

Additional file 4. Relative expression levels of selected differentially regulated genes in CLL B cells of sensitive patients following treatment with fludarabine *in vivo*

Biological functions			Fold change		
Gene name	Description	p53 target*	T0-T1	T1-T2	T2-T9
Response to DNA damage / DNA repair					
DDB2	DNA damage-binding protein 2	x	42.52	6.19	0.65
MDM2	Ubiquitin-protein ligase E3	x	23.59	11.79	0.25
PCNA	Proliferating cell nuclear antigen	x	12.64	3.05	0.50
XPC	DNA-repair protein complementing XP-C cells	x	7.06	2.97	0.46
POLM	DNA polymerase mu		1.95	— †	2.19
BTG2	NGF-inducible anti-proliferative protein	x	1.93	1.45	2.14
RAD51	DNA repair protein RAD51 homolog 1		1.77	1.95	—
RRM2B	ribonucleotide reductase M2 B (p53R2)	x	1.75	1.75	—
XRCC1	X-ray repair cross-complementing protein 1		1.64	1.60	2.00
CIZ1	Cip1-interacting zinc finger protein		1.60	1.91	—
CETN2	Centrin-2		0.69	0.65	—
BRCA2	Breast cancer type 2 susceptibility		0.65	—	0.66
RAD21	Double-strand-break repair protein		0.60	—	0.62
RAD23B	UV excision repair protein RAD23 homolog B		0.58	0.62	—
XPA	DNA-repair protein complementing XP-A cells		0.51	0.18	—
POLS	DNA polymerase sigma		—	1.82	2.25
DNA replication					
MYST2	Histone acetyltransferase 2		1.88	1.85	—
MYST3	Histone acetyltransferase 3		1.87	1.88	—
RAD51L3	DNA repair protein RAD51 homolog 4		0.59	0.65	—
CHRA1	Chromatin accessibility complex 1		0.47	0.63	—
CDK2AP1	Cyclin-dependent kinase 2-associated protein 1		0.46	0.41	0.66
Cell stress response					
GADD45A	Growth arrest and DNA-damage-inducible, alpha	x	9.58	2.77	0.44
IER5	Immediate early response gene 5	x	5.13	2.30	—
DDIT4	DNA-damage-inducible transcript 4	x	2.53	—	2.83
TP53AP1	TP53 activated protein 1	x	2.51	2.04	0.70
DDIT3	DNA damage-inducible transcript 3		—	6.06	—
Programmed cell death					
AEN	Apoptosis enhancing nuclease (ISG20L1)	x	27.47	2.50	0.21
BAX	BCL2-associated X protein	x	7.52	3.34	—
TNFRSF10B	TNF receptor superfamily, member 10b (DR5)	x	6.36	4.89	—
YAP1	65 kDa Yes-associated protein	x	4.89	4.38	2.57
ZMAT3	p53 target zinc finger protein (Wig1)	x	4.79	2.89	—
ANP32A	Acidic leucine-rich nuclear phosphoprotein 32 A		4.47	4.20	3.12
ITGB3BP	Beta3-endonexin		3.73	6.73	3.56
BBC3	BCL2 binding component 3 (Puma)	x	2.33	2.35	—
DAXX	Death domain-associated protein 6		2.33	2.57	—
PERP	p53 apoptosis effector	x	2.27	—	—
LITAF	Lipopolysaccharide-induced TNF-alpha factor		2.22	—	2.58
BCL2L11	Bcl-2-like protein 11 (Bim)	x	2.17	1.78	—
MOAP1	Modulator of apoptosis 1		2.14	2.62	—
SPOP	Speckle-type POZ		2.03	1.84	4.47
SHISA5	Shisa homolog 5 (<i>Scotin</i>)	x	1.78	2.06	2.14
PIG8	p53-induced protein 8	x	1.77	—	—
P2RX5	P2X purinoceptor 5		1.65	1.45	2.64
RASSF1	Ras association domain-containing protein 1		1.61	2.11	1.30
PMAIP1	PMA-induced protein 1 (Noxa)	x	—	3.73	0.51
Cell survival					
TRIAP1	TP53-regulated inhibitor of apoptosis 1	x	14.83	2.43	—

<i>BIRC5</i>	Baculoviral IAP repeat-containing 5 (survivin)		0.85	0.65	—
<i>EEF1A1</i>	Translation elongation factor 1 alpha 1	x	0.37	0.62	0.41
<i>SCD</i>	Stearoyl-CoA desaturase	x	—	0.52	1.11
Cell cycle / proliferation					
<i>SULF2</i>	Sulfatase 2	x	31.56	17.03	0.18
<i>CDKN1A</i>	Cyclin-dependent kinase inhibitor 1 (p21)	x	23.43	8.11	0.70
<i>PLK2</i>	Serine/threonine-protein kinase	x	5.35	5.17	0.44
<i>CCNG1</i>	Cyclin-G1	x	5.13	2.64	0.44
<i>RINT1</i>	RAD50 interactor 1		2.51	2.81	2.28
<i>CAV1</i>	Caveolin-1	x	2.11	1.69	—
<i>CCND2</i>	Cyclin-D2		1.91	1.99	—
<i>CDK4</i>	Cell division protein kinase 4		1.85	2.13	2.10
<i>PLK3</i>	Serine/threonine-protein kinase		1.95	2.13	—
<i>HADC1</i>	Histone deacetylase 1		0.63	0.65	0.78
<i>RB1CC1</i>	RB1-inducible coiled-coil protein 1		0.56	0.59	0.50
<i>DUSP2</i>	Dual specificity protein phosphatase 2 (<i>PAC-1</i>)	x	0.53	0.14	3.23
<i>IL-7R</i>	Interleukin-7 receptor alpha chain precursor		0.50	0.38	0.55
<i>IL-7</i>	Interleukin-7 precursor		0.45	0.51	0.71
<i>BRCC3</i>	BRCA1/BRCA2-containing complex subunit 3		0.44	0.64	0.84
<i>MYC</i>	Proto-oncogene c-Myc		0.39	0.50	—
<i>MAX</i>	MYC associated factor X		0.32	0.48	—
<i>CDKN1B</i>	Cyclin-dependent kinase inhibitor 1B (p27)		—	0.62	0.72
Others					
<i>GREB1 beta</i>	Gene regulated in breast cancer 1		5.82	9.45	4.69
<i>SPRY1</i>	Sprouty homolog 1		5.17	5.06	3.14
<i>SNCB</i>	Beta-synuclein		4.72	7.41	3.14
<i>DDX17</i>	DEAD (Asp-Glu-Ala-Asp) box polypeptide 17		2.93	2.50	—
<i>IRF9</i>	Interferon regulatory factor 9		2.14	2.14	3.53
<i>SPT5</i>	Transcription elongation factor SPT5		1.64	1.77	1.65
<i>DLEU2</i>	Deleted in lymphocytic leukemia 2		0.74	0.51	—
<i>POLDIP3</i>	DNA polymerase delta interacting protein 3		0.52	0.68	—
<i>LY75</i>	Lymphocyte antigen 75 precursor (CD205)		0.39	0.36	0.45
<i>CD69</i>	Early activation antigen		0.33	—	0.68
<i>TNFRSF18</i>	TNF receptor superfamily member 18		0.29	0.42	0.77
<i>AUTS2</i>	Autism susceptibility candidate 2		0.20	0.32	—

* The status of each gene as a p53-transcriptional target gene is based on literature.

† The absence of significant gene regulation is marked by “—”.