

SUPPLEMENTARY TABLES FOR MATERIALS AND METHODS.

Suppl. Table 1. DNA fragments synthesized and inserted into MSCV-CD19-IRES-DsRedFP via EcoRI/BglIII or BglIII/XhoI digestion, and later moved into pMX-IRES-Blast via EcoRI/XhoI cloning.

| EcoRI/BglIII CD19-Δex2 (5'→3') |
|--|
| GAATTCACCACCATGCCACCTCCTCGCTCCTCTTCTTCTCCTCCTCCTCACCCCCATGGAAGTCAGGCCCGAGGAACCTCTAGT GGTGAAGGTGGAAGAGGAGCTGTCCGGTGAATGTTTCGGACCTAGGTGGCCTGGGCTGTGGCCTGAAGAACAGGTCCCTC AGAGGGCCCCAGCTCCCCTCCGGGAAGCTCATGAGCCCCAAGCTGTATGTGTGGGCCAAAGACCGCCTGAGATCT |
| BglIII/XhoI CD19-Δex5-6 (5'→3') |
| AGATCTGGGAGGGAGAGCCTCCGTGTCTCCACCGAGGGACAGCCTGAACCAGAGCCTCAGCCAGGACCTCACCATGGCCCC TGGCTCCACTCTGGCTGTCTGTGGGGTACCCCTGACTCTGTGTCCAGGGGGCCCCCTCCTGGACCATGTGCACCCCAA GGGGCCTAAGTATTGCTGAGCCTAGAGCTGAAGGACGATCGCCCGCCAGAGATATGTGGGTAATGGAGACGGGTCTGTTG TTGCCCCGGCCACAGCTCAAGACGCTGGAAAGTATTATTGTACCGTGGCAACCTGACCATGTCATTCCACCTGGAGATCACT GCTCGGCCAGATTCTCAAAGTGACGCCTCCCCAGGAAGCGGGCCCCAGAACCAGTACGGGAACGTGCTGTCTCTCCCA CCCACCTCAGGCCTCGGACGCGCCAGCGTTGGGGCCGAGGCCTGGGGGGCACTGCCCGTCTTATGGAAACCCGAGCAGCG ACGTCCAGGCGGATGGAGCCTTGGGGTCCCGAGCCCGGGGAGTGGGCCAGAGAAGAAGAGGAAGGGGAGGGCTATGAG GAACCTGACAGTGAGGAGGACTCCGAGTTCTATGAGAACGACTCAAACCTTGGGCAGGACCAGCTCTCCAGGATGGCAGCG GCTACGAGAACCCTGAGGATGAGCCCCCTGGGTCTGAGGATGAAGACTCCTTCTCAACGCTGAGTCTTATGAGAACGAGGAT GAAGAGCTGACCCAGCCGGTCCGAGGACAATGGACTTCTGAGCCTCATGGGTGAGCCTGGGACCCAGCCGGGAAGCAA CCTCCTGGGGTCCCAGTCTATGAGGATATGAGAGGAATCTGTATGCAGCCCCCAGCTCCGCTCCATTCCGGGGCCAGCCT GGACCCAATCATGAGGAAGATGCAGACTTATGAGAACATGGATAATCCCGATGGGCCAGACCCAGCCTGGGGAGGAGGG GGCCGCATGGGCACCTGGAGCACCAGGTGATCCTCAGGTGGCCAGCCTGGATCTCCTCGAG |

Suppl. Table 2. Sets of primers used for PCR amplification and Sanger sequencing of CD19 gene and the upstream -1.2Kb enhancer and promoter regions.

| Region CD19 gene | Direction | Sequence (5' to 3') |
|-------------------------|------------------|----------------------------|
| Enhancer | Fwd | GCAGGGGAATGACATGCTCT |
| | Rev | ATTAGCCCAGTGTCAGCAC |
| Promoter | Fwd | ATGATGTGCTGGACTGGG |
| | Rev | TCCCTGCCACGCTGTTTTAT |
| Promoter-Exon2 | Fwd | TCTACTCCAAGGGGCTCACA |
| | Rev | ACTGCAGCACAGCGTTATCT |
| Exon1-exon4 | Fwd | GGAGAGTCTGACCACCATGC |
| | Rev | GGACACAGAGTCAGGGGGTA |
| Exon3-intron4 | Fwd | GAGCCCCAAGCTGTATGTGT |
| | Rev | GAAGTTGGGGTTTGGGGTGA |
| Intron4 | Fwd | TCCCTCGCTTCCAAGACAC |
| | Rev | GGGATTGTACAGACCCTGG |
| Intron4-Intron5 | Fwd | TGCCAGGGTCTGTGACAATC |
| | Rev | AGGCTAGAGGAAGACTGGGG |
| Intron5-Intron6 | Fwd | CCCCAGTCTTCTTAGCCT |
| | Rev | GAAGAGGAAGTGCACGGTGA |
| exon6-exon8 | Fwd | AATGACTGACCCACAGGA |
| | Rev | TGCTCGGGTTTCCATAAGAC |
| Intron7-Intron12 | Fwd | GAAGTTCGCCCCAGAACTGA |
| | Rev | AAGCTGCAGAGTAAGCTGGG |
| exon12-exon15 | Fwd | CAGCCGGGAAGCAACCT |
| | Rev | ATTGCTCCAGAGGTTGGCAT |

Suppl. Table 3. Sets of primers for the analysis of CpG-Methylation status after bisulfite modification of genomic DNA.

| Region | Direction | Sequence (5' to 3') |
|-----------------|-----------|--------------------------------|
| CD19 Enhancer 1 | Fwd | AATTTTGTTTTAAAGGATTTTT |
| | Rev | CTACAAATAACAAAACCTCCACTTC |
| CD19-Enhancer 2 | Fwd | TTGGGTTTTTTAAAATAATTTTTTTT |
| | Rev | AACAAAACCAAACACAATAATACAC |
| CD19-Promoter 1 | Fwd | AGTTTTATTTTGGTGTTAGGTTGG |
| | Rev | AAACACATAAACTCCTTCTCAAAA |
| CD19-Promoter 2 | Fwd | TTTGTGTAGAAAATAGAAATGAATAAATAA |
| | Rev | AACAAAACCTAAAAAACAACACTCAAC |
| CD19-Exon1 | Fwd | GTAGATATTTATGGTTGAGTGTTTTTTAGG |
| | Rev | TTCTAAATTTTACAAATAAAAAATAAAA |
| HOXA3 | Fwd | GGTTTTATTAGATTTTGGGGTTTT |
| | Rev | TAATATCTCTACAACCTTCCCAAC |

Suppl. Table 4. Sets of primers used for radioactive semiquantitative PCR analysis of CD19 mRNA isoforms.

| Region | Direction | Sequence (5' to 3') | Full Length | Δ ex2 | Δ ex5-6 |
|----------|-----------|---------------------------|-------------|--------------|----------------|
| Exon 1-4 | Fwd | CCGAGGAACCTCTAGTGGTGAAGG | 544bp | 268bp | |
| | Rev | CCACAGGACAGCCAGAGTGTGGA | | | |
| Exon 4-8 | Fwd | CCTAAGTCATTGCTGAGCCTAGAGC | 487bp | | 327bp |
| | Rev | CGCTGCTCGGGTTTCCATAAGACG | | | |

Suppl. Table 5: Sequence of the mini-gene expanding exon2 and 220nt of its flanking introns that was synthesized (Genewiz) and inserted into pBSKii+ via XhoI/NotI cloning.

XhoI/NotI CD19-int1-ex2-int2 (5'→3')

CTCGAGGAAGGGATTGAGGCTGGAACTTGAGTTGTGGCTGGGTGTCCTTGGCTGAGTAACTTACCCTCTCTGAGCCTCCATT
 TTCTATTTGTAATAATCAGGAAAGGGTTGGAAGGACTCTGCCGGCTCCTCCACTCCCAGCTTTTGGAGTCTCTGCTCTATAAC
 CTGGTGTGAGGAGTCGGGGGGCTTGGAGGTCCCCCACCATGCCACACCTCTCCTCTCTCCACAGAGGGAGATAA
 CGCTGTGCTGCAGTGCCTCAAGGGGACCTCAGATGGCCCCACTCAGCAGCTGACCTGGTCTCGGGAGTCCCGCTTAAACCCT
 TCTTAAACTCAGCCTGGGGCTGCCAGGCCTGGGAATCCACATGAGGCCCTGGCCATCTGGCTTTTCATCTTCAACGTCTCTC
 AACAGATGGGGGGCTTACCTGTGCCAGCCGGGGCCCCCTCTGAGAAGGCCTGGCAGCCTGGCTGGACAGTCAATGTGGA
 GGGCAGCGGTGAGGGCCGGGCTGGGGCAGGGGCAGGAGGAGAGAAGGGAGGCCACCATGGACAGAAGAGGTCCGCGGCC
 ACAATGGAGCTGGAGAGAGGGGCTGGAGGGATTGAGGGCGAAACTCGGAGCTAGGTGGGCAGACTCCTGGGGCTTCTGTG
 CTTAGTATGAGCTGCTCCTGTCCCTCTACCTCTCACTGTCTCTCTCTCTGCGGGTCTTTGTCTCTATTTATCTCTGTGCGGC
 CGC

Suppl. Table 6. Antibodies used for pull down assays for the identification of splicing factors that bind to the CD19-int1-exon2-int2 mini-gene

| Antibody | Company | Catalog # |
|-------------|-----------------------|-----------|
| PTB | Calbiochem | NA63 |
| NOVA1 | Abcam | ab77594 |
| HuR/D | Santa Cruz | sc-5261 |
| PSF | Sigma | P2860 |
| Celf1 | Novus | NB200-316 |
| Celf2 | University of Florida | |
| hnRNP-A1 | Abcam | ab5832 |
| hnRNP-C1/C2 | Abcam | ab10294 |
| hnRNP-F/H | Abcam | ab10689 |
| hnRNP-K | Abcam | ab39975 |
| hnRNP-L | Abcam | ab6106 |
| hnRNP-U | Abcam | ab10297 |
| SRSF2 | Sigma | S4045 |
| SRSF3 | Thermo/Life Tech | 33-4200 |
| SRSF6 | Aviva | ARP40632 |
| SRSF7 | MBL | RN079PW |

Suppl. Table 7. Primary and secondary antibodies used for immunoblotting and immunoprecipitations after protein separation by SDS-PAGE and transference to PVDF membrane. (N/A: Not applicable)

| Protein | Company | Clone/Catalog# | Epitope |
|----------------------|------------------|----------------|------------|
| CD19 | Origene | 3B10/TA506236 | N'terminus |
| | Genetex | 5F3/GTX84726 | N'terminus |
| | Cell signaling | #3574 | C'terminus |
| | Santa Cruz | LE-CD19 | C'terminus |
| AKT | Cell signaling | #4691 | N/A |
| P-AKT-S473 | Cell signaling | #4060 | N/A |
| SRSF3 | Thermo/Life Tech | 33-4200 | N/A |
| β-Actin | Sigma | A3853 | N/A |
| Lyn | Cell Signaling | #4576 | N/A |
| PI3K | Cell Signaling | #4292 | N/A |
| goat anti-rabbit-HRP | GE Healthcare | NA934V | N/A |
| goat anti-mouse-HRP | GE Healthcare | NA931V | N/A |
| goat anti-mouse-800 | LICOR | 926-32210 | N/A |
| goat anti-rabbit-680 | LICOR | 827-11081 | N/A |

Suppl. Table 8. Pairs of oligos for semiquantitative PCR amplification of CD19 cDNA followed by visualization in agarose gel. Same primers were used for sequencing after gel purification of specific bands.

| CD19 cDNA PCR | Region | Direction | SEQUENCE (5'→3') | Full Length | Δex2 | Δex5-6 |
|---------------|---------|----------------------|----------------------|-------------|-------|--------------|
| | Exon1-4 | Fwd | GGAGAGTCTGACCACCATGC | 640bp | 374bp | |
| | | Rev | GGACACAGAGTCAGGGGGTA | | | |
| | Exon4-8 | Fwd | AAGGGGCCTAAGTCATTGCT | 490bp | | 331bp |
| | | Rev | TGCTCGGGTTTCCATAAGAC | | | |
| | Exon1-5 | Fwd | GGCCCCGAGGAACCTCTA | 800bp | 533bp | no amplif |
| Rev | | CAGCAGCCAGTGCCATAGTA | | | | |

Suppl. Table 9. Pairs of oligos used for Real Time-qPCR amplification of cDNA.

| Region | Direction | Sequence (5' to 3') |
|-----------------------|-----------|--------------------------|
| SRSF3 | Fwd | CACCCGGCTTTGCTTTTGT |
| | Rev | CGGCAGCCACATAGTGTCT |
| SRSF2 | Fwd | CGGAGCCGCAGCCCTA |
| | Rev | GGTCGACCGAGATCGAGAAC |
| hnRNPC | Fwd | AGAACCCGGGAGTAGGAGAC |
| | Rev | AGCCGAAAATGTAGCTGAAGA |
| hnRNPA1 | Fwd | GGTAGGCTGGCAGATACGTT |
| | Rev | TAACGATGCTTCTTCGGCGG |
| Actin | Fwd | AGCATCCCCAAAGTTCAC |
| | Rev | AAGGGACTTCCTGTAACAACG |
| CD19 Ex1-ex2 | Fwd | GGAGAGTCTGACCACCATGC |
| | Rev | ACTGCAGCACAGCGTTATCT |
| CD19 Ex3-ex4 | Fwd | GAGCCCCAAGCTGTATGTGT |
| | Rev | GGACACAGAGTCAGGGGGTA |
| CD19 Jnt Ex1/3 | Fwd | GCCTCCTTCTTCTCCTCCTT |
| | Rev | CCGGAACAGCTCCCCTCCACCTTC |
| CD19 Ex4-ex5 | Fwd | AAGGGGCCTAAGTCATTGCT |
| | Rev | CAGCAGCCAGTGCCATAGTA |
| CD19 Jnt Ex6/7-ex8 | Fwd | CCCCACCAGGAGATTCTCA |
| | Rev | TGCTCGGGTTTCCATAAGAC |