

**Table S1. Sequence of primers used in the qRT-PCR analysis of cancer testis antigen expression**

Primer	Sequence
SPANXB	AAT GAG GCC AAC AAG ACG AT
	TCC TCC TGT AGC GAA CCA CT
SACA3	GCC GGA TGT ACT GCT CAG AT
	TGG GTT ATC TTC ATG GCA CA
PRAME	GCT GTG CTT GAT GGA CTT GA
	TAC AGA CTG GCC CTG TTT CC
PASD1	CCT TTT GTG GGA GAG CTC AG
	GGT TCA ACG TAC ACG GCT TT
MAGEA1	TCT GTG AGG AGG CAA GGT TT
	TCT CCT TGG TGC TCC TCT GT
GAGE	GAT AGC CAG GAA CAG GGT CA
	TTC ACC TCC TCT GGA TTT GG
MAGEA4	ACA GAG GAG CAC CAA GGA GA
	AAG AGT GCA GGC AAA AGC TG
SSX-1	AAT CAT CCC GAA GAT CAT GC
	GCA GTT GTT TCC CAT CGT TT
MAGEA3	GGA GGA GCA CTG AAG GAG AA
	ATG ACT CTG GTC AGG GCA AC
NY-ESO-1	CAC TGT GTC CGG CAA CAT AC
	GGA GAC AGG AGC TGA TGG AG
SPA17	GGA GGA AGA GAC ATC AGT CAC C
	GCC TCC TCT CTG GCT ATG TG
MAGEC1	GAG GAT CGT CTC AGG TCA GC
	AAC TCC TGC TTT CTG GAG CA
LAGE	GTG TCC GGC AAC CTA CTG TT
	GGA GAC AGG AGC TGA TGG AG
b-Actin	GTC TTC CCC TCC ATC GTG
	CGC CCA CAT AGG AAT CCT TC
WT1	CAG GCC AGG ATG TTT CCT AA
	GAC CGT GCT GTA ACC CTG AT
XAGE	CCC AAA AAG AAG AAC CAG CA
	GCT CTT GCA GAT CAC CTT CC
HAGE	TGG GCA GAT TTA CCA CCA AT
	CCT TCA AGT CAT CCC ACG TT

**Table S2. Summary of antigenic peptides utilised in the CD137 detection and enrichment assay used to analyze the CD8<sup>+</sup> T-cell response to CTAgS in 21 patients with AML or MDS**

Peptide Pool	Gene and position	HLA (I) restriction	HLA frequency (%) within the population	Peptide sequence
B	<b>BAGE-1</b> - 2-10	Cw16	7	AARAVFLAL
C	<b>MAGE-A1</b> - 96-104	A3	23	SLFRAVITK
C	135 – 143	A24	19	NYKHCFPEI
B	161 – 169	A1	26	EADPTGHSY
C	289 – 298	B7	17	RVRFFFPSL
A	<b>MAGE-A2</b> - 157 – 166	A2	44	YLQLVFGIEV
A	212-220	Cw7	41	EGDCAPEEK
C	<b>MAGE-A3</b> - 97 – 105	A24	19	TFPDLESEF
B	112 -120	A2	44	KVAEELVHFL
C	168 – 176	A1	26	EVDPIGHLY
B	167-176	B18/B44	6,21	MEVDPIGHLY
A	<b>MAGE-C2</b> - 336-344	A2	44	ALKDVEERV
A	<b>RAGE-1</b> - 11-20	B7	17	SPSSNRIRNT
A	32-40	A2	44	PLPPARNGGL
B	352-360	A2	44	LKLSGVVRL