Supplementary Information

Methyl-β-cyclodextrin, an actin depolymerizer augments the antiproliferative potential of microtubule-targeting agents

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Tables

Table S1: Effects of vinblastine, crocin and taxol on the microtubules in HeLa cells without and with MCD treatment.

	Microtubule Intensity (a.u.)	
	No MCD	**1 mM MCD**
Control	27.2 ± 1.2	26.3 ± 2
5 nM vinblastine	15.5 ± 2.2$^{\#}$	10.3 ± 1.8 *
2 µM crocin	20.4 ± 1.5$^{\#}$	14.9 ± 0.8 **
7 nM taxol	34.5 ± 3.5$^{\#}$	45.4 ± 3.8 *

Data were an average ± SD of three independent set of experiments (n =50 cells). ($p < 0.01$ = * / $^{\#}$) and ($p < 0.05$ = **), (*) represents comparison with their respective MCD untreated controls while ($^{\#}$) represents comparison with control (no MCD).

Table S2: Rate constant (τ_1 and τ_2) values of the cell deadhesion.

Conditions	**τ_1 (s) ***	**τ_2 (s) #**
Control	332 ± 7	131 ± 3
1 mM MCD (4 h)	192 ± 15 *	158 ± 4 #
5 nM vinblastine (8 h)	339 ± 5	115 ± 2#
1 mM MCD (4 h) + 5 nM vinblastine (8 h)	290 ± 14 *	148 ± 2#
7 nM taxol (8 h)	326 ± 8	156 ± 6#
1 mM MCD (4 h) + 7 nM taxol (8 h)	224 ± 5 *	197 ± 5#

Data were an average ± SD of three independent set of experiments. (n=30 cells). ($p < 0.01$ = */ #). (*) represents comparison with τ_1 control whereas (#) represents comparison with τ_2 controls.

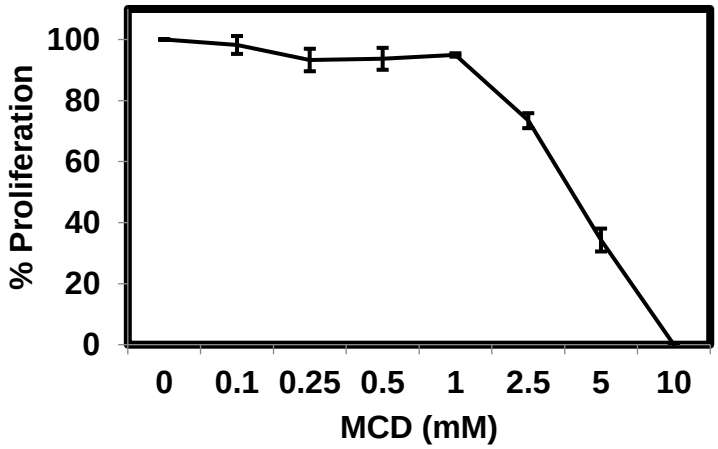
Table S3: IC_{50} values of vinblastine and taxol in control and MCD treated cells.

Cell Line	**Vinblastine (nM)**	**1mM MCD + vinblastine (nM)**	**Taxol (nM)**	**1 mM MCD + taxol (nM)**
MCF 7	25.9 ± 1.1	9.6 ± 0.8 *	24.8 ± 0.7	10.3 ± 0.9 *
Huh 7	72.1 ± 5.9	25.6 ± 2.5 *	70.8 ± 2.6	20.7 ± 1*
PC 3	12.3 ± 0.2	9.8 ± 0.8 **	17.5 ± 1.7	11.7 ± 0.17 **

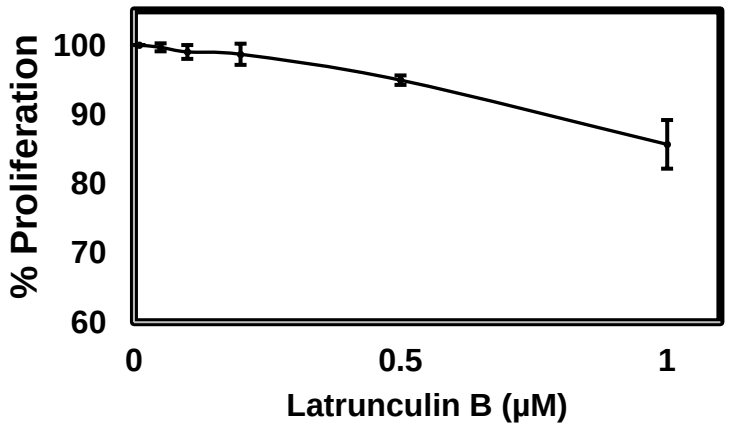
Data were an average ± SD of three independent set of experiments. ($p < 0.01$ = *) and ($p < 0.05$ = **)

Figure S1

a

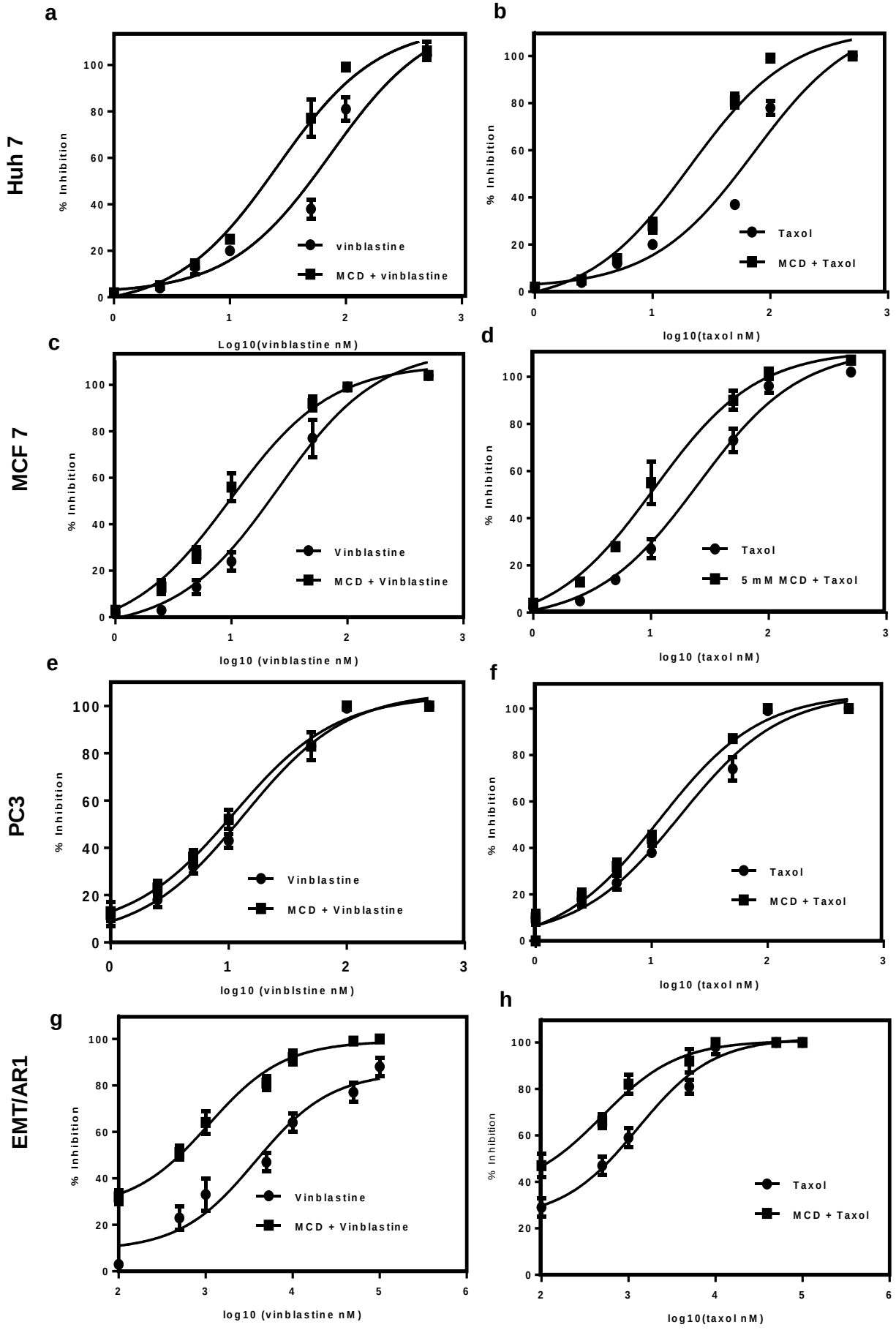


b



Supplementary Figure 1: MCD and LAT B inhibited the proliferation of HeLa cells at higher doses. HeLa cells were treated with different concentrations of MCD and LAT B for 24 h. The inhibition of cell proliferation was calculated by the sulforhodamine B assay. a) Line graph representing inhibition of cell proliferation upon increasing concentrations of MCD b) LAT B. Data are averages of three independent experiments, and error bars represent the SD.

Figure S2


a
b
Huh 7
% Inhibition
vinblastine
MCD + vinblastine
Log10(vinblastine nM)
Taxol
MCD + Taxol
log10(taxol nM)
c
d
MCF 7
Vinblastine
MCD + Vinblastine
log10 (vinblastine nM)
5 mM MCD + Taxol
log10 (taxol nM)
e
f
PC3
log10 (vinblstine nM)
g
h
EMT/AR1

Supplementary Figure 2: MCD augmented the antiproliferative activity of vinblastine and taxol in several types of cancer cells. Cells were treated with 1 mM MCD for 4 h and then replaced with either fresh media alone or fresh media containing different concentrations of either vinblastine or taxol for 24 h. The inhibition of cell proliferation was calculated by the sulforhodamine B assay. a) Huh 7 cells - vinblastine ($p < 0.01$) b) Huh 7 cells - taxol ($p < 0.01$) c) MCF 7 cells - vinblastine ($p < 0.01$) d) MCF 7 cells - taxol ($p < 0.01$) e) PC3 cells - vinblastine ($p < 0.05$) f) PC3 cells - taxol ($p < 0.05$) g) EMT/AR1 cells - vinblastine ($p < 0.01$) f) EMT/AR1 cells - taxol ($p < 0.01$). Data are averages of three independent experiments, and error bars represent the SD.