

**Supplementary Table S5. Complete summary of *in vivo* single-agent ABT-263 responses of individual mice**

Study information			Animal Counts/Status					EFS Evaluation				Response Evaluation										
Cell Line	ID	Treatment Group	N1 <sup>1</sup>	Nd <sup>2</sup>	Ne <sup>3</sup>	Na <sup>4</sup>	No. ev <sup>5</sup>	KM med. <sup>6</sup>	Log-rank P-value	EFS T/C	Med RTV. <sup>7</sup>	PD	PD1	PD2	SD	PR	CR	MCR	Median Score	Overall Group Response		
G1	ALL-2	CTRL	8	0	0	8	8	4.7	.		>25	8	0	0	0	0	0	0	0	0	PD	
		ABT-263	6	0	0	6	6	5.2	0.45987	1.1	>25	0	4	2	0	0	0	0	0	0	0	PD1
G2	ALL-3	CTRL	7	0	0	7	7	9.6	.		>25	7	0	0	0	0	0	0	0	0	0	PD
		ABT-263	8	0	0	8	8	63.3	0.00762	6.6	>25	0	1	0	0	0	7	0	8	0	8	CR
G3	ALL-4	CTRL	4	0	0	4	4	1.5	.		>25	4	0	0	0	0	0	0	0	0	0	PD
		ABT-263	6	2	0	4	4	28.6	0.02857	18.5	>25	0	0	4	0	0	0	0	0	2	0	PD2
G4	ALL-7	CTRL	8	0	0	8	8	6.8	.		>25	8	0	0	0	0	0	0	0	0	0	PD
		ABT-263	8	2	0	6	6	31.4	0.00033	4.6	>25	0	0	0	0	0	6	0	8	0	8	CR
G5	ALL-8	CTRL	8	0	0	8	7	11.8	.		>25	6	0	0	0	1	0	1	0	0	0	PD
		ABT-263	9	0	0	9	9	62.8	0.00436	5.3	>25	0	0	0	0	0	9	0	8	0	8	CR
G6	ALL-16	CTRL	8	0	0	8	8	18.2	.		>25	8	0	0	0	0	0	0	0	0	0	PD
		ABT-263	9	0	1	8	8	85.5	0.00016	4.7	>25	0	0	0	0	0	8	0	8	0	8	CR
G7	ALL-17	CTRL	10	0	0	10	10	2.5	.		>25	10	0	0	0	0	0	0	0	0	0	PD
		ABT-263	8	1	1	6	6	24.2	0.00013	9.5	>25	0	0	5	0	1	0	0	2	0	2	PD2
G8	ALL-19	CTRL	7	1	0	6	6	5.0	.		>25	6	0	0	0	0	0	0	0	0	0	PD
		ABT-263	8	2	0	6	2	>43	0.00217	> 8.3	16.3	0	0	0	0	0	6	0	8	0	8	CR
G9	ALL-10	CTRL	8	2	1	5	5	7.5	.		>25	5	0	0	0	0	0	0	0	0	0	PD
		ABT-263	7	2	1	4	4	33.3	0.00794	4.5	>25	0	0	0	0	0	4	0	8	0	8	CR
G10	ALL-11	CTRL	8	0	1	7	7	20.2	.		>25	7	0	0	0	0	0	0	0	0	0	PD
		ABT-263	8	5	0	3	3	56.3	0.00833	2.8	>25	0	0	0	0	0	3	0	8	0	8	CR
G11	ALL-27	CTRL	7	1	0	6	6	3.3	.		>25	6	0	0	0	0	0	0	0	0	0	PD
		ABT-263	9	0	0	9	9	19.6	0.29590	6.0	>25	0	3	3	0	2	1	0	2	0	2	PD2
G12	ALL-29	CTRL	8	0	0	8	8	4.4	.		>25	8	0	0	0	0	0	0	0	0	0	PD
		ABT-263	9	2	0	7	7	48.4	0.00016	10.9	>25	0	0	0	0	0	7	0	8	0	8	CR
G13	ALL-30	CTRL	8	0	0	8	8	5.3	.		>25	8	0	0	0	0	0	0	0	0	0	PD
		ABT-263	9	0	0	9	9	16.2	0.00395	3.1	>25	0	0	8	0	1	0	0	2	0	2	PD2
G14	ALL-31	CTRL	8	0	0	8	8	13.9	.		>25	8	0	0	0	0	0	0	0	0	0	PD
		ABT-263	9	0	4	5	4	91.9	0.00078	6.6	>25	0	0	0	0	0	5	0	8	0	8	CR
G16	ALL-32	CTRL	8	0	0	8	8	6.7	.		>25	8	0	0	0	0	0	0	0	0	0	PD
		ABT-263	8	1	0	7	7	18.9	0.00016	2.8	>25	0	0	5	0	1	1	0	2	0	2	PD2
G17	ALL-33	CTRL	8	0	0	8	8	6.0	.		>25	8	0	0	0	0	0	0	0	0	0	PD
		ABT-263	8	2	0	6	6	37.8	0.00033	6.3	>25	0	0	0	0	0	6	0	8	0	8	CR
G37	ALL-37	CTRL	8	0	0	8	8	7.8	.		>25	8	0	0	0	0	0	0	0	0	0	PD
		ABT-263	8	0	0	8	8	23.8	0.00016	3.1	>25	0	0	1	0	7	0	0	6	0	6	PR
G38	ALL-38	CTRL	8	0	0	8	8	14.2	.		>25	8	0	0	0	0	0	0	0	0	0	PD
		ABT-263	8	0	0	8	8	44.7	0.00016	3.1	>25	0	0	0	0	1	7	0	8	0	8	CR
G41	ALL-41	CTRL	8	0	0	8	8	20.0	.		>25	7	0	0	0	1	0	0	0	0	0	PD

G42	ALL-42	ABT-263	9	0	0	9	9	32.5	0.00021	1.6	>25	0	0	3	0	4	2	0	6	PR
		CTRL	8	0	0	8	8	1.9	.		>25	8	0	0	0	0	0	0	0	0
G43	ALL-43	ABT-263	7	0	0	7	7	5.9	0.00016	3.2	>25	0	0	7	0	0	0	0	2	PD2
		CTRL	8	0	0	8	8	14.0	.		>25	8	0	0	0	0	0	0	0	0
G44	ALL-44	ABT-263	8	0	0	8	8	43.9	0.00016	3.1	>25	0	0	0	0	0	8	0	8	CR
		CTRL	7	0	0	7	7	11.4	.		>25	7	0	0	0	0	0	0	0	0
G47	ALL-47	ABT-263	8	0	0	8	7	27.2	0.00047	2.4	>25	0	0	7	1	0	0	0	2	PD2
		CTRL	9	0	0	9	9	11.9	.		>25	9	0	0	0	0	0	0	0	0
G18	MLL-1	ABT-263	9	1	0	8	8	41.5	0.00004	3.5	>25	0	0	0	0	0	8	0	8	CR
		CTRL	8	0	0	8	8	19.2	.		>25	1	0	0	0	7	0	0	6	PR
G19	MLL-2	ABT-263	8	0	0	8	7	39.7	0.00031	2.1	>25	0	1	1	1	3	2	0	6	PR
		CTRL	8	0	0	8	8	14.8	.		>25	8	0	0	0	0	0	0	0	0
G20	MLL-3	ABT-263	8	4	0	4	4	26.8	0.00202	1.8	>25	0	0	0	0	4	0	0	6	PR
		CTRL	8	0	0	8	8	8.3	.		>25	8	0	0	0	0	0	0	0	0
G21	MLL-5	ABT-263	8	0	0	8	8	34.1	0.00016	4.1	>25	0	0	0	0	3	5	0	8	CR
		CTRL	7	0	0	7	7	8.7	.		>25	7	0	0	0	0	0	0	0	0
G22	MLL-6	ABT-263	8	0	0	8	8	14.6	0.00062	1.7	>25	0	2	6	0	0	0	0	2	PD2
		CTRL	8	0	0	8	8	6.3	.		>25	8	0	0	0	0	0	0	0	0
G15	MLL-7	ABT-263	8	0	0	8	8	29.1	0.00016	4.6	>25	0	0	5	0	3	0	0	2	PD2
		CTRL	8	0	0	8	8	12.7	.		>25	8	0	0	0	0	0	0	0	0
G23	MLL-8	ABT-263	8	1	0	7	7	30.6	0.00016	2.4	>25	0	0	3	0	4	0	0	6	PR
		CTRL	8	0	0	8	8	13.7	.		>25	8	0	0	0	0	0	0	0	0
G24	MLL-14	ABT-263	8	1	0	7	7	16.8	0.00016	1.2	>25	0	5	2	0	0	0	0	0	PD1
		CTRL	8	0	1	7	7	8.7	.		>25	7	0	0	0	0	0	0	0	0
		ABT-263	7	1	0	6	6	24.9	0.00058	2.9	>25	0	0	5	0	0	1	0	2	PD2

<sup>1</sup>N1 - number of mice in group

<sup>2</sup>Nd - number of mice that experienced toxic deaths

<sup>3</sup>Ne - number of additional mice excluded

<sup>4</sup>Na - number of mice analyzed

<sup>5</sup>Number of events. An event was defined as reaching  $\geq 25\%$  hCD45 cells in peripheral blood

<sup>6</sup>Kaplan-Meier estimate of median days to event. Time to event was estimated using interpolation

<sup>7</sup>Median relative tumor volume. Median %huCD45 at the end of the study

**Supplementary Table S6. Summary of the statistical analysis of correlations between *BCL2* family gene expression and *in vivo* ABT-263 responses**

	Correlation with LGD*								Non-Responder Versus Responder^			
	All MLL/B-ALL/T-ALL		MLL		BCP-ALL		T-ALL		All MLL/B-ALL/T-ALL	MLL	BCP-ALL	T-ALL
	Correl Coeff (r)	Sig of correl (p) <sup>+</sup>	Correl Coeff (r)	Sig of correl (p)	Correl Coeff (r)	Sig of correl (p)	Correl Coeff (r)	Sig of correl (p)	p-value	p-value	p-value	p-value
<b>AI</b>	-0.12	0.512	0.25	0.512	-0.34	0.46	-0.35	0.204	0.402	0.776	0.482	0.651
<b>BCL2</b>	-0.02	0.92	0.24	0.529	0.05	0.911	0.33	0.223	0.942	0.919	0.634	0.379
<b>BCL-W</b>	-0.23	0.21	0.69	0.039	-0.54	0.216	-0.20	0.47	0.714	0.242	0.931	0.338
<b>MCL1</b>	-0.43	0.015	-0.46	0.21	-0.61	0.149	-0.32	0.24	0.089	0.027	0.008	0.585
<b>BCL-XL/XS</b>	0.32	0.083	0.79	0.012	0.32	0.48	-0.08	0.782	0.246	0.53	0.142	0.178
<b>BAK</b>	0.01	0.941	0.44	0.24	0.57	0.181	-0.29	0.297	0.355	0.936	0.193	0.03
<b>BAX</b>	0.11	0.574	0.10	0.794	0.18	0.698	0.38	0.162	0.561	0.07	0.524	0.552
<b>BOK</b>	-0.16	0.405	-0.25	0.513	-0.44	0.324	-0.13	0.655	0.538	0.957	0.819	0.377
<b>BCLG</b>	-0.07	0.712	-0.29	0.446	0.29	0.522	-0.16	0.574	0.314	0.409	0.654	0.714
<b>BFK</b>	0.29	0.119	0.03	0.939	0.67	0.097	0.35	0.206	0.698	0.9	0.968	0.729
<b>BAD</b>	0.03	0.855	-0.21	0.593	-0.20	0.663	0.06	0.823	0.145	0.543	0.056	0.436
<b>BID</b>	-0.21	0.255	-0.02	0.952	0.56	0.196	-0.52	0.046	0.773	0.446	0.061	0.128
<b>BIK</b>	-0.13	0.483	0.51	0.163	0.18	0.693	-0.40	0.142	0.226	0.234	0.739	0.483
<b>BIM</b>	-0.01	0.959	-0.16	0.683	0.27	0.564	0.26	0.357	0.108	0.044	0.185	0.717
<b>BMF</b>	-0.22	0.239	-0.10	0.809	0.64	0.122	-0.38	0.163	0.795	0.208	0.841	0.813
<b>HRK</b>	0.15	0.407	0.004	0.993	0.57	0.179	0.39	0.156	0.152	0.167	0.005	0.613
<b>NOXA</b>	-0.08	0.655	-0.33	0.385	-0.03	0.945	-0.05	0.859	0.616	0.209	0.349	0.049
<b>PUMA</b>	-0.21	0.265	-0.13	0.741	-0.45	0.307	-0.36	0.188	0.923	0.556	0.375	0.647

\*Samples were correlated to the Leukaemia Growth Delay (LGD) of individual xenografts by Pearson correlation.

^Xenografts were considered Non-Responder if ORM<5 and Responder if ORM>5

**Supplementary Table S7. *In vivo* efficacy of combining ABT-263 with vincristine (VCR), dexamethasone (DEX) or L-asparaginase (L-ASN) against pediatric ALL xenografts.**

Xenograft	ABT-263	VCR	ABT-263 + VCR	P-value (combination vs. ABT-263)	P-value (combination vs. VCR)	Therapeutic Enhancement
	LGD	LGD	LGD			
ALL-2	6	28.1	NE	NE	NE	NE
ALL-19	35.5	NE	>66.8	0.12	NE	NE
ALL-31	48.8	22.7	59	<b>&lt;0.01</b>	<b>&lt;0.01</b>	Yes

  

Xenograft	ABT-263	DEX	ABT-263 + DEX	P-value (combination vs. ABT-263)	P-value (combination vs. DEX)	Therapeutic Enhancement
	LGD	LGD	LGD			
ALL-2	6	12.4	14.8	<b>&lt;0.01</b>	0.44	No
ALL-19	35.5	9.8	NE	NE	NE	NE
ALL-31	48.8	-1.5	46	0.06	<b>&lt;0.01</b>	No

  

Xenograft	ABT-263	L-ASN	ABT-263 + L-ASN	P-value (combination vs. ABT-263)	P-value (combination vs. L-ASN)	Therapeutic Enhancement
	LGD	LGD	LGD			
ALL-2	2.7	23.5	NE	NE	NE	NE
ALL-19	35.5	5	50.9	0.06	<b>0.02</b>	No
ALL-31	59.2	5.6	>76.7	<b>&lt;0.01</b>	<b>&lt;0.01</b>	Yes

P-values in bold denote significantly greater EFS of the combination compared with the single agent  
 NE, not evaluable due to toxicity in >25% of the cohort



ABT-263+DEX	10	1	0	9	8	52.3	0.006469	8.3	>25	0	1	0	0	0	8	0	8	CR
Control	8	0	0	8	8	9.3	.		>25	8	0	0	0	0	0	0	0	PD
ABT-263	8	0	1	7	7	68.5	0.000155	7.4	>25	0	0	0	0	0	7	0	8	CR
L-ASN	8	0	0	8	8	14.9	0.000466	1.6	>25	0	2	6	0	0	0	0	2	PD2
ABT-263+L-ASN	9	1	0	8	4	>86	0.000155	>	21.0	0	0	0	0	0	8	0	8	CR
								9.3										

<sup>1</sup>N1 - number of mice in group

<sup>2</sup>Nd - number of mice that experienced toxic deaths

<sup>3</sup>Ne - number of additional mice excluded

<sup>4</sup>Na - number of mice analyzed

<sup>5</sup>Number of events. An event was defined as reaching  $\geq 25\%$  hCD45 cells in peripheral blood

<sup>6</sup>Kaplan-Meier estimate of median days to event. Time to event was estimated using interpolation

<sup>7</sup>Median relative tumor volume. Median %huCD45 at the end of the study