

Table S1: Abbreviations of relevant proteins

| Abbreviation | Full name | Classification | Comment | References |
|----------------|---|--|--|------------|
| ALKBH5 | alpha-ketoglutarate-dependent dioxygenase alkB homolog 5 | RNA N ⁶ -methyladenosine demethylase | ALKBH5 is involved in various biological processes including proliferation and plays an emerging role in carcinogenesis. | [1–3] |
| ASH1L | absent small and homeotic disks protein 1 homolog | histone-lysine N-methyltransferase | ASH1L catalyzes H3K36 methylation, is involved in <i>HOX</i> gene regulation and cooperates with MLL. | [4–8] |
| AXL | AXL Receptor Tyrosine Kinase | Tyro3-Axl-Mer (TAM) receptor tyrosine kinase | AXL stimulates PI3K/AKT/mTOR signaling and is constitutively active in AML. | [2,9–11] |
| BCL2 | B-cell lymphoma 2 protein | Bcl2 protein / apoptosis regulator protein | BCL2 is an anti-apoptotic protein. | [12,13] |
| BCL2L11 (BIM) | Bcl-2-like protein 11 | Bcl2 protein / apoptosis regulator protein | BCL2L11 (BIM) is a pro-apoptotic protein. | [12–14] |
| BRG1 (SMARCA4) | SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A member 4 | SWI/SNF (SWItch/Sucrose Non-Fermentable) family member | BRG1 (SMARCA4) is a member of the BAF family of ATP-dependent chromatin-remodeling complexes and mentioned as PRC2 antagonist. | [15,16] |
| CCND2 | cyclin D2 | cyclin protein | CCND2 is involved in cell cycle G1/S transition. | [17] |
| CDKN1A (p21) | cyclin-dependent kinase inhibitor 1 | cyclin-dependent kinase inhibitor protein | CDKN1A (p21) is a p53 target and mediates cell cycle arrest. | [18–20] |
| CDX2 | homeobox protein CDX-2 | homeodomain-containing transcription factor | CDX2 is involved in AML transformation. | [21,22] |
| CEBPA | CCAAT/enhancer-binding protein alpha | basic leucine zipper (bZIP) transcription factor | CEBPA is essential for myeloid lineage commitment. | [23] |
| CEBPB | CCAAT/enhancer-binding protein beta | basic leucine zipper (bZIP) transcription factor | CEBPB is essential for macrophage differentiation and involved in immune as well as in inflammatory responses. | [24–26] |
| DOCK5/8 | dedicator of cytokinesis 5/8 proteins | guanine nucleotide exchange factors | DOCK5 and DOCK8 are involved in cancer cell survival through Ras-mediated activation of the Rac pathway. | [27, 28] |
| EGR1 | early growth response protein 1 | zinc finger (ZF) transcription factor | EGR1 acts context dependent as tumor suppressor or oncogene and is widely seen as tumor suppressor in AML. | [29] |
| ENT1 | equilibrative nucleoside transporter 1 | drug influx transporter | ENT1 is involved in the cellular uptake of nucleosides and its analogues. | [30] |
| EZH2 | enhancer of zeste homolog 2 | histone-lysine N-methyltransferase enzyme | EZH2 is a tumor suppressor in AML/MDS. | [31–33] |
| GATA1 | GATA-binding factor 1 | GATA transcription factor | GATA1 is essential for erythroid and megakaryocytic differentiation. | [34–36] |
| HOXA9 | homeobox protein Hox-A9 | homeodomain-containing transcription factor | HOXA9 is commonly dysregulated in acute leukemias and involved in leukemic transformation. It interacts with MEIS1. | [37,38] |
| HOXA10 | homeobox protein Hox-A10 | homeodomain-containing transcription factor | HOXA10 is mentioned as PRC2 antagonist. | [15] |
| HP1 | heterochromatin protein 1 | heterochromatin protein 1 family | HP1 proteins are involved in heterochromatin formation. | [39–41] |
| ID1 | DNA-binding protein inhibitor ID-1 | helix-loop-helix (HLH) protein | ID1 interacts with and inhibits HLH transcription factors. | [42] |
| IL3RA | Interleukin 3 receptor, alpha | interleukin receptor | IL3RA is a subunit of the heterodimeric IL3 receptor. | [43,44] |

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| IL6 | interleukin 6 | interleukin | IL6 is a proinflammatory cytokine. It is involved in proliferation and differentiation of hematopoietic stem and progenitor cells (HSPCs). | [45–48] |
| IRF | interferon regulatory factors | interferon regulatory transcription factor (IRF) family | IRF proteins are essential for transcriptional regulation of type I IFN genes. | [49,50] |
| JAK2 | janus kinase 2 | non-receptor tyrosine kinase | JAK2 ^{V617F} is the most frequent mutation in MPN patients. | [51] |
| JUN-AP1 | activator protein 1 | heterodimeric basic leucine zipper (bZIP) transcription factor | The oncoprotein JUN-AP is highly expressed in AML patients and involved in AML cell growth as well as proliferation. | [52–55] |
| KRAS | Kirsten rat sarcoma virus protein | GTPase | The oncoprotein KRAS mediates signal transduction of growth factors. Gain-of-function mutations occur in various cancers including leukemias. | [56–59] |
| LAPTM4B | lysosomal-associated transmembrane protein 4B | lysosome-associated protein transmembrane (LAPTM) family | LAPTM4B is required for lysosomal organization and involved in chemotherapy resistance. It predicts poor prognosis in AML. | [60–62] |
| LEDGF | lens Epithelium Derived Growth Factor | epigenetic reader protein | LEDGF associates with MLL-fusions and is required for MLL-rearranged leukemogenesis. | [4,63–67] |
| LEO1 | RNA polymerase-associated protein LEO1 | member of the polymerase-associated factor 1 (PAF1) complex | As member of the PAF1 complex LEO1 is involved in leukemogenesis through association with MLL-fusions. | [68–70] |
| LMO2 | LIM domain only 2 protein | LIM-domain-only (LMO) protein | LMO2 regulates transcription as scaffolding protein and is involved in erythroid differentiation through complex building with GATA1. | [71–73] |
| LSD1 | lysine-specific histone demethylase 1A | histone demethylase | LSD1 demethylates H3K4me ¹⁺² and H3K9me ¹⁺² and is often deregulated in AML. | [74–76] |
| MCL1 | myeloid cell leukemia-1 protein | Bcl2 protein / apoptosis regulator protein | MCL1 is an anti-apoptotic protein. | [13,77] |
| MEIS1 | homeobox protein Meis1 | homeodomain-containing transcription factor | MEIS1 is involved in megakaryocytic lineage development and often dysregulated in acute leukemias. It interacts with HOXA9. | [37,78,79] |
| MLL1 | mixed-lineage leukemia 1 protein | histone-lysine N-methyltransferase | MLL1 methylates H3K4 and is involved in Hox gene regulation. Oncogenic fusions with other proteins often occur in acute leukemias. | [80–82] |
| MOZ | monocytic leukemia zinc finger protein | histone acetyltransferase (HAT) | MOZ regulates RUNX1 expression and contributes to leukemogenesis as fusion with TIF2. | [83,84] |
| MYC | myelocytomatosis protein | basic helix–loop–helix (bHLH) transcription factor | MYC promotes cell growth and proliferation. It is a known proto-oncogene in many human cancers. | [85] |
| NFE2 | nuclear factor, erythroid-derived 2 | heterodimeric basic leucine zipper (bZIP) transcription factor | NFE2 is involved in megakaryocytic lineage development and deregulated in most MPN patients. | [86,87] |
| MEIS1 | homeobox protein Meis1 | homeodomain-containing transcription factor | MEIS1 is involved in megakaryocytic lineage development and often dysregulated in acute leukemias. It interacts with HOXA9. | [88–92] |
| NGF | nerve growth factor | neurotrophin growth factor | NGF mediates survival, growth and proliferation through TRKA binding. | [93,94] |
| NOM1 | nucleolar protein with MIF4G domain 1 | MIF4G/MA3 domain-containing protein | NOM1 interacts with translation initiating proteins. | [95,96] |

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| NSG2 | neuron-specific gene 2 protein | neuron-specific gene family of small, single-pass transmembrane proteins | NSG2 is involved in vesicle trafficking and neural differentiation. It has been shown to impair HSC differentiation. | [97–100] |
| NUP98 | nuclear pore complex protein Nup98-Nup96 | nuclear pore complex protein | NUP98 contributes to nuclear-cytoplasmic trafficking and is often rearranged in acute leukemias. | [101–103] |
| p15(Ink4b) | cyclin-dependent kinase 4 inhibitor B | cyclin-dependent kinase inhibitor protein | p15(Ink4b) acts as a tumor suppressor. | [104–106] |
| PAF1 | RNA polymerase II-associated factor 1 homolog | component of the polymerase-associated factor 1 (PAF1) complex | PAF1 is essential for transcriptional elongation. | [69,107,108] |
| PML | promyelocytic leukemia protein (PML) | tripartite motif (TRIM) protein family | The PML/RAR α fusion mediates the differentiation block in most APL patients. | [109–112] |
| PRL-3 | protein of regenerating liver-3 | prenylated protein tyrosine phosphatase | The physiological role of PRL-3 remains unclear. It is involved in metastasis and frequently overexpressed in AML patients. | [113,114] |
| RAR α | retinoic acid receptor alpha | nuclear receptor | RAR α mediates retinoid signaling. The PML/RAR α fusion mediates the differentiation block in most APL patients. | [111,115] |
| RUNX1 | runt-related transcription factor 1 | runt-domain transcription factor | RUNX1 is required for HSPC homeostasis and expansion. The RUNX1/RUNX1T1 fusion often occurs in AML patients. | [116,117] |
| RUNX1T1 | RUNX1 Partner Transcriptional Co-Repressor 1 | zinc finger (ZF) transcription factor | RUNX1T1 mediates transcriptional repression. The RUNX1/RUNX1T1 fusion often occurs in AML patients. | [118–121] |
| S100A8/9 | S100 calcium-binding protein A8/9 | S100 protein family | S100A8 and S100A9 form the heterodimer calprotectin that is part of the innate immune system. Calprotectin is highly expressed in granulocytes, involved in inflammation and critical for blocking differentiation in leukemic cells. | [122–125] |
| SCL | stem cell leukemia protein | basic helix–loop–helix (bHLH) transcription factor | SCL is required for HSC development and also involved in terminal maturation of selected blood cells. It is often dysregulated in leukemias. | [126–128] |
| SPI1/PU.1 | SFFV proviral integration site-1 (Spi-1) / purine rich Box-1 protein | erythroblast transformation specific (ETS) domain transcription factor | SPI1/PU.1 is involved in myeloid and B-cell differentiation. It is a known target of RUNX1 target. SPI1/PU.1 suppression is critical in leukemic transformation. | [129–131] |
| STAT1/2 | signal transducer and activator of transcription 1/2 | STAT transcription factors | STAT1/2 is involved in cytokine and growth factor signaling. It is dysregulated in various malignancies including cancer. | [132,133] |
| TAF1B | TATA box-binding protein-associated factor RNA polymerase I subunit B | TATA-binding protein (TBP) associated factor (TAFs) | TAF1B is required for initiation of transcription by RNA polymerase I. | [134–136] |
| TIF2 | transcriptional mediators/intermediary factor 2 | member of the p160 nuclear receptor transcriptional coactivator family (NRCos) | TIF2 contributes to leukemogenesis as fusion with MOZ. | [83] |
| TRKA | tropomyosin receptor kinase A | neurotrophic tyrosine kinase receptor | TRKA is a high affinity receptor for NGF and activates Ras/MAPK and PI3K/Akt signaling. | [93,137] |

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