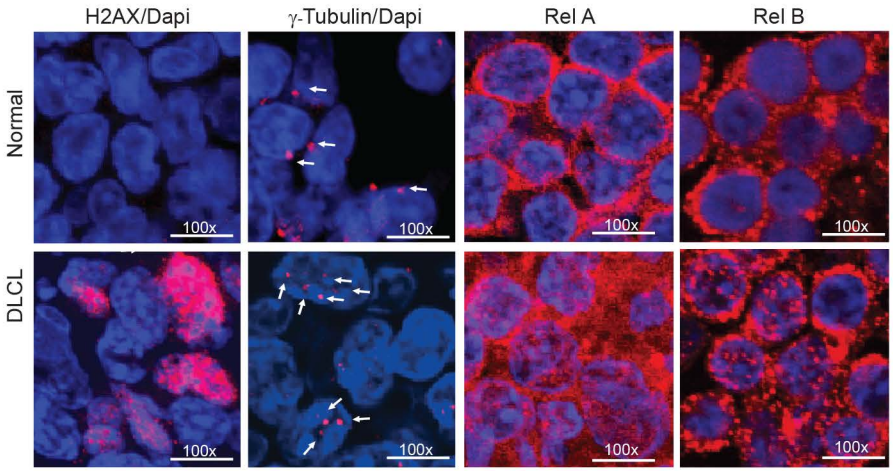
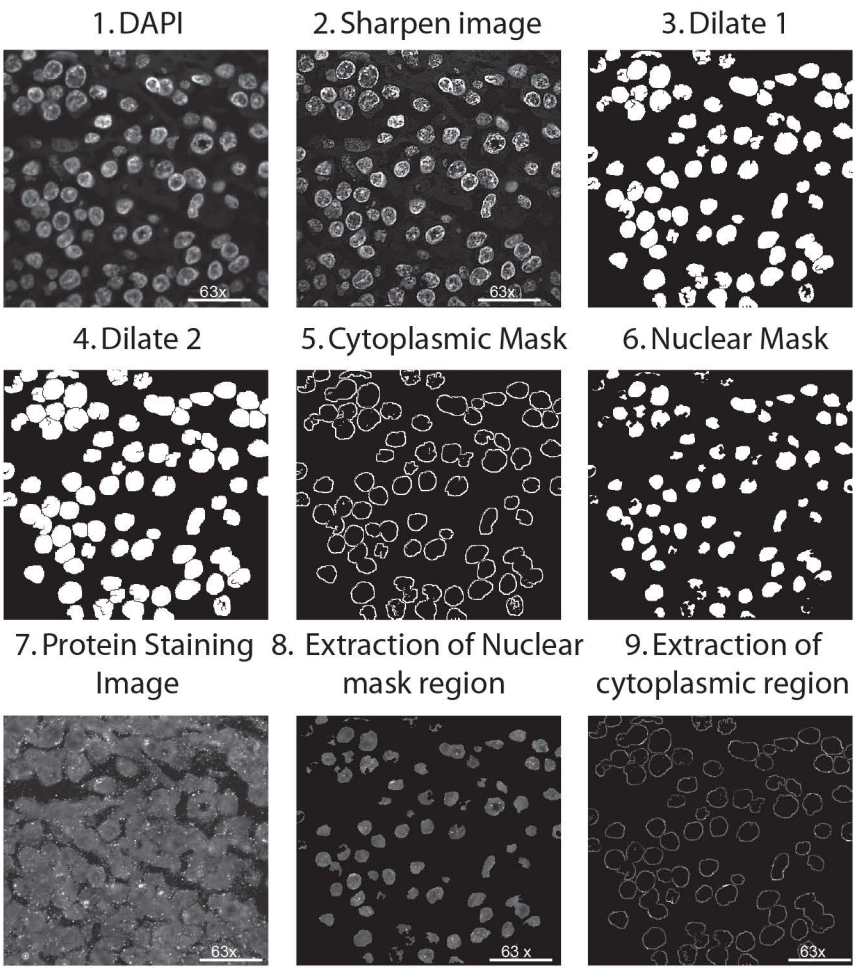
Supplemental Figure 1

A. Representative image of the lymphoma tissue array staining.

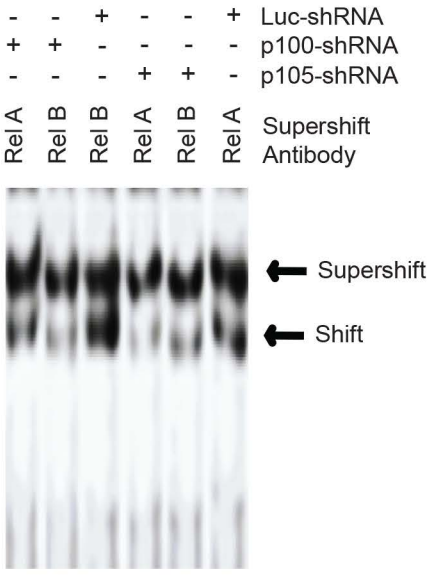


B. Steps performed for image processing. Outcome Nuclear and perinuclear regions.

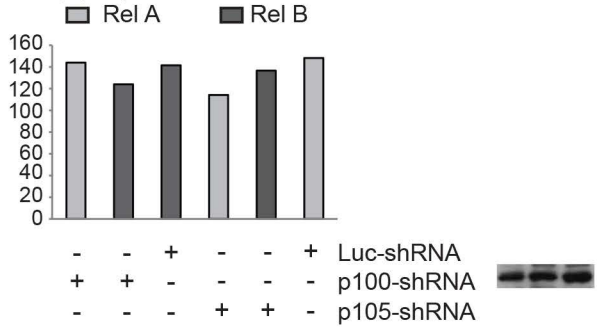


Supplemental Figure 2.

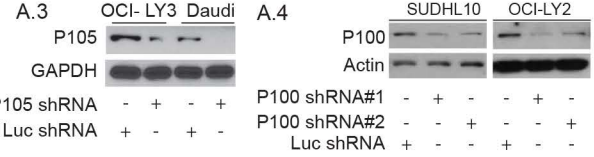
A.1. Supershift on shRNA OCI-LY3 expressing cells.



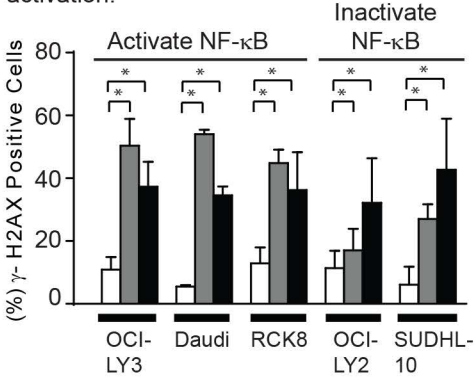
A.2. Densitometry measurements of the gel retardation assay (A.1)



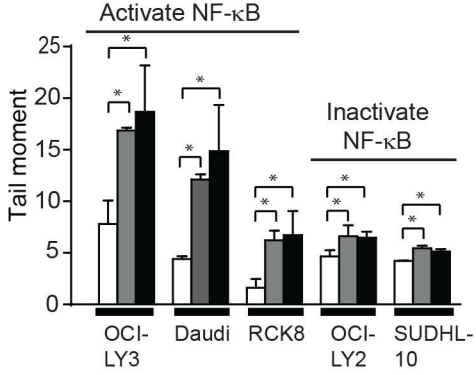
A.3. p105 Knock down in OCI-LY3 and Daudi cell lines and
A.4. p100 knock down in OCIL2 and SUDHL10



B.γ-H2AX(+) cells in cell lines with or without NF-κB activation.

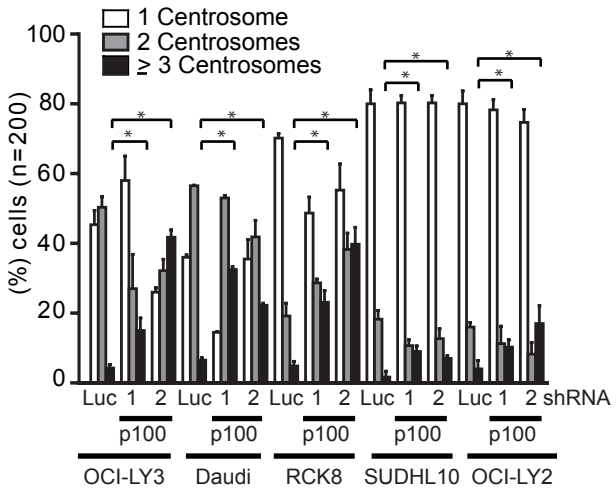


C. Comet assay in cell lines with or without NF-κB activation

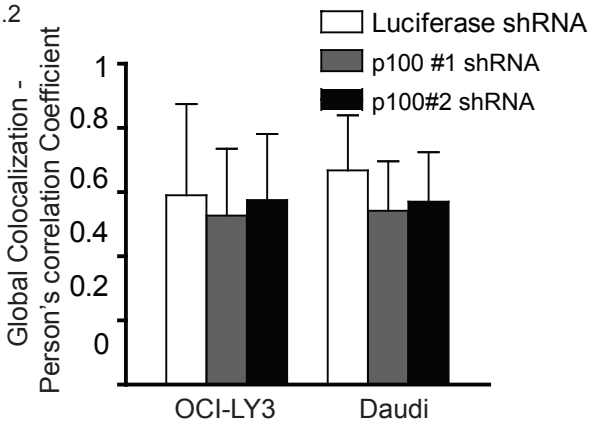


Supplemental Figure 3

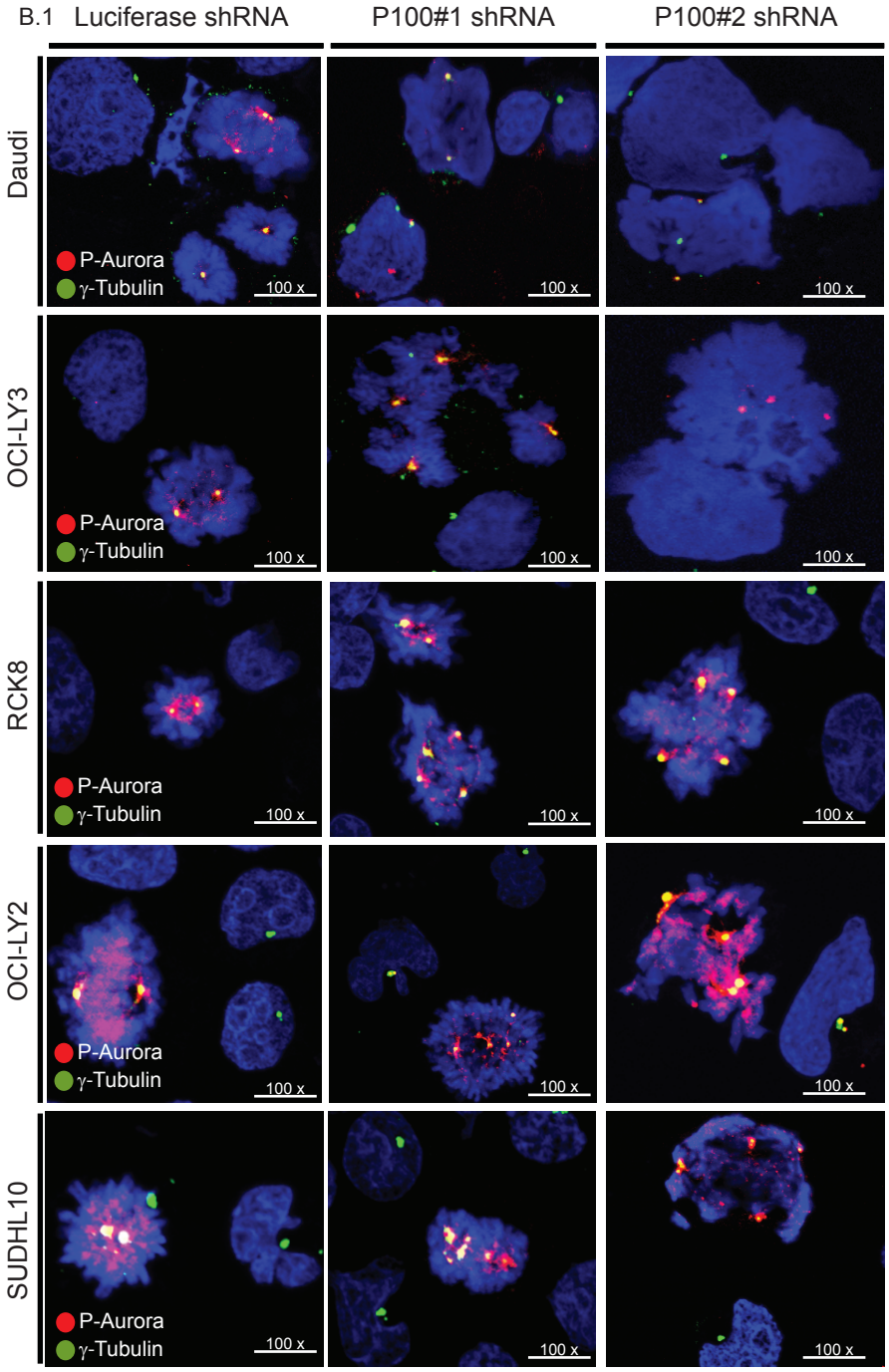
A. Centrosome numbers in cell lines with or without NF-κB activation



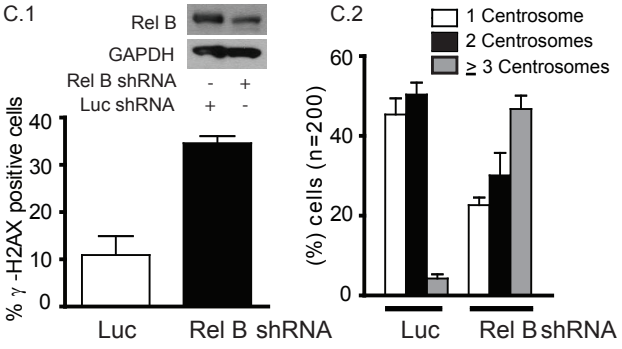
B.2



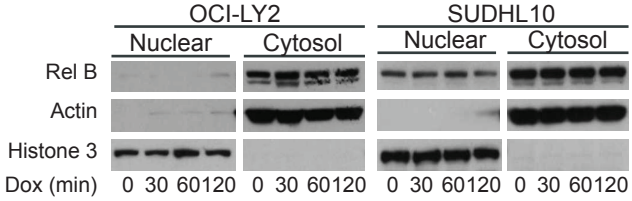
B.Centrosome numbers and colocalization with phospho-Aurora in p100- and Luciferase-shRNA expressing cells



C. γ-H2AX(+) cells (C.1) and centrosome numbers (C.2) in OCI-LY3 Rel B-shRNA expressing cells

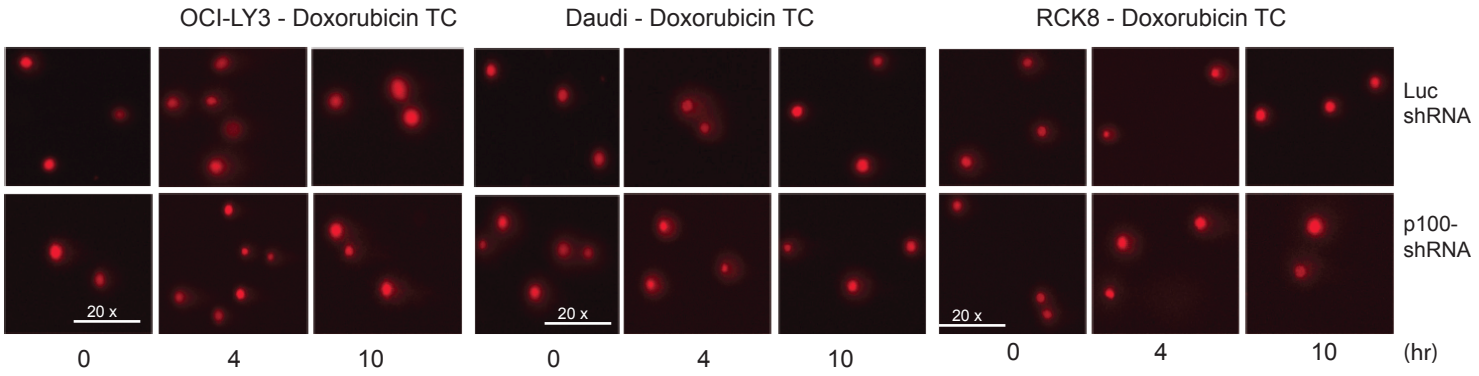


D. Rel B nuclear Locatlization after doxorubicin tretament in OCI-LY2 and SUDHL10 cells.

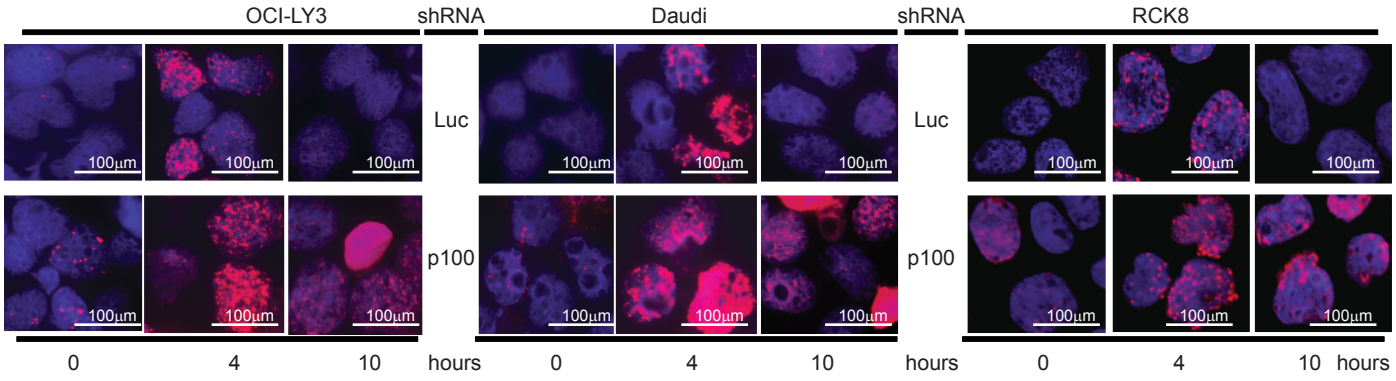


Supplemental Figure 4

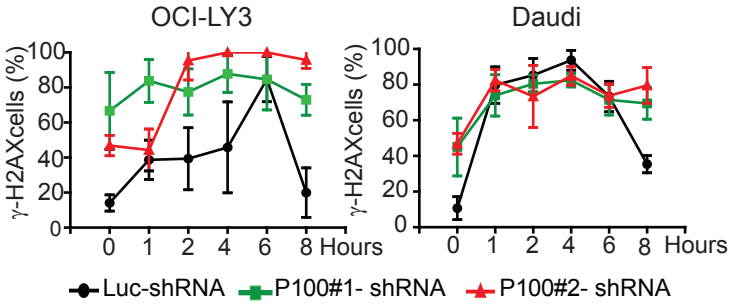
A. Representative images of Neutral comet assay representative images of p100- or Luciferase (Luc)-shRNA expressing cells after doxorubicin treatment.



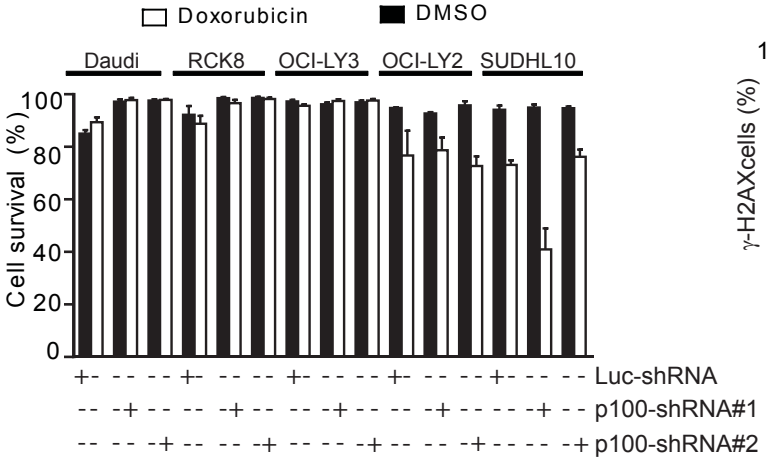
B. Representative images of γH2AX (+) cells after doxorubicin treatment.



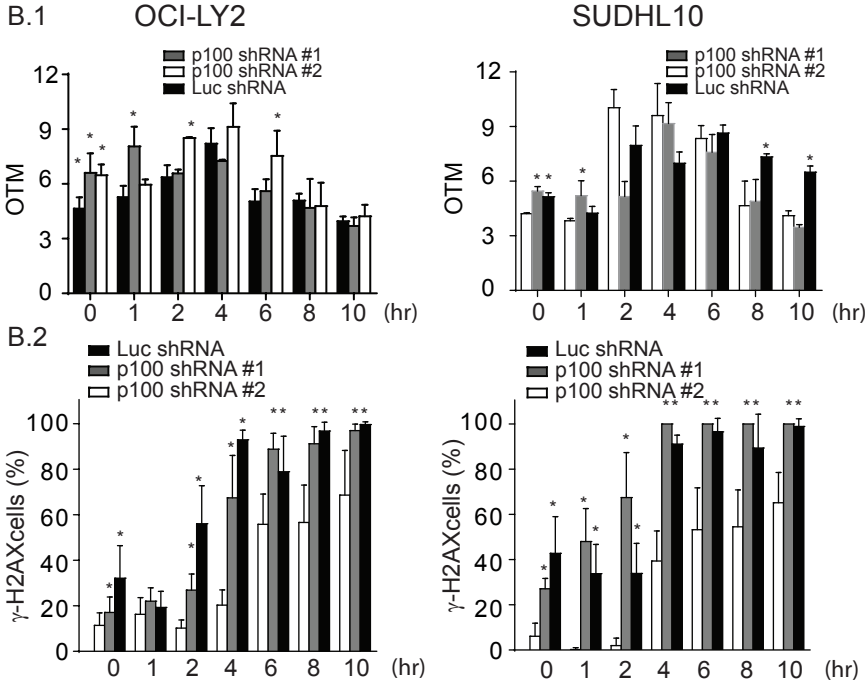
C. γ-H2AX (+) cell (%) during a time course after irradiation



D. Level of apoptosis in p100- and Luciferase-shRNA expressing cells after 10 hours of doxorubicin treatment

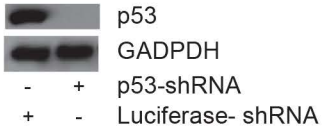


E. Neutral comet assay and percent of γ-H2AX (+) positive cells in p100 or Luciferase (Luc)-shRNA expressing OCI-LY2 and SUDHL10 cells after doxorubicin treatment.

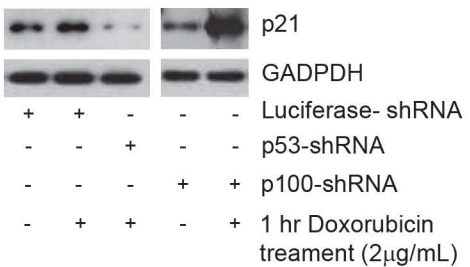


Supplemental Figure 5

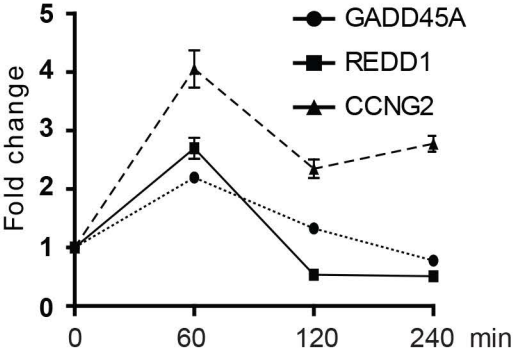
A. Level of knock down of p53 by p53 shRNA in OCY-LY-3 cells.



B. Luciferase- shRNA after 1 hour of treatment with doxorubicin.



C. mRNA levels of GADD45a, REDD1 and CCNG2 during doxorubicin treatment in BJAB cells (p53 mutated).



Supplemental Table 1A. Table of primers used for QPCR measurements

Gene	Forward primer	Reverse primer
REDD1	TGGGATCTTTGACACTTGAAAAATTA	TGCCAGCTCAACTCTGCAGTA
CCNG2	GAGAGGCCATGTGGAGAGAGA	CTGGGAGCTTAAGGCTGGAA
GADD45A	TGCTCAGCAAAGCCCTGAGT	GCTTGGCCGCTTCGTACA
PCBP4	ACCATGGCGGGTGTCACT	AGGATGCAGTAGGCCAGGAA
SFRS6	GGTAAATGCCTGCACCCATAA	GGCAAGGATAGGCCCTGACT

Supplemental Table 1C. Table of primers used for CHIP analysis

Gene name	Forward primer	Reverse primer
DDIT4 -1371	TGGCTCACAAACTATTCCATTC	CCAAGCTCTGCACCCTACTC
h DDIT4 -941	CCAGGCCAGATTTCCTGTG	AGGACCGAGGACCGAGA
h DDIT4 -639	CACTCTCCTCAAGCCCTCTC	CAGCCCAGGACATAGGTTAATG
DDIT4 -341	CGTGTGTGCCCAGTTGTTC	TGACCAGGCTAGGAGGAGAG
CCNG2-949	CAACAGCACTACAACCTCTGGA	ACTGAAGGAGGGGCTTTTC
CCNG2 FP–143	CTTAGGGGCGGGACTCTTTT	CGAGCCCCTTGTTTTTGTTA
GADD45A -716	GGGCAAGGCTCTTTGAGAA	GGAAATCGTGAGCTGGTCTG
GADD45A +518	GCAGGGGAGGAAGCTAAAA	GGGCACGCTCTTTCAGTC

Supplemental Table 1C. karyotype analysis of p100- and Luciferase-shRNA expressing cells

CELL TYPE	KARYOTYPE
OCI-LY3-Luciferase shRNA	65~72,XYY,+X,der(1)t(1;17)(q12;q11.2),add(4)(q35)x2,add(5)(p15),-6, del(6)(q1q27)X2,add(7)(q32),+9,-10,-11,-17,-17,-18,?der(18)t(14;18),+19,add(19)(q13.4)x2,-22,+6mar[cp15]
OCI-LY3-P100 shRNA #1	44~45,X,-Y,del(3)(q12q23),inv(4)(p12q21),t(8;14)(q24;q32),inv(9)(q22q34.1),del(11)(q23q25),del(12)(p11.2p11.2),-13,add(16)(p13.3),add(17)(p11.2),add(18)(q21),+mar[cp8]
OCI-LY3- P100 shRNA #2	49,XY,add(2)(p13),-3,add(3)(p23),?del(4pter),+7,add(8)(q24.3),?+add(12)(q21),+13,?add(13)(q32),t(14;18)(q24;q32),-18,+2mar[cp7]
Daudi-Luciferase shRNA	46,XY,t(8;14)(q24;q32)[10]
Daudi-P100 shRNA #1	48,XY,?add(2)(p13),-3, add(3)(p23),+7, add(8)(q24.3),?+add(12)(q21),+13,?add(13)(q32),t(14;18)(q32;q21),-18,-22,+2mar[cp6]
Daudi-P100 shRNA #2	48,-3, add(3)(p23),t(14;18)(q32;q21),inc[cp8]
RCK8-Luciferase shRNA	43~46,XY,add(1)(q21),-2,-3,add(5)(p12),del(6)(q21q27),add(7)(q22),add(10)(q24),add(11)(q23),del(18)(q21q23),
RCK8-P100 shRNA #1	45-48,XY,add(2)(p13,)-3, add(3)(p23),+7,?+add(12)(q21),t(14;18)(q32;q21), inc[cp5]
RCK8-P100 shRNA #2	48,XY,add(2)(p13),add(3)(p23),+7, add(8)(q24.3),?+add(12)(q21),+13,?add(13)(q32),t(14;18)(q32;q21), inc[cp10]

Supplemental Table 1D. Table of genes involved in DNA repair and centrosome duplication that were confirmed by QPCR.

p100 regulated gene	Gene name	p100 shRNA/ Luc shRNA
REDD1	Protein regulated in development and DNA damage response 1	0.22 ± 0.11
CCNG2	Cyclin G2	0.20 ± 0.06
GADD45A	Growth arrest DNA-damage-inducible, alpha	0.17 ± 0.08
PCBP4	Poly(rC) binding protein 4	0.50 ± 0.09
SFRS6	Splicing factor, arginine/serine-rich 6	1.98 ± 0.28

Supplemental Methods

Primary tumor sample immunofluorescence studies.

Retrospective deidentified diagnostic tumor samples were obtained from the Stanford University School of Medicine hematology tissue acquisition and procurement bank program. The use of human tissue was approved by the research ethics board of Stanford University and Emory University. Two independent pathologists confirmed the pathological diagnosis of all samples. When possible, tumor samples were identified as activated B-cell (n=14) and germinal center (n=30) diffuse large cell lymphoma using the Hans' protocol [1]. Ninety-two 0.5-mm cores from diagnostic areas of each DLBCL sample were used to generate a single-recipient paraffin block using a tissue arrayer (Beecher Instruments, Silver Spring, Maryland). Briefly, five-micron sections were deparaffinized by incubating in an 80^{o}C water bath three times for 20-minutes followed by three 5-minute incubations in xylene and a series of ethanol solutions (100%, 90%, 75% and 50%). After washing with distilled water, antigen retrieval was performed by immersing the slides in microwave solution (9 ml of 0.01M citric acid, 41 ml of 0.01 mM sodium citrate and 450 ml of water) and microwaving at low power three times for 5-minutes. Slides were pre-treated with blocking solution (10% goat serum/3% BSA/0.5% gelatin/PBS) for 1 hour to block non-specific binding sites. Primary antibodies were applied at 1:250 dilution in 50 mM Tris-Cl (pH 7.4) with 3% goat serum overnight. After washing, secondary Alexa Fluor 488-conjugated antibodies (Molecular Probes) were applied for 1 hour. After further washing, slides were counter stained with DAPI for nuclear detection.

1. Hans CP, Weisenburger DD, Greiner TC, et al. Confirmation of the molecular classification of diffuse large B-cell lymphoma by immunohistochemistry using a tissue microarray. Blood 2004;103:275-82.