CORA Cork Open Research Archive
Cartlann Taighde Oscailte Chorcaí

| | |
|---|---|
| Title | Novel 11-substituted ellipticines as potent anticancer agents with divergent activity against cancer cells |
| Authors | Miller, Charlotte M.;O'Sullivan, Elaine C.;McCarthy, Florence O. |
| Publication date | 2019-06-14 |
| Original Citation | Miller, C. M., O'Sullivan, E. C. and McCarthy, F. O. (2019) 'Novel 11-Substituted Ellipticines as Potent Anticancer Agents with Divergent Activity against Cancer Cells', Pharmaceuticals, 12(2), 90 (15pp). DOI: 10.3390/ph12020090 |
| Type of publication | Article (peer-reviewed) |
| Link to publisher's version | https://www.mdpi.com/1424-8247/12/2/90/htm - 10.3390/ph12020090 |
| Rights | © The Author(s) 2019. This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited - https://creativecommons.org/licenses/by/4.0/ |
| Download date | 2026-11-16 13:48:05 |
| Item downloaded from | https://hdl.handle.net/10468/8692 |

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

# Novel 11-substituted ellipticines as potent anticancer agents with divergent activity against cancer cells

**Charlotte M. Miller[1], Elaine C. O'Sullivan[1] and Florence O. McCarthy[1]***

[1] School of Chemistry, Analytical and Biological Chemistry Research Facility, University College Cork, Western Road, Cork, Ireland

* Correspondence: f.mccarthy@ucc.ie; Tel.: +353-21-4901695

Figures S1-S3 $^1$H NMRs of relevant compounds

Figure S4 Three-fold dilution topoisomerase II inhibition assay of compounds **13** and **16**

Figure S5-S10 One dose NCI 60 cancer cell growth data (10μM)

Figure S11-S13 Five dose NCI 60 cancer cell growth data with GI50, TGI and LC50 data for compound **11**

Figure S14-S16 Five dose NCI 60 cancer cell growth data with GI50, TGI and LC50 data for compound **13**

Figure S17: COMPARE Analysis data for compound **13** in direct comparison with SCH1473759 (NSC761691), an Aurora kinase inhibitor.

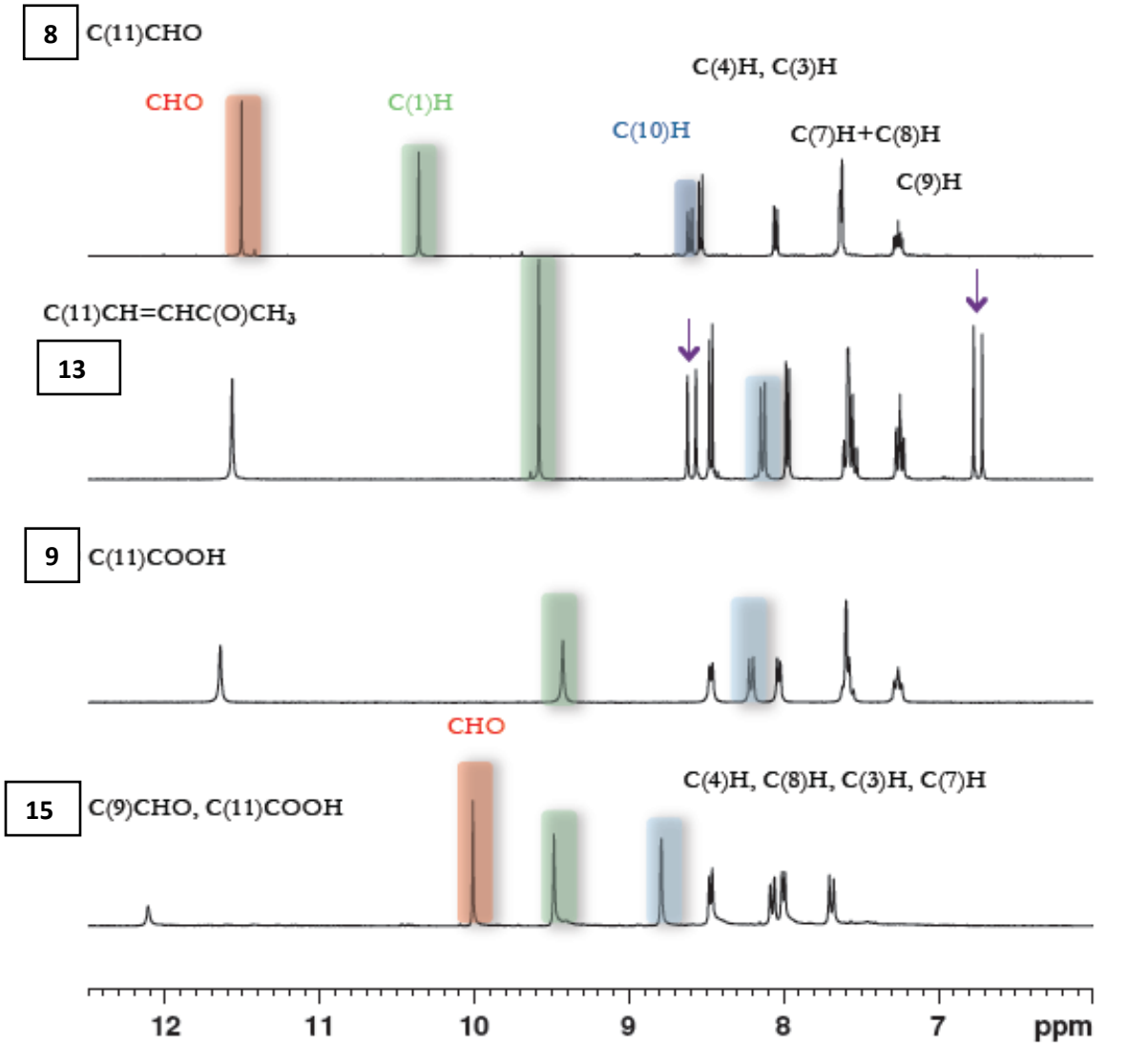



**Figure S1: Stacked $^{1}$H NMR plots of the aromatic regions of 11-substituted Ellipticines 8, 9, 13, and 15 measured in DMSO-$d_6$ at 300MHz**

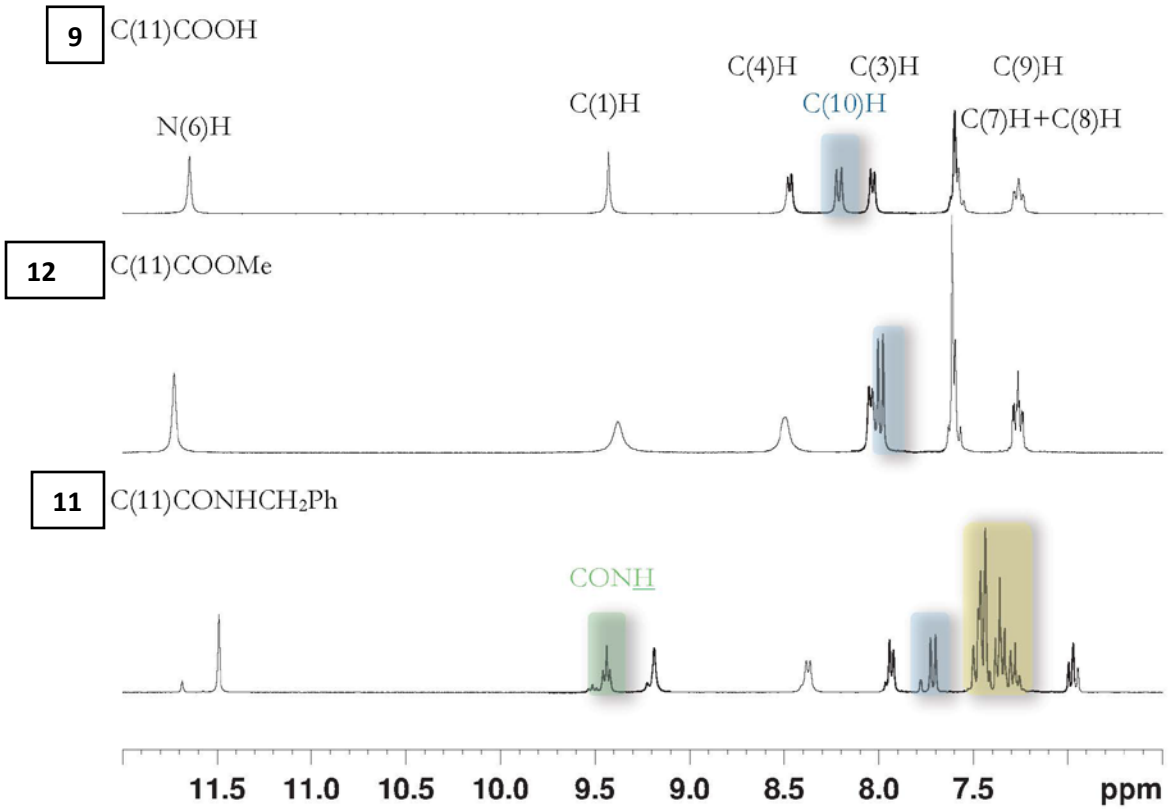



**Figure S2: Stacked $^{1}$H NMR plots of the aromatic regions of 11-substituted Ellipticines 9, 11 and 12 measured in DMSO-$d_6$ at 300MHz**

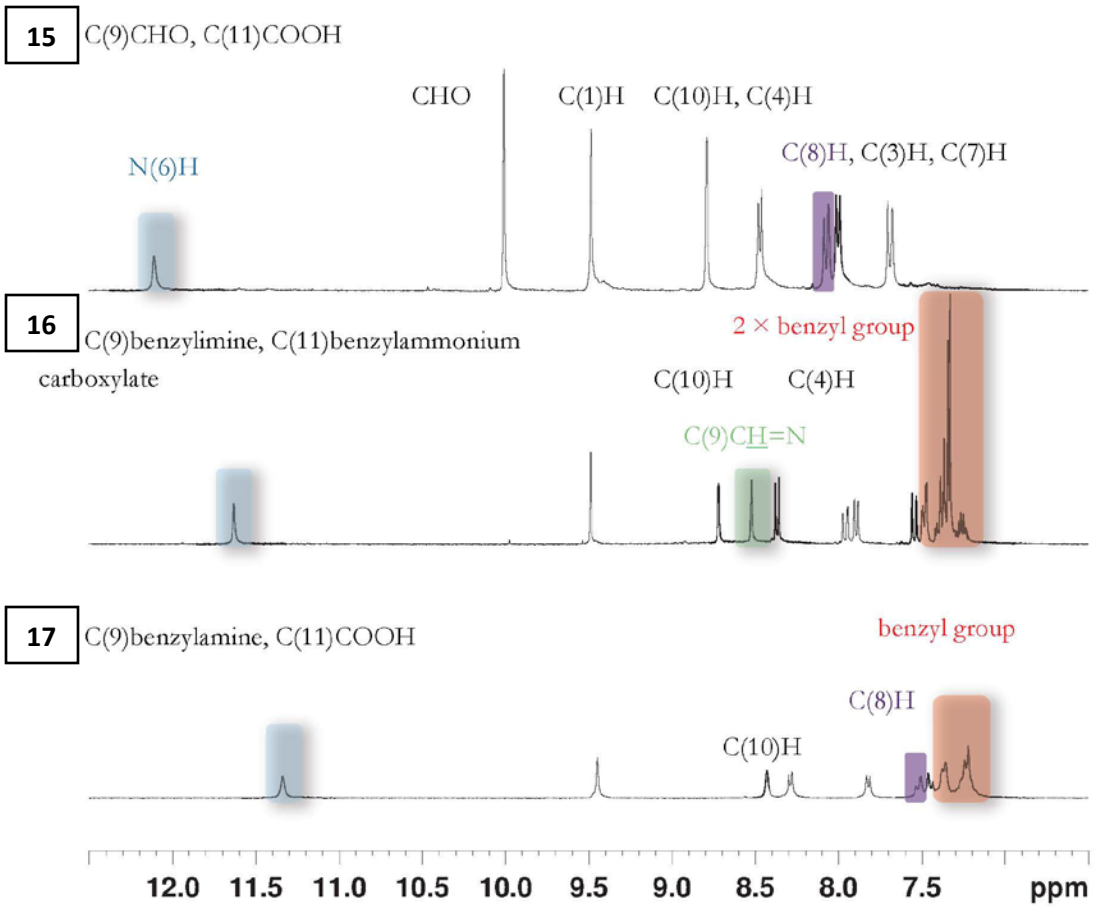



**Figure S3: Stacked $^{1}$H NMR plots of the aromatic regions of 11-substituted Ellipticines 15, 16 and 17 measured in DMSO-$d_6$ at 300MHz**

**Figure S4:** **Three fold dilution assay for compound 13 (lanes 1-3; 100-1uM) and 16 (lanes 4-6; 100-1uM); A &B are positive and negative control respectively.**

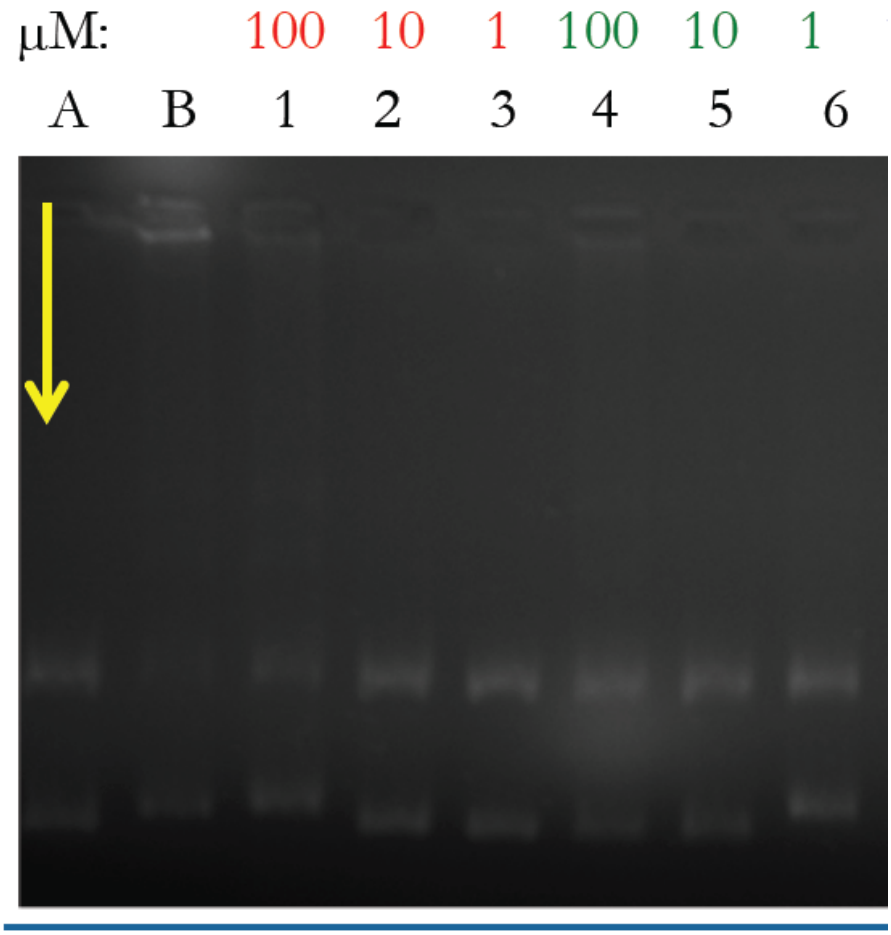
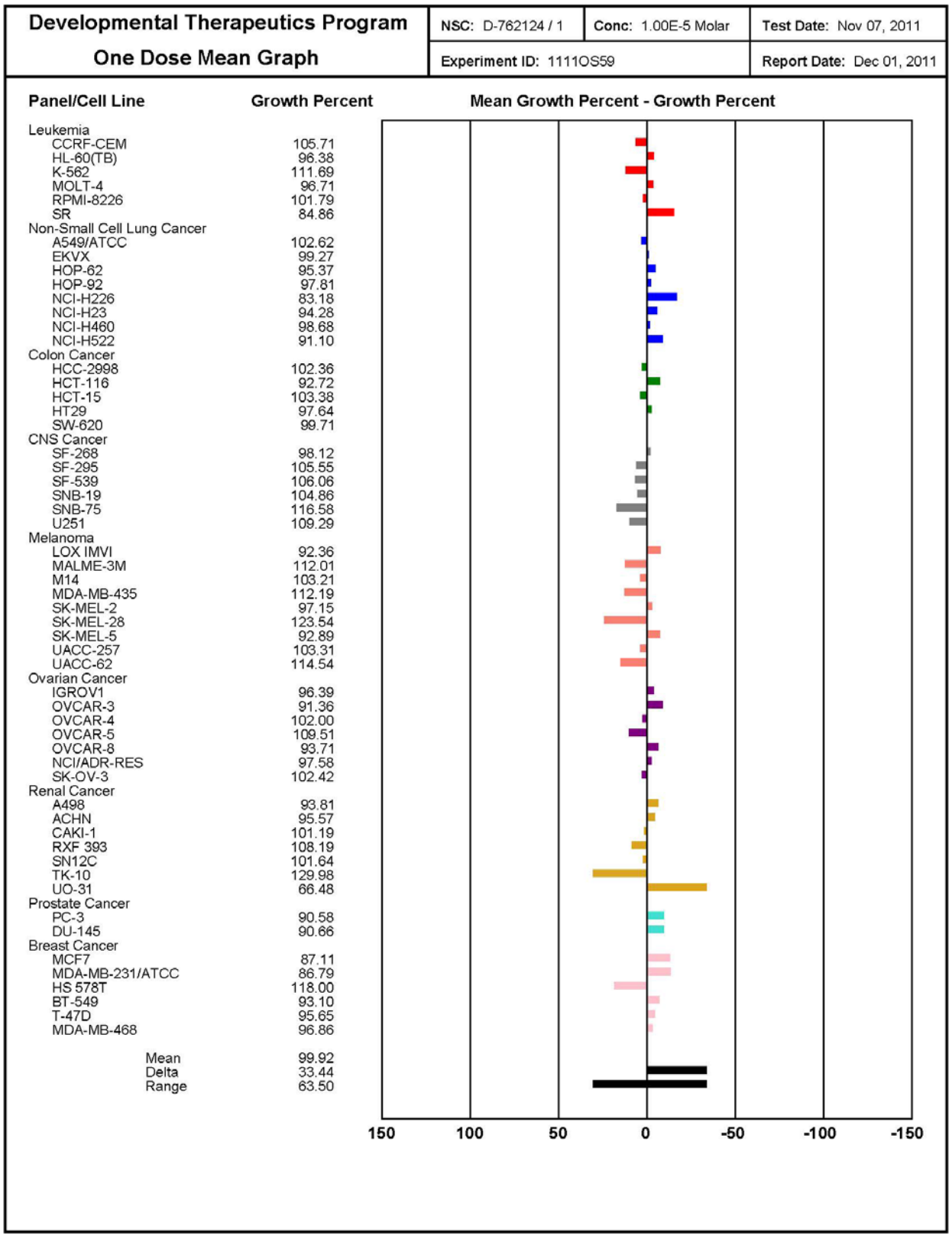


**Figure S5: One dose assay (10μM) NCI 60 cell lines growth data for compound 9**



**Developmental Therapeutics Program**

**One Dose Mean Graph**

| NSC: D-762124 / 1 | Conc: 1.00E-5 Molar | Test Date: Nov 07, 2011 |
|---|---|---|
| Experiment ID: 1111OS59 | | Report Date: Dec 01, 2011 |

| Panel/Cell Line | Growth Percent |
|---|---|
| Leukemia | |
| CCRF-CEM | 105.71 |
| HL-60(TB) | 96.38 |
| K-562 | 111.69 |
| MOLT-4 | 96.71 |
| RPMI-8226 | 101.79 |
| SR | 84.86 |
| Non-Small Cell Lung Cancer | |
| A549/ATCC | 102.62 |
| EKVX | 99.27 |
| HOP-62 | 95.37 |
| HOP-92 | 97.81 |
| NCI-H226 | 83.18 |
| NCI-H23 | 94.28 |
| NCI-H460 | 98.68 |
| NCI-H522 | 91.10 |
| Colon Cancer | |
| HCC-2998 | 102.36 |
| HCT-116 | 92.72 |
| HCT-15 | 103.38 |
| HT29 | 97.64 |
| SW-620 | 99.71 |
| CNS Cancer | |
| SF-268 | 98.12 |
| SF-295 | 105.55 |
| SF-539 | 106.06 |
| SNB-19 | 104.86 |
| SNB-75 | 116.58 |
| U251 | 109.29 |
| Melanoma | |
| LOX IMVI | 92.36 |
| MALME-3M | 112.01 |
| M14 | 103.21 |
| MDA-MB-435 | 112.19 |
| SK-MEL-2 | 97.15 |
| SK-MEL-28 | 123.54 |
| SK-MEL-5 | 92.89 |
| UACC-257 | 103.31 |
| UACC-62 | 114.54 |
| Ovarian Cancer | |
| IGROV1 | 96.39 |
| OVCAR-3 | 91.36 |
| OVCAR-4 | 102.00 |
| OVCAR-5 | 109.51 |
| OVCAR-8 | 93.71 |
| NCI/ADR-RES | 97.58 |
| SK-OV-3 | 102.42 |
| Renal Cancer | |
| A498 | 93.81 |
| ACHN | 95.57 |
| CAKI-1 | 101.19 |
| RXF 393 | 108.19 |
| SN12C | 101.64 |
| TK-10 | 129.98 |
| UO-31 | 66.48 |
| Prostate Cancer | |
| PC-3 | 90.58 |
| DU-145 | 90.66 |
| Breast Cancer | |
| MCF7 | 87.11 |
| MDA-MB-231/ATCC | 86.79 |
| HS 578T | 118.00 |
| BT-549 | 93.10 |
| T-47D | 95.65 |
| MDA-MB-468 | 96.86 |
| Mean | 99.92 |
| Delta | 33.44 |
| Range | 63.50 |

Mean Growth Percent - Growth Percent

150 100 50 0 -50 -100 -150

**Figure S6: One dose assay (10μM) NCI 60 cell lines growth data for compound 11**

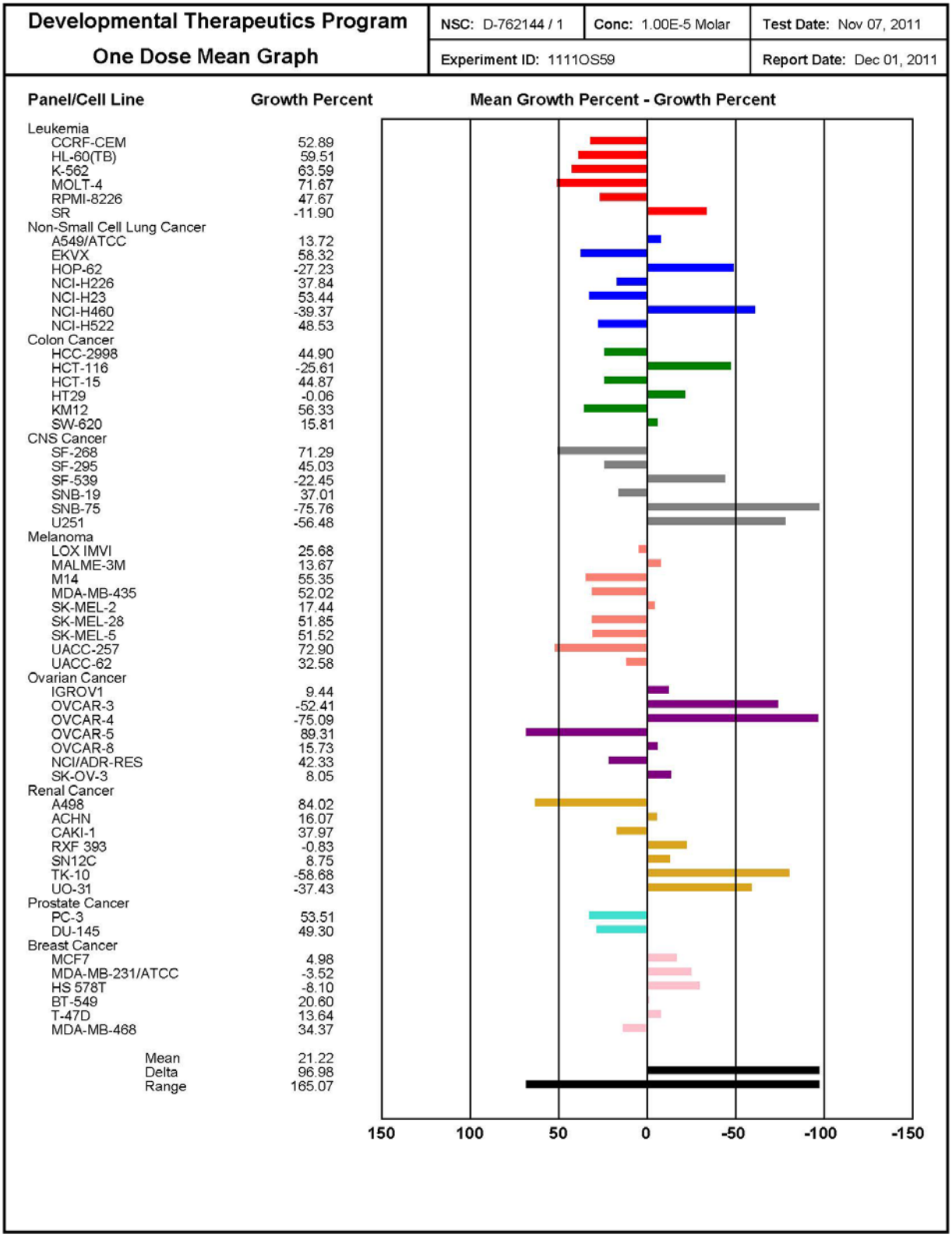


**Figure S7: One dose assay (10μM) NCI 60 cell lines growth data for compound 13**

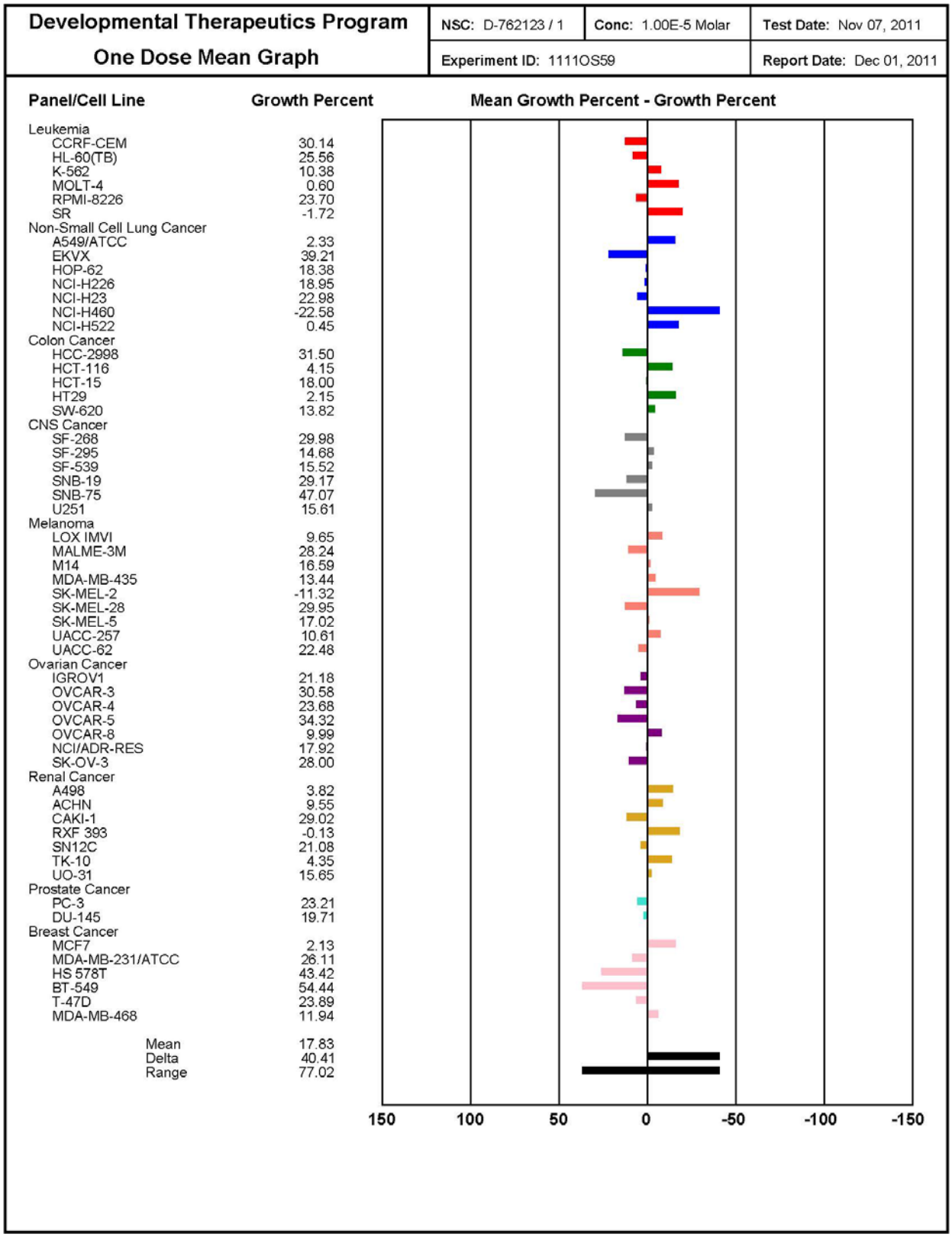


**Figure S8: One dose assay (10μM) NCI 60 cell lines growth data for compound 15**

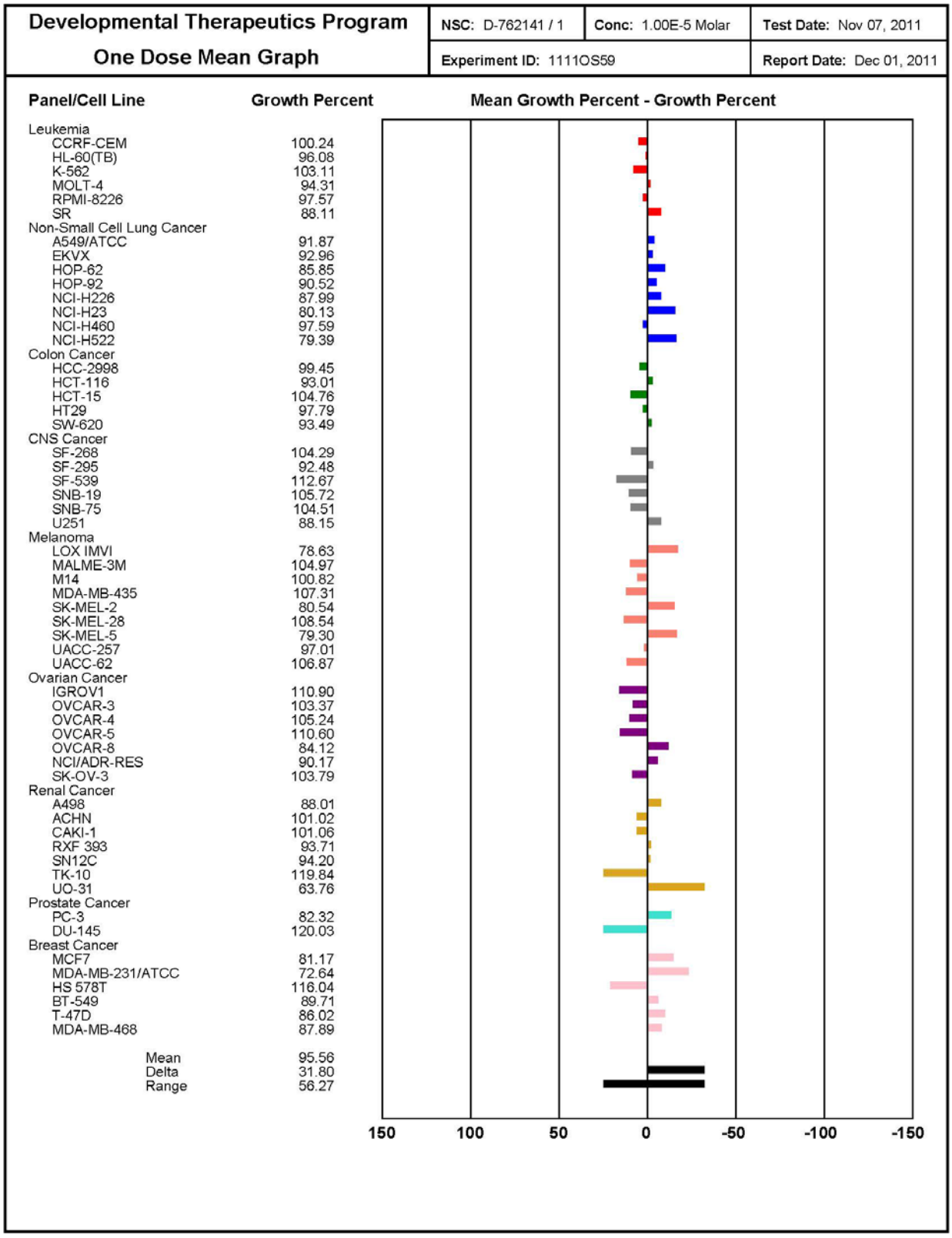


**Figure S9: One dose assay (10μM) NCI 60 cell lines growth data for compound 16**

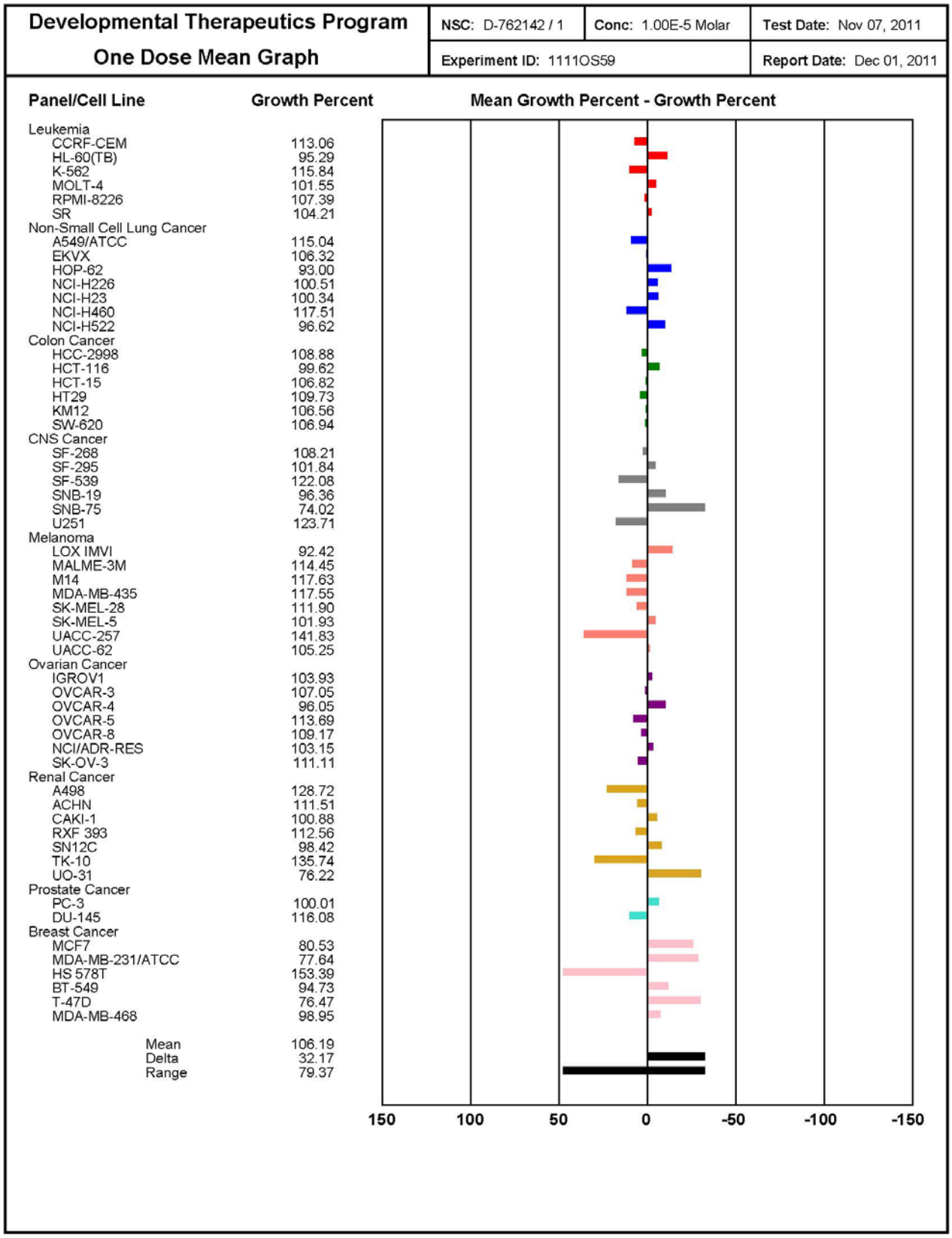


**Figure S10: One dose assay (10μM) NCI 60 cell lines growth data for compound 17**

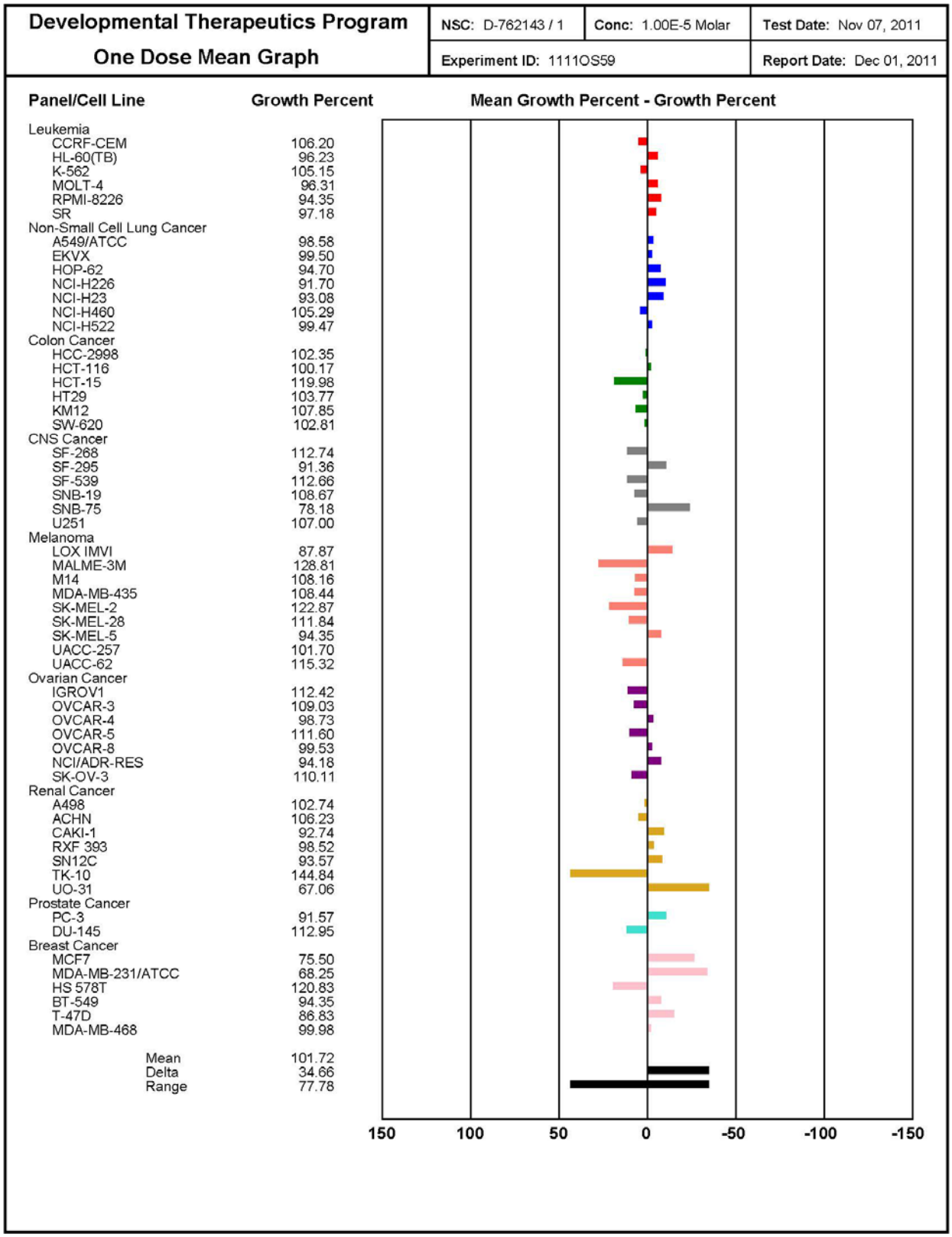


**Figure S11: Five Dose Assay data graph from NCI 60 cell lines growth for compound 11**

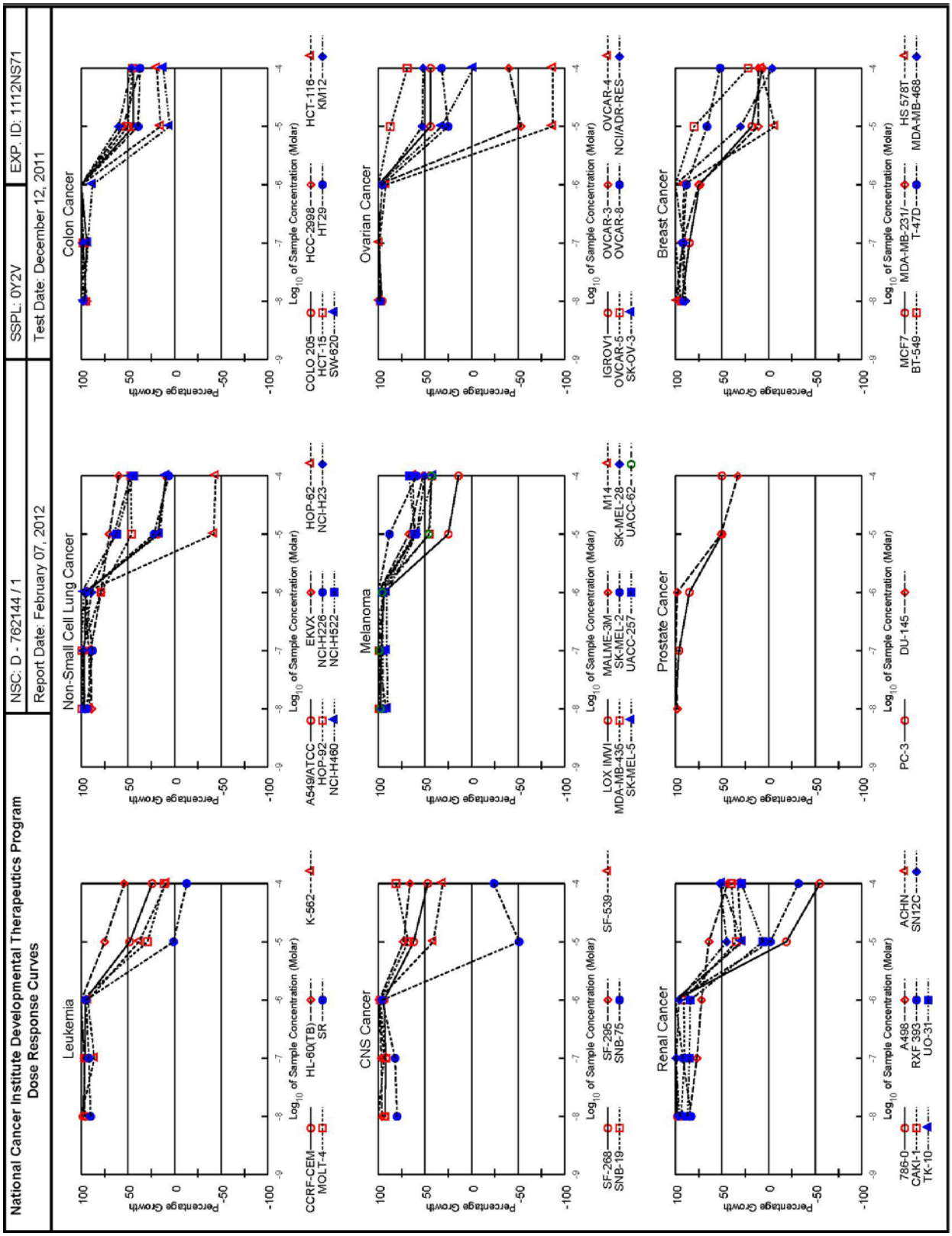


**Figure S12: Complete Five Dose Assay data from NCI 60 cell lines for compound 11**

National Cancer Institute Developmental Therapeutics Program
In-Vitro Testing Results

| | | | |
|---|---|---|---|
| NSC : D - 762144 / 1 | Experiment ID : 1112NS71 | Test Type : 08 | Units : Molar |
| Report Date : February 07, 2012 | Test Date : December 12, 2011 | QNS : | MC : |
| COMI : CM-5-278-4-2 (111980) | Stain Reagent : SRB Dual-Pass Related | SSPL : 0Y2V | |

| | | | 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 | 0.438 | 2.023 | 1.985 | 1.958 | 1.961 | 1.199 | 0.811 | 98 | 96 | 96 | 48 | 24 | 9.08E-6 | > 1.00E-4 | > 1.00E-4 |
| HL-60(TB) | 0.860 | 2.718 | 2.644 | 2.667 | 2.942 | 2.257 | 1.864 | 96 | 97 | 112 | 75 | 54 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| K-562 | 0.167 | 1.357 | 1.415 | 1.192 | 1.277 | 0.621 | 0.280 | 105 | 86 | 93 | 38 | 9 | 6.10E-6 | > 1.00E-4 | > 1.00E-4 |
| MOLT-4 | 0.461 | 1.988 | 1.945 | 1.936 | 2.078 | 0.910 | 0.635 | 97 | 97 | 106 | 29 | 11 | 5.38E-6 | > 1.00E-4 | > 1.00E-4 |
| SR | 0.316 | 1.902 | 1.744 | 1.770 | 1.825 | 0.337 | 0.276 | 90 | 92 | 95 | 1 | -13 | 3.03E-6 | 1.24E-5 | > 1.00E-4 |
| Non-Small Cell Lung Cancer | | | | | | | | | | | | | | | |
| A549/ATCC | 0.314 | 1.552 | 1.513 | 1.517 | 1.494 | 0.533 | 0.420 | 97 | 97 | 95 | 18 | 9 | 3.83E-6 | > 1.00E-4 | > 1.00E-4 |
| EKVX | 0.576 | 1.271 | 1.196 | 1.199 | 1.123 | 1.066 | 0.991 | 89 | 90 | 79 | 70 | 60 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| HOP-62 | 0.303 | 0.745 | 0.705 | 0.708 | 0.727 | 0.175 | 0.169 | 91 | 92 | 96 | -42 | -44 | 2.15E-6 | 4.94E-6 | > 1.00E-4 |
| HOP-92 | 0.988 | 1.431 | 1.426 | 1.428 | 1.338 | 1.191 | 1.195 | 99 | 99 | 79 | 46 | 47 | 7.49E-6 | > 1.00E-4 | > 1.00E-4 |
| NCI-H226 | 0.638 | 1.286 | 1.248 | 1.207 | 1.257 | 0.784 | 0.678 | 94 | 88 | 95 | 22 | 6 | 4.19E-6 | > 1.00E-4 | > 1.00E-4 |
| NCI-H23 | 0.861 | 2.362 | 2.310 | 2.327 | 2.203 | 1.843 | 1.564 | 96 | 98 | 89 | 65 | 47 | 6.75E-5 | > 1.00E-4 | > 1.00E-4 |
| NCI-H460 | 0.285 | 2.455 | 2.519 | 2.548 | 2.382 | 0.622 | 0.470 | 103 | 104 | 97 | 16 | 9 | 3.76E-6 | > 1.00E-4 | > 1.00E-4 |
| NCI-H522 | 0.678 | 1.462 | 1.439 | 1.460 | 1.505 | 1.162 | 1.024 | 97 | 100 | 105 | 62 | 44 | 4.64E-5 | > 1.00E-4 | > 1.00E-4 |
| Colon Cancer | | | | | | | | | | | | | | | |
| COLO 205 | 0.279 | 0.969 | 0.949 | 0.931 | 0.997 | 0.580 | 0.585 | 97 | 94 | 104 | 44 | 44 | 7.84E-6 | > 1.00E-4 | > 1.00E-4 |
| HCC-2998 | 0.591 | 1.723 | 1.654 | 1.715 | 1.756 | 1.216 | 1.010 | 94 | 99 | 103 | 55 | 37 | 1.93E-5 | > 1.00E-4 | > 1.00E-4 |
| HCT-116 | 0.219 | 1.617 | 1.624 | 1.651 | 1.646 | 0.422 | 0.486 | 100 | 102 | 102 | 15 | 19 | 3.93E-6 | > 1.00E-4 | > 1.00E-4 |
| HCT-15 | 0.292 | 1.980 | 1.896 | 1.947 | 2.048 | 1.133 | 1.055 | 95 | 98 | 104 | 50 | 45 | 9.91E-6 | > 1.00E-4 | > 1.00E-4 |
| HT29 | 0.198 | 1.156 | 1.200 | 1.222 | 1.235 | 0.570 | 0.551 | 105 | 107 | 108 | 39 | 37 | 6.90E-6 | > 1.00E-4 | > 1.00E-4 |
| KM12 | 0.493 | 2.113 | 2.077 | 2.081 | 2.115 | 1.458 | 1.239 | 98 | 98 | 100 | 60 | 46 | 5.12E-5 | > 1.00E-4 | > 1.00E-4 |
| SW-620 | 0.244 | 1.693 | 1.654 | 1.590 | 1.518 | 0.313 | 0.420 | 97 | 93 | 88 | 5 | 12 | 2.86E-6 | > 1.00E-4 | > 1.00E-4 |
| CNS Cancer | | | | | | | | | | | | | | | |
| SF-268 | 0.496 | 1.653 | 1.577 | 1.564 | 1.585 | 1.218 | 1.046 | 93 | 92 | 94 | 62 | 47 | 6.78E-5 | > 1.00E-4 | > 1.00E-4 |
| SF-295 | 0.819 | 2.588 | 2.521 | 2.535 | 2.566 | 2.116 | 1.979 | 96 | 97 | 99 | 73 | 66 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| SF-539 | 0.695 | 1.786 | 1.786 | 1.715 | 1.814 | 1.144 | 1.039 | 100 | 94 | 103 | 41 | 31 | 7.17E-6 | > 1.00E-4 | > 1.00E-4 |
| SNB-19 | 0.650 | 1.915 | 1.826 | 1.817 | 1.888 | 1.509 | 1.673 | 93 | 92 | 98 | 68 | 81 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| SNB-75 | 0.735 | 1.242 | 1.141 | 1.150 | 1.221 | 0.358 | 0.560 | 80 | 82 | 96 | -51 | -24 | 2.05E-6 | 4.48E-6 | . |
| Melanoma | | | | | | | | | | | | | | | |
| LOX IMVI | 0.255 | 1.633 | 1.612 | 1.590 | 1.551 | 0.606 | 0.445 | 98 | 97 | 94 | 25 | 14 | 4.38E-6 | > 1.00E-4 | > 1.00E-4 |
| MALME-3M | 0.588 | 1.774 | 1.772 | 1.842 | 1.786 | 1.383 | 1.201 | 100 | 106 | 101 | 67 | 52 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| M14 | 0.415 | 1.396 | 1.319 | 1.447 | 1.450 | 1.016 | 1.038 | 92 | 105 | 105 | 61 | 63 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| MDA-MB-435 | 0.473 | 1.999 | 1.979 | 1.982 | 2.027 | 1.153 | 1.132 | 99 | 99 | 102 | 45 | 43 | 8.02E-6 | > 1.00E-4 | > 1.00E-4 |
| SK-MEL-2 | 0.861 | 1.768 | 1.789 | 1.824 | 1.850 | 1.663 | 1.395 | 102 | 106 | 109 | 88 | 59 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| SK-MEL-28 | 0.507 | 1.332 | 1.309 | 1.377 | 1.334 | 0.994 | 0.922 | 97 | 106 | 100 | 59 | 50 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| SK-MEL-5 | 0.523 | 2.400 | 2.220 | 2.241 | 2.238 | 1.627 | 1.286 | 90 | 91 | 91 | 59 | 41 | 3.05E-5 | > 1.00E-4 | > 1.00E-4 |
| UACC-257 | 0.550 | 1.294 | 1.257 | 1.258 | 1.267 | 1.002 | 1.049 | 95 | 95 | 96 | 61 | 67 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| UACC-62 | 0.579 | 2.143 | 2.119 | 2.120 | 2.080 | 1.306 | 1.250 | 98 | 99 | 96 | 46 | 43 | 8.49E-6 | > 1.00E-4 | > 1.00E-4 |
| Ovarian Cancer | | | | | | | | | | | | | | | |
| IGROV1 | 0.590 | 1.333 | 1.305 | 1.335 | 1.368 | 0.920 | 0.914 | 96 | 100 | 105 | 44 | 44 | 8.07E-6 | > 1.00E-4 | > 1.00E-4 |
| OVCAR-3 | 0.517 | 1.343 | 1.351 | 1.386 | 1.422 | 0.245 | 0.310 | 101 | 105 | 110 | -53 | -40 | 2.33E-6 | 4.74E-6 | . |
| OVCAR-4 | 0.534 | 1.091 | 1.086 | 1.083 | 1.045 | 0.068 | 0.070 | 99 | 99 | 92 | -87 | -87 | 1.71E-6 | 3.25E-6 | 6.19E-6 |
| OVCAR-5 | 0.597 | 1.539 | 1.517 | 1.584 | 1.610 | 1.417 | 1.246 | 98 | 105 | 108 | 87 | 69 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| OVCAR-8 | 0.417 | 1.796 | 1.764 | 1.809 | 1.739 | 0.757 | 0.856 | 98 | 101 | 96 | 25 | 32 | 4.41E-6 | > 1.00E-4 | > 1.00E-4 |
| NCI/ADR-RES | 0.532 | 1.782 | 1.807 | 1.792 | 1.738 | 1.195 | 1.184 | 102 | 101 | 96 | 53 | 52 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| SK-OV-3 | 0.487 | 1.113 | 1.116 | 1.123 | 1.130 | 0.690 | 0.476 | 100 | 102 | 103 | 32 | -2 | 5.62E-6 | 8.55E-5 | > 1.00E-4 |
| Renal Cancer | | | | | | | | | | | | | | | |
| 786-0 | 0.834 | 2.295 | 2.263 | 2.322 | 2.378 | 0.673 | 0.375 | 98 | 102 | 106 | -19 | -55 | 2.79E-6 | 7.00E-6 | 7.20E-5 |
| A498 | 1.307 | 1.779 | 1.709 | 1.670 | 1.647 | 1.611 | 1.515 | 85 | 77 | 72 | 64 | 44 | 5.05E-5 | > 1.00E-4 | > 1.00E-4 |
| ACHN | 0.312 | 1.332 | 1.385 | 1.380 | 1.442 | 0.606 | 0.646 | 105 | 105 | 111 | 29 | 33 | 5.51E-6 | > 1.00E-4 | > 1.00E-4 |
| CAKI-1 | 0.638 | 1.954 | 1.880 | 1.820 | 1.835 | 1.099 | 1.166 | 94 | 90 | 91 | 35 | 40 | 5.39E-6 | > 1.00E-4 | > 1.00E-4 |
| RXF 393 | 0.656 | 1.103 | 1.027 | 1.069 | 1.123 | 0.646 | 0.445 | 83 | 92 | 105 | -2 | -32 | 3.27E-6 | 9.66E-6 | > 1.00E-4 |
| SN12C | 0.466 | 1.951 | 1.906 | 1.936 | 1.889 | 1.127 | 1.240 | 97 | 99 | 96 | 45 | 52 | . | > 1.00E-4 | > 1.00E-4 |
| TK-10 | 0.738 | 1.336 | 1.308 | 1.340 | 1.524 | 0.906 | 1.039 | 95 | 101 | 131 | 28 | 50 | . | > 1.00E-4 | > 1.00E-4 |
| UO-31 | 0.555 | 1.769 | 1.606 | 1.590 | 1.577 | 0.625 | 0.911 | 87 | 85 | 84 | 6 | 29 | 2.73E-6 | > 1.00E-4 | > 1.00E-4 |
| Prostate Cancer | | | | | | | | | | | | | | | |
| PC-3 | 0.513 | 1.957 | 1.962 | 1.896 | 1.746 | 1.230 | 1.231 | 100 | 96 | 85 | 50 | 50 | 9.76E-6 | > 1.00E-4 | > 1.00E-4 |
| DU-145 | 0.381 | 1.272 | 1.255 | 1.301 | 1.257 | 0.834 | 0.675 | 98 | 103 | 98 | 51 | 33 | 1.12E-5 | > 1.00E-4 | > 1.00E-4 |
| Breast Cancer | | | | | | | | | | | | | | | |
| MCF7 | 0.268 | 1.547 | 1.452 | 1.355 | 1.219 | 0.499 | 0.361 | 93 | 85 | 74 | 18 | 7 | 2.71E-6 | > 1.00E-4 | > 1.00E-4 |
| MDA-MB-231/ATCC | 0.490 | 1.150 | 1.171 | 1.097 | 0.983 | 0.560 | 0.561 | 103 | 92 | 75 | 11 | 11 | 2.43E-6 | > 1.00E-4 | > 1.00E-4 |
| HS 578T | 1.204 | 1.930 | 1.914 | 1.869 | 1.863 | 1.119 | 1.261 | 98 | 92 | 91 | -7 | 8 | 2.61E-6 | . | > 1.00E-4 |
| BT-549 | 0.840 | 1.463 | 1.427 | 1.528 | 1.611 | 1.337 | 0.980 | 94 | 110 | 124 | 80 | 22 | 3.31E-5 | > 1.00E-4 | > 1.00E-4 |
| T-47D | 0.624 | 1.623 | 1.536 | 1.540 | 1.503 | 1.288 | 1.148 | 91 | 92 | 88 | 66 | 52 | > 1.00E-4 | > 1.00E-4 | > 1.00E-4 |
| MDA-MB-468 | 0.549 | 0.844 | 0.811 | 0.816 | 0.888 | 0.638 | 0.526 | 89 | 91 | 115 | 30 | -4 | 5.82E-6 | 7.54E-5 | > 1.00E-4 |

**Figure S13: Complete Five Dose Assay data from NCI 60 cell lines for compound 11**

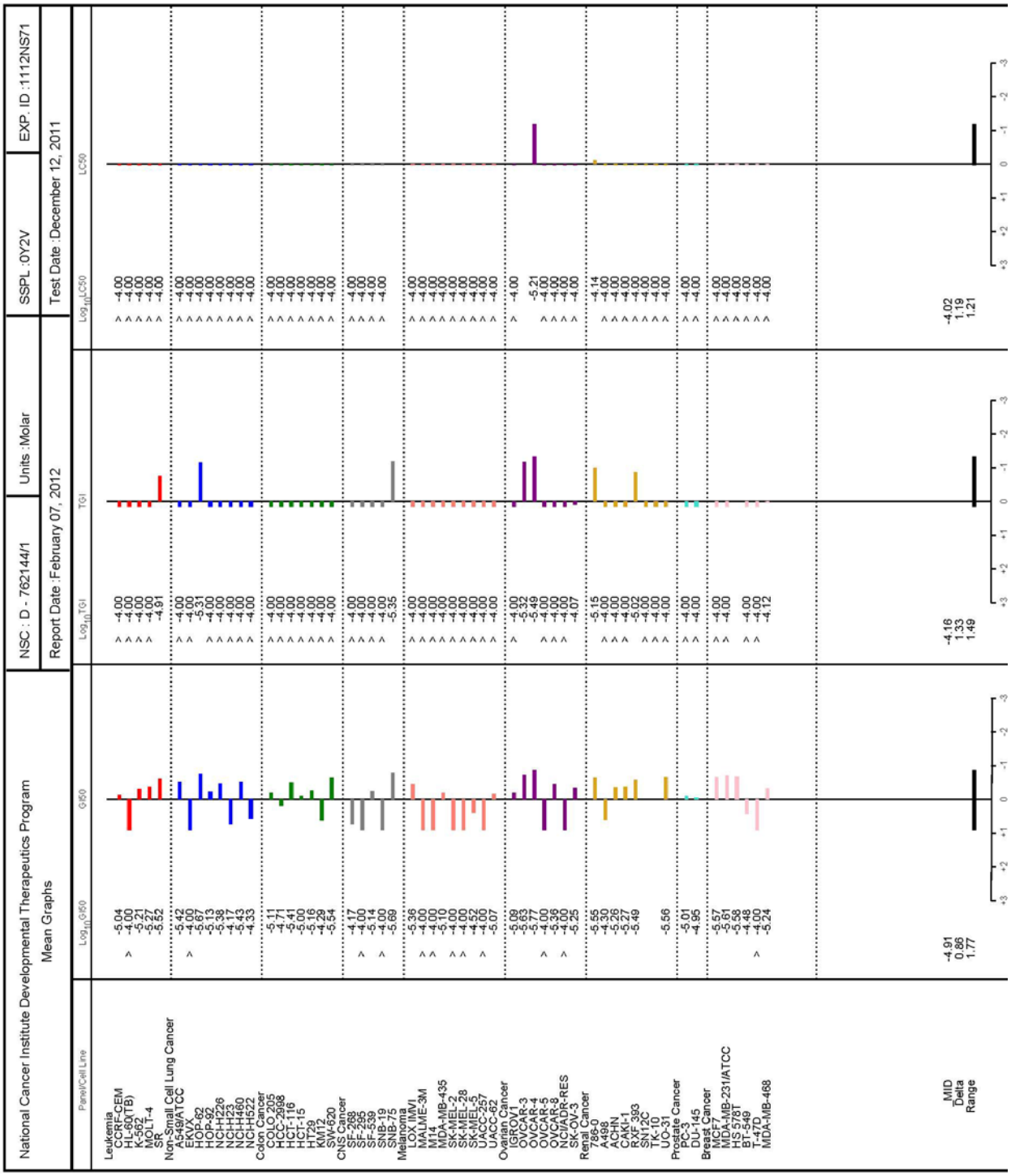


**Figure S14: Five Dose Assay data graph from NCI 60 cell lines for compound 13**

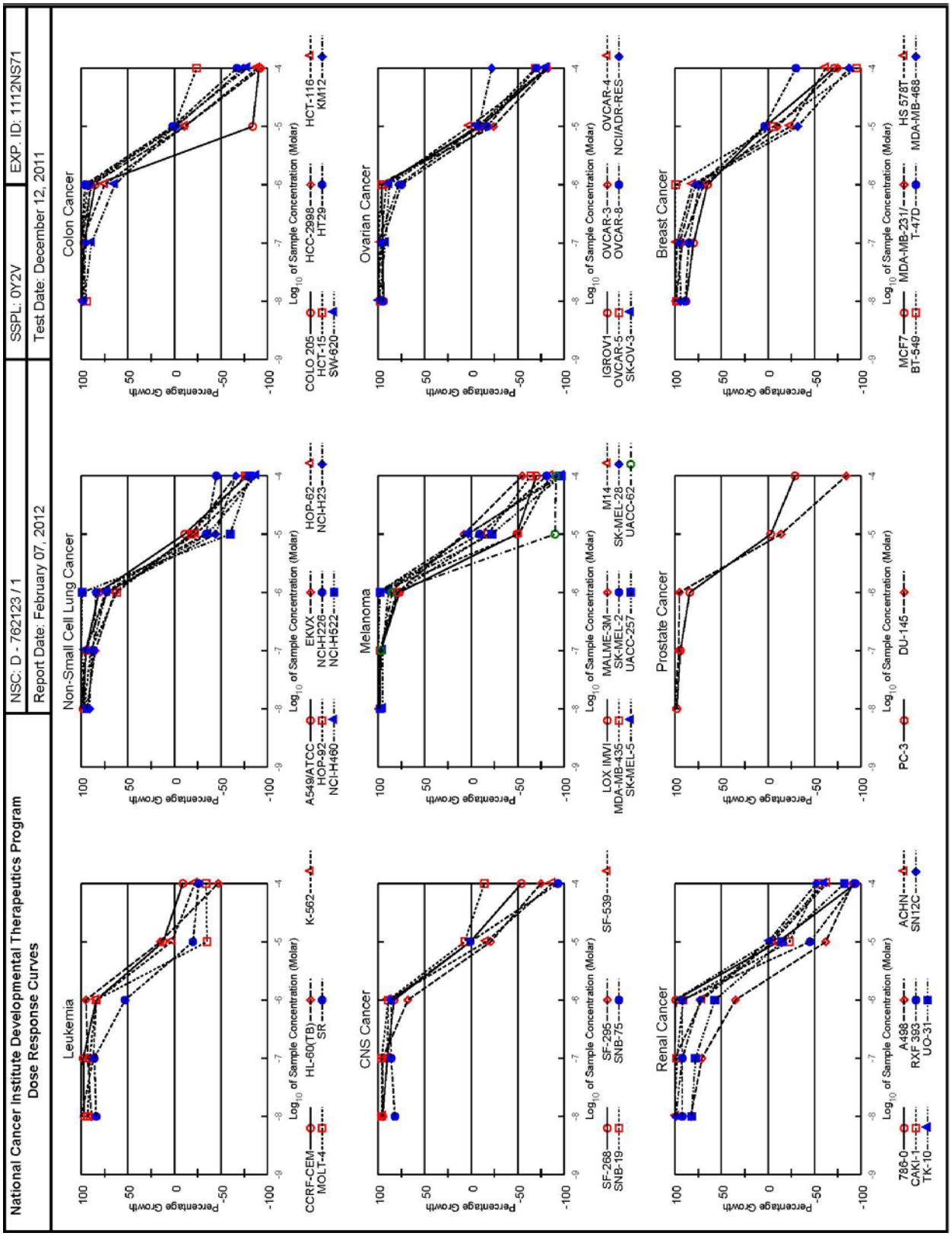


**Figure S15: Complete Five Dose Assay data from NCI 60 cell lines for compound 13**

National Cancer Institute Developmental Therapeutics Program
In-Vitro Testing Results

| | | | |
|---|---|---|---|
| NSC : D - 762123 / 1 | Experiment ID : 1112NS71 | Test Type : 08 | Units : Molar |
| Report Date : February 07, 2012 | Test Date : December 12, 2011 | QNS : | MC : |
| COMI : CM3-112-5 (111402) | Stain Reagent : SRB Dual-Pass Related | SSPL : 0Y2V | |

| | | | 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 | 0.438 | 2.083 | 2.030 | 2.052 | 1.821 | 0.643 | 0.398 | 97 | 98 | 84 | 12 | -9 | 2.99E-6 | 3.74E-5 | > 1.00E-4 |
| HL-60(TB) | 0.860 | 2.628 | 2.434 | 2.502 | 2.537 | 1.121 | 0.460 | 89 | 93 | 95 | 15 | -47 | 3.63E-6 | 1.74E-5 | > 1.00E-4 |
| K-562 | 0.167 | 1.390 | 1.401 | 1.230 | 1.193 | 0.200 | 0.131 | 101 | 87 | 84 | 3 | -22 | 2.61E-6 | 1.28E-5 | > 1.00E-4 |
| MOLT-4 | 0.461 | 1.879 | 1.785 | 1.752 | 1.652 | 0.300 | 0.306 | 93 | 91 | 84 | -35 | -34 | 1.93E-6 | 5.08E-6 | > 1.00E-4 |
| SR | 0.316 | 1.791 | 1.549 | 1.585 | 1.105 | 0.254 | 0.235 | 84 | 86 | 53 | -20 | -26 | 1.12E-6 | 5.37E-6 | > 1.00E-4 |
| Non-Small Cell Lung Cancer | | | | | | | | | | | | | | | |
| A549/ATCC | 0.314 | 1.418 | 1.392 | 1.366 | 1.207 | 0.281 | 0.071 | 98 | 95 | 81 | -11 | -78 | 2.17E-6 | 7.65E-6 | 3.87E-5 |
| EKVX | 0.576 | 1.239 | 1.201 | 1.142 | 1.000 | 0.471 | 0.197 | 94 | 85 | 64 | -18 | -66 | 1.48E-6 | 5.99E-6 | 4.64E-5 |
| HOP-62 | 0.303 | 0.691 | 0.709 | 0.670 | 0.591 | 0.233 | 0.037 | 105 | 95 | 74 | -23 | -88 | 1.77E-6 | 5.77E-6 | 2.60E-5 |
| HOP-92 | 0.988 | 1.386 | 1.374 | 1.347 | 1.237 | 0.815 | 0.239 | 97 | 90 | 62 | -18 | -76 | 1.43E-6 | 6.04E-6 | 3.60E-5 |
| NCI-H226 | 0.638 | 1.272 | 1.226 | 1.191 | 1.168 | 0.422 | 0.353 | 93 | 87 | 84 | -34 | -45 | 1.93E-6 | 5.15E-6 | > 1.00E-4 |
| NCI-H23 | 0.861 | 2.235 | 2.117 | 2.081 | 1.860 | 0.482 | 0.291 | 91 | 89 | 73 | -44 | -66 | 1.57E-6 | 4.20E-6 | 1.86E-5 |
| NCI-H460 | 0.285 | 2.290 | 2.302 | 2.215 | 1.736 | 0.182 | 0.035 | 101 | 96 | 72 | -36 | -88 | 1.61E-6 | 4.64E-6 | 1.85E-5 |
| NCI-H522 | 0.678 | 1.392 | 1.347 | 1.390 | 1.383 | 0.274 | 0.126 | 94 | 100 | 99 | -60 | -81 | 2.03E-6 | 4.20E-6 | 8.70E-6 |
| Colon Cancer | | | | | | | | | | | | | | | |
| COLO 205 | 0.279 | 0.955 | 0.963 | 0.935 | 0.851 | 0.045 | 0.024 | 101 | 97 | 85 | -84 | -91 | 1.60E-6 | 3.17E-6 | 6.28E-6 |
| HCC-2998 | 0.591 | 1.600 | 1.593 | 1.673 | 1.492 | 0.527 | 0.040 | 99 | 107 | 89 | -11 | -93 | 2.47E-6 | 7.78E-6 | 2.98E-5 |
| HCT-116 | 0.219 | 1.514 | 1.484 | 1.607 | 1.196 | 0.195 | 0.025 | 98 | 107 | 75 | -11 | -89 | 1.97E-6 | 7.47E-6 | 3.18E-5 |
| HCT-15 | 0.292 | 1.807 | 1.723 | 1.803 | 1.700 | 0.291 | 0.222 | 94 | 100 | 93 | . | -24 | 2.88E-6 | 9.92E-6 | > 1.00E-4 |
| HT29 | 0.198 | 1.114 | 1.112 | 1.135 | 1.081 | 0.216 | 0.065 | 100 | 102 | 96 | 2 | -67 | 3.09E-6 | 1.07E-5 | 5.61E-5 |
| KM12 | 0.493 | 2.032 | 2.003 | 1.962 | 1.891 | 0.484 | 0.130 | 98 | 95 | 91 | -2 | -74 | 2.76E-6 | 9.53E-6 | 4.67E-5 |
| SW-620 | 0.244 | 1.548 | 1.511 | 1.407 | 1.076 | 0.247 | 0.054 | 97 | 89 | 64 | . | -78 | 1.65E-6 | 1.01E-5 | 4.40E-5 |
| CNS Cancer | | | | | | | | | | | | | | | |
| SF-268 | 0.496 | 1.531 | 1.483 | 1.423 | 1.358 | 0.506 | 0.228 | 95 | 90 | 83 | 1 | -54 | 2.53E-6 | 1.04E-5 | 8.41E-5 |
| SF-295 | 0.819 | 2.664 | 2.568 | 2.563 | 2.069 | 0.644 | 0.207 | 95 | 95 | 68 | -21 | -75 | 1.58E-6 | 5.75E-6 | 3.43E-5 |
| SF-539 | 0.695 | 1.677 | 1.628 | 1.578 | 1.572 | 0.585 | 0.090 | 95 | 90 | 89 | -16 | -87 | 2.36E-6 | 7.07E-6 | 3.02E-5 |
| SNB-19 | 0.650 | 1.873 | 1.829 | 1.825 | 1.743 | 0.737 | 0.557 | 96 | 96 | 89 | 7 | -14 | 3.01E-6 | 2.15E-5 | > 1.00E-4 |
| SNB-75 | 0.735 | 1.285 | 1.188 | 1.209 | 1.206 | 0.742 | 0.049 | 82 | 86 | 86 | 1 | -93 | 2.65E-6 | 1.03E-5 | 3.48E-5 |
| Melanoma | | | | | | | | | | | | | | | |
| LOX IMVI | 0.255 | 1.506 | 1.480 | 1.471 | 1.218 | 0.129 | 0.077 | 98 | 97 | 77 | -49 | -70 | 1.63E-6 | 4.06E-6 | 1.07E-5 |
| MALME-3M | 0.588 | 1.793 | 1.778 | 1.772 | 1.542 | 0.681 | 0.264 | 99 | 98 | 79 | 8 | -55 | 2.56E-6 | 1.33E-5 | 8.29E-5 |
| M14 | 0.415 | 1.237 | 1.254 | 1.329 | 1.286 | 0.202 | 0.063 | 102 | 111 | 106 | -51 | -85 | 2.27E-6 | 4.71E-6 | 9.79E-6 |
| MDA-MB-435 | 0.473 | 1.925 | 1.902 | 1.903 | 1.634 | 0.387 | 0.172 | 98 | 98 | 80 | -18 | -64 | 2.02E-6 | 6.51E-6 | 5.00E-5 |
| SK-MEL-2 | 0.861 | 1.601 | 1.603 | 1.669 | 1.671 | 0.780 | 0.166 | 100 | 109 | 109 | -9 | -81 | 3.16E-6 | 8.33E-6 | 3.71E-5 |
| SK-MEL-28 | 0.507 | 1.416 | 1.437 | 1.487 | 1.457 | 0.534 | 0.033 | 102 | 108 | 105 | 3 | -93 | 3.44E-6 | 1.07E-5 | 3.54E-5 |
| SK-MEL-5 | 0.523 | 2.479 | 2.373 | 2.387 | 2.265 | 0.610 | 0.018 | 95 | 95 | 89 | 4 | -97 | 2.90E-6 | 1.11E-5 | 3.46E-5 |
| UACC-257 | 0.550 | 1.136 | 1.123 | 1.153 | 1.123 | 0.427 | 0.017 | 98 | 103 | 98 | -22 | -97 | 2.50E-6 | 6.51E-6 | 2.35E-5 |
| UACC-62 | 0.579 | 1.948 | 1.981 | 1.913 | 1.738 | 0.059 | 0.051 | 102 | 97 | 85 | -90 | -91 | 1.58E-6 | 3.06E-6 | 5.91E-6 |
| Ovarian Cancer | | | | | | | | | | | | | | | |
| IGROV1 | 0.590 | 1.284 | 1.245 | 1.251 | 1.255 | 0.532 | 0.112 | 94 | 95 | 96 | -10 | -81 | 2.71E-6 | 8.06E-6 | 3.66E-5 |
| OVCAR-3 | 0.517 | 1.310 | 1.330 | 1.314 | 1.310 | 0.395 | 0.091 | 102 | 101 | 100 | -24 | -82 | 2.53E-6 | 6.43E-6 | 2.80E-5 |
| OVCAR-4 | 0.534 | 1.141 | 1.140 | 1.123 | 1.088 | 0.544 | 0.097 | 100 | 97 | 91 | 2 | -82 | 2.88E-6 | 1.04E-5 | 4.15E-5 |
| OVCAR-5 | 0.597 | 1.453 | 1.436 | 1.539 | 1.422 | 0.551 | 0.186 | 98 | 110 | 96 | -8 | -69 | 2.78E-6 | 8.42E-6 | 4.91E-5 |
| OVCAR-8 | 0.417 | 1.651 | 1.591 | 1.600 | 1.340 | 0.345 | 0.124 | 95 | 96 | 75 | -17 | -70 | 1.86E-6 | 6.48E-6 | 4.14E-5 |
| NCI/ADR-RES | 0.532 | 1.678 | 1.697 | 1.716 | 1.426 | 0.488 | 0.413 | 102 | 103 | 78 | -8 | -22 | 2.11E-6 | 8.00E-6 | > 1.00E-4 |
| SK-OV-3 | 0.487 | 1.113 | 1.109 | 1.062 | 1.037 | 0.459 | 0.100 | 99 | 92 | 88 | -6 | -80 | 2.54E-6 | 8.68E-6 | 3.98E-5 |
| Renal Cancer | | | | | | | | | | | | | | | |
| 786-0 | 0.834 | 2.220 | 2.217 | 2.229 | 2.203 | 0.746 | 0.053 | 100 | 101 | 99 | -11 | -94 | 2.79E-6 | 8.01E-6 | 2.98E-5 |
| A498 | 1.307 | 1.744 | 1.669 | 1.620 | 1.460 | 0.494 | 0.114 | 83 | 71 | 35 | -62 | -91 | 3.86E-7 | 2.29E-6 | 7.48E-6 |
| ACHN | 0.312 | 1.277 | 1.264 | 1.286 | 0.999 | 0.297 | 0.117 | 99 | 101 | 71 | -5 | -63 | 1.90E-6 | 8.64E-6 | 6.07E-5 |
| CAKI-1 | 0.638 | 1.856 | 1.882 | 1.832 | 1.743 | 0.492 | 0.292 | 102 | 98 | 91 | -23 | -54 | 2.28E-6 | 6.28E-6 | 7.32E-5 |
| RXF 393 | 0.656 | 1.086 | 1.053 | 1.050 | 1.051 | 0.363 | 0.044 | 92 | 92 | 92 | -45 | -93 | 2.03E-6 | 4.70E-6 | 1.28E-5 |
| SN12C | 0.466 | 1.816 | 1.809 | 1.708 | 1.447 | 0.472 | 0.223 | 99 | 92 | 73 | . | -52 | 2.06E-6 | 1.02E-5 | 9.10E-5 |
| TK-10 | 0.738 | 1.246 | 1.259 | 1.334 | 1.447 | 0.721 | 0.298 | 102 | 117 | 139 | -2 | -60 | 4.27E-6 | 9.62E-6 | 6.79E-5 |
| UO-31 | 0.555 | 1.719 | 1.508 | 1.464 | 1.217 | 0.474 | 0.103 | 82 | 78 | 57 | -15 | -82 | 1.25E-6 | 6.24E-6 | 3.38E-5 |
| Prostate Cancer | | | | | | | | | | | | | | | |
| PC-3 | 0.513 | 1.913 | 1.891 | 1.826 | 1.684 | 0.496 | 0.363 | 98 | 94 | 84 | -3 | -29 | 2.43E-6 | 9.14E-6 | > 1.00E-4 |
| DU-145 | 0.381 | 1.201 | 1.222 | 1.166 | 1.157 | 0.328 | 0.060 | 103 | 96 | 95 | -14 | -84 | 2.58E-6 | 7.44E-6 | 3.26E-5 |
| Breast Cancer | | | | | | | | | | | | | | | |
| MCF7 | 0.268 | 1.555 | 1.401 | 1.296 | 1.103 | 0.305 | 0.079 | 88 | 80 | 65 | 3 | -71 | 1.74E-6 | 1.09E-5 | 5.23E-5 |
| MDA-MB-231/ATCC | 0.490 | 0.995 | 0.989 | 0.953 | 0.839 | 0.440 | 0.124 | 99 | 92 | 69 | -10 | -75 | 1.74E-6 | 7.44E-6 | 4.13E-5 |
| HS 578T | 1.204 | 1.793 | 1.791 | 1.780 | 1.679 | 0.917 | 0.457 | 100 | 98 | 81 | -24 | -62 | 1.96E-6 | 5.91E-6 | 4.84E-5 |
| BT-549 | 0.840 | 1.393 | 1.384 | 1.470 | 1.386 | 0.793 | 0.044 | 98 | 114 | 99 | -6 | -95 | 2.93E-6 | 8.84E-6 | 3.15E-5 |
| T-47D | 0.624 | 1.643 | 1.536 | 1.486 | 1.381 | 0.665 | 0.440 | 89 | 85 | 74 | 4 | -30 | 2.21E-6 | 1.31E-5 | > 1.00E-4 |
| MDA-MB-468 | 0.549 | 0.835 | 0.817 | 0.822 | 0.772 | 0.374 | 0.074 | 94 | 95 | 78 | -32 | -87 | 1.79E-6 | 5.12E-6 | 2.14E-5 |

**Figure S16: Complete Five Dose Assay data from NCI 60 cell lines for compound 13**

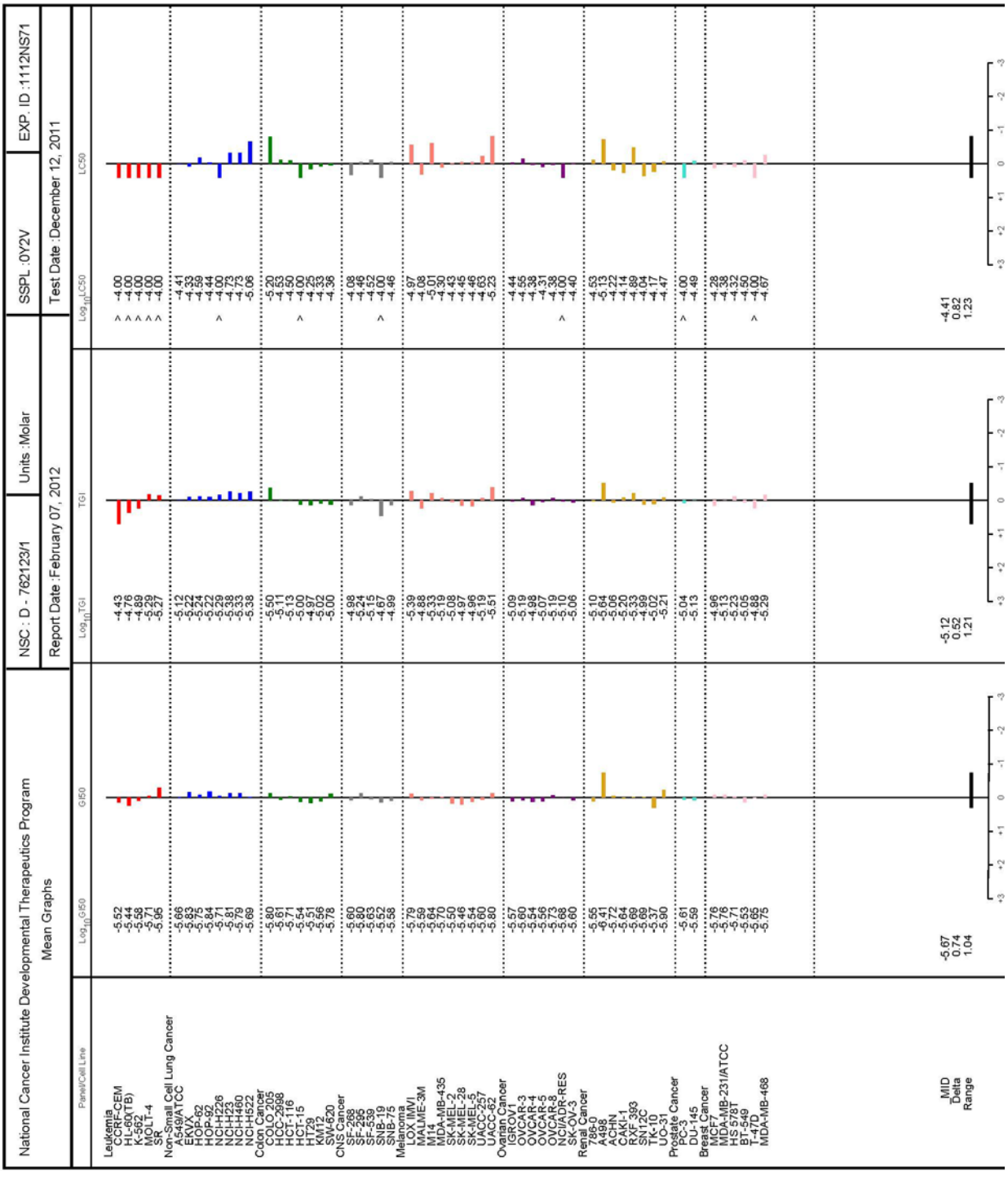


**Figure S17: COMPARE Analysis data for compound 13 (Black Bars) in direct comparison with SCH1473759 (NSC761691, Red Lines), an Aurora kinase inhibitor.**

