Supporting Online Material

MATERIALS AND METHODS

Expression constructs, mutagenesis and cell lines

The pcDNA3-Flag (-HA and-Myc) API2-MALT1 constructs were described previously (*1, 2*). For the API2-MALT1 fusion present in these constructs, the breakpoint for API2 corresponds to nucleotide 1323 of the cDNA sequence (AA residue 441), whereas the breakpoint for MALT1 corresponds to nucleotide 649 of the cDNA sequence (AA residue 217). These specific breakpoints represent the majority of clinically observed API2-MALT1 fusions (*3*). The resulting fusion protein contains three API2 BIR domains, one MALT1 Ig-like domain and the MALT1 "caspase-like" domain. The expression plasmids pcDNA3-Flag-API2(1-441), pcDNA3-Flag-MALT1(324-813), pcDNA3-Flag-E46A/R48A-API2-MALT1, pcDNA3-Flag-(D1-49)API2-MALT1, pcDNA3-Flag-(D1-98)API2-MALT1, pcDNA3-Flag-(D1-166)API2-MALT1, pcDNA3-HA-MALT1, pcDNA3-Myc-Bcl10, pcDNA3-Flag-API2-MALT1(1-762) and pcDNA3-Flag-API2-MALT1(1-700) were constructed as described previously (*1, 2, 4*). pcDNA-Flag-p100 and pcDNA3-HA/Flag-NIK were provided by Dr. Gabriel Nunez. Point mutants of API2-MALT1 (C678A) and NIK (KK429/430AA, R325A, R366A, and R368A) were prepared using the QuickChange XL Site-Directed Mutagenesis Kit (Stratagene, Cedar Creek, TX, USA). Expression constructs encoding NIK fragments (AAs 624-947, 1-325, and 326-947) were generated by polymerase chain reaction and then subcloned into the *Xba*I and *Apa*I sites of the corresponding pcDNA3 vector (Invitrogen, Carlsbad, CA, USA). NIK(624-947) is a dominant negative mutant that retains IKKa binding but lacks the kinase domain, and NIK KK429/430AA is a kinase-dead NIK dominant negative mutant. All DNA sequences were verified using an ABI Model 3730 automated sequencer.

HEK293T cells were obtained from American Type Culture Collection (ATCC, Manassas, VA, USA). The SSK41 lymphoma cell line with stable expression of A7M3, an API2-MALT1 fusion which contains three API2 BIR domains, two MALT1 Ig-like domains and the MALT1 "caspase-like" domain, has been previously described (*5*). BJAB B-cells that express API2-MALT1 or MALT1 from a tetracycline inducible promotor were generated as follows: First, a BJAB clone stably transfected with pTet-On (Clontech, Mountain View, CA, USA) was obtained from Dr. Rolf Renne (*6*). Next, these cells were transfected with pTRE2puro-Flag-API2-MALT1 or pTRE2puro-Flag-MALT1, and clones were selected for puromycin resistance and then screened for doxycyline-inducible expression of Flag-API2-MALT1 or Flag-MALT1 by Western blot.

Cell Culture, Transfection, and RNA interference

HEK293T cells were maintained in DMEM supplemented with 10% fetal bovine serum (FBS) according to standard procedures. A total of 5 X 10^5 or 1 X 10^6 HEK293T cells were transfected with indicated plasmids using either a calcium phosphate method or Lipofectamine 2000 (Invitrogen). BJAB cells were maintained at a concentration of 0.2 to 0.8 million cells/ml in RPMI 1640 with 10% FBS. Treatment with 1 μg/mL of doxycycline (Sigma-Aldrich, St. Louis, MO, USA) was used to induce expression of API2-MALT1 or MALT1. For analysis of the effect of B-cell receptor stimulation in BJAB cells, all cells were first stimulated with 1 μg/ml doxycycline for 24 hr, and then treated with or without 10 μg/ml Goat anti-human IgM as indicated for 5 hr. All cells were cultured in the presence of 25 μM MG132 for 5 hr prior to

harvest. SSK41 cells (*7, 8*) with stable expression of A7M3 were maintained in DMEM-F12 with 10% FBS plus 1 μg/mL puromycin and 1.5 mg/mL G418 as described (*5*).

API2-MALT1-expressing SSK41 and BJAB B-cells were electroporated with control, human NIK-specific, IKKα-specific or IKKβ-specific siRNAs (ON-TARGET plus SMART pools, L-003580-00, L-003473-00, and L-003503-00, respectively, Dharmacon, Lafayette, CO) using Amaxa Cell Line Nucleofactor Kit T (Lonza Cologne AG, Germany) and program G16. Cells were allowed to recover for 48 hrs prior to further analysis. In order to generate clones with stable knock-down of NIK, API2-MALT1-expressing SSK41 B-cells were infected with control or NIK shRNA lentiviral particles (Santa Cruz Biotechnology, Santa Cruz, CA, sc-3606065 or sc-108080) at an MOI of 1 on two consecutive days. Infected cells were selected by limiting dilution in 96-well plates, and resultant clones were screened by western blot and/or RT-PCR to assess NIK knock-down.

Immunoprecipitation, nuclear fractionation, and Western blot analysis

Cells were harvested 24-48 hrs after transfection and lysed with RIPA buffer (Sigma-Aldrich) containing complete protease inhibitor (Roche Diagnostics, Mannheim, Germany). Immunoprecipitations were carried out using anti-FLAG antibody M2-Agarose (Sigma-Aldrich, #A2220) or anti-HA (Roche Laboratories, Basel, Switzerland, #11 583 816 001). The immunoprecipitated products were resolved by SDS-PAGE and detected by Western blotting using ECL Western Blotting Substrate (Thermo Scientific, Rockford, IL, USA, #32106) or Lumagen TMA-6 (GE Healthcare UK Ltd., Buckinghamshire, England) according to the manufacturer's instructions. Cytoplasmic and nuclear extracts were prepared using the NE-PER Nuclear and Cytoplasmic Extraction Reagents according to the manufacturer's recommendations (Thermo Scientific, Rockford, IL, USA). Purity of the nuclear extracts was confirmed by Western blot for HDAC1. The following antibodies were used for Western Blot: anti-Flag M2-peroxidase conjugate (Sigma-Aldrich, #A-8592), anti-Myc-HRP (Santa Cruz Biotechnology Inc., sc-40), anti-HA-HRP (Roche Laboratories, #11 667 475 5433), anti-HA (Roche Laboratories, #11 583 816 001), anti-p100/p52 (Cell Signaling Technology, Inc., Danvers, MA, USA, #4882), anti-RelB (Cell Signaling #4922), anti-NIK (Cell Signaling #4994, Santa Cruz Biotechnology #N-19, Santa Cruz Biotechnology #C-20), anti-MALT1 (*9*) or (Santa Cruz Biotechnology, H-300), anti-Bcl10 (Santa Cruz Biotechnology, sc-5611), anti-A20 (59A426, eBioscience, San Diego, CA, USA), anti-TRAF3 (Santa Cruz Biotechnology, sc-949), anti-IKKα (Santa Cruz Biotechnology, sc-949), anti-IKKβ (Santa Cruz Biotechnology, sc-7329-R), anti-Pim-2 (Santa Cruz Biotechnology, sc-13514) , anti-phospho Serine 112-BAD (Cell Signaling # 9291), anti BAFF (Abcam, Cambridge, MA, ab65360), anti-GAPDH (Santa Cruz Biotechnology, 6C5), anti-HDAC1 monoclonal antibody (Santa Cruz Biotechnology Inc.), goat-anti-rabbit-HRP (Jackson Laboratories, West Grove, PA, USA, #111-035-046), goat-anti-mouse-HRP (Jackson Laboratories, # 115-035-071).

MALT1 protease assay

As a source of recombinant MALT1 protein, HKB11 cells (Bayer Corporation, ATCC Number CRL-12568) were generated with stable expression of MALT1 fused to an N-terminal combined StrepII-Flag tag (IBA BioTagnology, Gottingen, Germany). Cells were grown in suspension in 293 serum free medium (Invitrogen NV, Merelbeke, Belgium). The StrepII-tagged MALT1 fusion protein was purified on Strep-Tactin columns according to the manufacturer's recommendations using the One-STrEP-tag purification kit (IBA BioTagnology). The MALT1

protease assay was performed in 25 μl buffer (pH 6.8) consisting of 50 mM MES, 150 mM NaCl, 10% (w/v) sucrose, 0.1% (w/v) CHAPS, 10 mM dithiothreitol and 1 M $(NH_4)_3$citrate, supplemented with 100 μM fluorogenic substrate (Ac-LSSR-AMC, Anaspec, Fremont, CA) and purified StrepII-tagged MALT1 fusion protein, with or without 100 μM Ac-LSSR-CHO inhibitor. Time-dependent release of free amido-4-methylcoumarin (AMC) was measured on a FLUOstar Galaxy reader (BMG Labtechnologies GmbH, Offenburg, Germany), and activity was expressed as the increase of relative light units per minute per well.

NIK *in vitro* cleavage assay

A vector enabling expression of biotinylated NIK (pcD-NIK-V5-bioC) was constructed by introducing oligonucleotides encoding the biotinylation (bio) sequence (GLNDIFEAQKIEWHE) as described (*10*) downstream of a C-terminal V5 epitope in the plasmid pcDNA3.1. The bio-immunoprecipitation method was performed as described (*5*) using paramagnetic streptavidin beads (Dynabeads M-280, Invitrogen). In vitro cleavage assays were performed in 50 μl kosmotropic salt buffer [50 mM MES (pH 6.8), 150 mM NaCl, 10% (w/v) sucrose, 0.1% (w/v) CHAPS, 10 mM dithiothreitol and 1 M $(NH_4)_3$citrate] in order to stabilize intermolecular interactions. Reactions were supplemented with streptavidin beads containing NIK-V5-bioC, StrepII/Flag-tagged MALT1, with or without 100 μM Ac-LSSR-CHO inhibitor. After incubation at 37°C for 6 hrs with constant rotation, an aliquot of the reaction mixture was used for Western blotting with a Flag antibody to verify equal StrepII/Flag-MALT1 concentrations. The streptavidin beads were collected, washed with 1X PBS and boiled for 10 min in 1X SDS gel loading buffer (with a final concentration of 4% SDS and 300 mM β-mercaptoethanol) and western blotting was performed with the V5 antibody (sc-58052).

Dexamethasone-induced apoptosis assay

Dexamethasone was serially diluted in complete RPMI growth medium at the indicated concentrations in white Cliniplates (Labsource, Willowbrook, IL). The SSK41 B cells were plated at 40,000 cells per well. After 48 hrs, cell viability was assessed using the Cell Titer-Glo Luminescent Cell Viability Assay (Promega, Madison, WI) according to the manufacturer's recommendations. Values are calculated as a percentage of control cells receiving no treatment**.** P values were derived using a two-tailed T test.

B-cell adhesion assay

Adhesion assays were performed as described (*11, 12*). Briefly, BJAB B-cells with stable, doxycyline-inducible expression of Flag-API2-MALT1, or empty vector control BJAB cells were electroporated with control or NIK siRNA, followed by doxycycline treatment. $5X10^5$ cells were applied to 12 well plates (Becton-Dickinson) coated with BSA or VCAM-1, and then allowed to adhere for 30 min at 37°C. Plates were prepared by incubating for one hour at 37°C with 3 μg/ml VCAM-1 (R & D systems). Nonadherent cells were removed by washing with PBS. Three representative fields were then counted under 20X magnification. Adhesion was calculated as a % of input samples counted before washing. Each condition was performed in triplicate wells.

Quantitative RT-PCR Gene Expression Analyses

Control and API2-MALT1-expressing SSK41 cells were harvested and total RNA was then prepared using the RNAeasy Mini Kit (Qiagen). Equivalent amounts of RNA (500-1000 ng)

were used for cDNA synthesis with the Superscript First-Strand Synthesis System (Invitrogen) using oligo dT primers. Quantitative PCR was performed using TaqMan gene expression primers (Applied Biosystems) specific for human CXCR4, Pim-2, BAFF and integrin αL on an Applied Biosystems 7900HT apparatus supplied by the University of Michigan Microarray Core Facility. Cycle Thresholds were determined and normalized with those for reactions performed with GAPDH specific TaqMan primers. For each gene, relative expression was determined, setting a value of 1.0 for expression in control SSK41 cells. P values were derived using a two tailed T test.

Analysis of primary MALT lymphoma specimens

Cases of MALT lymphoma with known chromosomal translocation status were investigated by Western blot with anti-NIK, anti-p100/p52, and anti-C-terminal MALT1 antibody. The p52/p100 ratio was quantified by standard densitometric analysis. The use of archival human tissues for research was approved by the local research ethics committees of the authors' institutions.

Gene expression microarray analysis of two completely separate collections of MALT lymphoma tumor specimens was performed in order to determine if noncanonical NF-κB target genes are upregulated in tumors expressing API2-MALT1. Collection #1 included nine t(11;18)-positive (8 from the stomach and 1 from lung) and eight t(11;18)-negative MALT lymphomas (all from the stomach). A description of these patient materials and the methodology for gene expression microarray analysis with Affymetrix GeneChip HG-U133A was detailed in a previous study (*13*) (GEO; http://www.ncbi.nlm.nih.gov/geo/, GSE16024). Standard normalization and nonspecific filtering were carried out. As described previously, absolute GSEA was carried out to investigate whether NF-κB target genes were differentially expressed between t(11;18) positive and translocation negative MALT lymphoma. The NF-κB target genes were collated from online data base (http://www.nf-kb.org), published works (http://bioinfo.lifl.fr/NF-KB, http://people.bu.edu/gilmore/nf-kb/target/index.html) and careful bioinformatic search (Table S1), and those that are transactivated by the non-canonical NF-κB pathway were identified according to previous investigations (*11, 14-21*). The significance of the GSEA results was assessed by statistical analyses (the nominal P value and False Discovery Rate). Leading edge analysis was further performed to identify the biologically important gene subset.

Tumor collection #2 includes 6 t(11;18)-positive and 8 t(11;18)-negative MALT lymphomas and the methods used for tissue sample collection, RNA isolation and reverse transcription have been described previously (*22*). Five micrograms of RNA were biotin-labeled and hybridized onto human oligonucleotide microarrays (Affymetrix HG-U133 Plus 2.0; Affymetrix, High Wycombe, UK). Data were analyzed using R/Bioconductor.

Statistical Analysis

Data are expressed as mean +/- SEM. Differences between groups were compared for significance using paired or unpaired 2-tailed Student's T tests, as appropriate, with the assistance of GraphPad InStat software. P values of less than 0.05 were considered statistically significant. See above sections and figure legends for statistical methods used to analyze gene expression in patient samples.

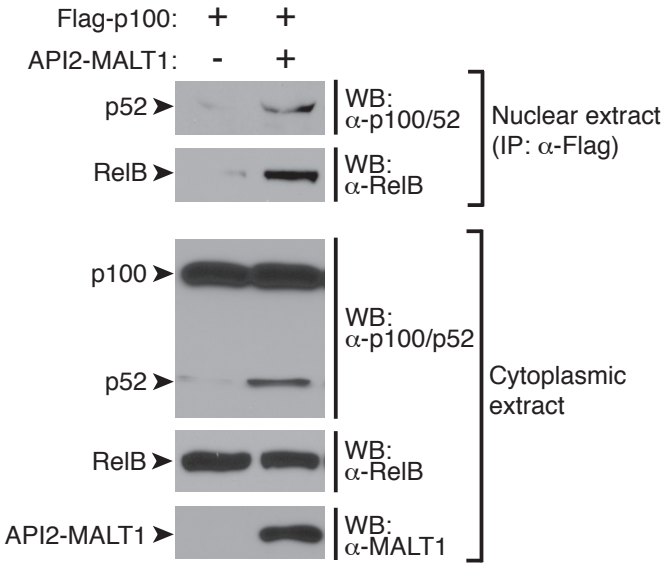

Fig. S1. ***API2-MALT1 expression results in the formation of p52/RelB dimers in the nucleus.*** HEK293T cells were transfected as indicated, and nuclear extracts were prepared. The ability of endogenous RelB to co-immunoprecipitate with nuclear p52 was assessed by Western blot. Data are representative of at least three separate experiments.

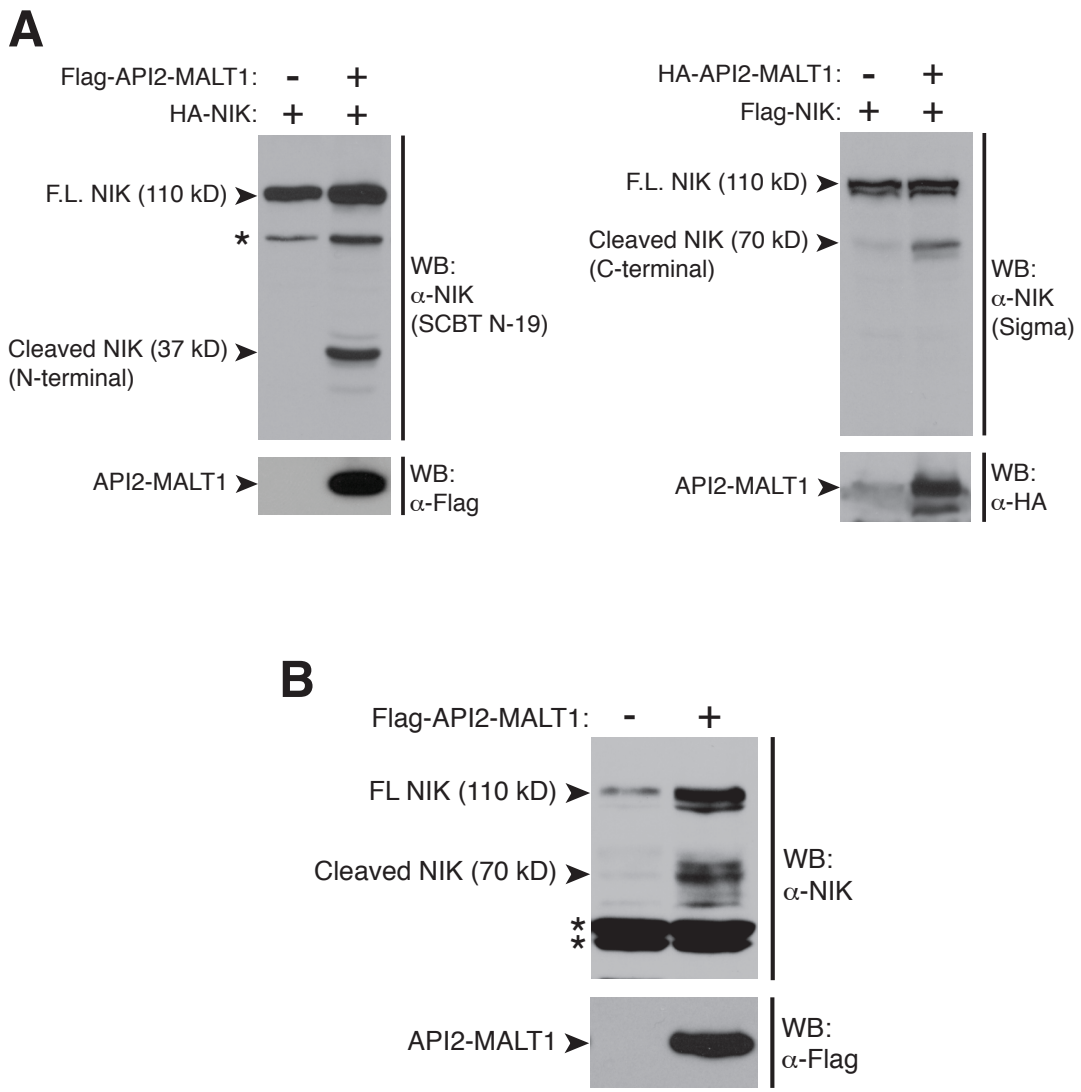

Fig. S2. ***API2-MALT1-dependent cleavage of NIK into 37 kD and 70 kD proteolytic fragments.*** (**A**) Additional antibodies confirm generation of N-terminal and C-terminal NIK fragments. *Left panel*: Western analysis using an antibody raised against the N-terminal portion of NIK and thereby recognizes only the 37 kD cleavage fragment. *Right panel*: Western analysis using an antibody raised against the C-terminal portion of NIK and thereby recognizes only the 70 kD cleavage fragment. (**B**) Cleavage of endogenous NIK by API2-MALT1. HEK293T cells were transfected with API2-MALT1, and endogenous NIK was detected by Western blot. Of note, we were able to detect endogenous NIK in HEK293T cells only when experiments were carried out in the presence of the proteasome inhibitor, MG132, consistent with the fact that NIK is highly unstable due to constitutive proteasomal degradation. Interestingly, in HEK293T cells treated with MG132, we observed that levels of endogenous NIK are enhanced upon expression of API2-MALT1. This implies that in addition to inducing NIK cleavage, expression of API2-MALT1 in these cells may also stimulate endogenous NIK production or enhance NIK stability via a mechanism other than inhibiting proteasome-dependent degradation. * = nonspecific band.

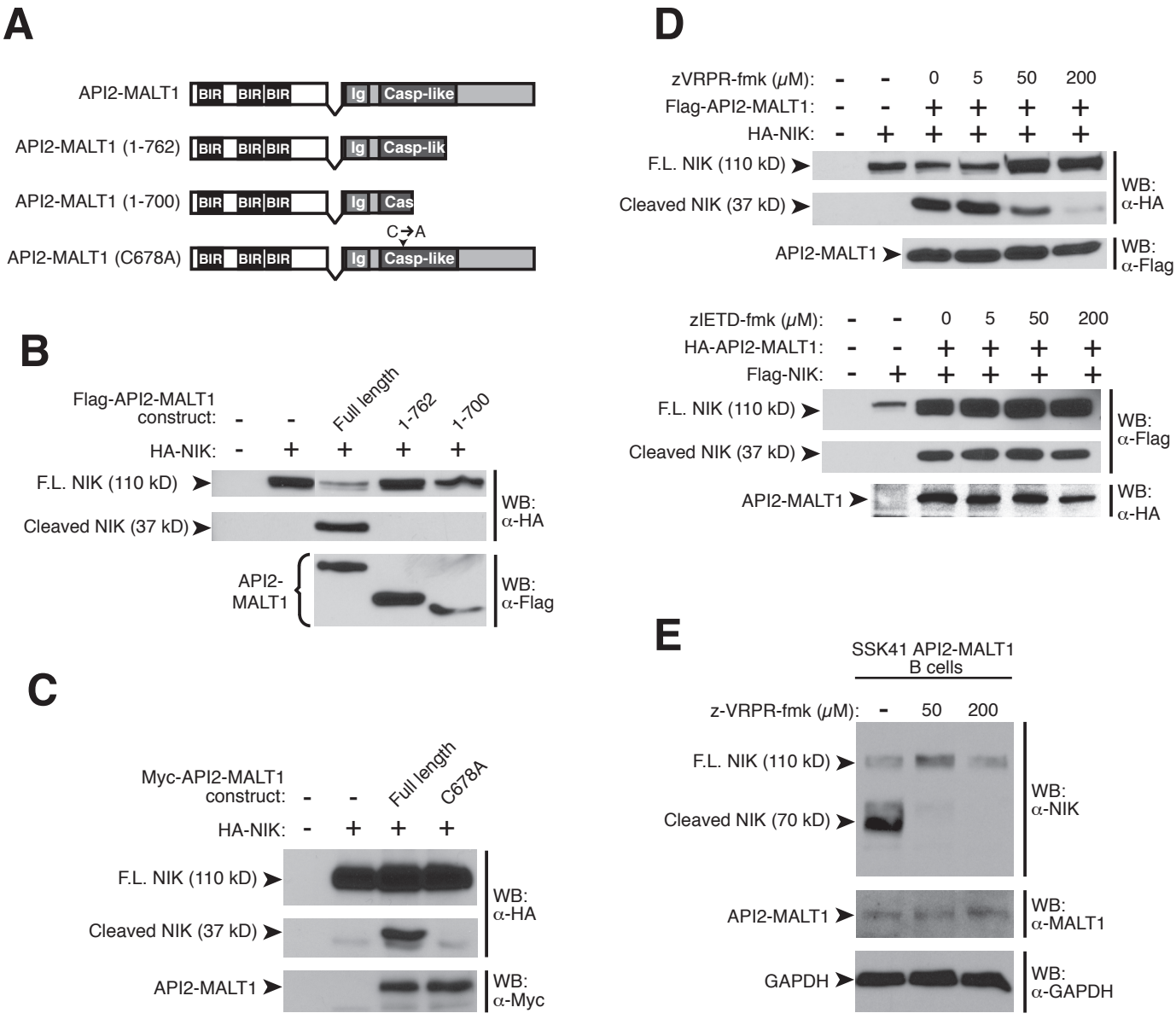

Fig. S3. ***Deletion, mutation, or inhibition of the MALT1 "caspase-like" domain results in loss of API2-MALT1-dependent NIK cleavage.*** (**A**) Schematic of API2-MALT1 mutants. (**B**) HEK293T cells were transfected with HA-NIK along with various Flag-tagged API2-MALT1 proteins as indicated. The 37 kD N-terminal NIK cleavage fragment was detected by Western blotting with α-HA. (**C**) HEK293T cells were transfected with either wild-type API2-MALT1 or API2-MALT1(C678A) mutant, along with HA-NIK as indicated. Western blot with α-HA was performed to detect full-length NIK and the 37 kD N-terminal NIK fragment. (**D** and **E**) HEK293T cells (D) or SSK41 cells (E) expressing API2-MALT1 were incubated with zVRPR-fmk or zIETD-fmk, and the NIK cleavage fragment was detected by Western blot. Data are representative of at least three separate experiments.

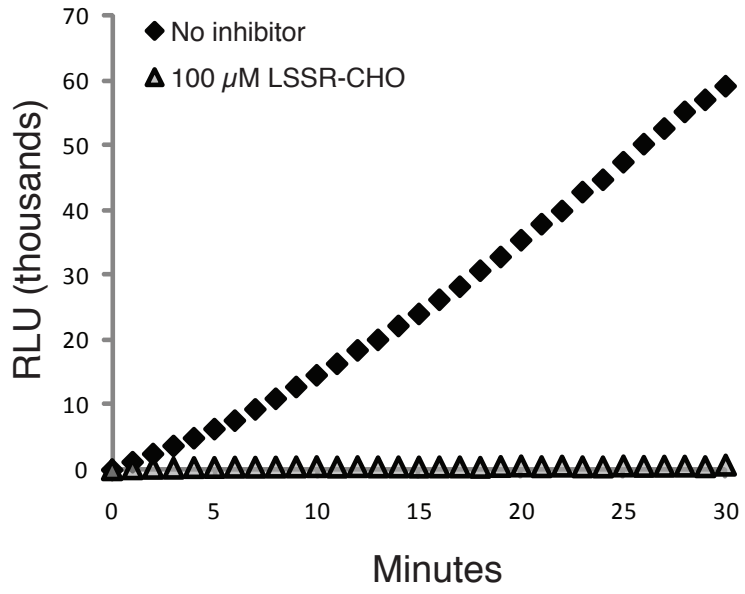

Fig. S4. ***MALT1 protease activity assay.*** Fluorescence release (RLU) due to Ac-LSSR-AMC substrate cleavage (100 μM) in vitro by StrepII-tagged MALT1 (◆). Addition of Ac-LSSR-CHO (100 μM) inhibits MALT1 proteolytic activity (▲).

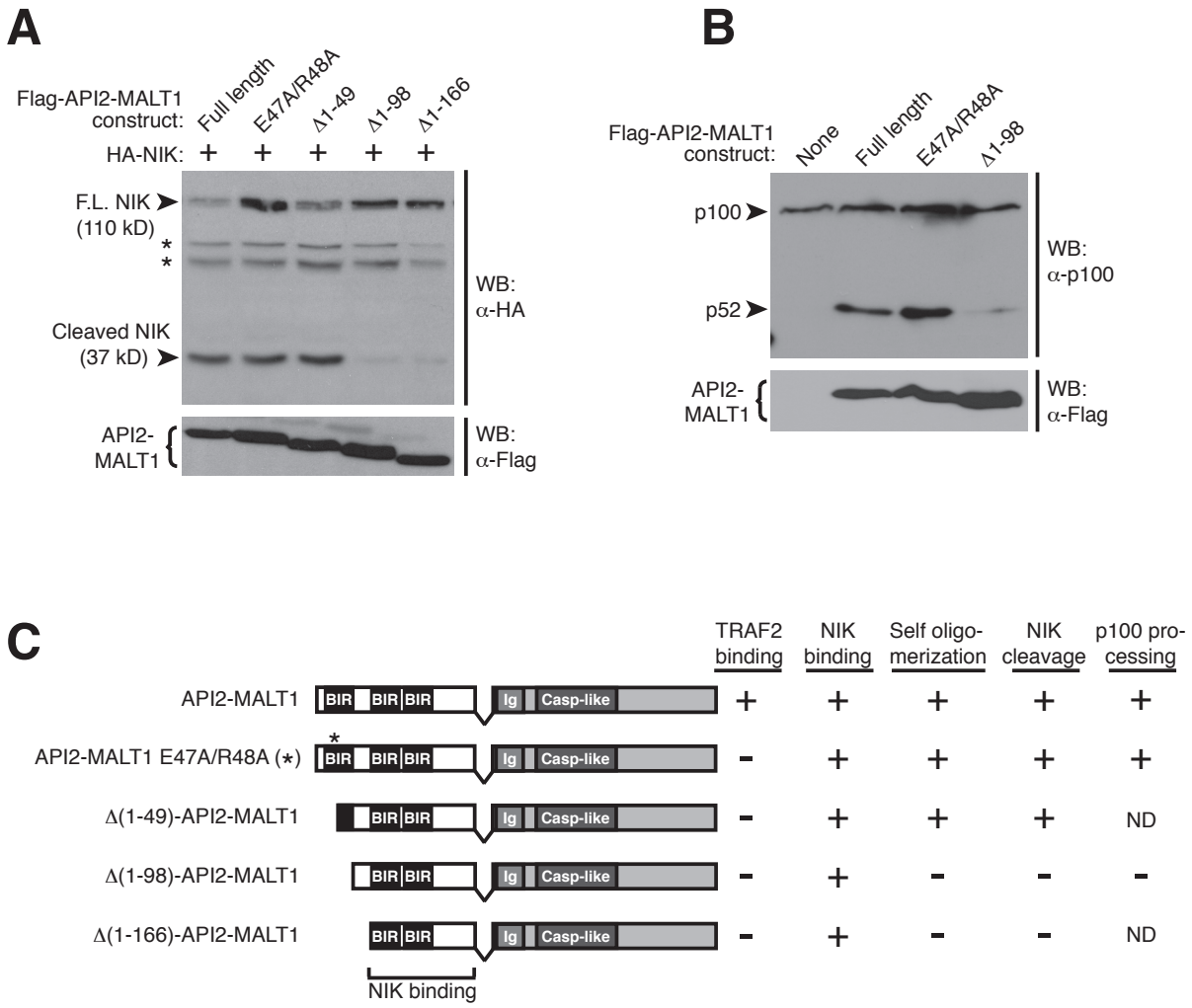

Fig. S5. ***The API2 moiety is required for association with and cleavage of NIK.*** (**A**) The API2-MALT1 auto-oligomerization domain, but not the TRAF2-binding domain, is required for NIK cleavage. HEK293T cells were transfected with HA-NIK, along with the indicated API2-MALT1 deletion mutants, and the generation of the 37 kD N-terminal NIK cleavage product was assessed by Western blotting with α-HA. Mutation or deletion of the previously identified TRAF2 binding site within BIR1 of the API2 moiety (E47A/R48A or Δ1-49 mutants) does not prevent API2-MALT1-dependent NIK cleavage. In contrast, deletion of the C-terminal half of BIR1 (Δ1-98), a region that mediates auto-oligomerization of API2-MALT1, does impede API2-MALT1-induced NIK cleavage. (**B**) API2-MALT1 mutants that lack the ability to bind and cleave NIK are unable to promote p100 processing to p52. HEK293T cells were transfected with the indicated API2-MALT1 mutants and processing of endogenous p100 was analyzed by Western blotting. (**C**) Schematic summary of the activities of various API2-MALT1 mutants. Results suggest that the API2 moiety of API2-MALT1 interacts with NIK via a site located C-terminal to the BIR1 domain (see Fig. 2F), and that API2 moiety-mediated auto-oligomerization is required to achieve efficient API2-MALT1-dependent NIK cleavage and p100 processing. ND= Not Determined.

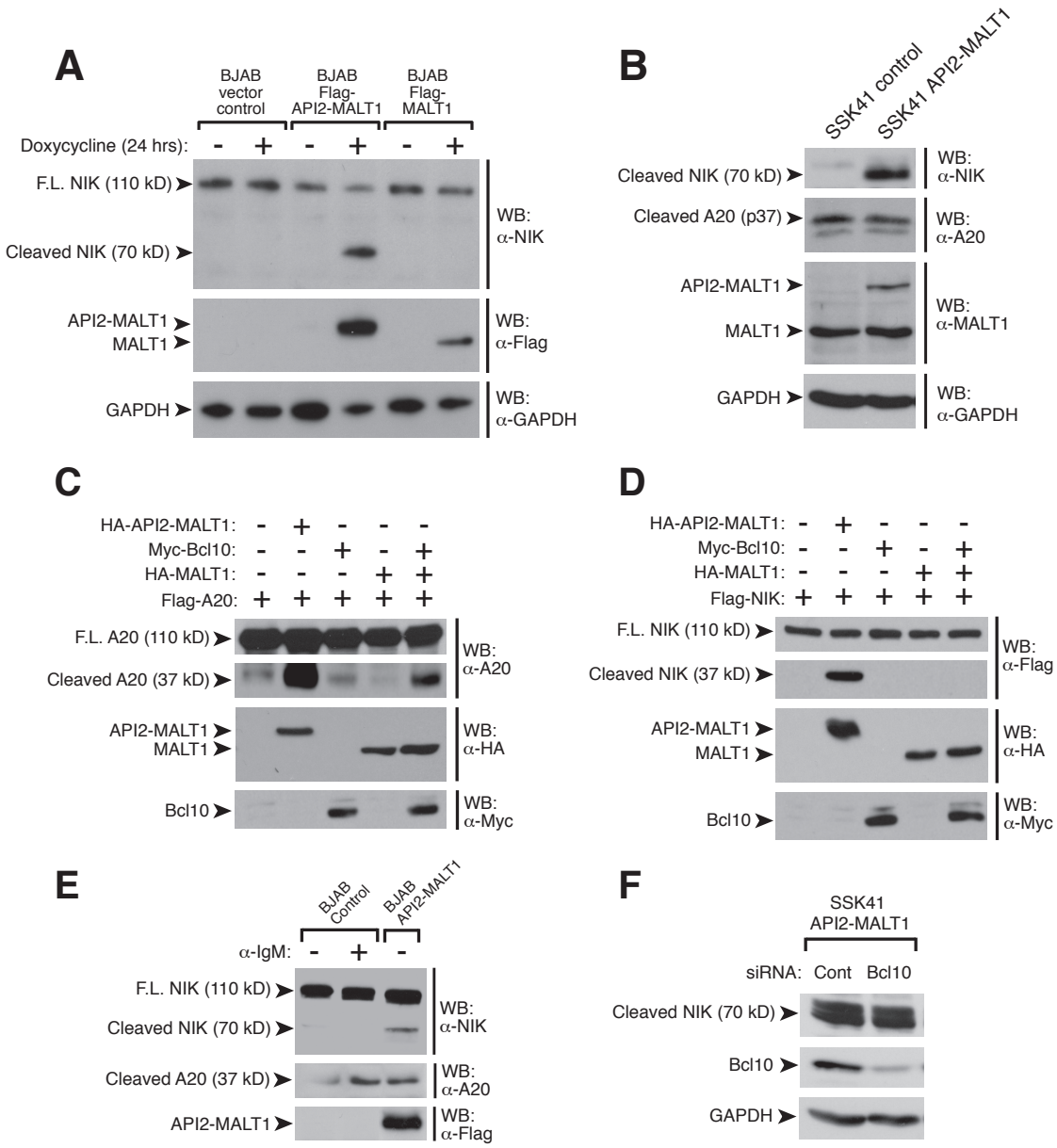

Fig. S6. ***Activation of wild-type MALT1 within the cell does not induce the cleavage of NIK.*** (**A**) BJAB B-cells expressing API2-MALT1 or MALT1 from a tetracycline inducible promotor were treated with or without doxycycline and analyzed for NIK cleavage by Western blot. (**B**) Unlike A20, NIK is not cleaved in SSK41 cells in the absence of API2-MALT1. Control cells or cells stably expressing API2-MALT1 were analyzed for the presence of the endogenous 70 kD C-terminal NIK cleavage fragment and 37 kD A20 C-terminal cleavage fragment by Western blot. (**C** and **D**) Co-expression of Bcl10 and MALT1 activates the MALT1 protease, but does not result in cleavage of NIK. HEK293T cells were transfected with A20 (C) or NIK (D), along with other indicated proteins, and the generation of the A20 (C) or NIK (D) cleavage product was assessed by Western blot. (**E**) B-cell receptor stimulation activates the MALT1 protease, but does not result in cleavage of NIK. Empty vector control or API2-MALT1-expressing BJAB cells were treated with or without anti-IgM as indicated, and the generation of endogenous cleaved NIK or A20 was detected by Western blot. (**F**) Bcl10 is not required for API2-MALT1-dependent NIK cleavage. API2-MALT1-expressing SSK41 cells were treated with control or Bcl10-specific siRNA. Bcl10 knock-down and NIK cleavage was then assessed by Western blot. Data are representative of at least three separate experiments.

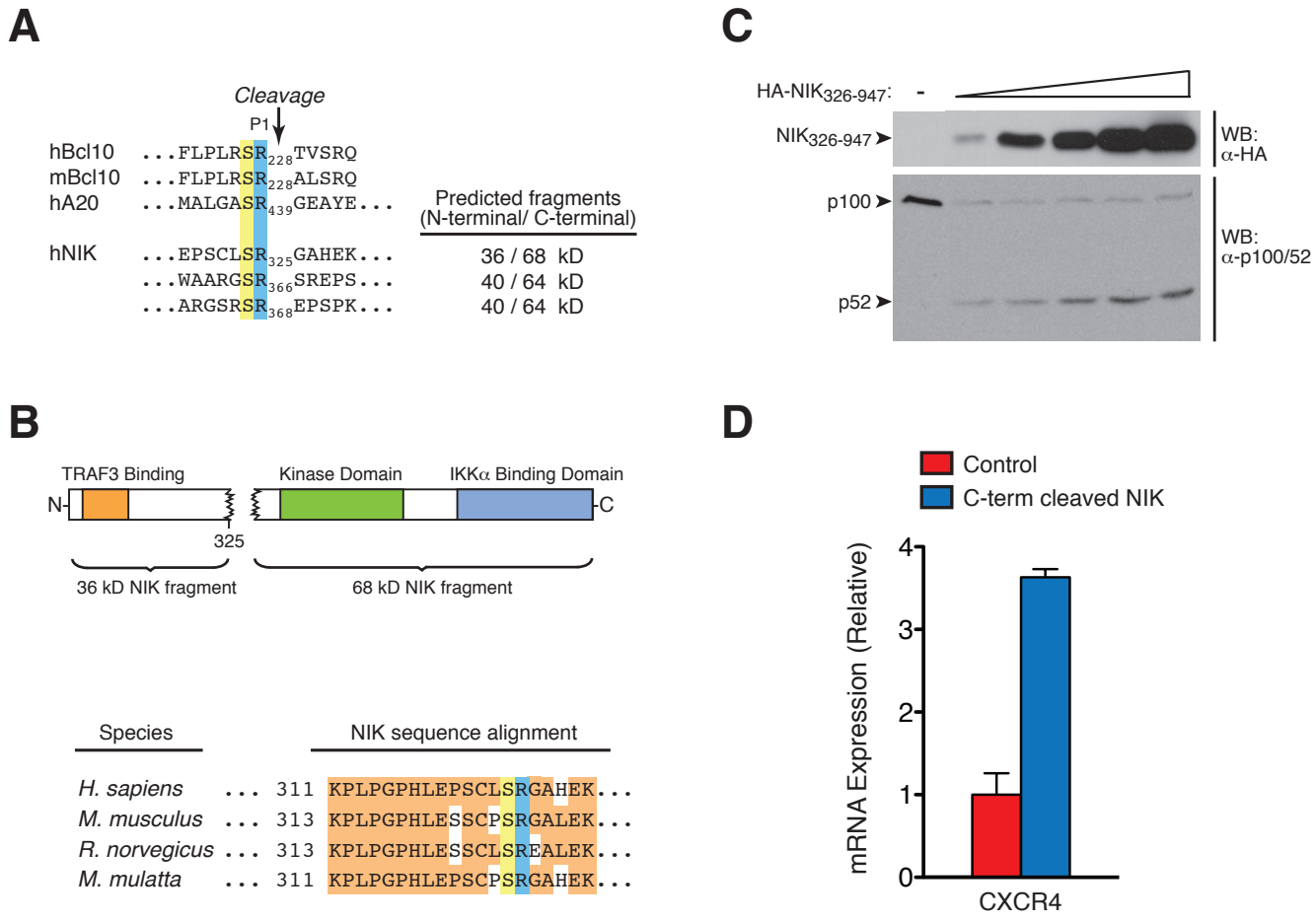

Fig. S7. ***The 70 kD C-terminal NIK cleavage fragment induces noncanonical NF-κB signaling.*** (**A**) Alignment of the MALT1 cleavage sites in Bcl10 and A20 with candidate sites for NIK cleavage. (**B**) *Top* - Schematic of API2-MALT1-dependent NIK cleavage. *Bottom* – The S324-R325 residues are conserved among species, suggesting that an evolutionarily relevant role for NIK cleavage at this site may exist. (**C**) The C-terminal NIK cleavage fragment induces concentration-dependent p100 processing. HEK293T cells were transfected with increasing concentrations of HA-NIK(326-947) expression plasmid and the resulting p100 processing was assessed by Western Blot. (**D**) The C-terminal NIK cleavage fragment induces the expression of CXCR4, a noncanonical NF-κB gene target (18). CXCR4 is a chemokine receptor that is implicated in B-lymphomagenesis (23, 24). We also found that CXCR4 is significantly upregulated in t(11;18)-positive MALT lymphomas (see Fig. 4F and G).

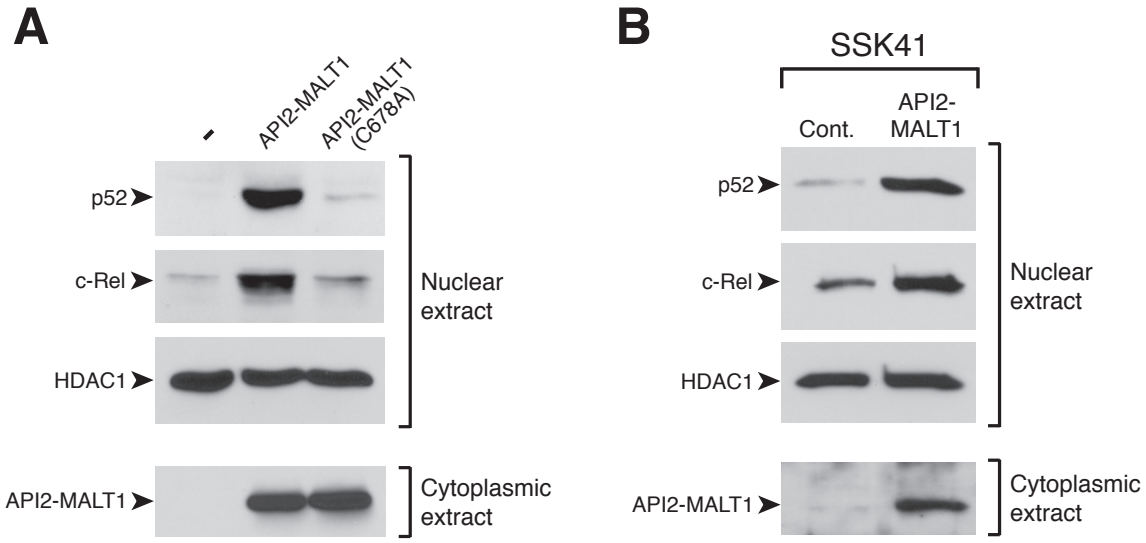

Fig. S8. ***API2-MALT1 also induces c-Rel nuclear translocation.*** Because previous work has shown that wild-type MALT1 signals to c-Rel upon BCR ligation (25), we also evaluated the effect of API2-MALT1 on c-Rel. (**A**) API2-MALT1 induces the nuclear translocation of c-Rel, and this requires an intact MALT1 protease domain. HEK293T cells were transfected as indicated, nuclear extracts were prepared, and the resulting nuclear translocation of p52 and c-Rel was assessed by Western blot. (**B**) API2-MALT1 expression in SSK41 cells is associated with enhanced nuclear translocation of p52 and c-Rel. Nuclear extracts were prepared for control and API2-MALT1 expressing SSK41 cells as indicated, and the levels of p52 and c-Rel were assessed by Western Blot.

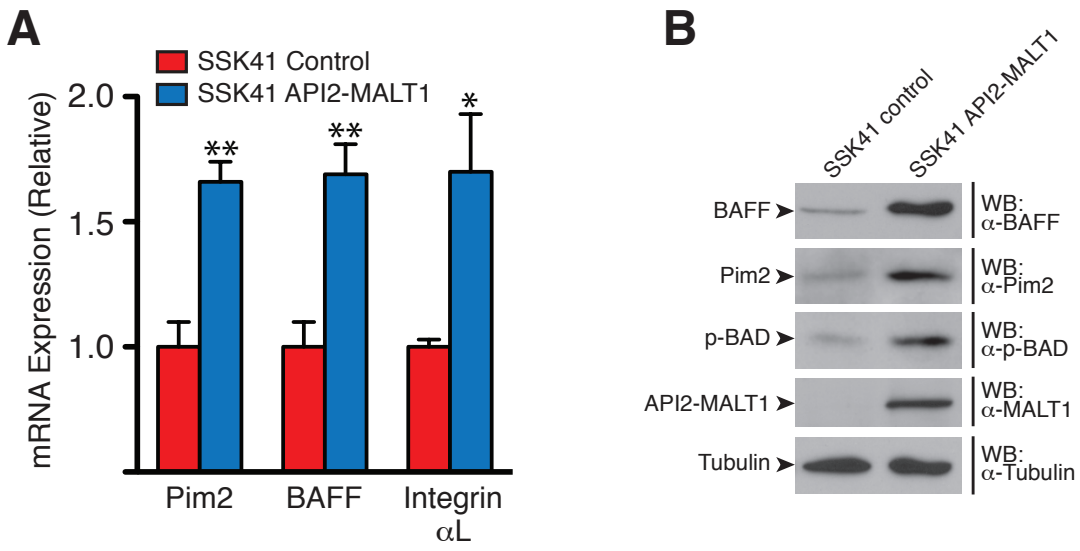

Fig. S9. ***API2-MALT1 promotes noncanonical NF-κB target gene expression in SSK41 B-cells.*** (**A**) Levels of mRNA transcript were analyzed by quantitative RT-PCR. Data are expressed as an average +/- SEM for at least three determinations. *= $p< 0.05$, **= $p<0.005$. (**B**) API2-MALT1 expression results in enhanced levels of BAFF, Pim-2 and phospho-Ser^{112}-BAD. SSK41 cell lysates were prepared, and protein levels were compared by Western blotting.

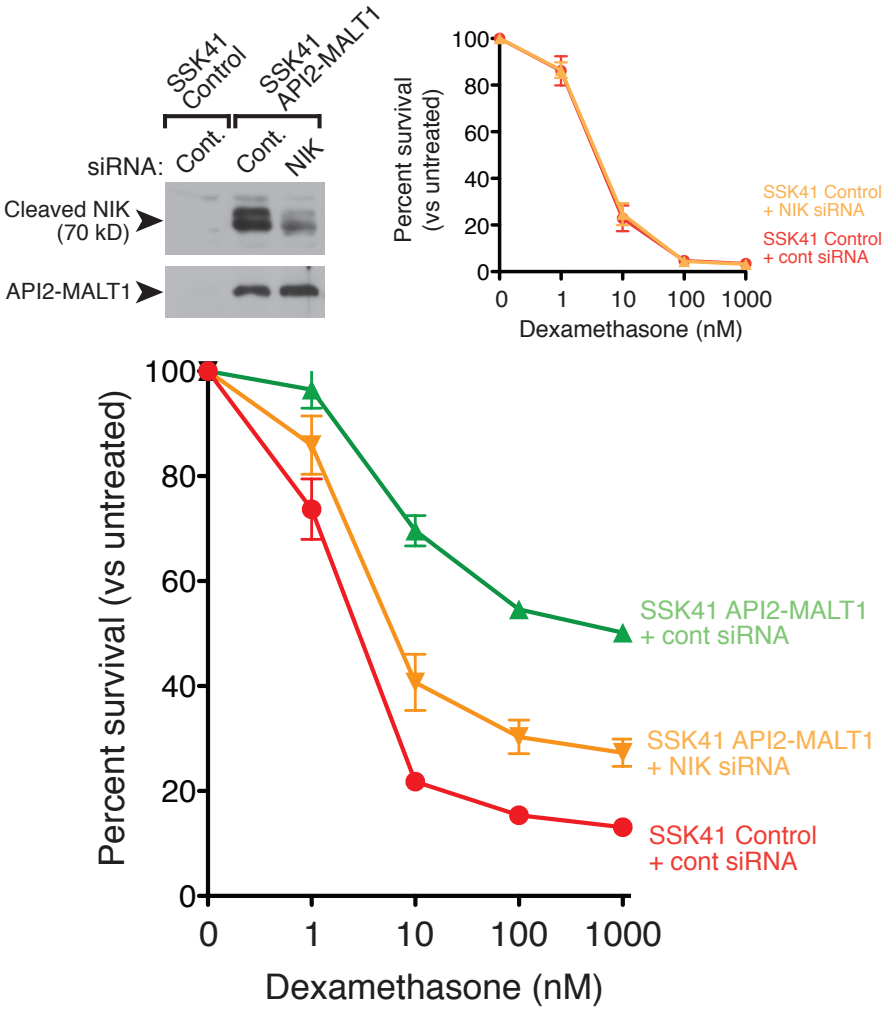

Fig. S10. ***siRNA-mediated NIK knock-down abrogates API2-MALT1-dependent protection from dexamethasone-induced cell death.*** Control or API2-MALT1 expressing SSK41 cells were transiently transfected with control or NIK siRNA and then treated with increasing concentrations of dexamethasone. The resulting cell viability was analyzed at 48 hours of dexamethasone treatment. Results are expressed as average ± SEM of three determinations. **Inserts** (*top left*): Western blotting demonstrates effective knock-down of the 70kD NIK cleavage fragment, (*top right*): NIK siRNA had no effect on the control SSK41 cells. Data are representative of at least three separate experiments.

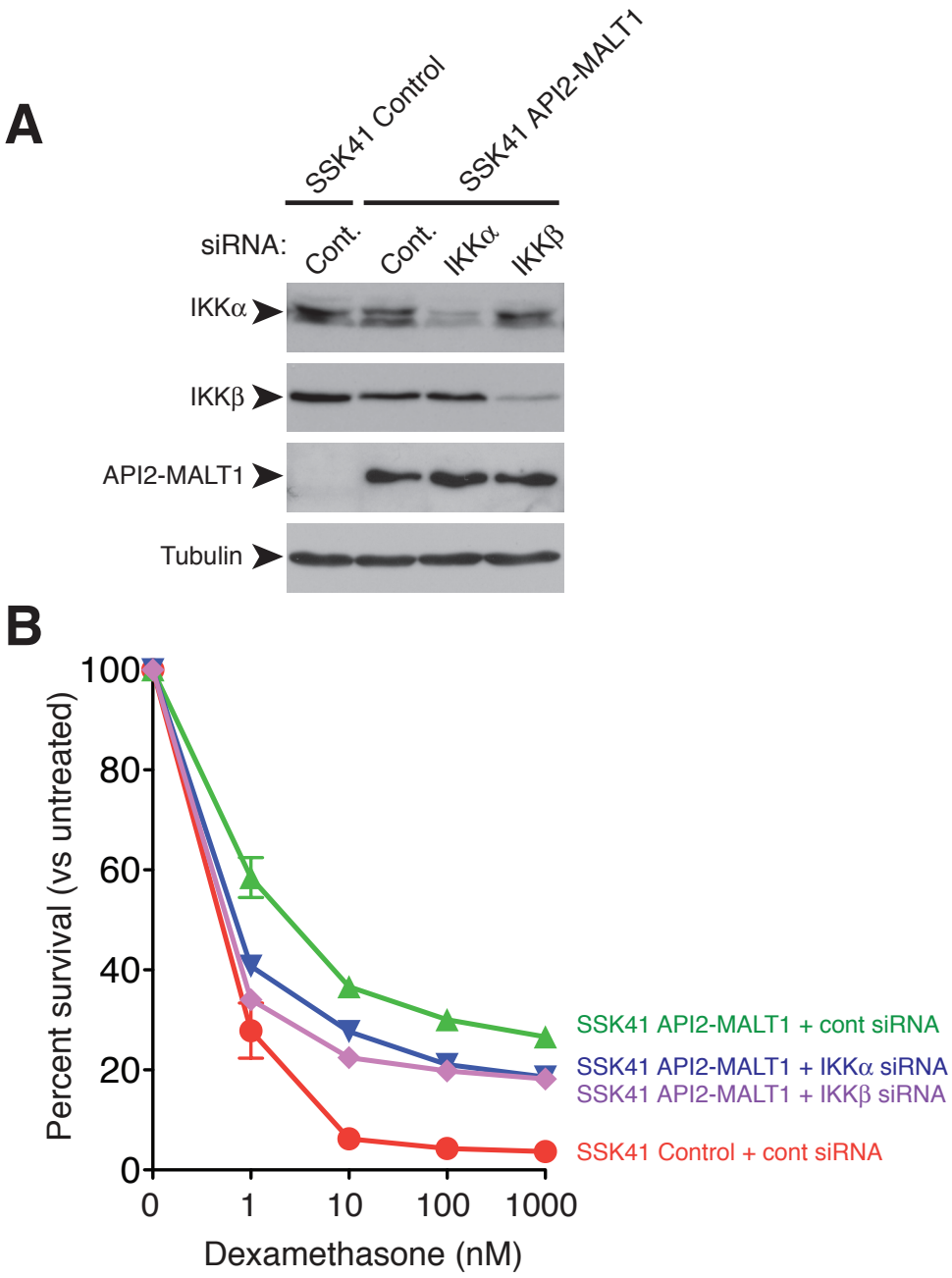

Fig. S11. ***API2-MALT1-dependent protection from dexamethasone-induced cell death is mediated by a combination of canonical and noncanonical NF-κB signaling.*** (**A**) Control or API2-MALT1 expressing SSK41 cells were transiently transfected with control, IKKα, or IKKβ siRNA. Western blotting demonstrates effective and specific knock-down of the IKK subunits and confirms effective expression of API2-MALT1 in cells harboring the transgene. (**B**) Cells were then treated with increasing concentrations of dexamethasone. The resulting cell viability was analyzed after 48 hours of dexamethasone treatment. Results are expressed as average ± SEM of three determinations, and are representative of three separate experiments.

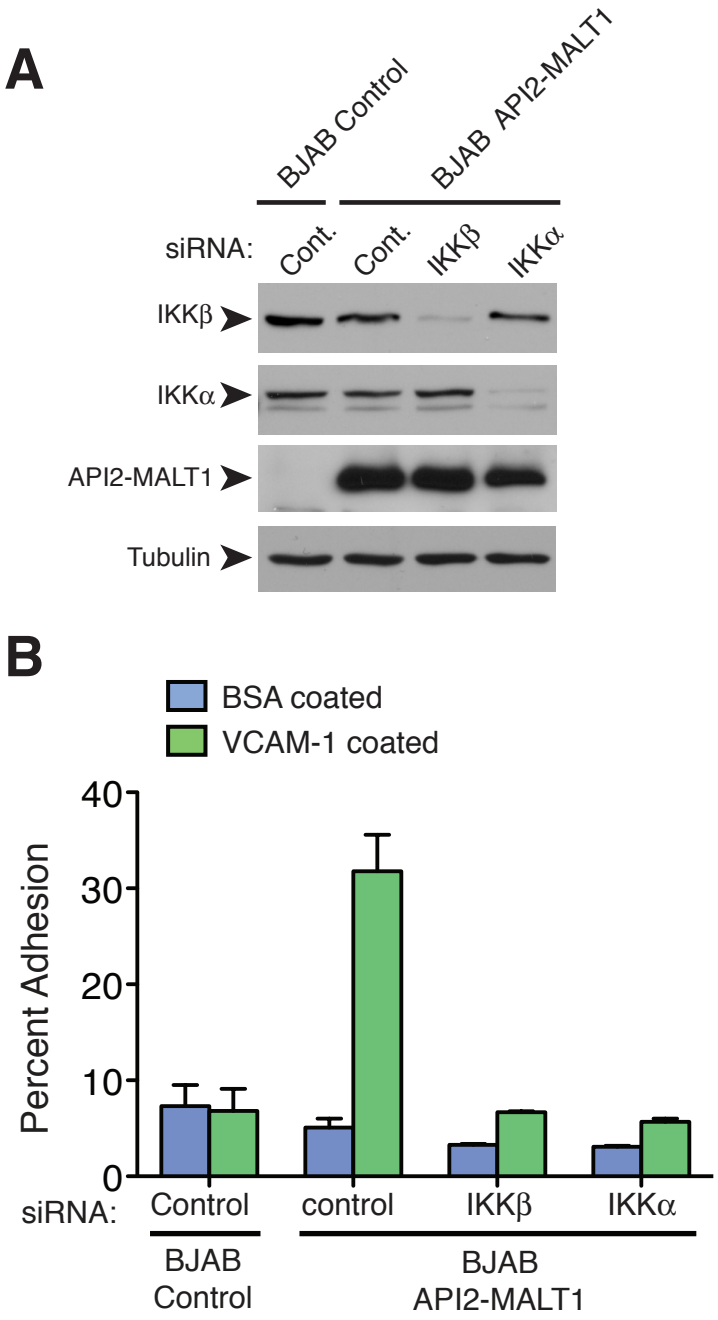

Fig. S12. ***Both canonical and noncanonical NF-κB signaling contribute to API2-MALT1-dependent adhesion.*** Control or API2-MALT1 expressing BJAB cells were transiently transfected with control, IKKβ, or IKKα siRNA. After 48 hours, cells were treated for 24 hours with doxycycline to induce API2-MALT1 expression in cells harboring the transgene, and were then plated onto either BSA- or VCAM-1 coated plates. (**A**) Western blotting demonstrates effective and specific knock-down of the IKK subunits as well as effective induction of API2-MALT1. (**B**) Following washing, the percentage of adherent cells was tallied.

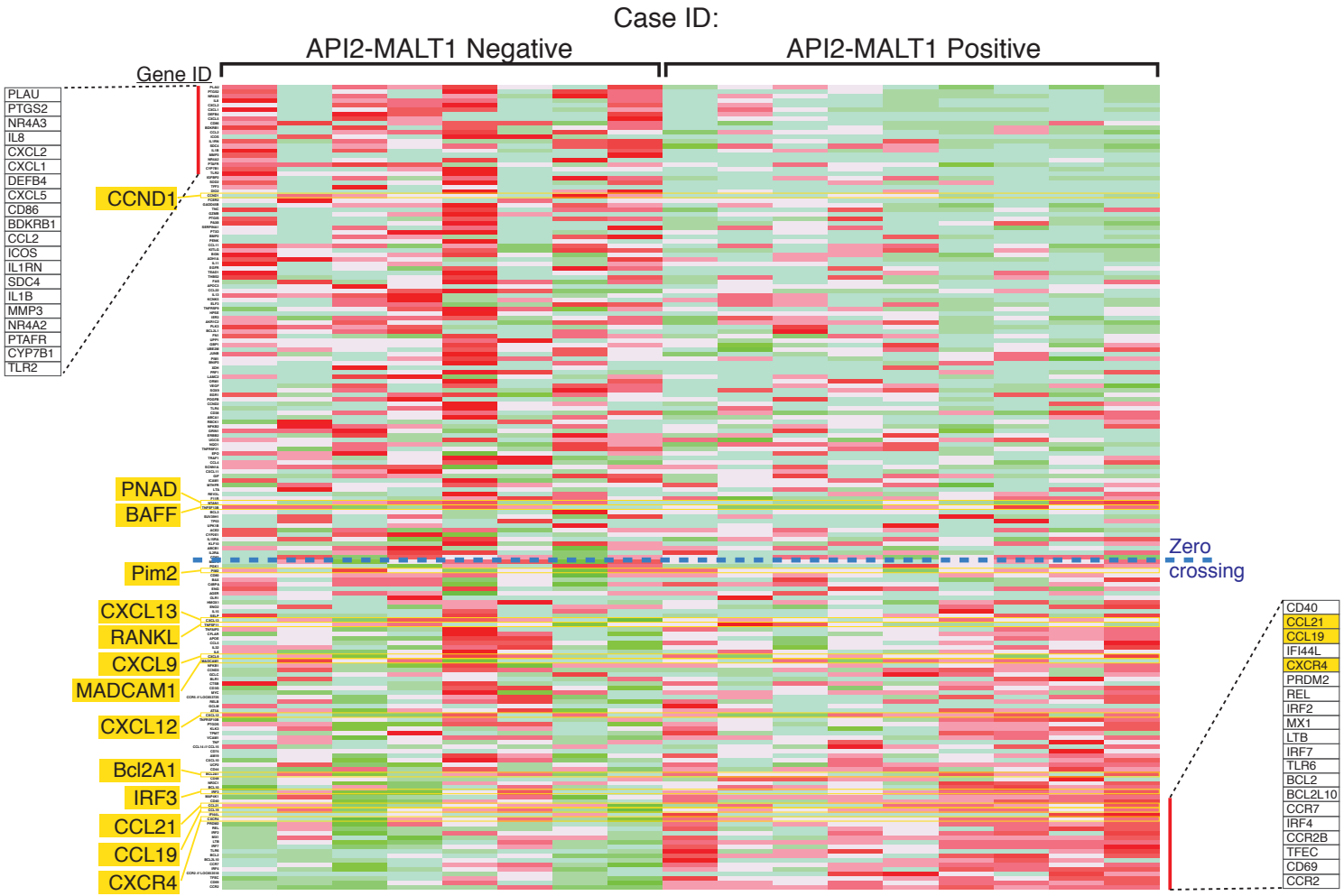

Fig. S13. ***Heat map illustration of gene expression in t(11;18)-positive vs. translocation negative MALT lymphomas from Collection #1 (See methods).*** Genes identified as noncanonical NF-κB target genes are highlighted in yellow and labeled on the left. The top 20 leading edge core genes are shown.

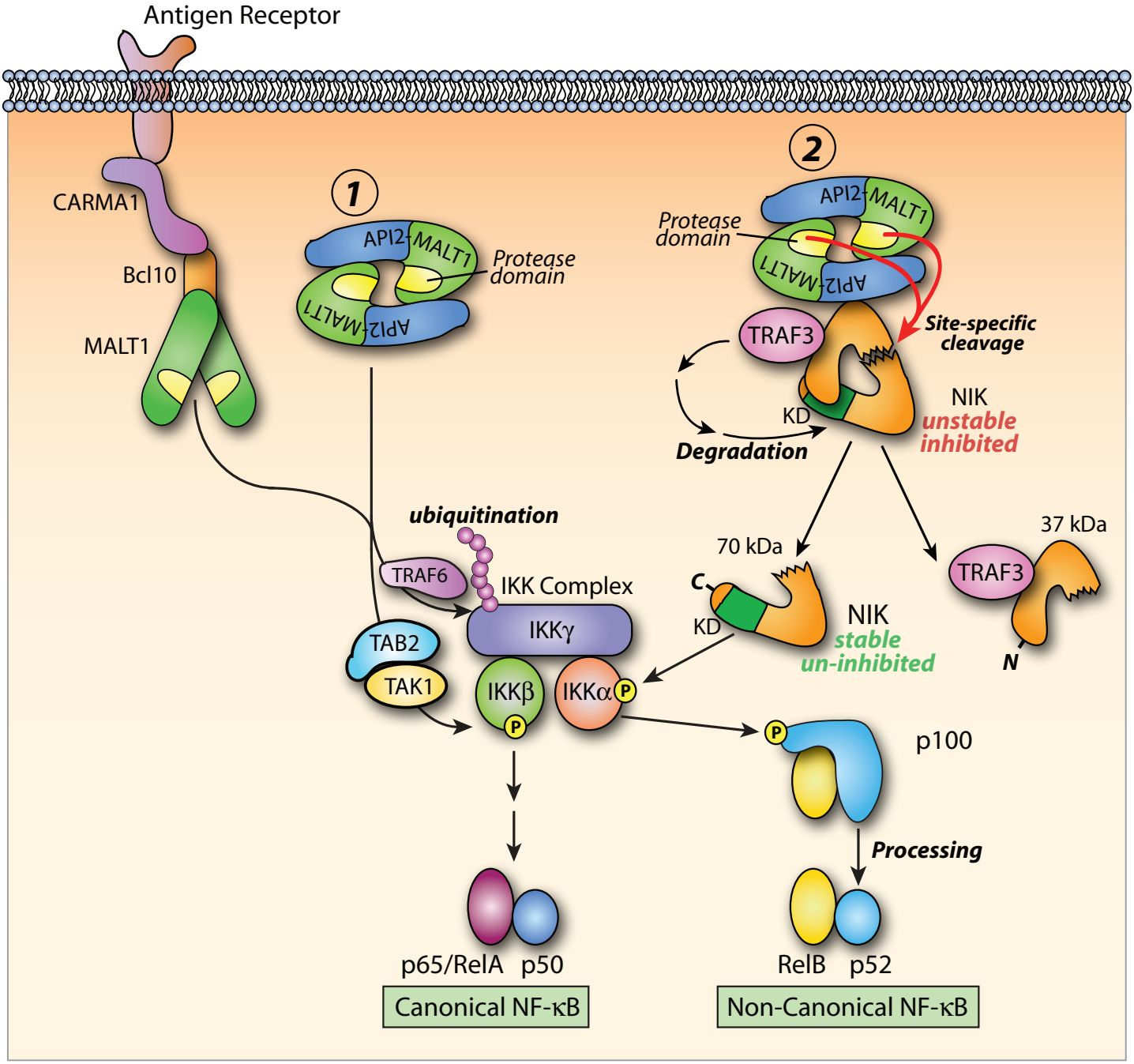

Fig. S14. ***Schematic illustrating our model for the role of NIK cleavage in API2-MALT1-dependent lymphomagenesis.*** We propose a model in which: (**1**) The API2 moiety mediates auto-oligomerization of API2-MALT1 and recruitment of NIK, (**2**) NIK is then placed in close proximity to the activated MALT1 protease domain and is made available as a substrate, (**3**) API2-MALT1-dependent NIK cleavage separates the TRAF3 binding site from the active kinase domain, and (**4**) The stabilized NIK kinase promotes deregulated noncanonical NF-κB signaling contributing to B-lymphomagenesis. The concept that the N-terminus of NIK contains an autoinhibitory domain that impairs NIK kinase activity (26), in addition to the TRAF3 binding site (27), is incorporated into the model.

Table S1.

Gene symbol	Gene full name	Source
PIM2	Pim-2 oncogene	Immunity, 2006; **25:** 403-415. Blood, 2008; **111(2):** 750-760.
CCL21	chemokine (C-C motif) ligand 21 (Secondary lymphoid tissue chemokine, SLC)	Immunity, 2002; **17:** 525-535. EMBO, 2004; **23:** 4202-4210. J. Immunol., 2004; **173:** 6161-6168.
CCL19	chemokine (C-C motif) ligand 19 (Epstein Barr virus-induced molecule 1 ligand CC chemokine, ELC)	Immunity, 2002; **17**: 525-535. EMBO, 2004; **23**: 4202-4210. J. Immunol., 2004; **173**: 6161-6168.
CXCL13	chemokine (C-X-C motif) ligand 13 (B-lymphocyte chemoattractant, BLC)	Immunity, 2002; **17**: 525-535. EMBO, 2004; **23**: 4202-4210. J. Immunol., 2004; **173**: 6161-6168.
TNFSF13B	B-cell activating factor belonging to the TNF family (BAFF)	Immunity, 2002; **17**: 525-535. EMBO, 2004; **23**, 4202-4210.
CXCL12	chemokine (C-X-C motif) ligand 12 (stromal derived factor-1alpha, SDF-1)	Immunity, 2002; **17**: 525-535. EMBO, 2004; **23**, 4202-4210.
BCL2A1	BCL2-related protein A1	Immunity, 2006; **25**: 403-415.
CXCR4	chemokine (C-S-C motif) receptor 4	PNAS, 2004; **101**: 141-146.
TNFSF11	tumor necrosis factor (ligand) superfamily, member 11 (RANK-L)	Science, 2001; **293**: 1495-1499.
CCND1	Cyclin D1	Endocrinology, 2007; **148(1):** 268-278.
CXCL9	chemokine (C-X-C) ligand 9	PNAS, 2004; **101**: 141-146.
NTAN1	N-terminal asparagine amidase (PNAD)	J. Immunol., 2004; **173**: 6161-6168.
MADCAM1	mucosal vascular addressin cell adhesion molecule 1	Blood, 2007; **110:** 2381-2389.
IRF3	interferon regulatory factor 3	EMBO, 2004; **23**: 4202-4210.
TRIP10	thyroid hormone receptor interactor 10	bioinformatics
IL32	interleukin 32	bioinformatics
RCP9	calcitonin gene-related peptide-receptor component protein	bioinformatics
ANKRD1	ankyrin repeat domain 1 (cardiac muscle)	bioinformatics
TNFRSF10B	tumor necrosis factor receptor superfamily, member 10b	bioinformatics
AKR1C2	aldo-keto reductase family 1, member C2 (dihydrodiol dehydrogenase 2	bioinformatics
LDHB	lactate dehydrogenase B	bioinformatics
TEAD1	TEA domain family member 1 (SV40 transcriptional enhancer factor)	bioinformatics
PRDM2	PR domain containing 2, with ZNF domain	bioinformatics
BACE2	beta-site APP-cleaving enzyme 2	bioinformatics
SUV39H1	suppressor of variegation 3-9 homolog 1 (Drosophila)	bioinformatics
IL1F9	interleukin 1 family, member 9	bioinformatics
ALOX12B	arachidonate 12-lipoxygenase, 12R type	bioinformatics
CARD15	caspase recruitment domain family, member 15	bioinformatics
CD74	CD74 antigen (invariant polypeptide of major histocompatibility complex, class II antigen-associated)	bioinformatics
CXCL2	chemokine (C-X-C motif) ligand 2	bioinformatics
DEFB4	defensin, beta 4	bioinformatics
IL15RA	interleukin 15 receptor, alpha	bioinformatics
TPMT	thiopurine S-methyltransferase	bioinformatics
TLR6	toll-like receptor 6	bioinformatics
TLR4	toll-like receptor 4	bioinformatics
SH3BGRL3	SH3 domain binding glutamic acid-rich protein like 3	bioinformatics
PLA2G2E	phospholipase A2, group IIE	bioinformatics
ADAMTS12	ADAM metallopeptidase with thrombospondin type 1 motif, 12	bioinformatics
CSF2RA	colony stimulating factor 2 receptor, alpha, low-affinity (granulocyte-macrophage)	bioinformatics
MMP8	matrix metallopeptidase 8 (neutrophil collagenase)	bioinformatics
CCL7	chemokine (C-C motif) ligand 7	bioinformatics
TNFRSF21	tumor necrosis factor receptor superfamily, member 21	bioinformatics
PLA2G4A	phospholipase A2, group IVA (cytosolic, calcium-dependent)	bioinformatics
LAMC2	laminin, gamma 2	bioinformatics
BCL2L10	BCL2-like 10 (apoptosis facilitator)	bioinformatics
TNFSF6	tumor necrosis factor superfamily, member 6	bioinformatics
CD105	homodimeric transmembrane protein which is a major glycoprotein of the vascular endothelium	bioinformatics
TNFRSF6	tumor necrosis factor receptor superfamily, member 6, decoy	bioinformatics
TNFSF5	tumor necrosis factor superfamily, member 5	bioinformatics
BM2	influenza B virus BM2	bioinformatics
HC3	proteasome subunit HC3	bioinformatics
SIAT8A	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 1	bioinformatics
TBR	tuberin	bioinformatics
TNFRSF5	tumor necrosis factor receptor superfamily, member 5, decoy	bioinformatics
RBCK1	RanBP-type and C3HC4-type zinc finger containing 1	bioinformatics
CCR2A	chemokine (C-C motif) receptor 2 isoform A	bioinformatics
CCR2B	chemokine (C-C motif) receptor 2 isoform B	bioinformatics
BIRC2	baculoviral IAP repeat-containing 2	Blood, 2005 ; **106(4)** : 1392 - 1399
ICAM1	intercellular adhesion molecule 1 (CD54), human rhinovirus receptor	Blood, 2005 ; **106(4)** : 1392 - 1399
CX3CL1	chemokine (C-X3-C motif) ligand 1	Blood, 2005 ; **106(4)** : 1392 - 1399
NR4A3	nuclear receptor subfamily 4, group A, member 3	Journal of Biological Chemistry, 2005 ; **280(32)** : 29256-29262
BCL10	B-cell CLL/lymphoma 10	Journal of Biological Chemistry, 2006 ; **281(1)** : 167 - 175
LMP2	low molecular weight protein 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
CTSL1	cathepsin L1	http://people.bu.edu/gilmore/nf-kb/target/index.html
KLK3	kallikrein-related peptidase 3	http://people.bu.edu/gilmore/nf-kb/target/index.html
BMP2	bone morphogenetic protein 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
AMH	anti-Mullerian hormone	http://people.bu.edu/gilmore/nf-kb/target/index.html
NOD2	nucleotide-binding oligomerization domain containing 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
CYP2C11	Cytochrome P450 2C11	http://people.bu.edu/gilmore/nf-kb/target/index.html
NK4	N-terminal hairpin and subsequent four-kringle domains of hepatocyte growth factor	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCL15	chemokine (C-C motif) ligand 15	http://people.bu.edu/gilmore/nf-kb/target/index.html
MYC	v-myc myelocytomatosis viral oncogene homolog (avian)	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL1B	interleukin 1, beta	http://people.bu.edu/gilmore/nf-kb/target/index.html
TERT	telomerase reverse transcriptase	http://people.bu.edu/gilmore/nf-kb/target/index.html
SELP	selectin P (granule membrane protein 140kDa, antigen CD62)	http://people.bu.edu/gilmore/nf-kb/target/index.html
TNFAIP3	tumor necrosis factor, alpha-induced protein 3	http://people.bu.edu/gilmore/nf-kb/target/index.html
CD44	CD44 antigen (homing function and Indian blood group system)	http://people.bu.edu/gilmore/nf-kb/target/index.html
NOS2A	nitric oxide synthase 2A (inducible, hepatocytes)	http://people.bu.edu/gilmore/nf-kb/target/index.html
SOD2	superoxide dismutase 2, mitochondrial	http://people.bu.edu/gilmore/nf-kb/target/index.html
CSF3	colony stimulating factor 3 (granulocyte)	http://people.bu.edu/gilmore/nf-kb/target/index.html
BCL3	B-cell CLL/lymphoma 3	http://people.bu.edu/gilmore/nf-kb/target/index.html
RAGE	renal tumor antigen	http://people.bu.edu/gilmore/nf-kb/target/index.html
GRIN1	glutamate receptor, ionotropic, N-methyl D-aspartate 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
IGHG4	immunoglobulin heavy constant gamma 4 (G4m marker)	http://people.bu.edu/gilmore/nf-kb/target/index.html
IGHG3	immunoglobulin heavy constant gamma 3 (G3m marker)	http://people.bu.edu/gilmore/nf-kb/target/index.html
SERPINA1	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
NR4A2	nuclear receptor subfamily 4, group A, member 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
NFKB1	nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 (p105)	http://people.bu.edu/gilmore/nf-kb/target/index.html
NFKBIA	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha	http://people.bu.edu/gilmore/nf-kb/target/index.html
BCL2A1	BCL2-related protein A1	http://people.bu.edu/gilmore/nf-kb/target/index.html
ADH1A	alcohol dehydrogenase 1A (class I), alpha polypeptide	http://people.bu.edu/gilmore/nf-kb/target/index.html
AGER	advanced glycosylation end product-specific receptor	http://people.bu.edu/gilmore/nf-kb/target/index.html
AMH	anti-Mullerian hormone	http://people.bu.edu/gilmore/nf-kb/target/index.html
ARFRP1	ADP-ribosylation factor related protein 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
BCL2L1	BCL2-like 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
BDKRB1	bradykinin receptor B1	http://people.bu.edu/gilmore/nf-kb/target/index.html
BLR1	Burkitt lymphoma receptor 1, GTP binding protein (chemokine (C-X-C motif) receptor 5)	http://people.bu.edu/gilmore/nf-kb/target/index.html
BMP2	bone morphogenetic protein 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
CASP4	caspase 4, apoptosis-related cysteine peptidase	http://people.bu.edu/gilmore/nf-kb/target/index.html
CD209	CD209 antigen	http://people.bu.edu/gilmore/nf-kb/target/index.html
CRP	C-reactive protein, pentraxin-related	http://people.bu.edu/gilmore/nf-kb/target/index.html
CXCL10	chemokine (C-X-C motif) ligand 10	http://people.bu.edu/gilmore/nf-kb/target/index.html
CXCL9	chemokine (C-X-C motif) ligand 9	http://people.bu.edu/gilmore/nf-kb/target/index.html
FTH1	ferritin, heavy polypeptide 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
GSTP1	glutathione S-transferase pi	http://people.bu.edu/gilmore/nf-kb/target/index.html
HMOX1	heme oxygenase (decycling) 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
IER3	immediate early response 3	http://people.bu.edu/gilmore/nf-kb/target/index.html
IFNB1	interferon, beta 1, fibroblast	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL1RN	interleukin 1 receptor antagonist	http://people.bu.edu/gilmore/nf-kb/target/index.html
KLK3	kallikrein 3, (prostate specific antigen)	http://people.bu.edu/gilmore/nf-kb/target/index.html
NPY1R	neuropeptide Y receptor Y1	http://people.bu.edu/gilmore/nf-kb/target/index.html
NQO1	NAD(P)H dehydrogenase, quinone 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
OPRM1	opioid receptor, mu 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
PLAU	plasminogen activator, urokinase	http://people.bu.edu/gilmore/nf-kb/target/index.html
PLCD1	phospholipase C, delta 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
PTAFR	platelet-activating factor receptor	http://people.bu.edu/gilmore/nf-kb/target/index.html
PTGDS	prostaglandin D2 synthase 21kDa (brain)	http://people.bu.edu/gilmore/nf-kb/target/index.html
PTGS2	prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)	http://people.bu.edu/gilmore/nf-kb/target/index.html
SCNN1A	sodium channel, nonvoltage-gated 1 alpha	http://people.bu.edu/gilmore/nf-kb/target/index.html
SELE	selectin E (endothelial adhesion molecule 1)	http://people.bu.edu/gilmore/nf-kb/target/index.html
TACR1	tachykinin receptor 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
TAP1	transporter 1, ATP-binding cassette, sub-family B (MDR/TAP)	http://people.bu.edu/gilmore/nf-kb/target/index.html
TFPI2	Tissue factor pathway inhibitor 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
TNC	tenascin C (hexabrachion)	http://people.bu.edu/gilmore/nf-kb/target/index.html
TNF	tumor necrosis factor (TNF superfamily, member 2)	http://people.bu.edu/gilmore/nf-kb/target/index.html

TNFRSF9	tumor necrosis factor receptor superfamily, member 9	http://people.bu.edu/gilmore/nf-kb/target/index.html
VEGF	vascular endothelial growth factor	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCL5	chemokine (C-C motif) ligand 5	http://people.bu.edu/gilmore/nf-kb/target/index.html
CYP2E1	cytochrome P450, family 2, subfamily E, polypeptide 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
PGK1	phosphoglycerate kinase 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
CTSB	cathepsin B	http://people.bu.edu/gilmore/nf-kb/target/index.html
HMGN1	high-mobility group nucleosome binding domain 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCND2	cyclin D2	http://people.bu.edu/gilmore/nf-kb/target/index.html
BGN	biglycan	http://people.bu.edu/gilmore/nf-kb/target/index.html
ENO2	enolase 2 (gamma, neuronal)	http://people.bu.edu/gilmore/nf-kb/target/index.html
VIM	vimentin	http://people.bu.edu/gilmore/nf-kb/target/index.html
JUNB	jun B proto-oncogene	http://people.bu.edu/gilmore/nf-kb/target/index.html
ELF3	E74-like factor 3 (ets domain transcription factor, epithelial-specific)	http://people.bu.edu/gilmore/nf-kb/target/index.html
EGR1	early growth response 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCND3	cyclin D3	http://people.bu.edu/gilmore/nf-kb/target/index.html
TP53	tumor protein p53 (Li-Fraumeni syndrome)	http://people.bu.edu/gilmore/nf-kb/target/index.html
ENG	endoglin (Osler-Rendu-Weber syndrome 1)	http://people.bu.edu/gilmore/nf-kb/target/index.html
BNIP3	BCL2/adenovirus E1B 19kDa interacting protein 3	http://people.bu.edu/gilmore/nf-kb/target/index.html
EGFR	epidermal growth factor receptor (erythroblastic leukemia viral (v-erb-b) oncogene homolog, avian)	http://people.bu.edu/gilmore/nf-kb/target/index.html
SDC4	syndecan 4 (amphiglycan, ryudocan)	http://people.bu.edu/gilmore/nf-kb/target/index.html
IER2	immediate early response 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
MX1	myxovirus (influenza virus) resistance 1, interferon-inducible protein p78 (mouse)	http://people.bu.edu/gilmore/nf-kb/target/index.html
GBP1	guanylate binding protein 1, interferon-inducible, 67kDa	http://people.bu.edu/gilmore/nf-kb/target/index.html
KLF10	Kruppel-like factor 10	http://people.bu.edu/gilmore/nf-kb/target/index.html
IRF1	interferon regulatory factor 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
IGFBP2	insulin-like growth factor binding protein 2, 36kDa	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL8	interleukin 8	http://people.bu.edu/gilmore/nf-kb/target/index.html
GCLC	glutamate-cysteine ligase, catalytic subunit	http://people.bu.edu/gilmore/nf-kb/target/index.html
SOX9	SRY (sex determining region Y)-box 9 (campomelic dysplasia, autosomal sex-reversal)	http://people.bu.edu/gilmore/nf-kb/target/index.html
STAT5A	signal transducer and activator of transcription 5A	http://people.bu.edu/gilmore/nf-kb/target/index.html
THBS2	thrombospondin 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
UBE2M	ubiquitin-conjugating enzyme E2M (UBC12 homolog, yeast)	http://people.bu.edu/gilmore/nf-kb/target/index.html
UPP1	uridine phosphorylase 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
IRF2	interferon regulatory factor 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
APOE	apolipoprotein E	http://people.bu.edu/gilmore/nf-kb/target/index.html
ABCA1	ATP-binding cassette, sub-family A (ABC1), member 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
BCL2	B-cell CLL/lymphoma 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
DIO2	deiodinase, iodothyronine, type II	http://people.bu.edu/gilmore/nf-kb/target/index.html
VCAM1	vascular cell adhesion molecule 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
GCLM	glutamate-cysteine ligase, modifier subunit	http://people.bu.edu/gilmore/nf-kb/target/index.html
MMP9	matrix metallopeptidase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)	http://people.bu.edu/gilmore/nf-kb/target/index.html
CD48	CD48 antigen (B-cell membrane protein)	http://people.bu.edu/gilmore/nf-kb/target/index.html
PDGFB	platelet-derived growth factor beta polypeptide (simian sarcoma viral (v-sis) oncogene homolog)	http://people.bu.edu/gilmore/nf-kb/target/index.html
TRAF2	TNF receptor-associated factor 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
IFI44L	interferon-induced protein 44-like	http://people.bu.edu/gilmore/nf-kb/target/index.html
CD83	CD83 antigen (activated B lymphocytes, immunoglobulin superfamily)	http://people.bu.edu/gilmore/nf-kb/target/index.html
CXCL1	chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating activity, alpha)	http://people.bu.edu/gilmore/nf-kb/target/index.html
IRF4	interferon regulatory factor 4	http://people.bu.edu/gilmore/nf-kb/target/index.html
TFF3	trefoil factor 3 (intestinal)	http://people.bu.edu/gilmore/nf-kb/target/index.html
MUC2	mucin 2, intestinal/tracheal	http://people.bu.edu/gilmore/nf-kb/target/index.html
AFP	alpha-fetoprotein	http://people.bu.edu/gilmore/nf-kb/target/index.html
FAS	Fas (TNF receptor superfamily, member 6)	http://people.bu.edu/gilmore/nf-kb/target/index.html
UGCG	UDP-glucose ceramide glucosyltransferase	http://people.bu.edu/gilmore/nf-kb/target/index.html
TLR2	toll-like receptor 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
PLK3	polo-like kinase 3 (Drosophila)	http://people.bu.edu/gilmore/nf-kb/target/index.html
CD40	CD40 antigen (TNF receptor superfamily member 5)	http://people.bu.edu/gilmore/nf-kb/target/index.html
RELB	v-rel reticuloendotheliosis viral oncogene homolog B, nuclear factor of kappa light polypeptide gene enhancer in B-cells 3 (avian)	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL6	interleukin 6 (interferon, beta 2)	http://people.bu.edu/gilmore/nf-kb/target/index.html
GAD1	glutamate decarboxylase 1 (brain, 67kDa)	http://people.bu.edu/gilmore/nf-kb/target/index.html
IGFBP1	insulin-like growth factor binding protein 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
PRL	prolactin	http://people.bu.edu/gilmore/nf-kb/target/index.html
TRAF1	TNF receptor-associated factor 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
CD86	CD86 antigen (CD28 antigen ligand 2, B7-2 antigen)	http://people.bu.edu/gilmore/nf-kb/target/index.html
CD38	CD38 antigen (p45)	http://people.bu.edu/gilmore/nf-kb/target/index.html
POMC	proopiomelanocortin (adrenocorticotropin/ beta-lipotropin/ alpha-melanocyte stimulating hormone/ beta-melanocyte stimulating hormone/ beta-endorphin)	http://people.bu.edu/gilmore/nf-kb/target/index.html
APOC3	apolipoprotein C-III	http://people.bu.edu/gilmore/nf-kb/target/index.html
MMP3	matrix metallopeptidase 3 (stromelysin 1, progelatinase)	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL15	interleukin 15	http://people.bu.edu/gilmore/nf-kb/target/index.html
WT1	Wilms tumor 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
PTX3	pentraxin-related gene, rapidly induced by IL-1 beta	http://people.bu.edu/gilmore/nf-kb/target/index.html
APOBEC2	apolipoprotein B mRNA editing enzyme, catalytic polypeptide-like 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
MAP4K1	mitogen-activated protein kinase kinase kinase kinase 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCR7	chemokine (C-C motif) receptor 7	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL2RA	interleukin 2 receptor, alpha	http://people.bu.edu/gilmore/nf-kb/target/index.html
CDX1	caudal type homeo box transcription factor 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
RAG1	recombination activating gene 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
P11	26 serine protease	http://people.bu.edu/gilmore/nf-kb/target/index.html
TFEC	transcription factor EC	http://people.bu.edu/gilmore/nf-kb/target/index.html
FCER2	Fc fragment of IgE, low affinity II, receptor for (CD23A)	http://people.bu.edu/gilmore/nf-kb/target/index.html
MTHFR	5,10-methylenetetrahydrofolate reductase (NADPH)	http://people.bu.edu/gilmore/nf-kb/target/index.html
PDYN	prodynorphin	http://people.bu.edu/gilmore/nf-kb/target/index.html
CD3G	CD3G antigen, gamma polypeptide (TiT3 complex)	http://people.bu.edu/gilmore/nf-kb/target/index.html
OXTR	oxytocin receptor	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL11	interleukin 11	http://people.bu.edu/gilmore/nf-kb/target/index.html
LTA	lymphotoxin alpha (TNF superfamily, member 1)	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCR5	chemokine (C-C motif) receptor 5	http://people.bu.edu/gilmore/nf-kb/target/index.html
GIF	gastric intrinsic factor (vitamin B synthesis)	http://people.bu.edu/gilmore/nf-kb/target/index.html
CSF1	colony stimulating factor 1 (macrophage)	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL12A	interleukin 12A (natural killer cell stimulatory factor 1, cytotoxic lymphocyte maturation factor 1, p35)	http://people.bu.edu/gilmore/nf-kb/target/index.html
CD80	CD80 antigen (CD28 antigen ligand 1, B7-1 antigen)	http://people.bu.edu/gilmore/nf-kb/target/index.html
TNIP1	TNFAIP3 interacting protein 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
EPO	erythropoietin	http://people.bu.edu/gilmore/nf-kb/target/index.html
LTB	lymphotoxin beta (TNF superfamily, member 3)	http://people.bu.edu/gilmore/nf-kb/target/index.html
CYP7B1	cytochrome P450, family 7, subfamily B, polypeptide 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL10	interleukin 10	http://people.bu.edu/gilmore/nf-kb/target/index.html
NFKB2	nuclear factor of kappa light polypeptide gene enhancer in B-cells 2 (p49/p100)	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL13	interleukin 13	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL2	interleukin 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
CXCL5	chemokine (C-X-C motif) ligand 5	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCL22	chemokine (C-C motif) ligand 22	http://people.bu.edu/gilmore/nf-kb/target/index.html
MADCAM1	mucosal vascular addressin cell adhesion molecule 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
REV3L	REV3-like, catalytic subunit of DNA polymerase zeta (yeast)	http://people.bu.edu/gilmore/nf-kb/target/index.html
PTGIS	prostaglandin I2 (prostacyclin) synthase	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL9	interleukin 9	http://people.bu.edu/gilmore/nf-kb/target/index.html
IL1A	interleukin 1, alpha	http://people.bu.edu/gilmore/nf-kb/target/index.html
PGR	progesterone receptor	http://people.bu.edu/gilmore/nf-kb/target/index.html
IRF7	interferon regulatory factor 7	http://people.bu.edu/gilmore/nf-kb/target/index.html
FGF8	fibroblast growth factor 8 (androgen-induced)	http://people.bu.edu/gilmore/nf-kb/target/index.html
BAX	BCL2-associated X protein	http://people.bu.edu/gilmore/nf-kb/target/index.html
ABCC6	ATP-binding cassette, sub-family C (CFTR/MRP), member 6	http://people.bu.edu/gilmore/nf-kb/target/index.html
SERPINA2	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCND1	cyclin D1	http://people.bu.edu/gilmore/nf-kb/target/index.html
TAPBP	TAP binding protein (tapasin)	http://people.bu.edu/gilmore/nf-kb/target/index.html
LGALS3	lectin, galactoside-binding, soluble, 3 (galectin 3)	http://people.bu.edu/gilmore/nf-kb/target/index.html
UCP2	uncoupling protein 2 (mitochondrial, proton carrier)	http://people.bu.edu/gilmore/nf-kb/target/index.html
PIM1	pim-1 oncogene	http://people.bu.edu/gilmore/nf-kb/target/index.html
GADD45B	growth arrest and DNA-damage-inducible, beta	http://people.bu.edu/gilmore/nf-kb/target/index.html
RIPK2	receptor-interacting serine-threonine kinase 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
ADAM19	ADAM metallopeptidase domain 19 (meltrin beta)	http://people.bu.edu/gilmore/nf-kb/target/index.html
CD69	CD69 antigen (p60, early T-cell activation antigen)	http://people.bu.edu/gilmore/nf-kb/target/index.html
HGF	hepatocyte growth factor (hepapoietin A; scatter factor)	http://people.bu.edu/gilmore/nf-kb/target/index.html
ABCB1	ATP-binding cassette, sub-family B (MDR/TAP), member 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
UPK1B	uroplakin 1B	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCL11	chemokine (C-C motif) ligand 11	http://people.bu.edu/gilmore/nf-kb/target/index.html
CXCL11	chemokine (C-X-C motif) ligand 11	http://people.bu.edu/gilmore/nf-kb/target/index.html
GZMB	granzyme B (granzyme 2, cytotoxic T-lymphocyte-associated serine esterase 1)	http://people.bu.edu/gilmore/nf-kb/target/index.html
XDH	xanthine dehydrogenase	http://people.bu.edu/gilmore/nf-kb/target/index.html
IFNG	interferon, gamma	http://people.bu.edu/gilmore/nf-kb/target/index.html
ICOS	inducible T-cell co-stimulator	http://people.bu.edu/gilmore/nf-kb/target/index.html

FN1	fibronectin 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
ERBB2	v-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)	http://people.bu.edu/gilmore/nf-kb/target/index.html
KITLG	KIT ligand	http://people.bu.edu/gilmore/nf-kb/target/index.html
FASLG	Fas ligand (TNF superfamily, member 6)	http://people.bu.edu/gilmore/nf-kb/target/index.html
HLA-G	HLA-G histocompatibility antigen, class I, G	http://people.bu.edu/gilmore/nf-kb/target/index.html
TGM2	transglutaminase 2 (C polypeptide, protein-glutamine-gamma-glutamyltransferase)	http://people.bu.edu/gilmore/nf-kb/target/index.html
NR3C1	nuclear receptor subfamily 3, group C, member 1 (glucocorticoid receptor)	http://people.bu.edu/gilmore/nf-kb/target/index.html
PENK	proenkephalin	http://people.bu.edu/gilmore/nf-kb/target/index.html
PAX8	paired box gene 8	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCL2	chemokine (C-C motif) ligand 2	http://people.bu.edu/gilmore/nf-kb/target/index.html
S100A6	S100 calcium binding protein A6 (calcyclin)	http://people.bu.edu/gilmore/nf-kb/target/index.html
EDN1	endothelin 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
HPSE	heparanase	http://people.bu.edu/gilmore/nf-kb/target/index.html
SNAI1	snail homolog 1 (Drosophila)	http://people.bu.edu/gilmore/nf-kb/target/index.html
KCNK5	potassium channel, subfamily K, member 5	http://people.bu.edu/gilmore/nf-kb/target/index.html
ABCG5	ATP-binding cassette, sub-family G (WHITE), member 5 (sterolin 1)	http://people.bu.edu/gilmore/nf-kb/target/index.html
F11R	F11 receptor	http://people.bu.edu/gilmore/nf-kb/target/index.html
G6PD	glucose-6-phosphate dehydrogenase	http://people.bu.edu/gilmore/nf-kb/target/index.html
ORM1	orosomucoid 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
ADORA1	adenosine A1 receptor	http://people.bu.edu/gilmore/nf-kb/target/index.html
C4BPA	complement component 4 binding protein, alpha	http://people.bu.edu/gilmore/nf-kb/target/index.html
HAS1	hyaluronan synthase 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
REL	v-rel reticuloendotheliosis viral oncogene homolog (avian)	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCL3	chemokine (C-C motif) ligand 3	http://people.bu.edu/gilmore/nf-kb/target/index.html
CCL4	chemokine (C-C motif) ligand 4	http://people.bu.edu/gilmore/nf-kb/target/index.html
CFLAR	CASP8 and FADD-like apoptosis regulator	http://people.bu.edu/gilmore/nf-kb/target/index.html
PRF1	perforin 1 (pore forming protein)	http://people.bu.edu/gilmore/nf-kb/target/index.html
HBE1	hemoglobin, epsilon 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
C4A	complement component 4A	http://people.bu.edu/gilmore/nf-kb/target/index.html
OLR1	oxidised low density lipoprotein (lectin-like) receptor 1	http://people.bu.edu/gilmore/nf-kb/target/index.html
AGT	angiotensinogen (serpin peptidase inhibitor, clade A, member 8)	http://people.bu.edu/gilmore/nf-kb/target/index.html

Table S2.

Leading edge core set of NF-kB target genes, which are differentially enriched in MALT lymphoma with t(11;18) vs. no translocation

Rank	Gene	Description	Chromosome Band	Entrez ID	Signal to noise ratio	Enrichment Score
Expression of genes enriched in translocation negative MALT lymphoma						
1	PLAU	plasminogen activator, urokinase	10q24	5328	0.759	0.018
2	PTGS2	prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthas	1q25.2-q25.3	5743	0.714	0.034
3	NR4A3	nuclear receptor subfamily 4, group A, member 3	9q22	8013	0.687	0.050
4	IL8	interleukin 8	4q13-q21	3576	0.670	0.065
5	CXCL2	chemokine (C-X-C motif) ligand 2	4q21	2920	0.658	0.080
6	CXCL1	chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating a	4q21	2919	0.597	0.092
7	DEFB4	defensin, beta 4	8p23.1-p22	1673	0.562	0.104
8	CXCL5	chemokine (C-X-C motif) ligand 5	4q12-q13	6374	0.527	0.113
9	CD86	CD86 molecule	3q21	942	0.497	0.120
10	BDKRB1	bradykinin receptor B1	14q32.1-q32.2	623	0.475	0.127
11	CCL2	chemokine (C-C motif) ligand 2	17q11.2-q12	6347	0.469	0.137
12	ICOS	inducible T-cell co-stimulator	2q33	29851	0.455	0.145
13	IL1RN	interleukin 1 receptor antagonist	2q14.2	3557	0.451	0.155
14	SDC4	syndecan 4	20q12	6385	0.448	0.165
15	IL1B	interleukin 1, beta	2q14	3553	0.433	0.172
16	MMP3	matrix metallopeptidase 3 (stromelysin 1, progelatinase)	11q22.3	4314	0.416	0.176
17	NR4A2	nuclear receptor subfamily 4, group A, member 2	2q22-q23	4929	0.401	0.180
18	PTAFR	platelet-activating factor receptor	1p35-p34.3	5724	0.393	0.185
19	CYP7B1	cytochrome P450, family 7, subfamily B, polypeptide 1	8q21.3	9420	0.393	0.194
20	TLR2	toll-like receptor 2	4q32	7097	0.384	0.198
21	IGFBP2	insulin-like growth factor binding protein 2, 36kDa	2q33-q34	3485	0.379	0.206
22	SOD2	superoxide dismutase 2, mitochondrial	6q25.3	6648	0.376	0.213
23	TFF3	trefoil factor 3 (intestinal)	21q22.3	7033	0.376	0.222
24	DIO2	deiodinase, iodothyronine, type II	14q24.2-q24.3	1734	0.366	0.226
25	CCND1	cyclin D1	11q13	595	0.364	0.233
26	FCER2	Fc fragment of IgE, low affinity II, receptor for (CD23)	19p13.3	2208	0.362	0.240
27	GADD45B	growth arrest and DNA-damage-inducible, beta	19p13.3	4616	0.354	0.244
28	TNC	tenascin C	9q33	3371	0.351	0.251
29	GZMB	granzyme B (granzyme 2, cytotoxic T-lymphocyte-associated serine	14q11.2	3002	0.351	0.259
30	PTGIS	prostaglandin I2 (prostacyclin) synthase	20q13.13	5740	0.344	0.264
31	PAX8	paired box 8	2q12-q14	7849	0.324	0.258
32	SERPINA1	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitryps	14q32.1	5265	0.322	0.264
33	PTX3	pentraxin-related gene, rapidly induced by IL-1 beta	3q25	5806	0.321	0.271
34	BMP2	bone morphogenetic protein 2	20p12	650	0.306	0.268
35	PENK	proenkephalin	8q23-q24	5179	0.305	0.274
36	CCL11	chemokine (C-C motif) ligand 11	17q21.1-q21.2	6356	0.291	0.269
37	KITLG	KIT ligand	12q22	4254	0.29	0.274
38	BGN	biglycan	Xq28	633	0.288	0.278
39	ADH1A	alcohol dehydrogenase 1A (class I), alpha polypeptide	4q21-q23	124	0.275	0.273
40	IL11	interleukin 11	19q13.3-q13.4	3589	0.272	0.276
41	EGFR	epidermal growth factor receptor (erythroblastic leukemia viral (v-e	7p12	1956	0.272	0.282
42	TEAD1	TEA domain family member 1 (SV40 transcriptional enhancer facto	11p15.2	7003	0.272	0.288
43	THBS2	thrombospondin 2	6q27	7058	0.266	0.289
44	FAS	Fas (TNF receptor superfamily, member 6)	10q24.1	355	0.264	0.294
45	APOC3	apolipoprotein C-III	11q23.1-q23.2	345	0.247	0.279
46	CCL22	chemokine (C-C motif) ligand 22	16q13	6367	0.245	0.284
47	IL13	interleukin 13	5q31	3596	0.239	0.282
48	KCNK5	potassium channel, subfamily K, member 5	6p21	8645	0.237	0.286
49	ELF3	E74-like factor 3 (ets domain transcription factor, epithelial-specific	1q32.2	1999	0.23	0.282
50	TNFRSF9	tumor necrosis factor receptor superfamily, member 9	1p36	3604	0.229	0.286
51	HPSE	heparanase	4q21.3	10855	0.228	0.29
52	IER3	immediate early response 3	6p21.3	8870	0.224	0.292
53	AKR1C2	aldo-keto reductase family 1, member C2 (dihydrodiol dehydrogena	10p15-p14	1646	0.224	0.298
54	PLK3	polo-like kinase 3 (Drosophila)	1p34.1	1263	0.22	0.298
55	BCL2L1	BCL2-like 1	20q11.21	598	0.214	0.295
56	FN1	fibronectin 1	2q34	2335	0.212	0.298
57	UPP1	uridine phosphorylase 1	7p12.3	7378	0.21	0.299
58	GBP1	guanylate binding protein 1, interferon-inducible, 67kDa	1p22.2	2633	0.208	0.302
59	UBE2M	ubiquitin-conjugating enzyme E2M (UBC12 homolog, yeast)	19q13.43	9040	0.205	0.302
60	JUNB	jun B proto-oncogene	19p13.2	3726	0.203	0.304
61	PIM1	pim-1 oncogene	6p21.2	5292	0.203	0.309
62	BNIP3	BCL2/adenovirus E1B 19kDa interacting protein 3	10q26.3	664	0.201	0.312

Expression of genes enriched in translocation positive MALT lymphoma

94	TNFSF13B	tumor necrosis factor (ligand) superfamily, member 13b	13q32-q34	10673	0.066	0.208
95	BCL3	B-cell CLL/lymphoma 3	19q13.1-q13.2	602	0.064	0.205
96	SUV39H1	suppressor of variegation 3-9 homolog 1 (Drosophila)	Xp11.23	6839	0.062	0.204
97	TP53	tumor protein p53	17p13.1	7157	0.045	0.175
98	UPK1B	uroplakin 1B	3q13.3-q21	7348	0.040	0.169
99	BACE2	beta-site APP-cleaving enzyme 2	21q22.3	25825	0.030	0.150
100	CYP2E1	cytochrome P450, family 2, subfamily E, polypeptide 1	10q24.3-qter	1571	0.027	0.147
101	IL15RA	interleukin 15 receptor, alpha	10p15-p14	3601	0.027	0.147
102	KLF10	Kruppel-like factor 10	8q22.2	7071	0.026	0.146
103	ABCB1	ATP-binding cassette, sub-family B (MDR/TAP), member 1	7q21.12	5243	0.021	0.139
104	IL2RA	interleukin 2 receptor, alpha	10p15-p14	3559	0.013	0.125
105	CD83	CD83 molecule	6p23	9308	0.006	0.112
106	MMP9	matrix metallopeptidase 9 (gelatinase B, 92kDa gelatinase, 92kDa t	20q11.2-q13.1	4318	-0.011	0.082
107	PGK1	phosphoglycerate kinase 1	Xq13	5230	-0.013	0.079
108	PIM2	pim-2 oncogene	Xp11.23	11040	-0.015	0.077
109	CD80	CD80 molecule	3q13.3-q21	941	-0.016	0.076
110	BAX	BCL2-associated X protein	19q13.3-q13.4	581	-0.019	0.071
111	C4BPA	complement component 4 binding protein, alpha	1q32	722	-0.020	0.069
112	ENG	endoglin	9q33-q34.1	2022	-0.023	0.066
113	AGER	advanced glycosylation end product-specific receptor	6p21.3	177	-0.027	0.0593
114	OLR1	oxidized low density lipoprotein (lectin-like) receptor 1	12p13.2-p12.3	4973	-0.0325	0.0499
115	HMOX1	heme oxygenase (decycling) 1	22q12	3162	-0.0349	0.0477
116	ENO2	enolase 2 (gamma, neuronal)	12p13	2026	-0.0369	0.0447
117	IL15	interleukin 15	4q31	3600	-0.0438	0.0351
118	SELP	selectin P (granule membrane protein 140kDa, antigen CD62)	1q22-q25	6403	-0.0479	0.0293
119	CXCL13	chemokine (C-X-C motif) ligand 13	4q21	10563	-0.0497	0.0271
120	TNFSF11	tumor necrosis factor (ligand) superfamily, member 11	13q14	8600	-0.0521	0.0243
121	TNFAIP3	tumor necrosis factor, alpha-induced protein 3	6q23	7128	-0.0572	0.0185
122	CFLAR	CASP8 and FADD-like apoptosis regulator	2q33-q34	8837	-0.0588	0.018
123	APOE	apolipoprotein E	19q13.2	348	-0.0591	0.0187
124	CCL5	chemokine (C-C motif) ligand 5	17q11.2-q12	6352	-0.0606	0.0175
125	IL32	interleukin 32	16p13.3	9235	-0.0716	0.000704
126	IL6	interleukin 6 (interferon, beta 2)	7p21	3569	-0.0733	-0.000587
127	CXCL9	chemokine (C-X-C motif) ligand 9	4q21	4283	-0.0835	-0.0169
128	MADCAM1	mucosal vascular addressin cell adhesion molecule 1	19p13.3	8174	-0.0837	-0.0151
129	NFKB1	nuclear factor of kappa light polypeptide gene enhancer in B-cells 1	4q24	4790	-0.0842	-0.0138
130	CCND3	cyclin D3	6p21	896	-0.086	-0.0144
131	GCLC	glutamate-cysteine ligase, catalytic subunit	6p12	2729	-0.0932	-0.0226
132	BLR1	CXCR5 (Chemotactic cytokine) 5	11q23.3	643	-0.102	-0.0357
133	CTSB	cathepsin B	8p22	1508	-0.107	-0.0403
134	CD3G	CD3g molecule, gamma (CD3-TCR complex)	11q23	917	-0.114	-0.0476
135	MYC	v-myc myelocytomatosis viral oncogene homolog (avian)	8q24.21	4609	-0.117	-0.0509
136	CCR5	chemokine (C-C motif) receptor 5	3p21.31	1234	-0.122	-0.0555
137	RELB	v-rel reticuloendotheliosis viral oncogene homolog B	19q13.32	5971	-0.124	-0.0565
138	GCLM	glutamate-cysteine ligase, modifier subunit	1p22.1	2730	-0.132	-0.0646
139	STAT5A	signal transducer and activator of transcription 5A	17q11.2	6776	-0.141	-0.0746
140	CXCL12	chemokine (C-X-C motif) ligand 12 (stromal cell-derived factor 1)	10q11.1	6387	-0.142	-0.0718
141	TNFRSF10B	tumor necrosis factor receptor superfamily, member 10b	8p22-p21	8795	-0.145	-0.0732
142	PTGDS	prostaglandin D2 synthase 21kDa (brain)	9q34.2-q34.3	5730	-0.15	-0.0784
143	KLK3	kallikrein-related peptidase 3	19q13.41	354	-0.167	-0.0961
144	TPMT	thiopurine S-methyltransferase	6p22.3	7172	-0.172	-0.0992
145	VCAM1	vascular cell adhesion molecule 1	1p32-p31	7412	-0.175	-0.0986
146	TNF	tumor necrosis factor (TNF superfamily, member 2)	6p21.3	7124	-0.182	-0.105
147	CCL14	chemokine (C-C motif) ligand 14	17q12	6358	-0.186	-0.103
148	CD74	CD74 molecule, major histocompatibility complex, class II invarian	5q32	972	-0.188	-0.101
149	ADAM19	ADAM metallopeptidase domain 19 (meltrin beta)	5q32-q33	8728	-0.19	-0.0977
150	CXCL10	chemokine (C-X-C motif) ligand 10	4q21	3627	-0.203	-0.106
151	UCP2	uncoupling protein 2 (mitochondrial, proton carrier)	11q13	7351	-0.205	-0.103
152	CD44	CD44 molecule (Indian blood group)	11p13	960	-0.209	-0.101
153	BCL2A1	BCL2-related protein A1	15q24.3	597	-0.22	-0.108
154	CD48	CD48 molecule	1q21.3-q22	962	-0.239	-0.124
155	NR3C1	nuclear receptor subfamily 3, group C, member 1 (glucocorticoid re	5q31.3	2908	-0.243	-0.121
156	BCL10	B-cell CLL/lymphoma 10	1p22	8915	-0.292	-0.153
157	IRF3	interferon regulatory factor 3	19q13.3-q13.4	3661	-0.294	-0.147
158	MAP4K1	mitogen-activated protein kinase kinase kinase kinase 1	19q13.1-q13.4	11184	-0.302	-0.145
159	CD40	CD40 molecule, TNF receptor superfamily member 5	20q12-q13.2	958	-0.307	-0.141

160	CCL21	chemokine (C-C motif) ligand 21	9p13	6366	-0.335	-0.15
161	CCL19	chemokine (C-C motif) ligand 19	9p13	6363	-0.336	-0.143
162	IFI44L	interferon-induced protein 44-like	1p31.1	10964	-0.354	-0.144
163	CXCR4	chemokine (C-X-C motif) receptor 4	2q21	7852	-0.362	-0.14
164	PRDM2	PR domain containing 2, with ZNF domain	1p36.21	7799	-0.414	-0.147
165	REL	v-rel reticuloendotheliosis viral oncogene homolog (avian)	2p13-p12	5966	-0.422	-0.139
166	IRF2	interferon regulatory factor 2	4q34.1-q35.1	3660	-0.425	-0.13
167	MX1	myxovirus (influenza virus) resistance 1, interferon-inducible protei	21q22.3	4599	-0.428	-0.121
168	LTB	lymphotoxin beta (TNF superfamily, member 3)	6p21.3	4050	-0.438	-0.114
169	IRF7	interferon regulatory factor 7	11p15.5	3665	-0.452	-0.106
170	TLR6	toll-like receptor 6	4p14	10333	-0.453	-0.0952
171	BCL2	B-cell CLL/lymphoma 2	18q21.3	596	-0.462	-0.0858
172	BCL2L10	BCL2-like 10 (apoptosis facilitator)	15q21	10017	-0.463	-0.0751
173	CCR7	chemokine (C-C motif) receptor 7	17q12-q21.2	1236	-0.483	-0.0667
174	IRF4	interferon regulatory factor 4	6p25-p23	3662	-0.491	-0.0557
175	CCR2B	chemokine (C-C motif) receptor 2 isoform B	3p21.31	729230	-0.526	-0.0479
176	TFEC	transcription factor EC	7q31.2	22797	-0.67	-0.0404
177	CD69	CD69 molecule	12p13-p12	969	-0.717	-0.0252
178	CCR2A	chemokine (C-C motif) receptor 2 isoform A	3p21.31	729230	-1.13	-0.000728

SUPPLEMENTARY TABLE LEGENDS

Table S1. NF-κB target genes. Genes were collated from an online data base (http://www.NF-kB.org) published works (http://bioinfo.lifl.fr/NF-KB, http://people.bu.edu/gilmore/nf-kb/target/index.html), and careful bioinformatic search. Noncanonical NF-κB target genes (highlighted in yellow) were identified according to previous investigations (*11, 14-21*).

Table S2. Leading edge core set of NF-κB target genes that are differentially enriched in MALT lymphomas with t(11;18) vs. no translocation. Noncanonical NF-κB target genes (*11, 14-21*) are highlighted in yellow.

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