SUPPLEMENTARY TABLES

Supplementary Table 1. Clinical and biological characteristics of individual patients included in the study.

ID	Sex	Age	FAB	CD34	Karyotype	*FLT3*	*NPM1*
High-risk patients, i.e. adverse cytogenetic abnormalities							
A1-P105	F	64	M1	+	Complex[2]	WT	WT
A2-P112	F	51	M0	+	Complex	WT	WT
A3-P114	M	72	M1	+	Complex	WT	-
A4-P117	F	64	M1	+	Complex	ITD	WT
A5-P122	M	84	M1	+	Complex	WT	WT
A6-P130	M	78	M0	-	Complex	WT	WT
A7-P133	M	74	M4	-	Complex	WT	-
A8-P134	M	80	M1	+	Complex	-	-
A9-P140	F	50	M2	+	Complex	WT	WT
A10-P128	M	77	M2	+	Complex	ITD	WT
A11-P115	F	87	M0	+	del 5	WT	WT
A12-P107	M	73	M2	+	Monosomal	ITD	WT
A13-P123	M	81	M2	-	-7	WT	WT
A14-P124	M	76	M5	+	del 12, -7	WT	WT
A15-P129	M	63	M5	+	-7	WT	WT
Low-risk patients, i.e. favorable genetic abnormalities							
F1-P110	F	67	M4	+	t(16;16), +22	-	-
F2-P116	M	36	M5	+	inv16, +8, +22	ITD	WT
F3-P139	M	66	M5	+	t(16;16)	WT	WT
F4-P141	M	79	M2	-	inv16, del 7	WT	WT
F5-P127	M	41	M1	+	t(8;21), del 9, -3, -20, -22	WT	WT
F6-P131	F	33	M1	+	t(8;21)	WT	WT
F7-P137	F	74	M4	+	t(8;21)	ITD	WT
F8-P144	F	66	M4	+	t(8;21)	WT	WT
F9-P154	M	47	M4	-	t(8;21)	WT	WT
F10-P101	M	50	M2	-	Normal	WT	INS
F11-P118	F	61	M5	-	Normal	WT	INS
F12-P120	F	68	M5	-	Normal	WT	INS
F13-P125	M	64	M5	-	Normal	WT	INS
F14-P138	M	65	M4	-	Normal	WT	INS
F15-P143	M	64	M1	+	Normal	WT	INS
F16-P153	F	70	M4	+	Normal	WT	INS
F17-P155[3]	F	71	M0	-	Normal	ITD^{low}	INS
F18-P142[4]	M	33	M2	+	Normal	WT	WT

The table presents individually patient characteristics (sex, gender), morphological (FAB classification) and molecular signs of differentiation (CD34 expression), karyotype and *FLT3*/*NPM1* mutational status[1].

[1]Abbreviations: FAB, French-American-British; INS, a 4 bp-insertion/duplication; ITD, internal tandem duplication; WT, wild-type; -, not determined.

[2]Defined as ≥ 3 cytogenetic abnormalities.

[3]The patient had a low ITD ratio and could therefore be classified as having a favorable prognosis. He was initially classified as ITD negative but later reclassified based on a new analysis.

[4]This patient has *CEBPA* mutation.

Supplementary Table 2. Patient treatment and survival.

ID	Treatment[1]	Survival (months)
	High risk patients, i.e. adverse cytogenetic abnormalities	
A1-P105	Best supportive care	<1
A2-P112	AML-stabilizing therapy based on ATRA and valproic acid	3
A3-P114	AML-stabilizing therapy based on ATRA and valproic acid	13
A4-P117	Best supportive care	3
A5-P122	AML-stabilizing therapy based on ATRA and valproic acid	5
A6-P130	Valproic acid plus hydroxyurea	3
A7-P133	Best supportive care	<1
A8-P134	AML-stabilizing therapy based on ATRA and valproic acid	1
A9-P140	Intensive chemotherapy followed by allogeneic SCT	>46[2]
A10-P128	Best supportive care	<1
A11-P115	ATRA, valproic acid, low-dose cytarabine	<1
A12-P107	Best supportive care	2
A13-P123	ATRA, valproic acid, low-dose cytarabine	16
A14-P124	Valproic acid plus hydroxyurea	6
A15-P129	Best supportive care	6
	Low risk patients, i.e. favorable genetic abnormalities	
F1-P110	Best supportive care	<1
F2-P116	Death from acute GVHD after allogeneic SCT in second CR	25
F3-P139	ATRA, valproic acid, low-dose cytarabine	<1
F4-P141	Valproic acid plus hydroxyurea	3
F5-P127	Lost from follow-up	-
F6-P131	Intensive chemotherapy followed by autologous SCT	>56
F7-P137	Azacitidine	3
F8-P144	Intensive induction and consolidation chemotherapy	>38
F9-P154	High-dose chemotherapy	>144
F10-P101	One cycle of intensive induction therapy with CR, no further chemotherapy due to severe toxicity	28
F11-P118	Intensive induction therapy with CR, toxic death during consolidation	2
F12-P120	Death from hyperleukocytosis	<1
F13-P125	Intensive induction with CR, toxic death during consolidation therapy	2
F14-P138	Intensive chemotherapy followed by autologous SCT, non-relapse death	14
F15-P143	Intensive induction with CR, toxic death during consolidation chemotherapy	2
F16-P153	AML-stabilizing therapy based on ATRA and valproic acid	2
F17-P155	Best supportive care	2
F18-P142	Intensive chemotherapy followed by autologous SCT	>44

[1]Abbreviations: ATRA, all-trans retinoic acid; CR, complete transmission; GVHD, Graft versus host disease; SCT: stem cell transplantation.

[2]The sign > means that the patient is still alive without relapse.

Supplementary Table 3. Classification of differentially expressed proteins and phosphorylated phosphoproteins found in the comparative studies between nine elderly low-risk and nine younger low-risk patients based on hallmarks of aging as explained in previous publications [1–3].

Classification	Genomic stability, DNA repair	Mitosis, cell cycle	Epigenetics, chromatin, transcription, RNA splicing, ribosome	Protein homeostasis, metabolism, protein modification	Mitochondria, metabolism	Cytoskeleton, actin polarization	Intracellular ER[1]-Golgi trafficking	Intracellular signaling	Extracellular secretion	Membrane structure	Tumor suppressor	Regulation of senescence	Regulation of apoptosis
Altered protein level in low-risk patients	APTX CAAP1 NME3 POLB	CDC27 KIAA1279 NUMB	CHD2 MARS2 MINA RPS6KA4 WARS2	ASPH BAG2 CDC27 KIAA1279 NME3 PDP1 PTPLAD2 STX7 UFSP2 NUMB	ALDH2 CLC COX6A1 KIAA1279 MARS2 NXT2 PDF PDP1 PTDSS1 WARS2	CAP1 GIT1 SKAP2	KIAA1279 NXT2 STX7	GIT1 MOB4 NENF SKAP2	NENF	PTDSS1 NUMB	PTPLAD2		CAAP1
Increased phosphorylation in elderly low-risk patients	RMI1 TOX4 TP53BP1	CBX1 HECA TMPO	ARID1A AHNAK CBX1 DDX41 IRF2BP1 KANSL1 KDM3B RERE RPS6KA4 SP100 TCEAL3 TMPO TOX4 TP53BP1 ZMYND8	DTNBP1		ARIDA1 FAM21C FNBP1L LSP1 MYO18A REPS1	BIN1 REPS1 SEC61B WDR44	DOCK5 FAM65B	LILRB3		BIN1 TP53BP1		BIN1 RERE
Decreased phosphorylation in elderly low-risk patients	LIG1	CDK1 CDK2 ESCO2 FAM83H FOXK2 GSG2 INCENP RB1	AATF ATAD2 BCLAF1 CHAF1A CHD4 CHD9 CNP EIF3F ESCO2 FOXK2 GSG2 HIST1H1D IGF2BP1 ING5 KMT2A NPM1 PPIG PRPF40A RPRD2 RRP1B RRP36 SRRM1 SRRM2	ATAD2 BCLAF1 EEF2 HSP90AB1 NPM1 POLA2 PPP6R3	CDK2 ESYT2 FOXK2 PCYT1B	IGF2BP1 SCRIB		IGF2BP1 IRS2			AATF EIF3F ING5 RB1 SCRIB	CDK2	AATF BCLAF1 FOXK2
N[2]	8	14	43	18	14	11	7	8	2	2	8	1	6

The table is based on information from the Gene database and selected references are from the PubMed database as described more in detail in Supplementary Tables 4–6.

Abbreviations: [1]ER, endoplasmic reticulum; [2]N, number of proteins.