Table S1. Real-time PCR primers

Gene	Strand	Sequence	Exon
Tet2 (1)	F	GTCAACAGGACATGATCCAGGAG	2
	R	CCTGTTCCATCAGGCTTGCT	3
Tet2 (2)	F	AGCCTGATGGAACAGGACAG	3
	R	AACGGGCTTCCATTCTGGAG	3
Tet2 (3)	F	CTCCTGGTGAACAAAGTCAGAATGG	3
	R	CTAATAGCTGCCACATCAGGACC	4
Tet2 (4)	F	CCAAGACCAAGAAAGCAGCTCG	11
	R	CCGAAAGCTGCGGTTGTGC	12
Tet1	F	CTGAGCCTGTTCCTCGATGTGG	
	R	AGGTGAGAAGTAGATGAGGCTGATG	
Tet3	F	GGAGTTGGCTGGAGTCACCAC	
	R	CCACCGCATTGCCACTGTAC	
β-actin	F	TGAACCCTAAGGCCAACCGTGAAA	
	R	CAGGATGGCGTGAGGGAGAGCATAG	

Table S2. Summary of tumor transfer experiments

Donor SP cells	Splenomegaly (%)	Neutrophilia and/or monocytosis	Latency (days)
WT Control	**0**	**0**	**N/A**
Myeloid infiltration (*Tet2*-/-, 2A45)	**75%**	**75%**	**47-78**
Myeloid infiltration (*Tet2*-/-, 2A19)	**100%**	**100%**	**72-108**
Myeloid infiltration (*Tet2*+/-, 2A102)	**100%**	**100%**	**60-117**
Erythroid infiltration (*Tet2*-/-, 2A57)	**0**	**0**	**N/A**
Erythroid infiltration (*Tet2*-/-, 2A116)	**0**	**0**	**N/A**

4 recipient mice/primary donor spleen cells.

Table S3. Increased high proliferative progenitors in *Tet2*$^{-/-}$ LSK cells at single-cell level.

Mice	No. of Sorted LSK Cells	No. of Colonies			
		CFU-GM	HPP	CFU-GEMM	Total
WT	192	22	46	8	76
Tet2+/-	192	20	62	10	92
Tet2-/-	192	32	96*	8	136*

Single sorted BM LSK cells were cultured for 8 days in the presence of mSCF, hIL-6, mIL-3 and hEpo. The number of cells in each well was counted under phase-contrast microscope and cytospin prepared in order to determine the colony types. HPP indicates GM-colonies contain >1000 cells; and CFU-GM indicates GM-colonies contain <1000 cells. Data shown are combined results from two separate experiments. *Dramatically increased between WT or *Tet2*$^{+/-}$ mice and *Tet2*$^{-/-}$ mice.

Figure S1. Levels of GFP (Tet2) expression in total cell preparations of various tissues/organs of *Tet2:nGFP* mouse. 6-8-week old heterozygous *Tet2:GFP* mice were sacrificed and single cell suspensions of various organs/tissues were prepared using collagenase. GFP (Tet2) expression in total cell preparations of various tissues/organs of a representative *Tet2:nGFP* mouse are shown.

Figure S2. The locations of each of the 4 primer pairs on Tet2 gene are shown

Figure S3. (A) A moribund *Tet2*$^{+/-}$ *mice* developed MPD-like myeloid leukemia with myeloid sarcoma. Appearance of this *Tet2*$^{+/-}$ mouse with a large peritoneal mass and flow cytometric analysis of the cells within the mass are shown. **(B)** A moribund *Tet2*$^{-/-}$ *mice* (2A19) developed MPD-like myeloid leukemia with multiple white nodules in the liver. The gross morphology of liver and flow cytometric analysis of the cells within the nodules are shown.

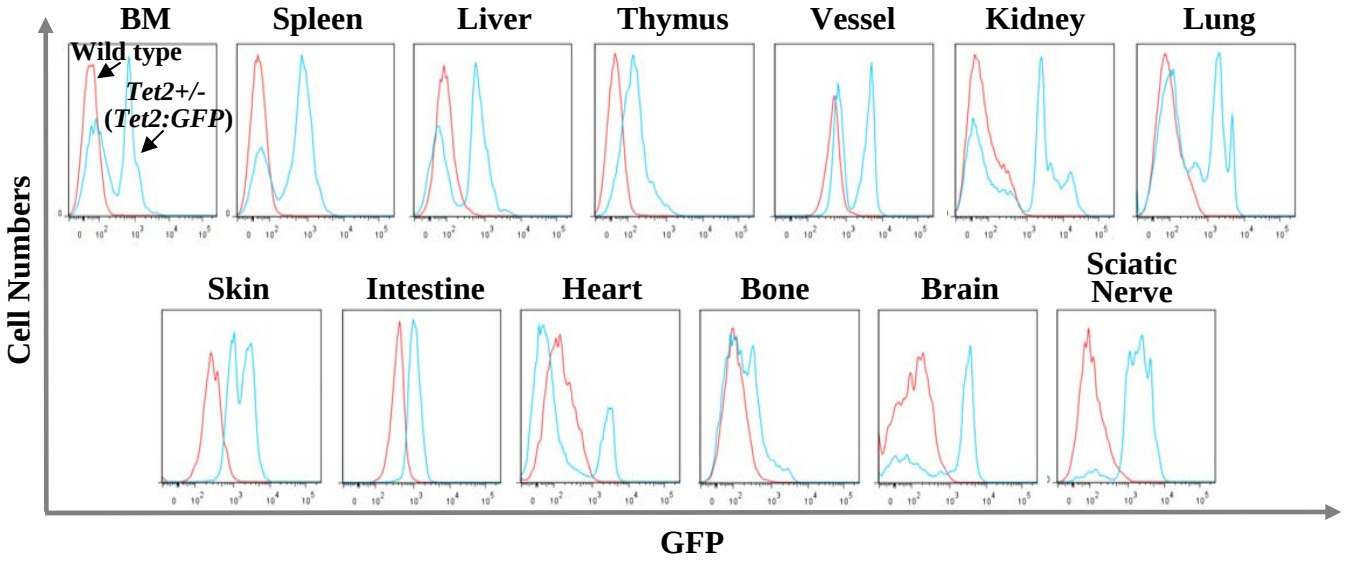

BM
Spleen
Liver
Thymus
Vessel
Kidney
Lung
Wild type
Tet2+/-
(Tet2:GFP)
Skin
Intestine
Heart
Bone
Brain
Sciatic Nerve
Cell Numbers
GFP

Figure S1

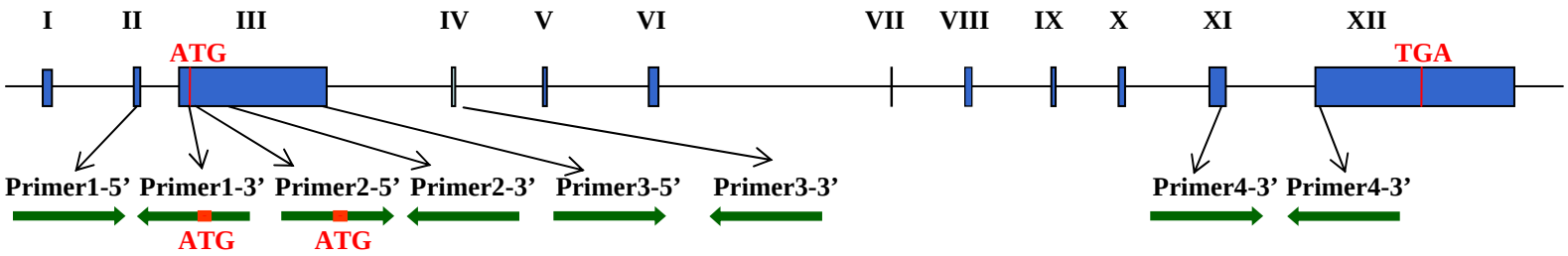
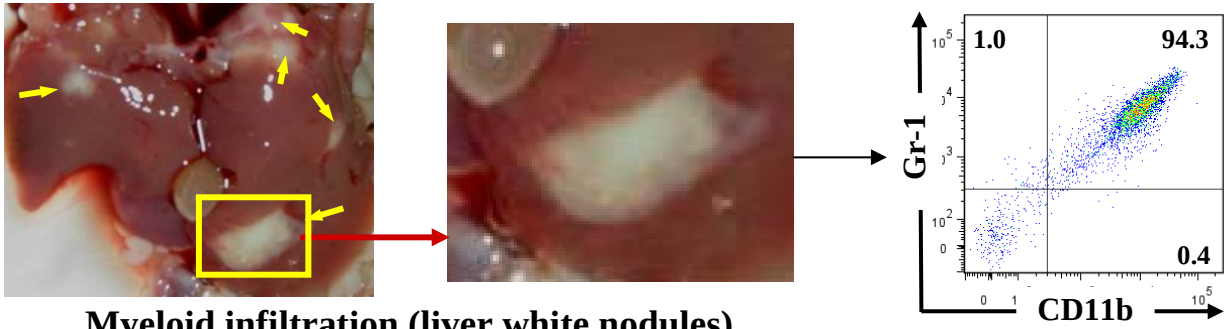

I
II
III
IV
V
VI
VII
VIII
IX
X
XI
XII
ATG
TGA
Primer1-5’
Primer1-3’
Primer2-5’
Primer2-3’
Primer3-5’
Primer3-3’
Primer4-3’
Primer4-3’
ATG
ATG

Figure S2

A

Myeloid infiltration (myeloid sarcoma)
***Tet2*+/- (2A102)**

B



Myeloid infiltration (liver white nodules)
***Tet2*-/- (2A19)**

Figure S3