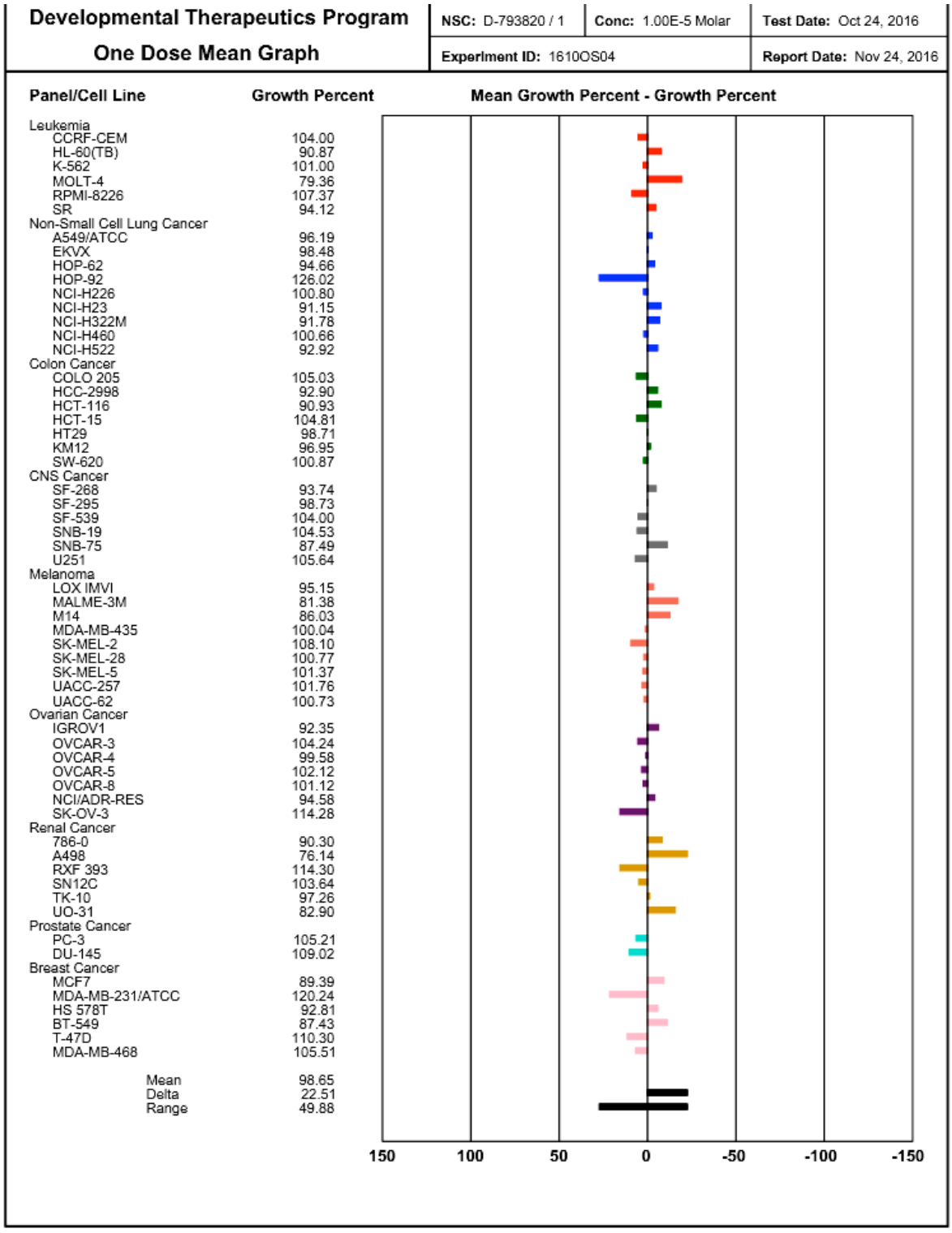

Fig.51. one dose mean graph of nine different cancer cell line panels for compound **8c**

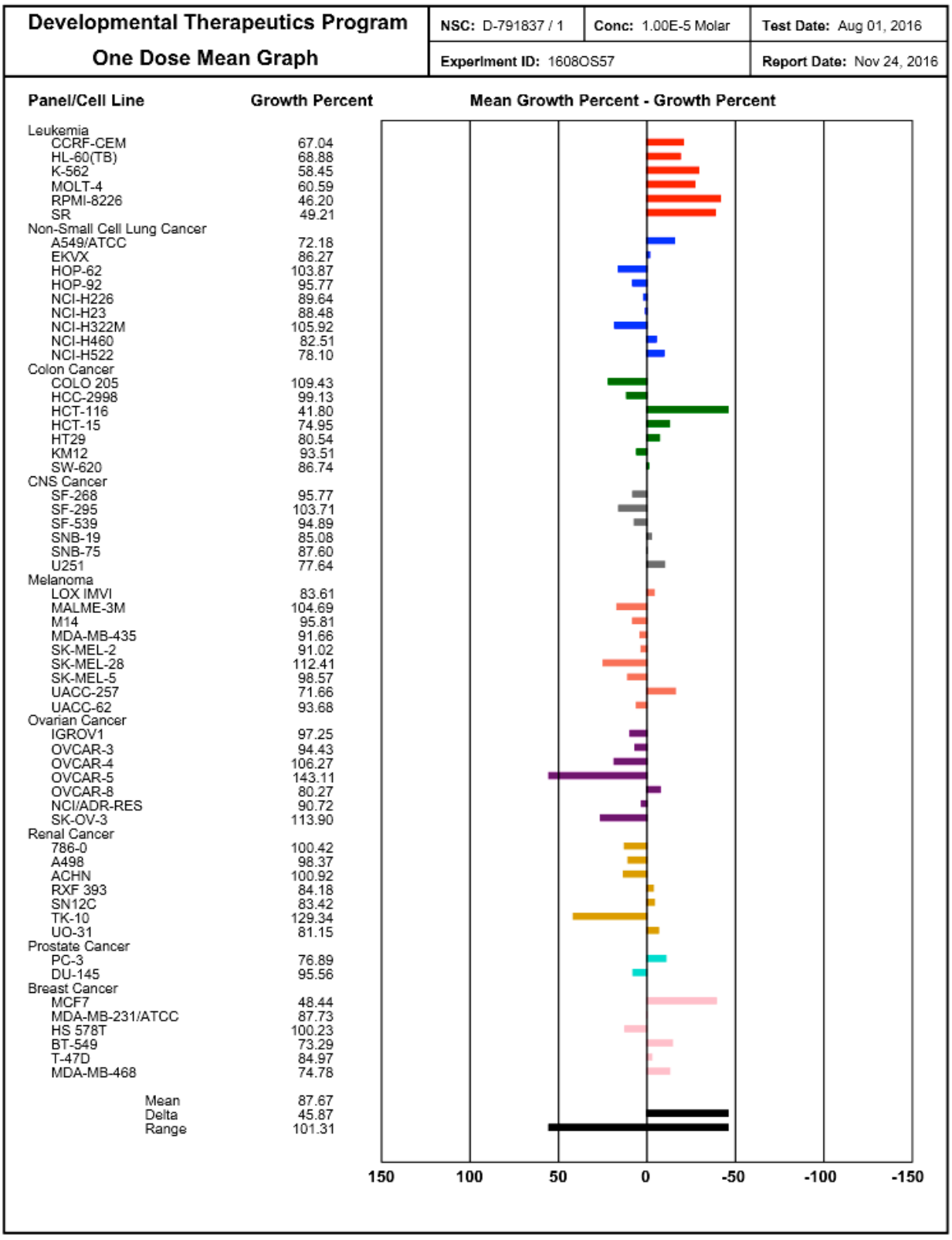

Fig.52. one dose mean graph of nine different cancer cell line panels for compound **8d**

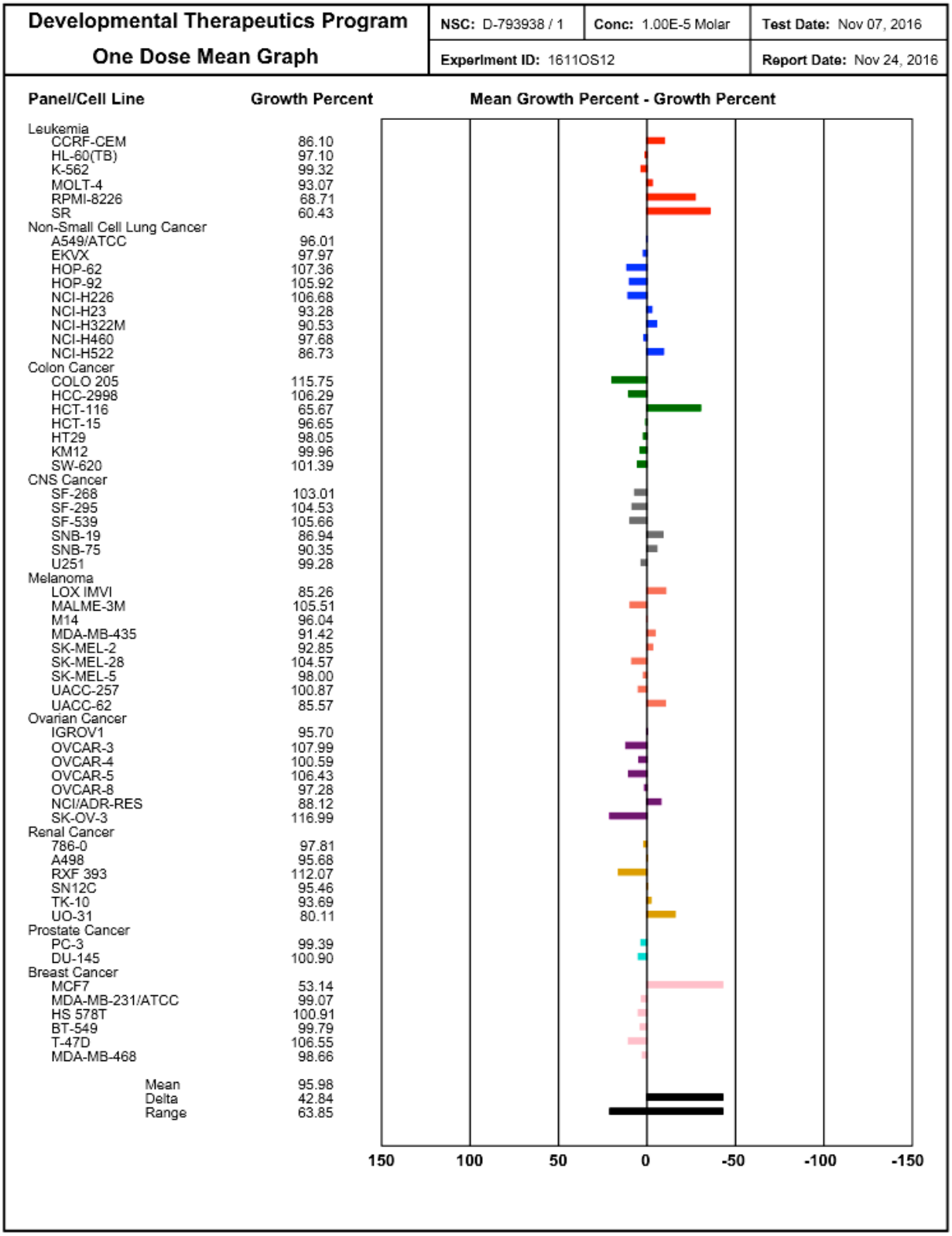

Fig.53. One dose mean graph of nine different cancer cell line panels for compound **8e**

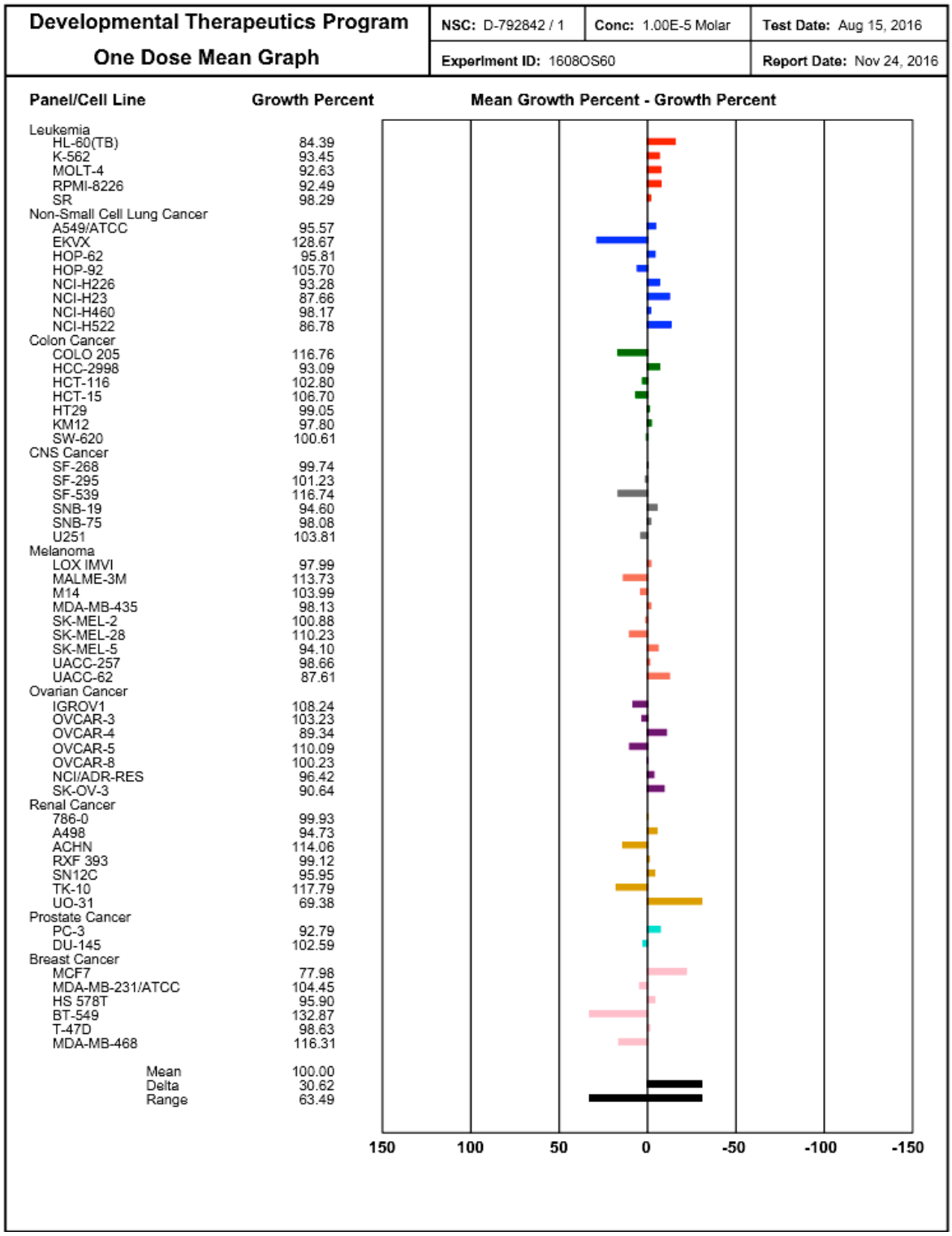

Fig.54. One dose mean graph of nine different cancer cell line panels for compound **8f**

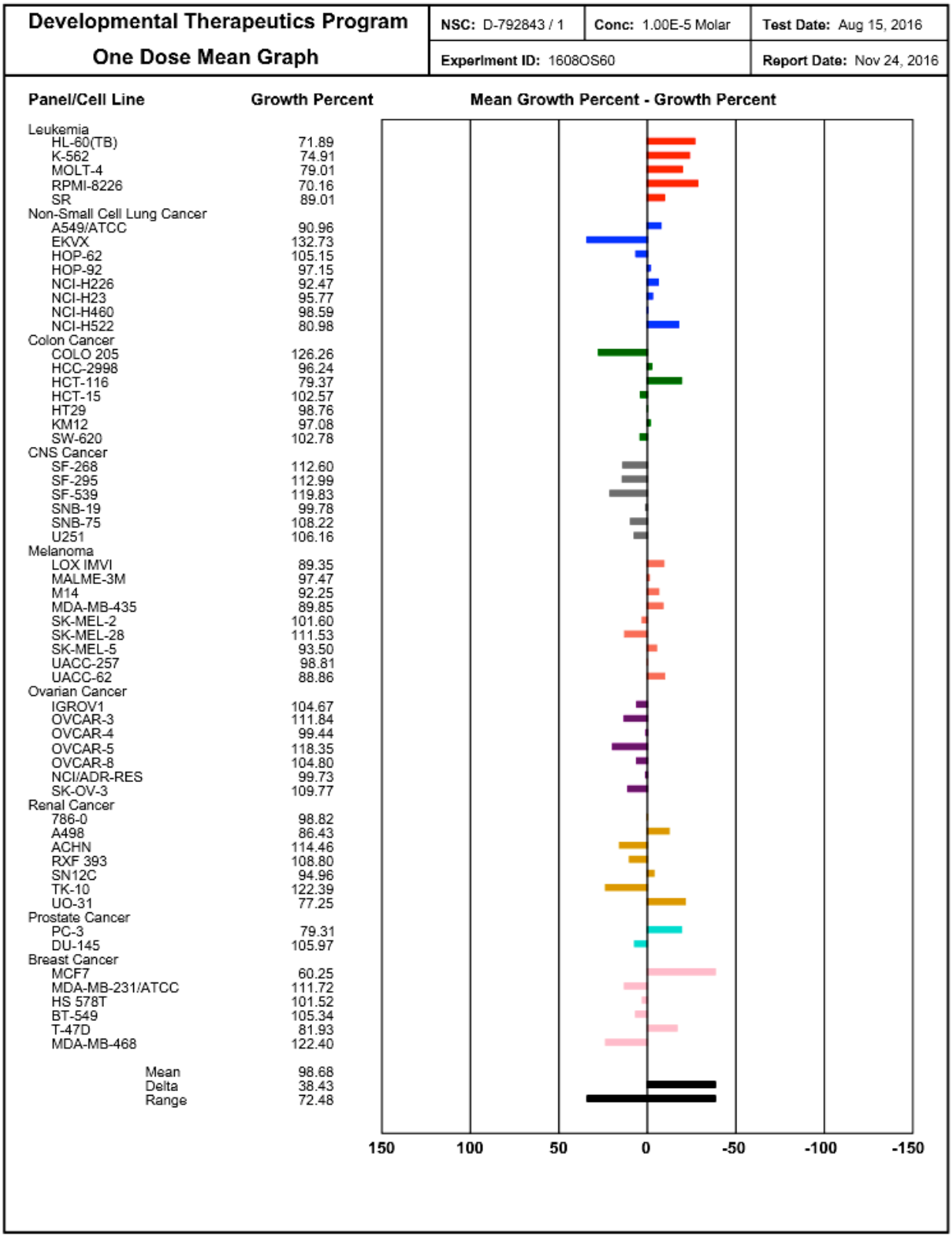

Fig.55. One dose mean graph of nine different cancer cell line panels for compound **8g**

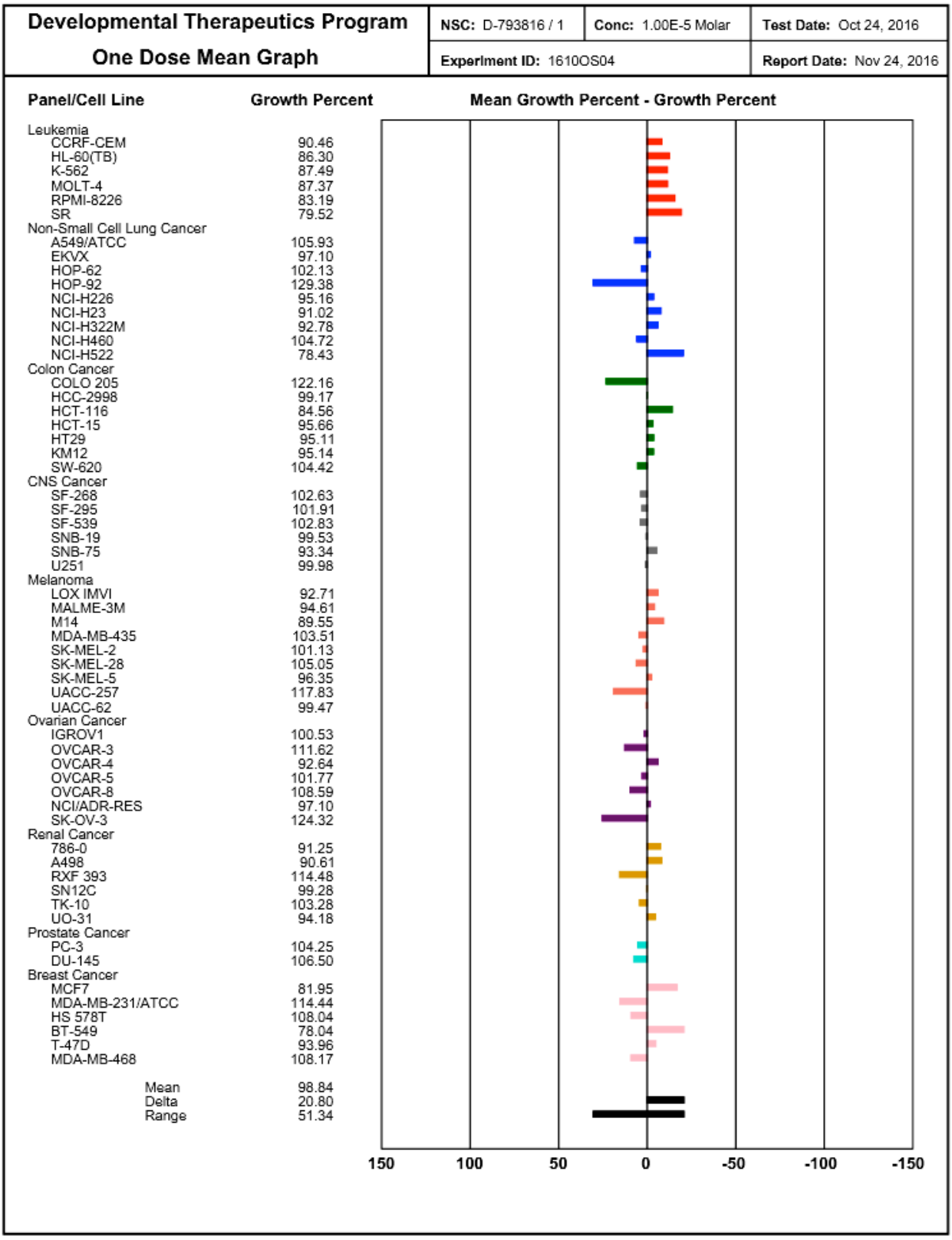

Fig.56. One dose mean graph of nine different cancer cell line panels for compound **8h**

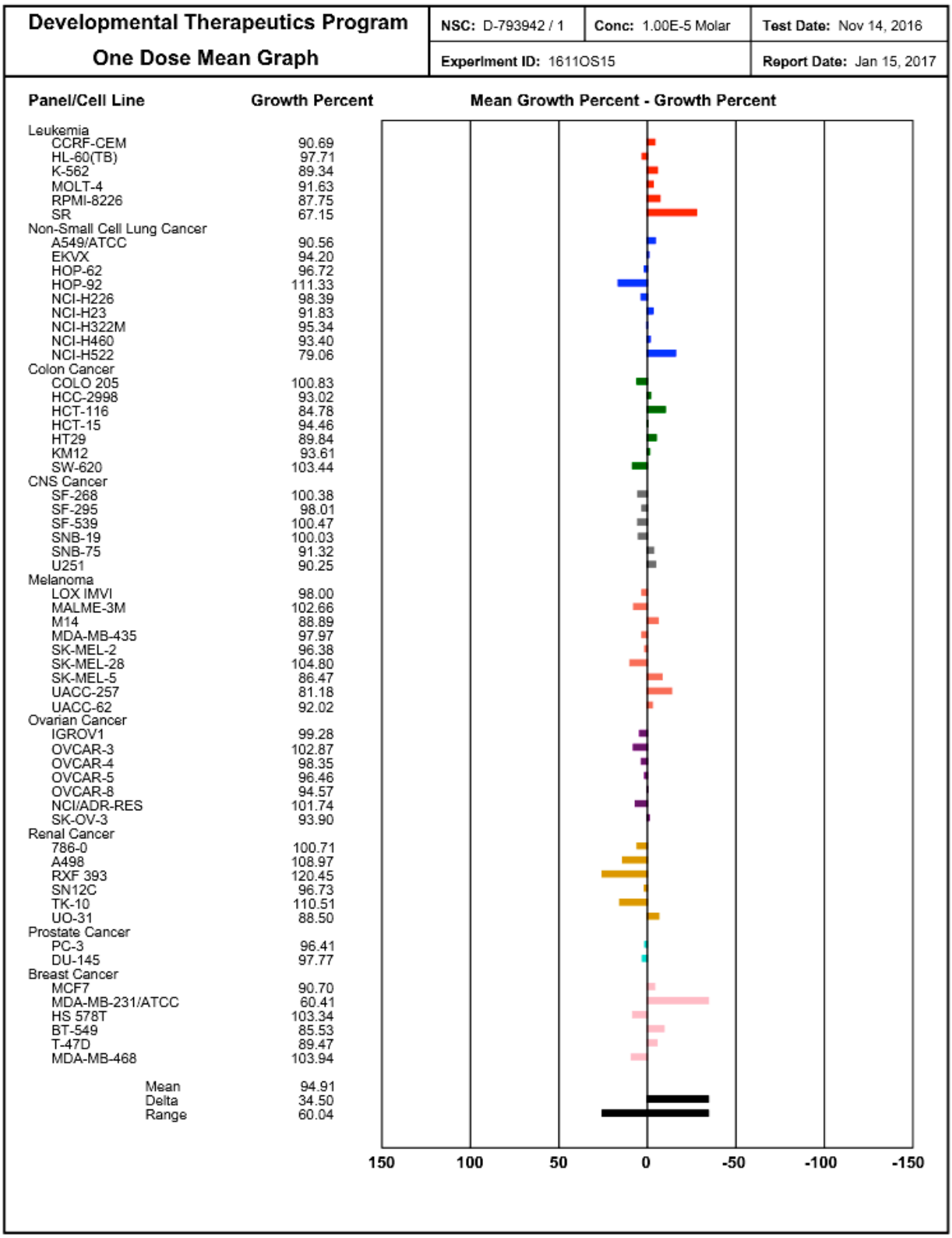

Fig.57. One dose mean graph of nine different cancer cell line panels for compound **8i**

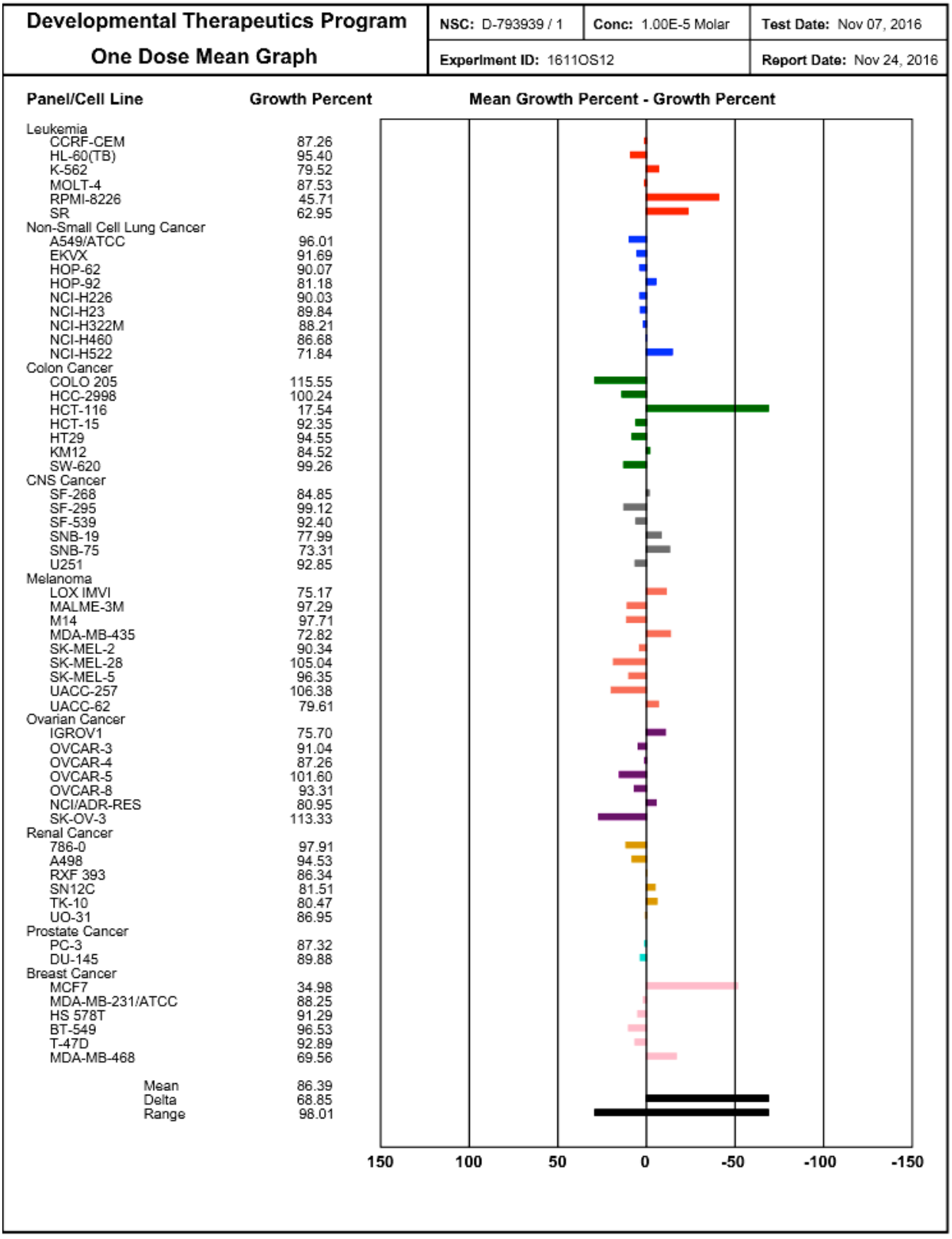

Fig.58. One dose mean graph of nine different cancer cell line panels for compound **8j**

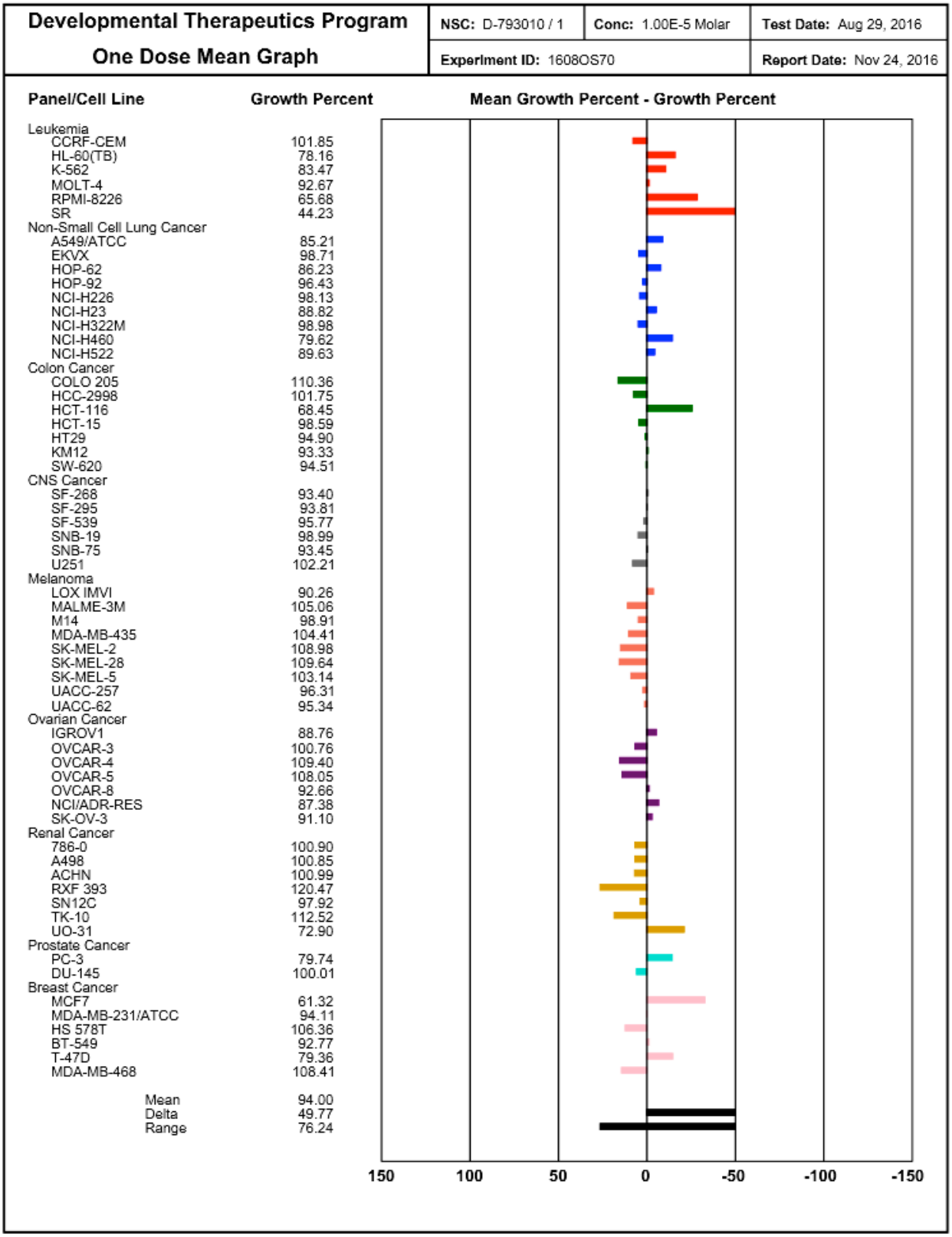

Fig.59. One dose mean graph of nine different cancer cell line panels for compound **8k**

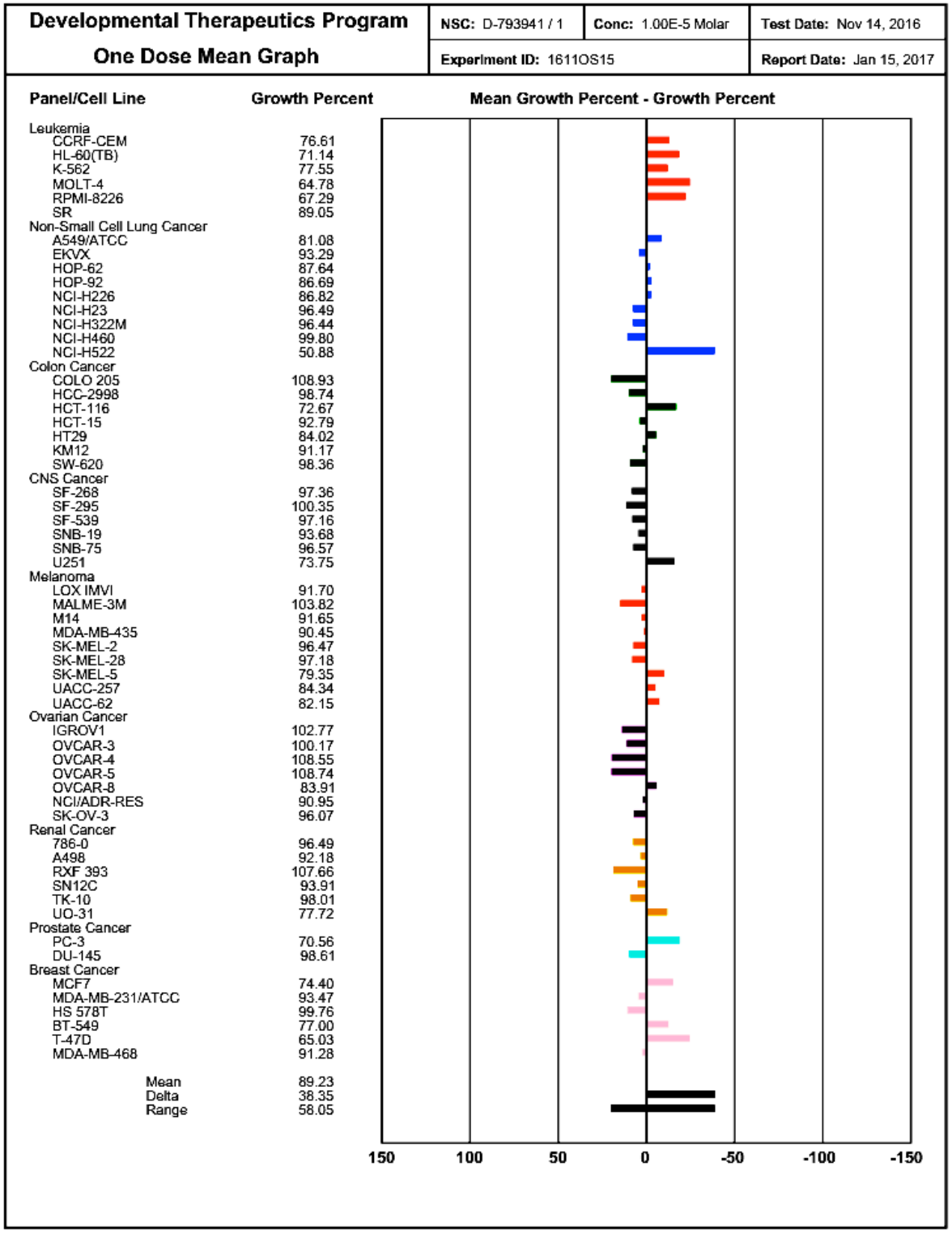

Fig.60. One dose mean graph of nine different cancer cell line panels for compound **8l**

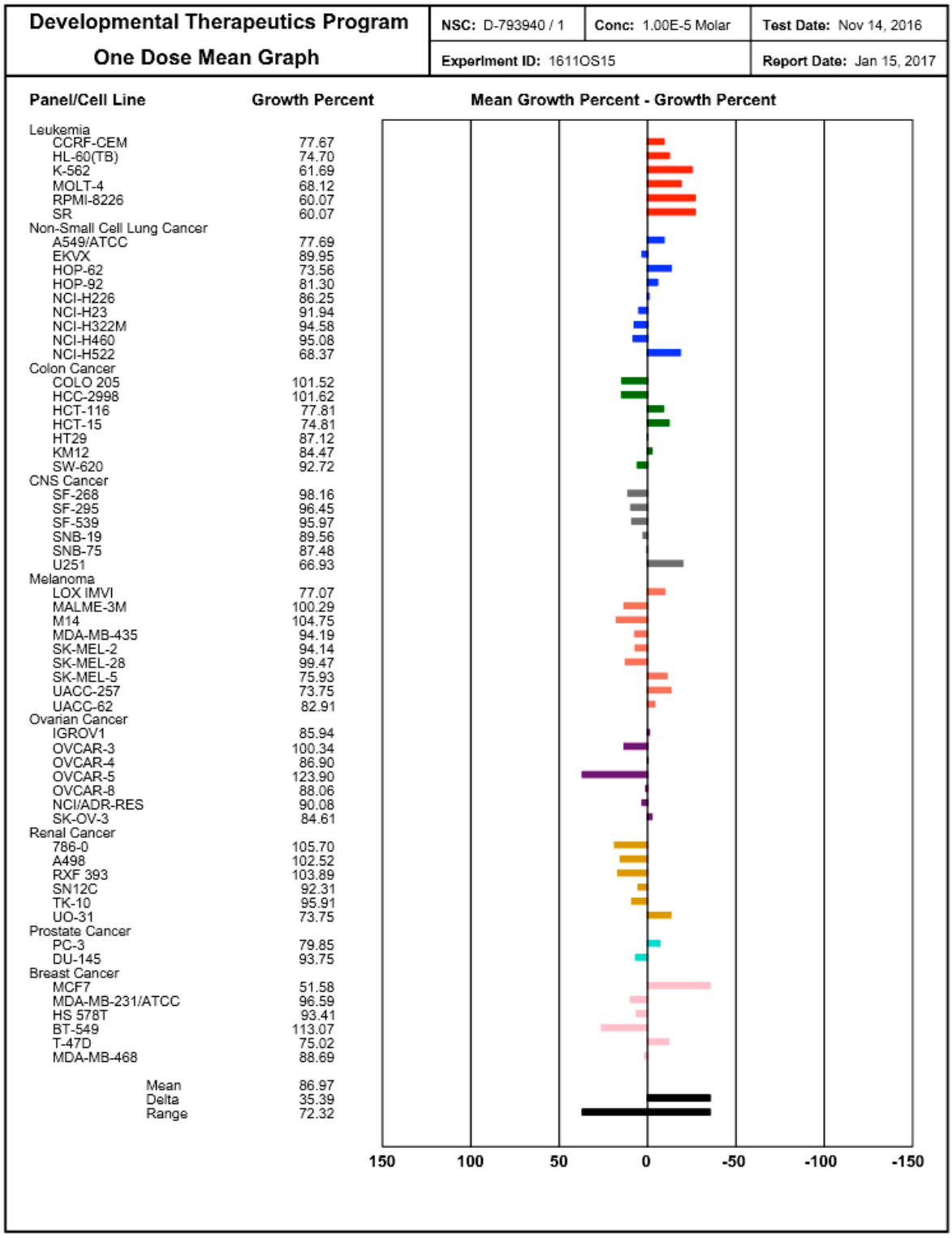

Fig.61. One dose mean graph of nine different cancer cell line panels for compound **8m**

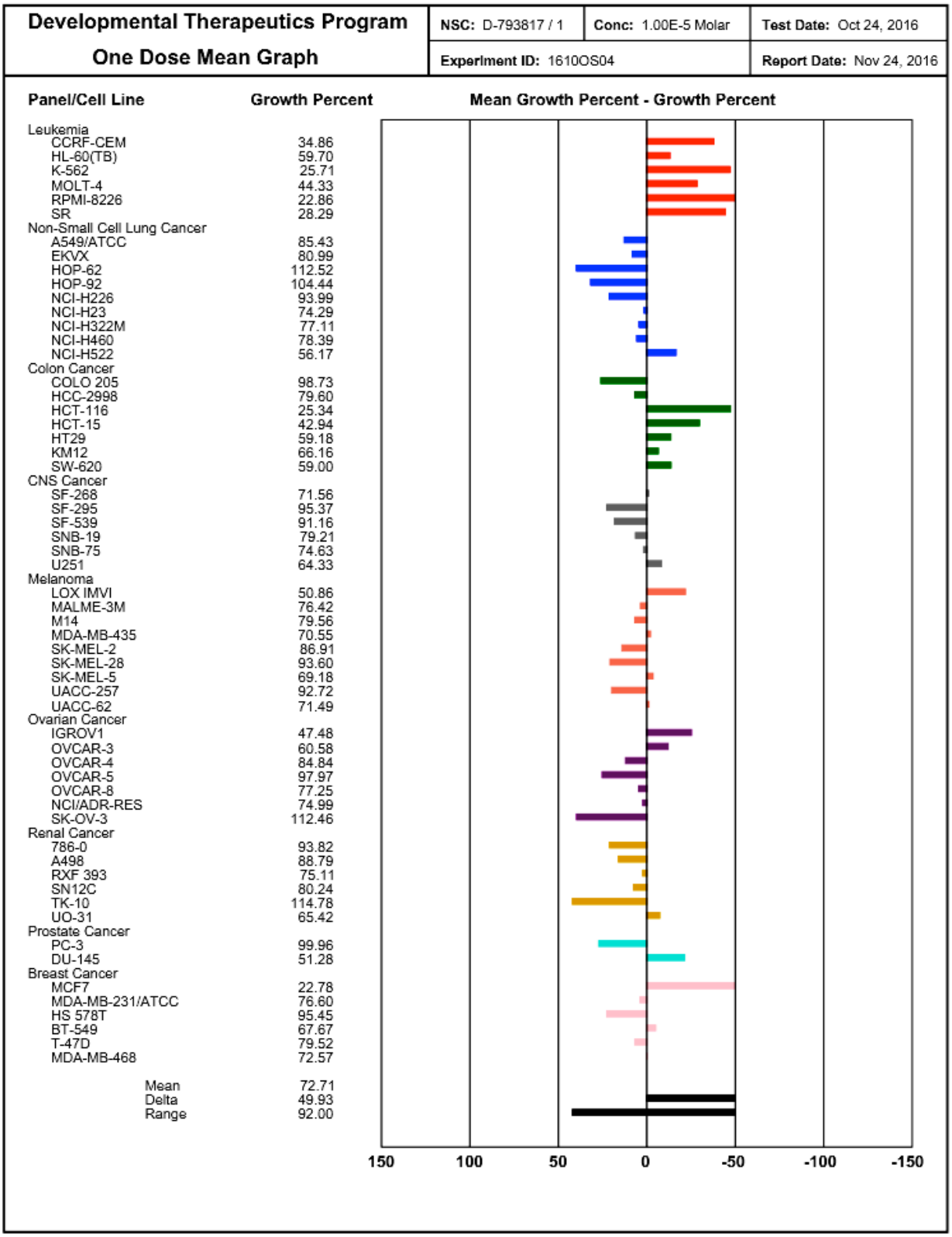

Fig.62. One dose mean graph of nine different cancer cell line panels for compound **8n**

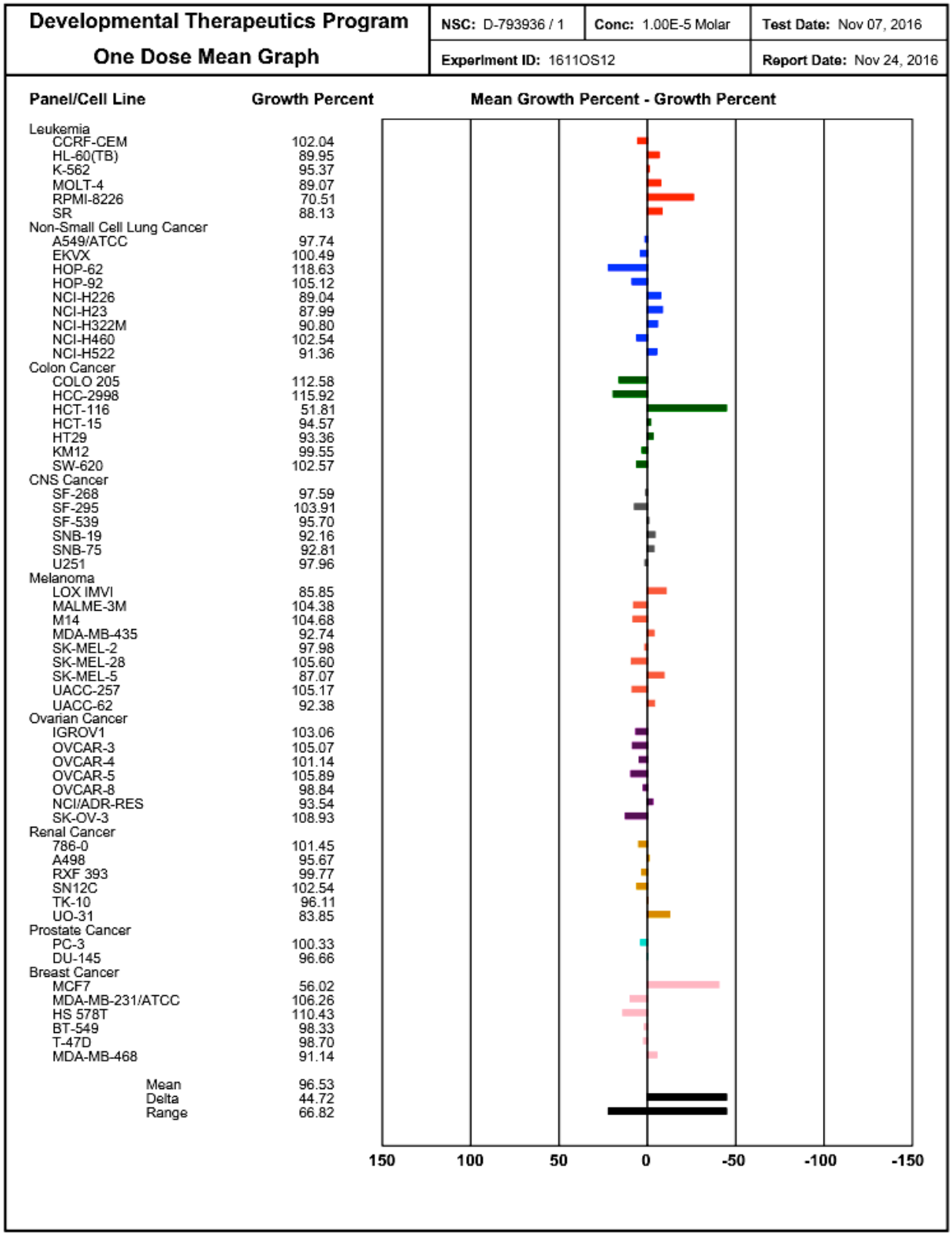

Fig.63. One dose mean graph of nine different cancer cell line panels for compound **8o**

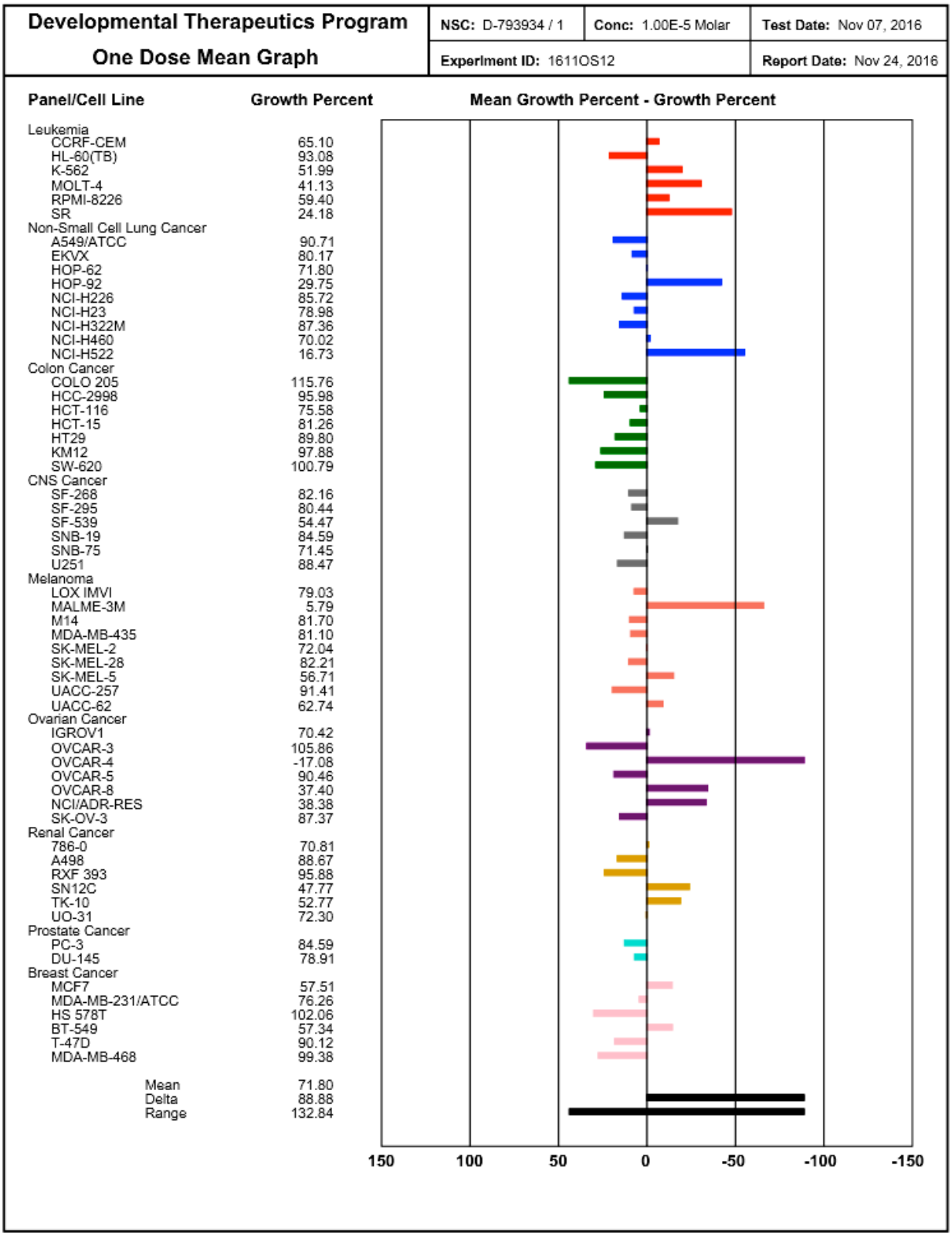

Fig.64. One dose mean graph of nine different cancer cell line panels for compound **8p**

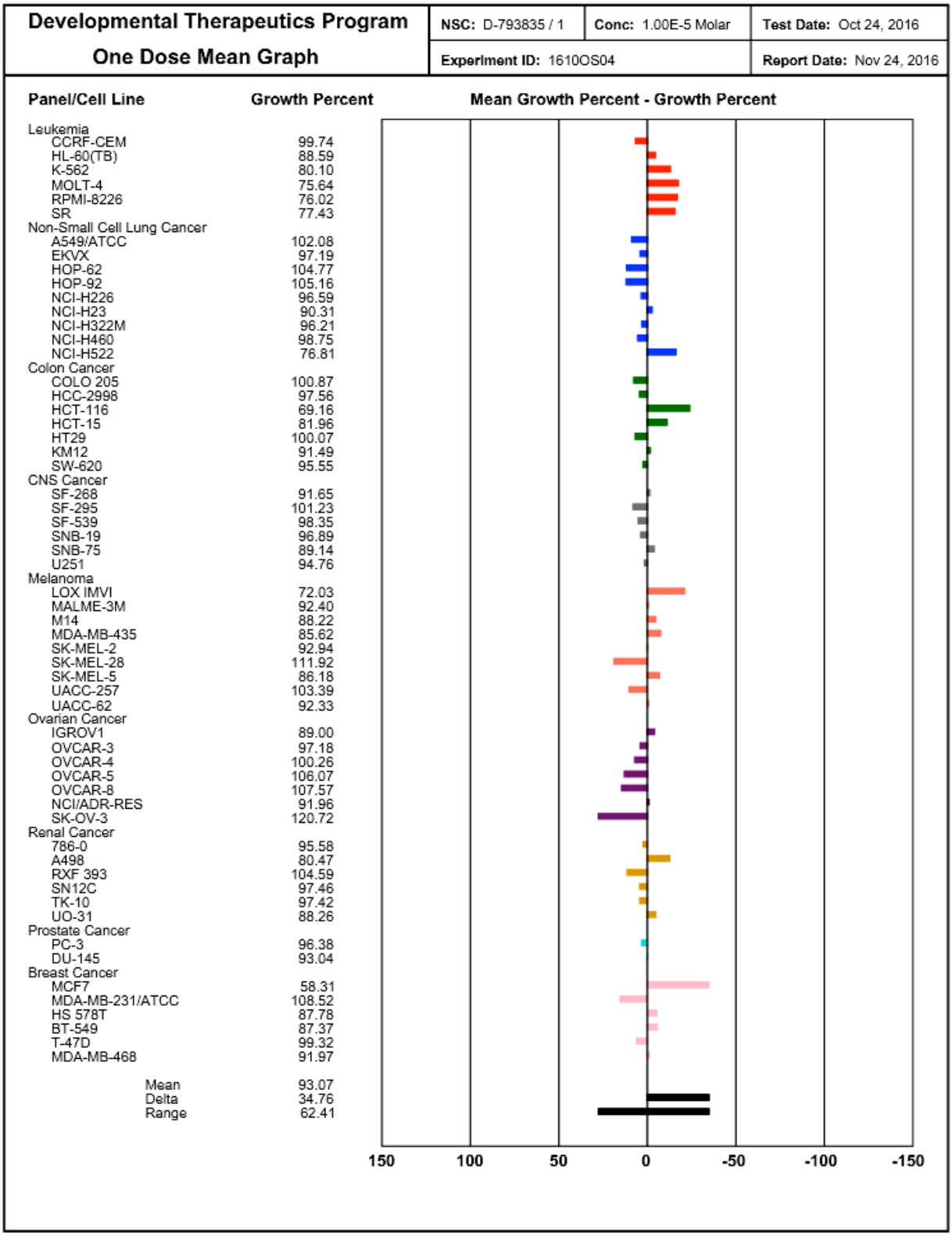

Fig.65. One dose mean graph of nine different cancer cell line panels for compound **8q**

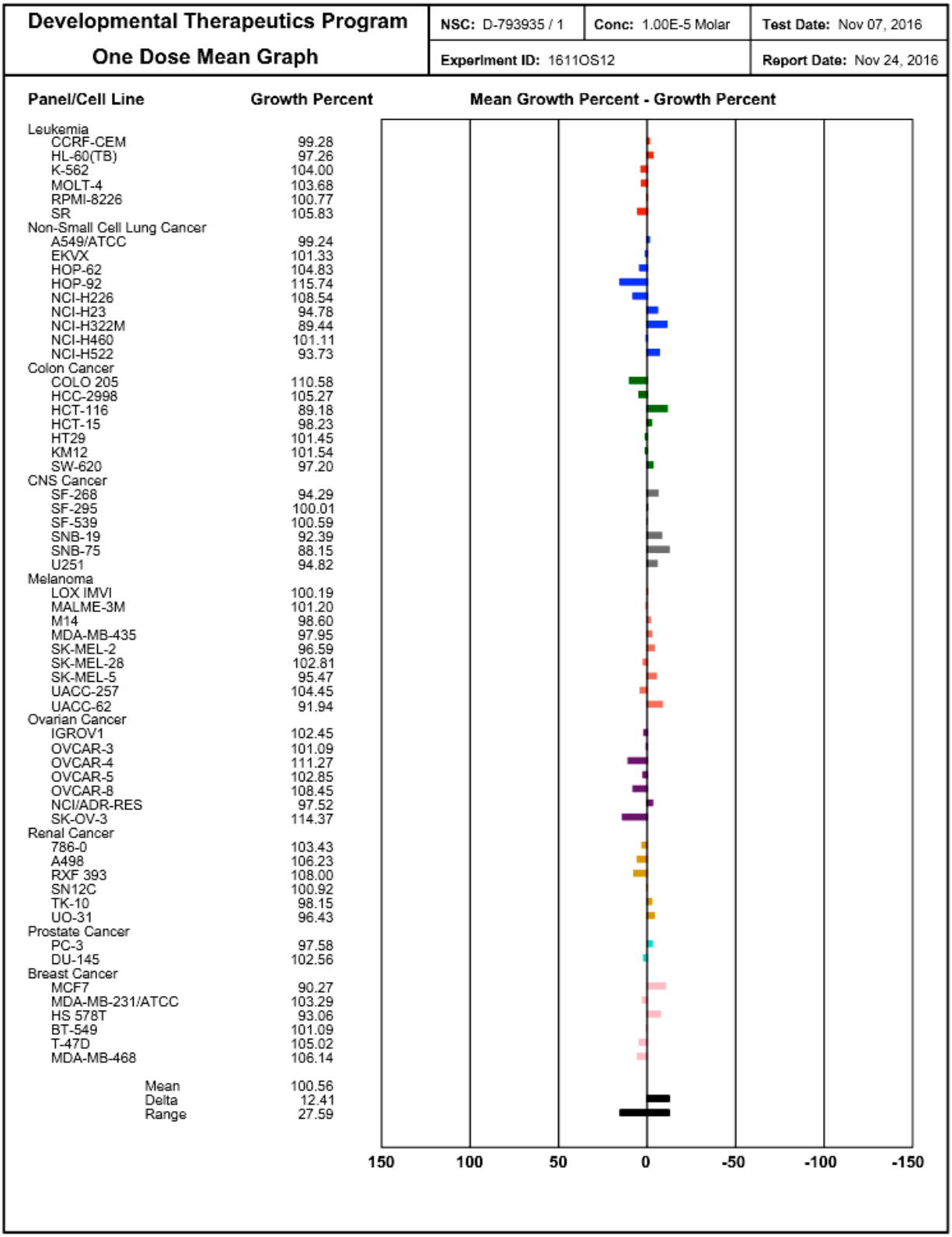

Fig.66. One dose mean graph of nine different cancer cell line panels for compound **8r**

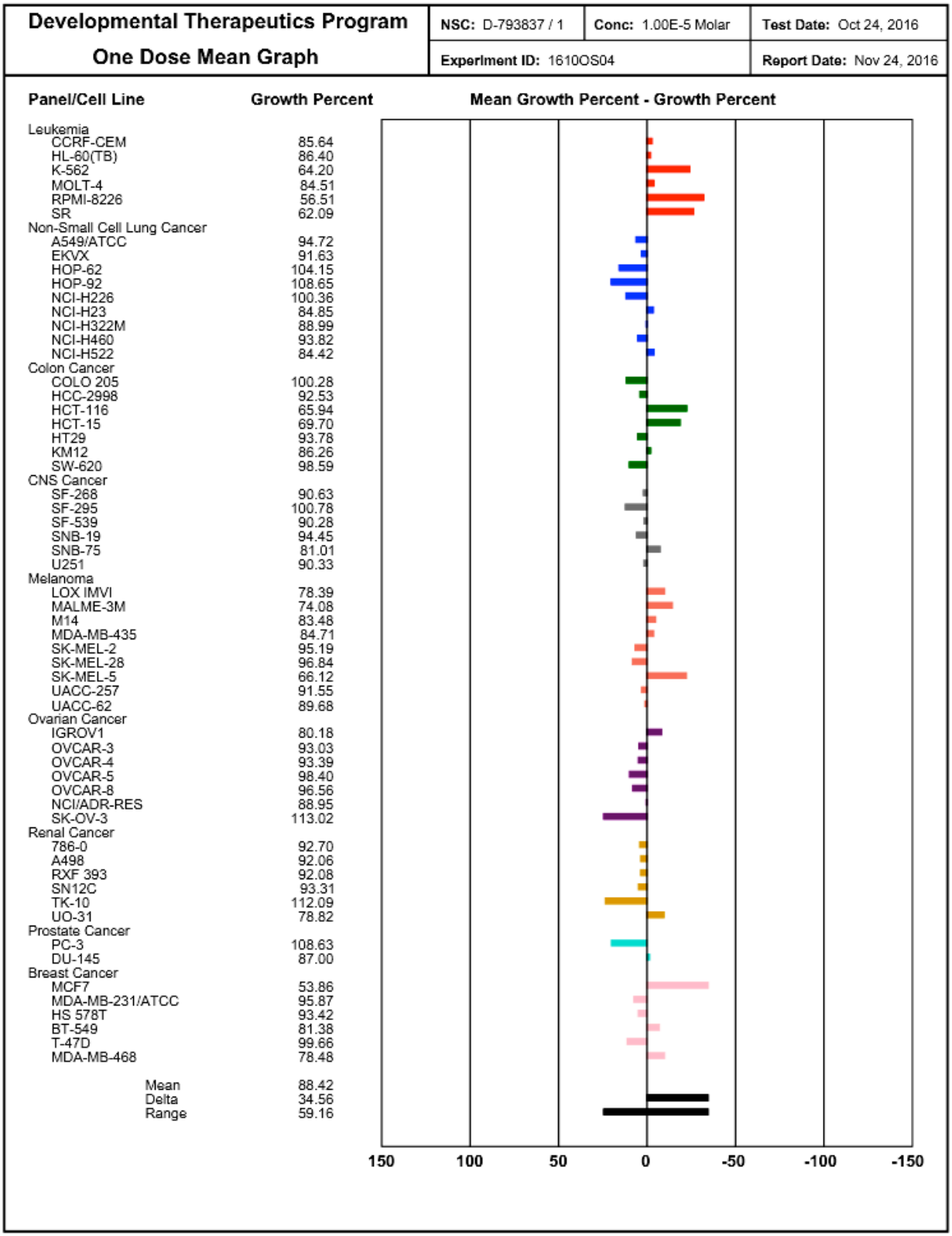

Fig.67. One dose mean graph of nine different cancer cell line panels for compound **8s**

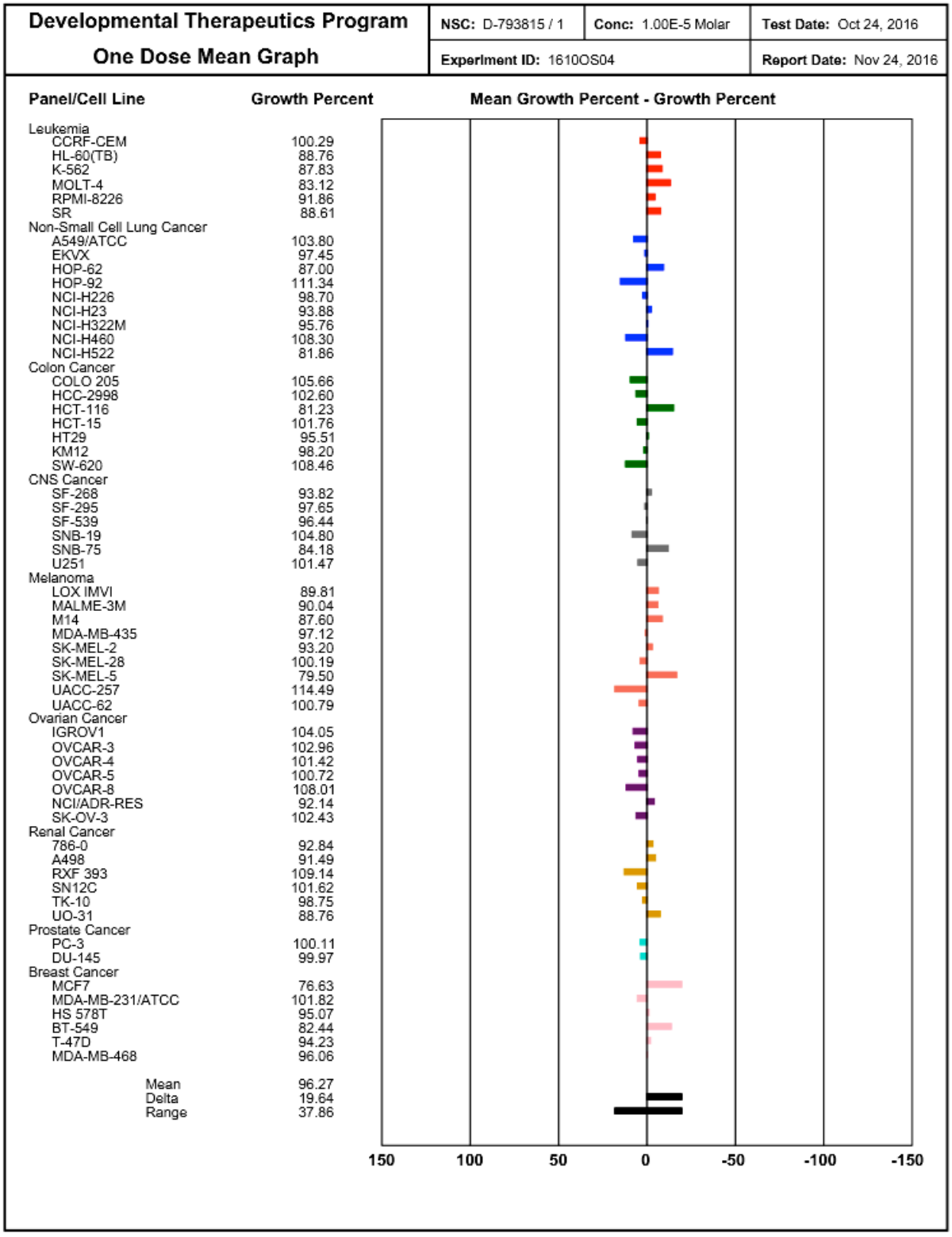

Fig.68. One dose mean graph of nine different cancer cell line panels for compound **8t**

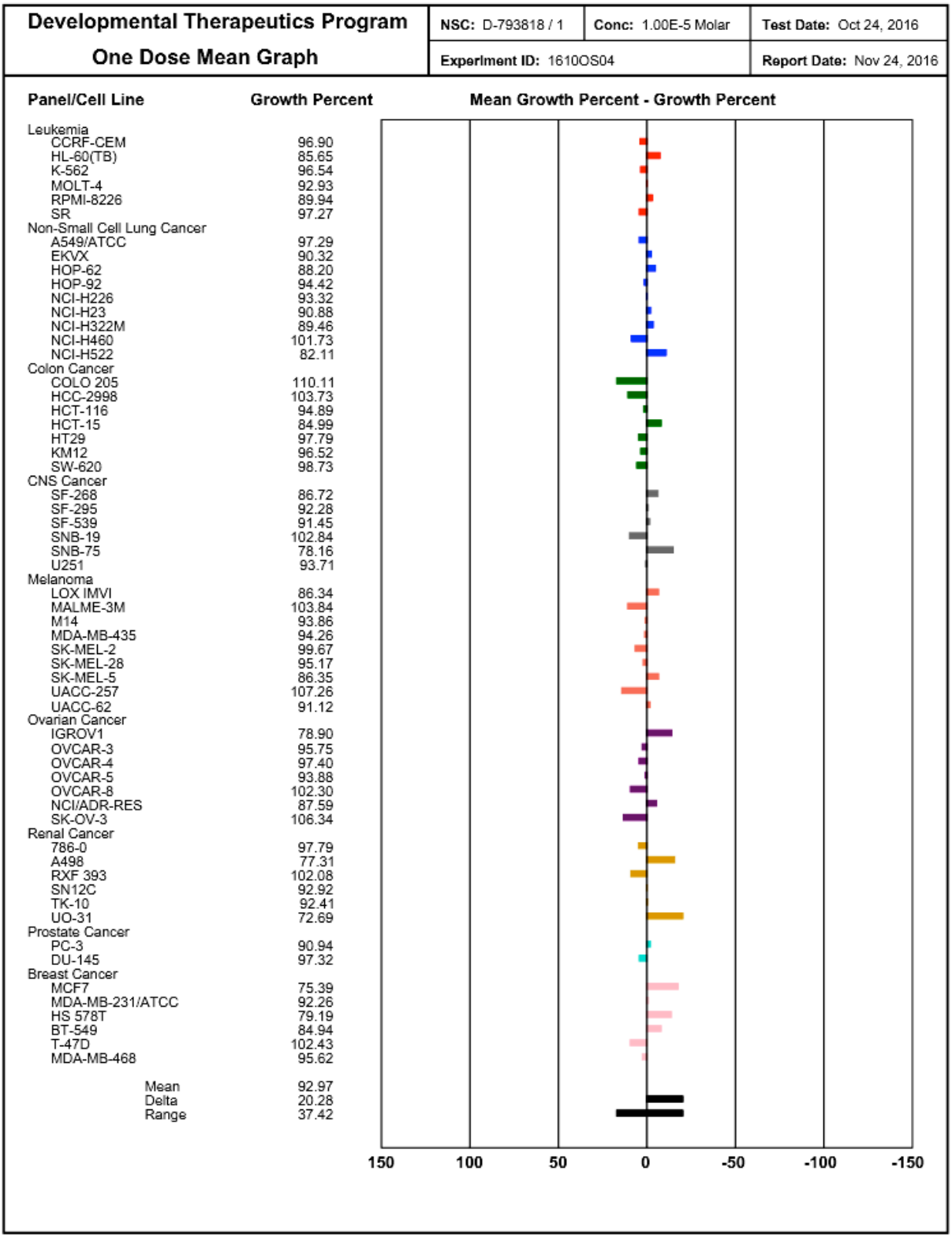

Fig.69. One dose mean graph of nine different cancer cell line panels for compound **8u**

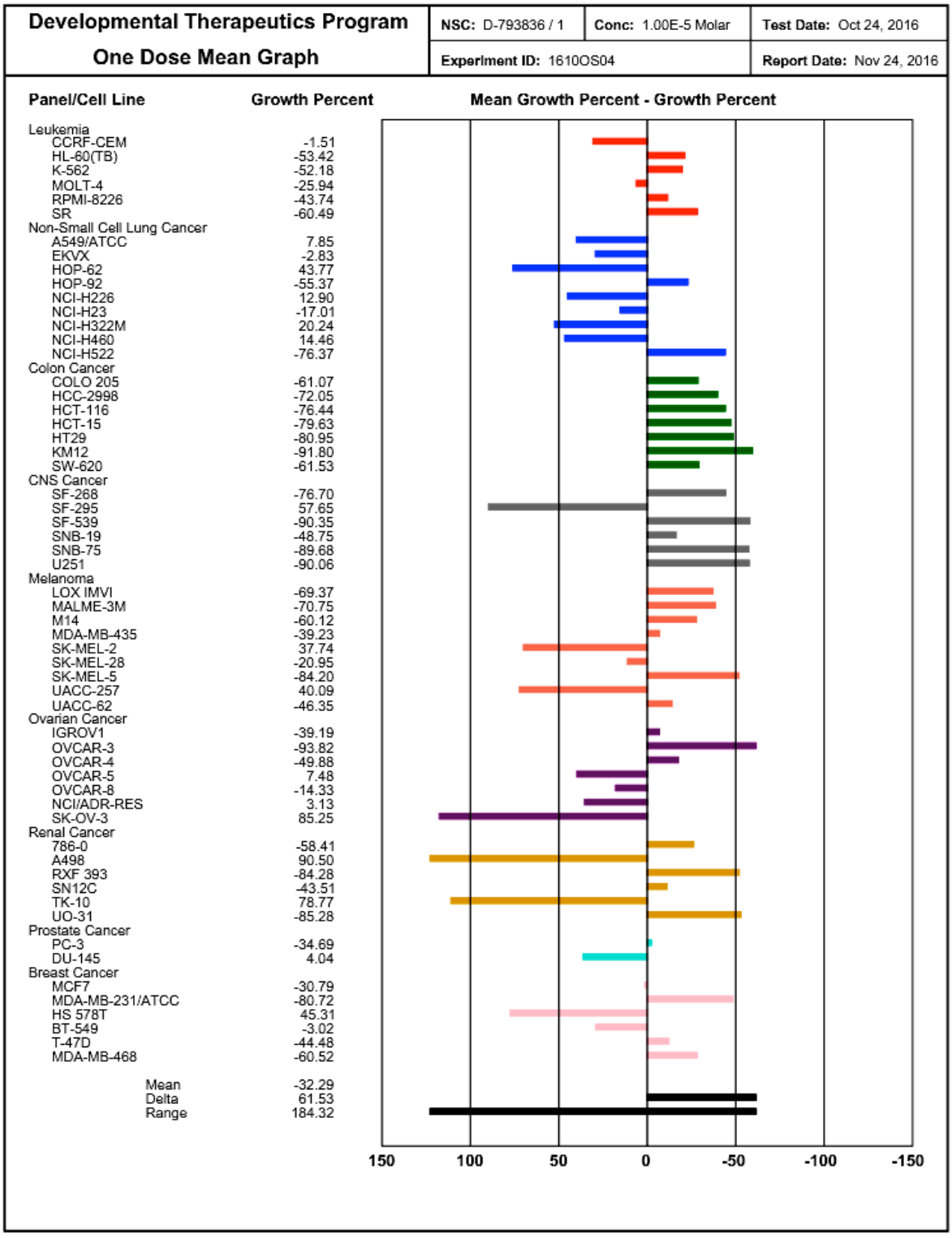

Fig.70. One dose mean graph of nine different cancer cell line panels for compound **8v**

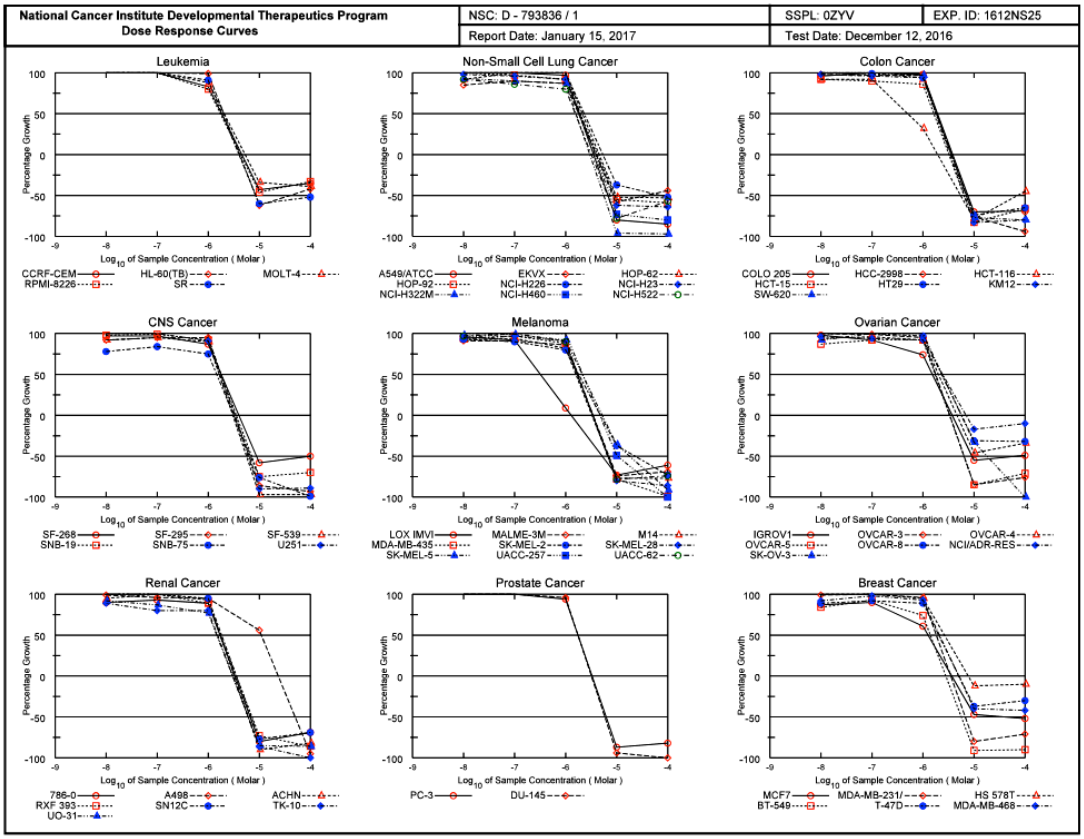

Fig.71a. Five dose mean graph of nine different cancer cell line panels for compound **8v**

National Cancer Institute Developmental Therapeutics Program
In-Vitro Testing Results

NSC : D - 793836 / 1	Experiment ID : 1612NS25	Test Type : 08	Units : Molar
Report Date : January 15, 2017	Test Date : December 12, 2016	QNS :	MC :
COMI : CP23	Stain Reagent : SRB Dual-Pass Related	SSPL : 0ZYV	

		Log10 Concentration													
	Time	Mean Optical Densities						Percent Growth							
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
Leukemia															
CCRF-CEM	0.571	2.502	2.600	2.643	2.181	0.325	0.370	105	107	83	-43	-35	1.84E-6	4.56E-6	> 1.00E-4
HL-60(TB)	0.963	2.703	2.726	2.766	2.678	0.362	0.561	101	104	99	-62	-42	2.00E-6	4.10E-6	.
MOLT-4	0.675	2.260	2.503	2.402	2.066	0.447	0.415	115	109	88	-34	-39	2.05E-6	5.27E-6	> 1.00E-4
RPMI-8226	0.927	2.379	2.423	2.458	2.092	0.498	0.620	103	105	80	-46	-33	1.73E-6	4.31E-6	> 1.00E-4
SR	0.618	2.052	2.133	2.134	1.916	0.250	0.299	106	106	91	-60	-52	1.86E-6	4.01E-6	8.64E-6
Non-Small Cell Lung Cancer															
A549/ATCC	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	0.714	2.216	1.997	2.069	2.014	0.302	0.403	85	90	87	-58	-44	1.79E-6	3.98E-6	.
HOP-62	0.628	1.918	1.809	1.915	1.919	0.299	0.298	92	100	100	-52	-53	2.13E-6	4.53E-6	9.63E-6
HOP-92	0.913	1.385	1.390	1.373	1.347	0.412	0.375	101	97	92	-55	-59	1.93E-6	4.23E-6	9.26E-6
NCI-H226	0.761	1.523	1.551	1.580	1.636	0.478	0.363	104	107	115	-37	-52	2.67E-6	5.69E-6	6.97E-5
NCI-H23	0.663	2.117	2.082	2.055	2.001	0.254	0.242	98	96	92	-62	-64	1.88E-6	3.97E-6	8.39E-6
NCI-H322M	0.664	1.865	1.781	1.747	1.707	0.024	0.022	93	90	87	-96	-97	1.59E-6	2.98E-6	5.58E-6
NCI-H460	0.278	2.768	2.875	2.932	2.840	0.076	0.056	104	107	103	-73	-80	2.00E-6	3.85E-6	7.41E-6
NCI-H522	1.079	2.640	2.512	2.429	2.325	0.243	0.463	92	86	80	-78	-57	1.55E-6	3.21E-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	1.101	3.129	3.089	3.074	3.076	0.267	0.069	98	97	97	-76	-94	1.88E-6	3.65E-6	7.10E-6
HCT-116	0.212	1.862	1.725	1.732	0.739	0.045	0.117	92	92	32	-79	-45	5.01E-7	1.94E-6	.
HCT-15	0.335	1.899	1.770	1.739	1.673	0.057	0.113	92	90	86	-83	-66	1.63E-6	3.22E-6	6.37E-6
HT29	0.308	1.881	1.902	1.871	1.786	0.080	0.107	101	99	94	-74	-65	1.83E-6	3.62E-6	7.18E-6
KM12	0.603	3.117	3.071	3.023	2.961	0.105	0.124	98	96	94	-83	-80	1.77E-6	3.40E-6	6.53E-6
SW-620	0.335	2.320	2.352	2.383	2.255	0.076	0.069	102	103	97	-77	-80	1.86E-6	3.60E-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	0.662	2.828	2.650	2.725	2.718	0.095	0.045	92	95	95	-86	-93	1.77E-6	3.35E-6	6.34E-6
SF-539	0.896	2.658	2.525	2.573	2.489	0.026	0.028	92	95	90	-97	-97	1.64E-6	3.03E-6	5.61E-6
SNB-19	0.492	2.074	2.042	2.061	1.942	0.125	0.148	98	99	92	-75	-70	1.78E-6	3.56E-6	7.11E-6
SNB-75	1.231	2.168	1.966	2.019	1.937	0.300	0.011	78	84	75	-76	-99	1.47E-6	3.15E-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
Melanoma															
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	0.741	1.451	1.384	1.385	1.354	0.192	0.228	91	91	86	-74	-69	1.68E-6	3.45E-6	7.08E-6
M14	0.503	2.008	1.887	1.918	1.742	0.118	0.116	92	94	82	-77	-77	1.60E-6	3.30E-6	6.80E-6
MDA-MB-435	0.510	2.495	2.380	2.438	2.261	0.114	0.005	94	97	88	-78	-99	1.70E-6	3.40E-6	6.81E-6
SK-MEL-2	0.959	2.657	2.545	2.486	2.311	0.604	0.257	93	90	80	-37	-73	1.79E-6	4.82E-6	2.28E-5
SK-MEL-28	0.762	2.374	2.263	2.318	2.234	0.150	0.105	93	97	91	-80	-86	1.74E-6	3.40E-6	6.65E-6
SK-MEL-5	0.705	2.790	2.744	2.772	2.633	0.451	0.061	98	99	92	-36	-91	2.14E-6	5.24E-6	1.79E-5
UACC-257	1.184	2.539	2.473	2.548	2.533	0.607	-0.024	95	101	100	-49	-100	2.16E-6	4.69E-6	1.06E-5
UACC-62	0.667	2.592	2.531	2.606	2.398	0.146	0.171	97	101	90	-78	-74	1.73E-6	3.43E-6	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	0.515	1.695	1.746	1.685	1.640	0.077	0.124	104	99	95	-85	-76	1.78E-6	3.38E-6	6.39E-6
OVCAR-4	0.593	1.316	1.276	1.285	1.256	0.319	0.393	94	96	92	-46	-34	2.00E-6	4.62E-6	> 1.00E-4
OVCAR-5	0.557	1.490	1.368	1.417	1.412	0.082	0.164	87	92	92	-85	-71	1.72E-6	3.30E-6	6.32E-6
OVCAR-8	0.297	1.423	1.436	1.481	1.385	0.206	0.203	101	105	97	-31	-32	2.32E-6	5.73E-6	> 1.00E-4
NCI/ADR-RES	0.575	1.782	1.735	1.711	1.680	0.480	0.518	96	94	92	-17	-10	2.42E-6	7.03E-6	> 1.00E-4
SK-OV-3	0.901	1.822	1.745	1.870	1.837	0.603	-0.012	92	105	102	-33	-100	2.42E-6	5.68E-6	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	1.621	2.684	2.673	2.645	2.627	2.220	0.085	99	96	95	56	-95	1.10E-5	2.36E-5	5.06E-5
ACHN	0.352	1.471	1.418	1.471	1.397	0.034	0.063	95	100	93	-90	-82	1.72E-6	3.22E-6	6.02E-6
RXF 393	0.991	1.635	1.656	1.683	1.564	0.267	0.135	103	107	89	-73	-86	1.74E-6	3.54E-6	7.20E-6
SN12C	0.545	2.476	2.502	2.533	2.380	0.127	0.171	101	103	95	-77	-69	1.83E-6	3.57E-6	6.98E-6
TK-10	0.876	1.550	1.477	1.416	1.417	0.119	-0.004	89	80	80	-86	-100	1.52E-6	3.03E-6	6.04E-6
UO-31	0.544	1.776	1.684	1.614	1.491	0.079	0.077	92	87	77	-85	-86	1.46E-6	2.97E-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	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
Breast Cancer															
MCF7	0.454	2.501	2.238	2.288	1.707	0.241	0.218	87	90	61	-47	-52	1.27E-6	3.68E-6	3.86E-5
MDA-MB-231/ATCC	0.548	1.547	1.533	1.562	1.504	0.109	0.160	99	101	96	-80	-71	1.82E-6	3.50E-6	6.73E-6
HS 578T	1.054	2.057	2.056	2.063	2.009	0.930	0.946	100	101	95	-12	-10	2.65E-6	7.76E-6	> 1.00E-4
BT-549	1.110	2.332	2.137	2.240	2.013	0.101	0.117	84	93	74	-91	-90	1.40E-6	2.81E-6	5.65E-6
T-47D	0.737	1.704	1.602	1.625	1.602	0.463	0.513	89	92	89	-37	-30	2.05E-6	5.08E-6	> 1.00E-4
MDA-MB-468	0.939	1.582	1.533	1.572	1.536	0.568	0.546	92	98	93	-40	-42	2.10E-6	5.02E-6	> 1.00E-4

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

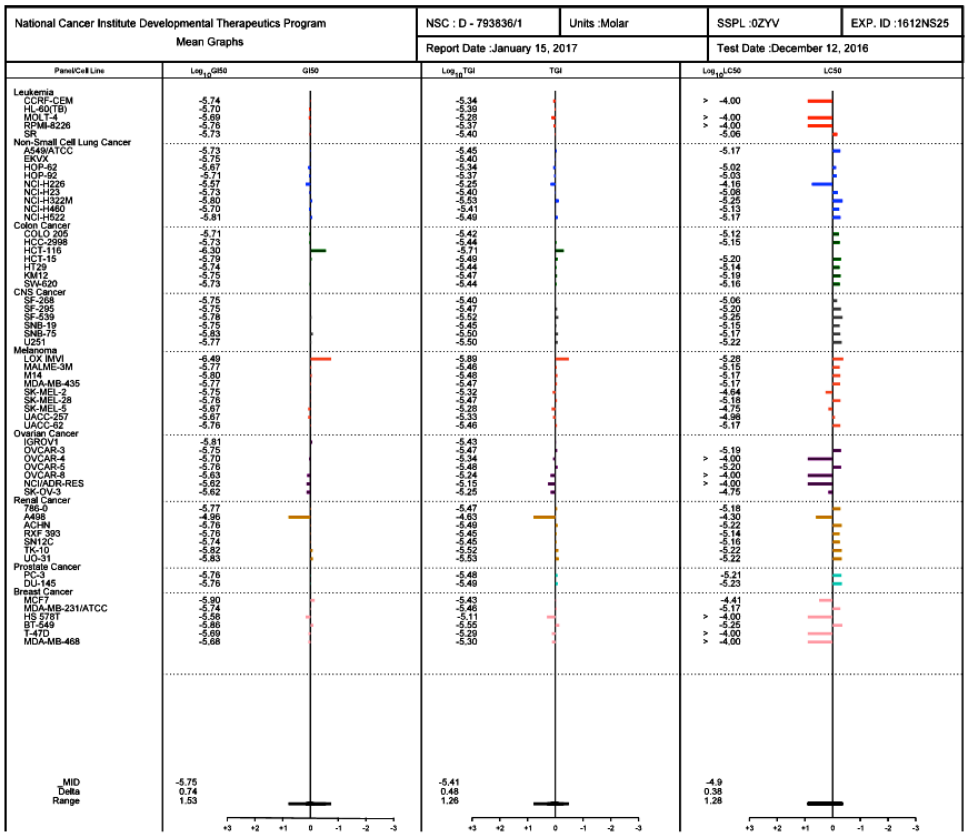

Fig.71c. Five dose mean graph of nine different cancer cell line panels for compound **8v**

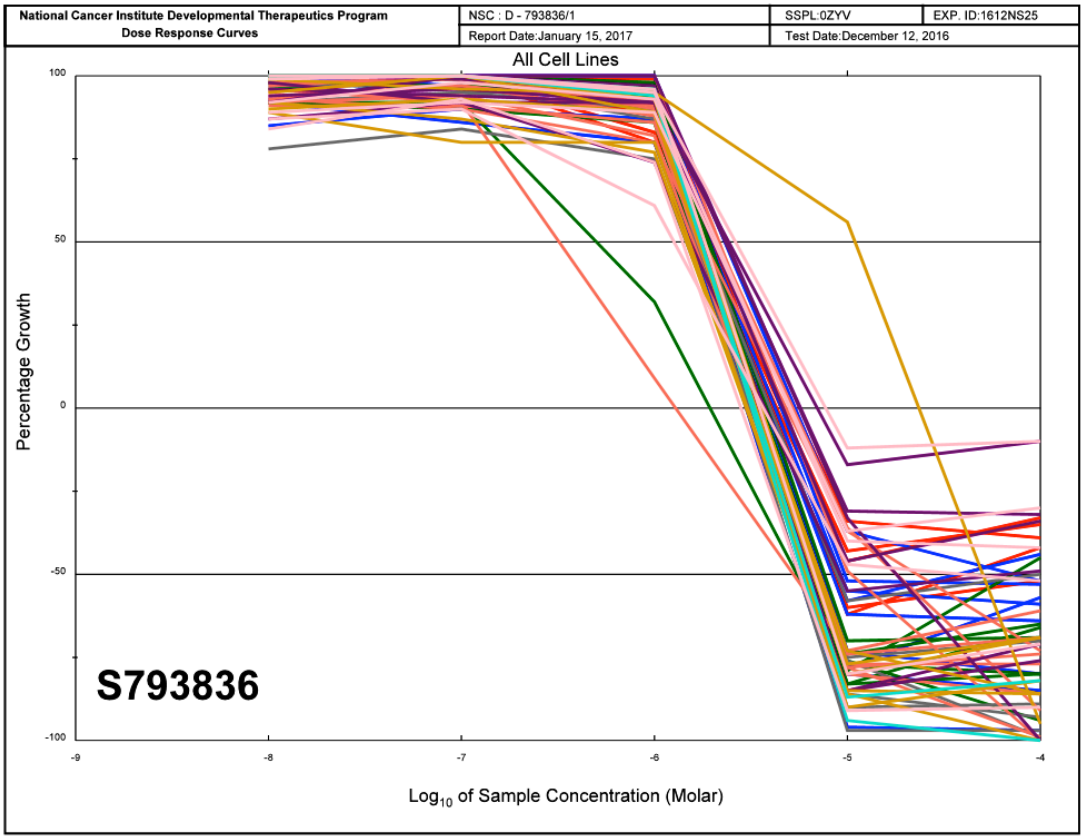

Fig.71d. Five dose mean graph of nine different cancer cell line panels for compound **8v**

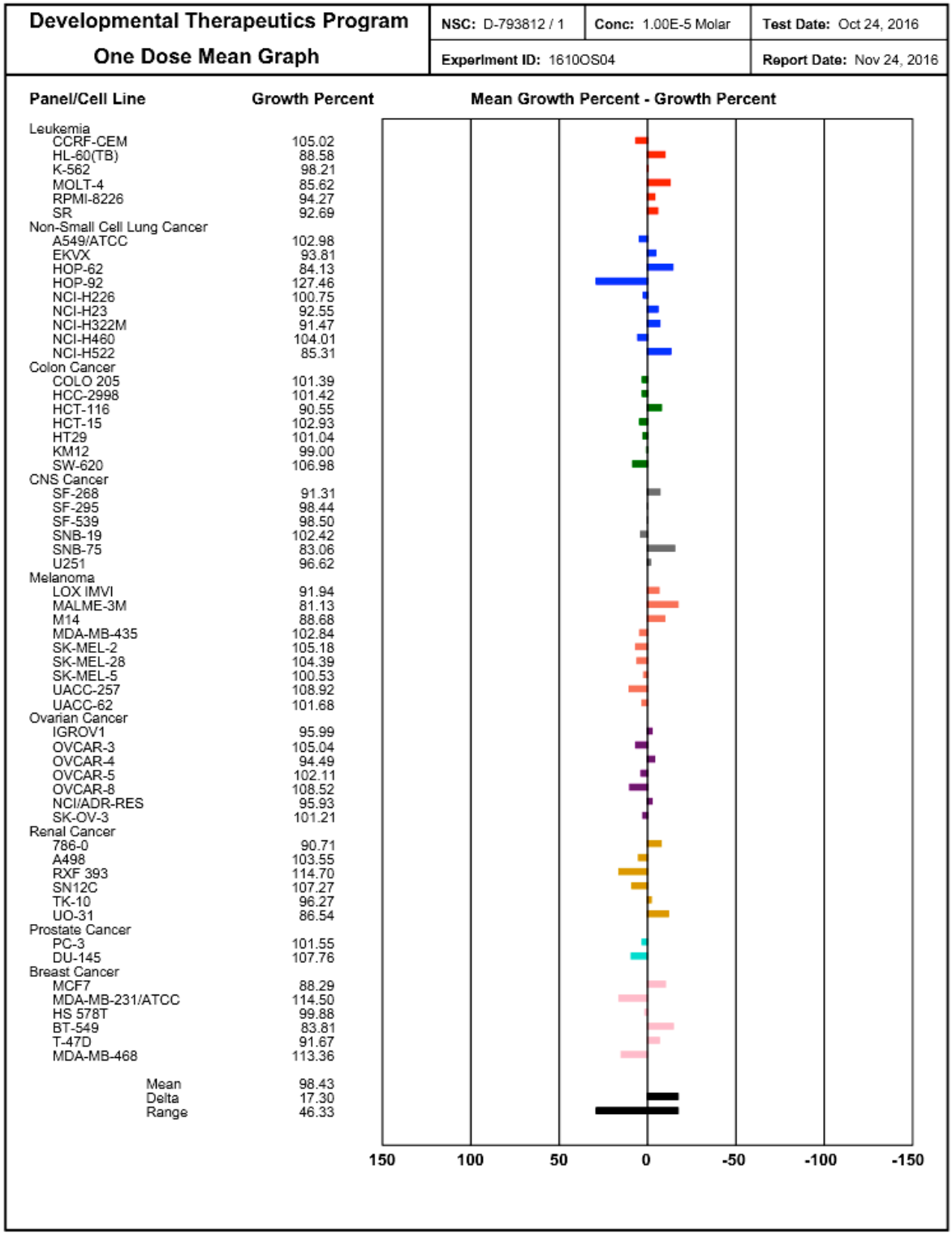

Fig.72. One dose mean graph of nine different cancer cell line panels for compound **8w**

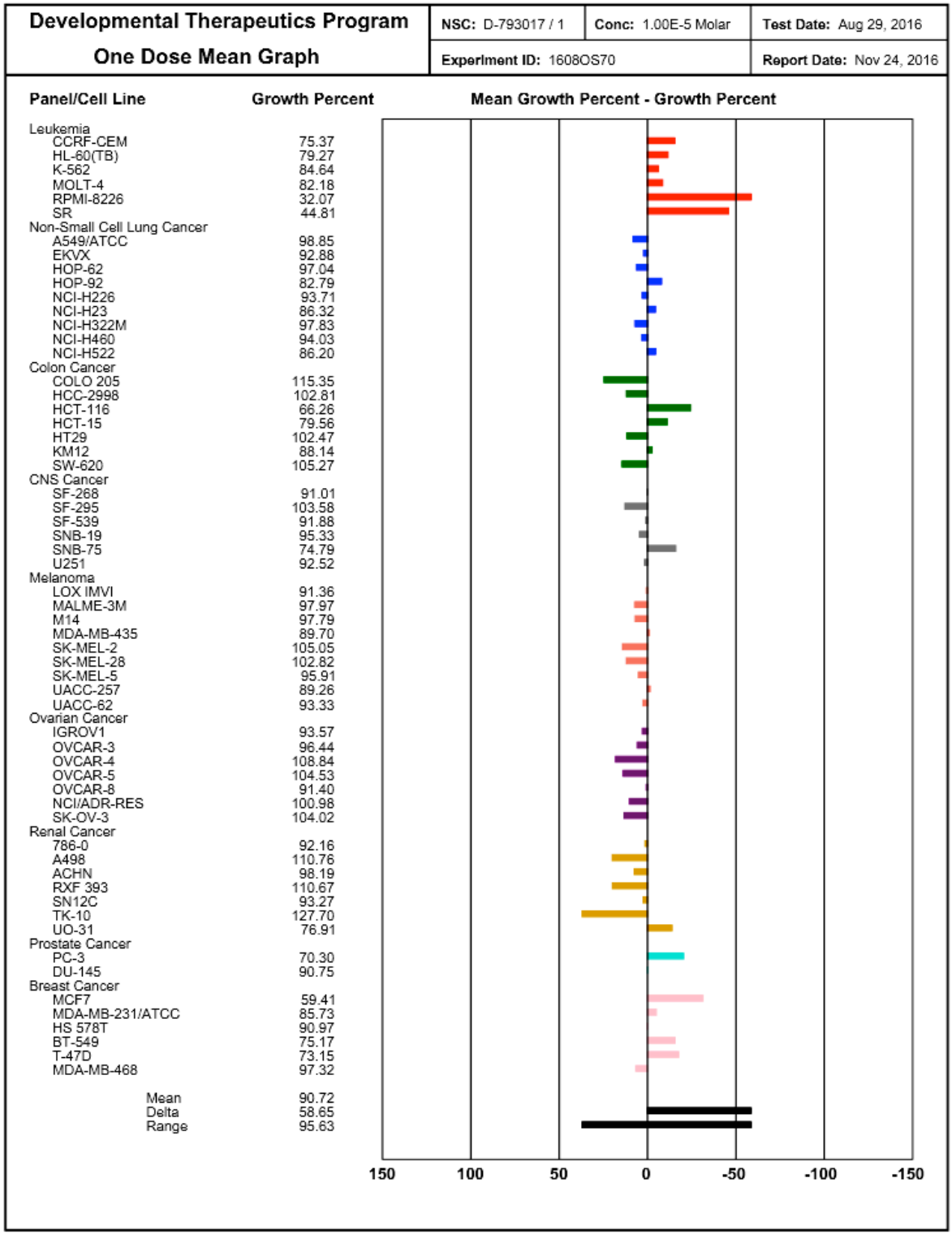

Fig.73. One dose mean graph of nine different cancer cell line panels for compound **8x**

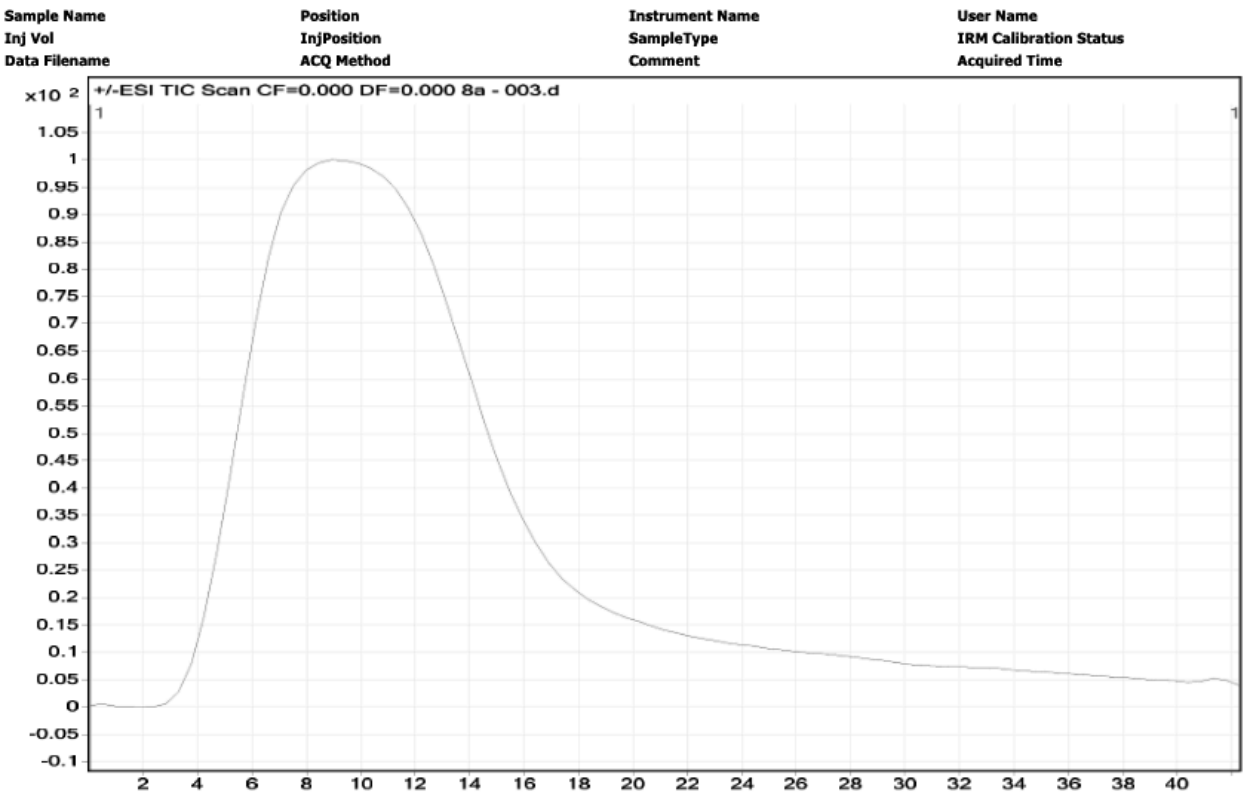

Fig.74. Chromatogram of compound **8a.**

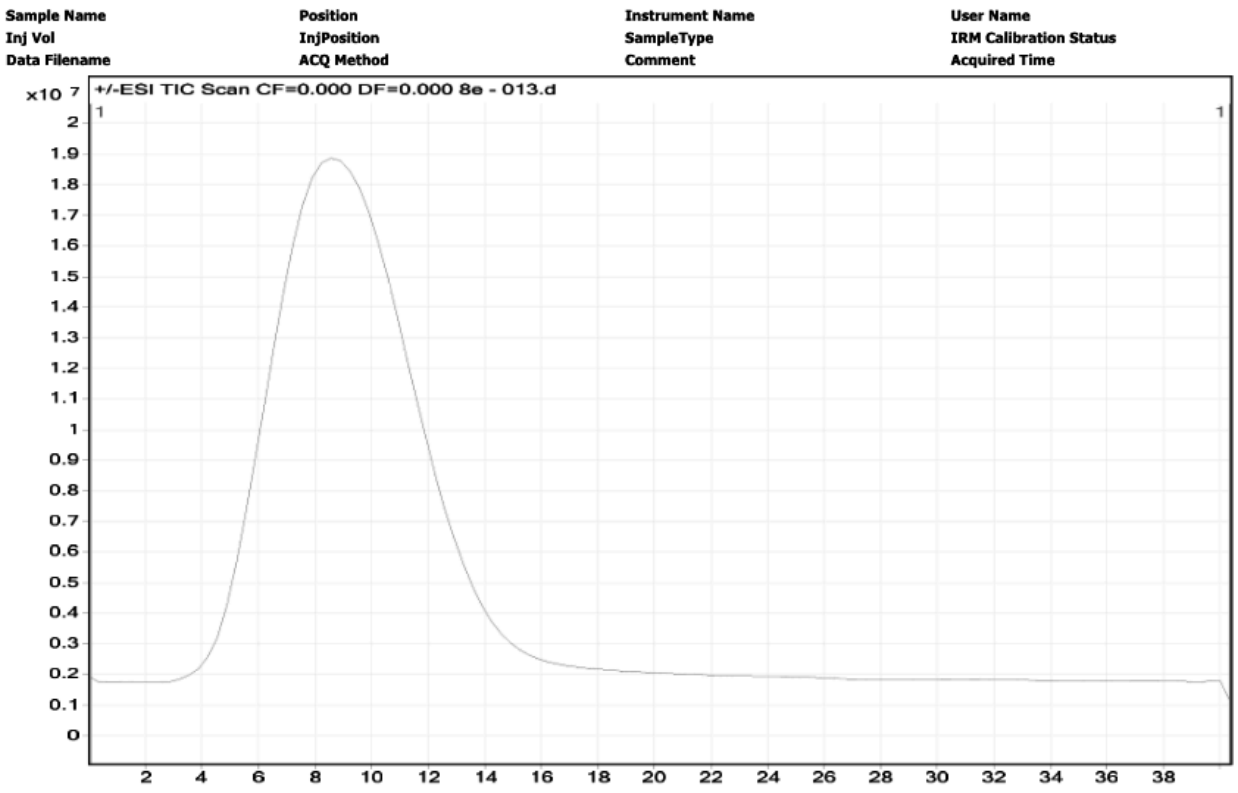

Fig.75. Chromatogram of compound **8e.**

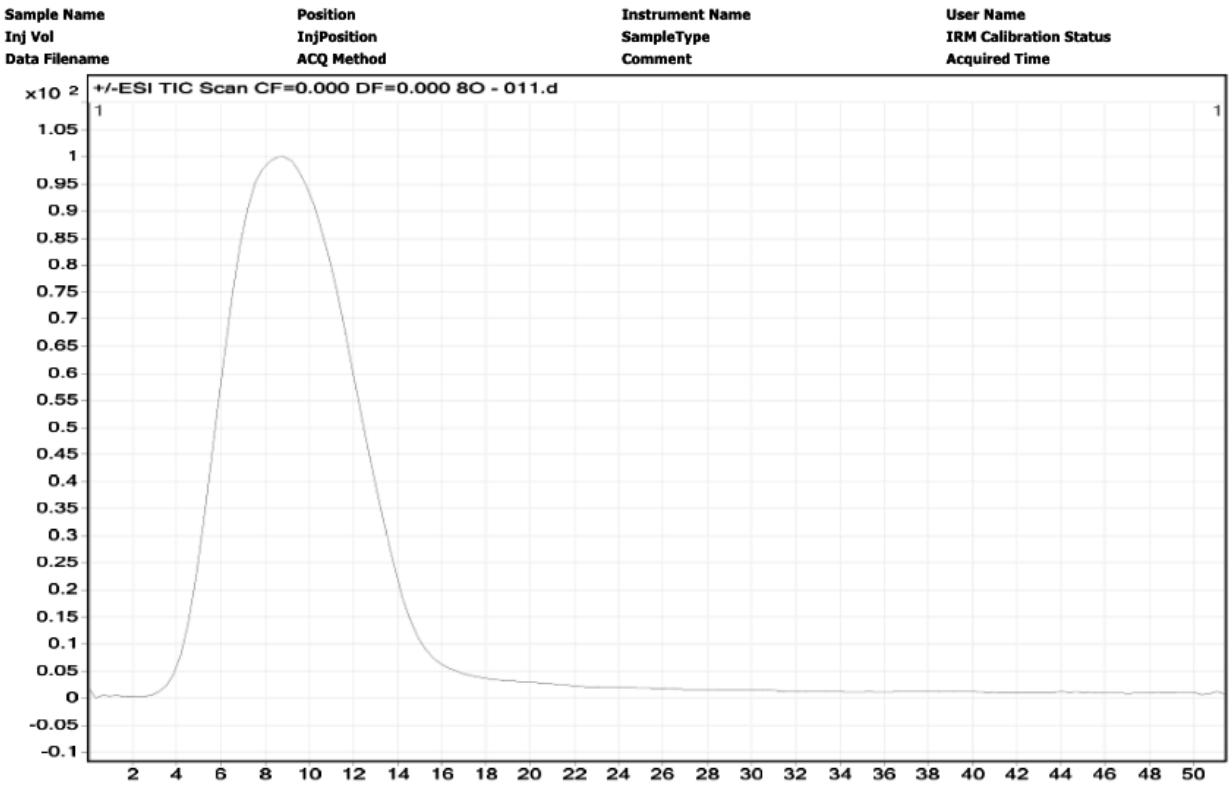

Fig.76. Chromatogram of compound **8o.**

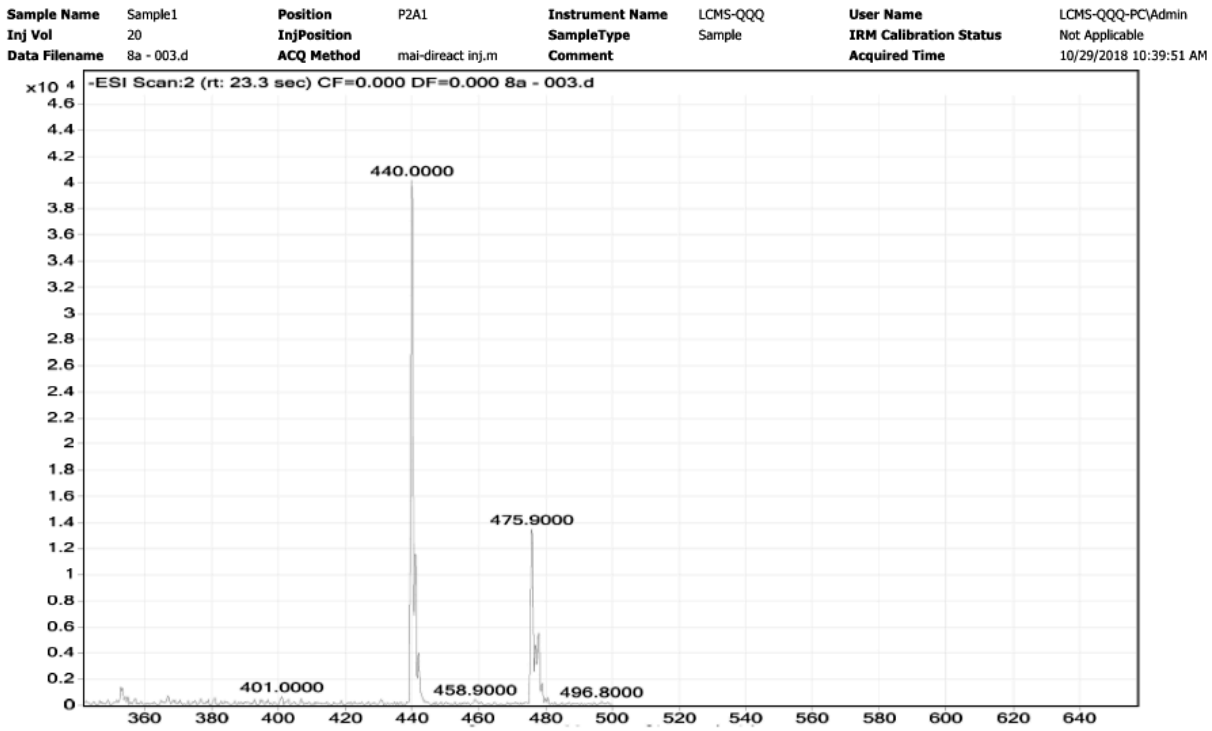

Fig. 77. LC-MS spectrum of compound **8a.**

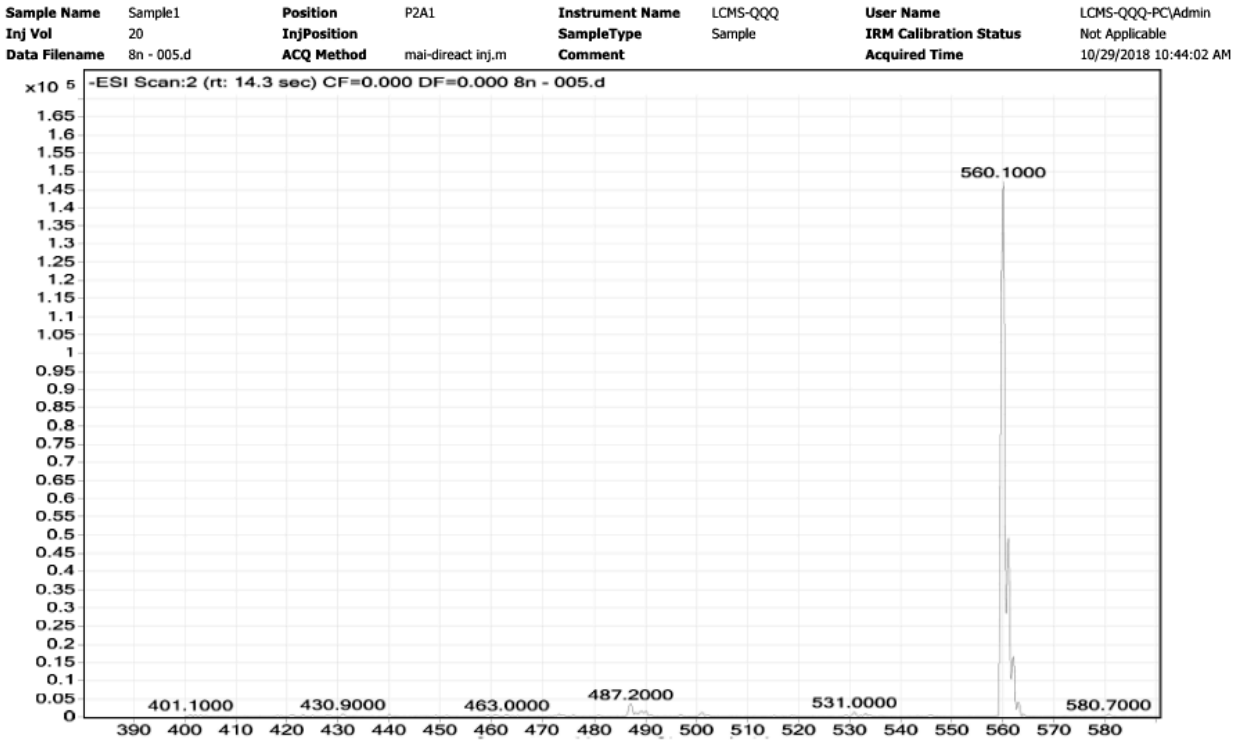

Fig. 78. LC-MS spectrum of compound **8n.**

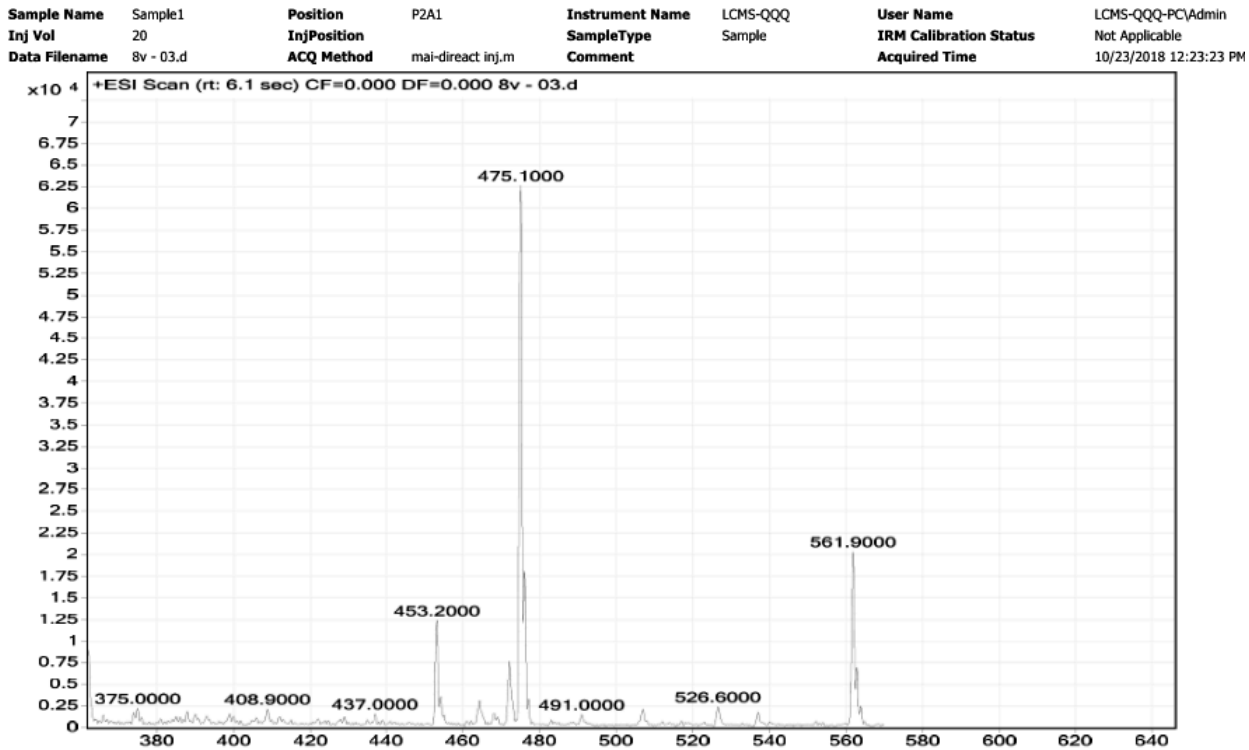

Fig. 79. LC-MS spectrum of compound **8v.**

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

Panel/Cell Line	Compounds											
	8a	**8b**	**8c**	**8d**	**8e**	**8f**	**8g**	**8h**	**8i**	**8j**	**8k**	**8l**
Leukemia												
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 Lung Cancer												
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
HOP-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 (continuous). Cell growth inhibition % from the NCI's in vitro human tumor cell screen for compounds **8a-l**.

Panel/Cell Line	Compounds											
	8a	**8b**	**8c**	**8d**	**8e**	**8f**	**8g**	**8h**	**8i**	**8j**	**8k**	**8l**
Colon Cancer												
COLO 205	20.78	0	0	0	0	0	0	0	0	0	0	0
HCC-2998	53.45	0	0	0.87	0	6.91	3.76	0.83	6.98	-0.24	0	1.26
HCT-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
HT29	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												
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											
	8a	**8b**	**8c**	**8d**	**8e**	**8f**	**8g**	**8h**	**8i**	**8j**	**8k**	**8l**
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											
	8a	**8b**	**8c**	**8d**	**8e**	**8f**	**8g**	**8h**	**8i**	**8j**	**8k**	**8l**
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

nd= not detected

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**	**8o**	**8p**	**8q**	**8r**	**8s**	**8t**	**8u**	**8v**	**8w**	**8x**
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												
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
HOP-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 (continuous). Cell growth inhibition % from the NCI's in vitro human tumor cell screen for compounds **8m-x**.

Panel/Cell Line	Compounds											
	8m	**8n**	**8o**	**8p**	**8q**	**8r**	**8s**	**8t**	**8u**	**8v**	**8w**	**8x**
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
HCT-15	25.19	57.06	5.43	18.74	18.04	1.77	30.3	0	15.01	191.80	0	20.44
HT29	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											
	8m	**8n**	**8o**	**8p**	**8q**	**8r**	**8s**	**8t**	**8u**	**8v**	**8w**	**8x**
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											
	8m	**8n**	**8o**	**8p**	**8q**	**8r**	**8s**	**8t**	**8u**	**8v**	**8w**	**8x**
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

nd= not detect