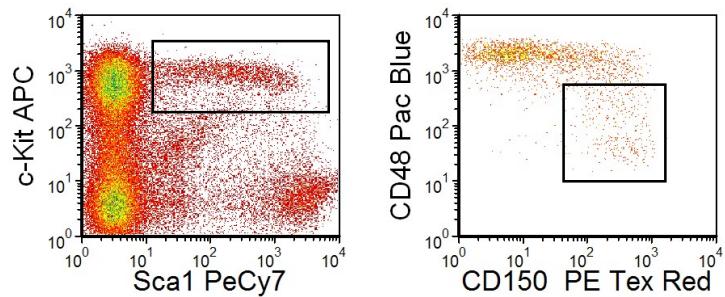
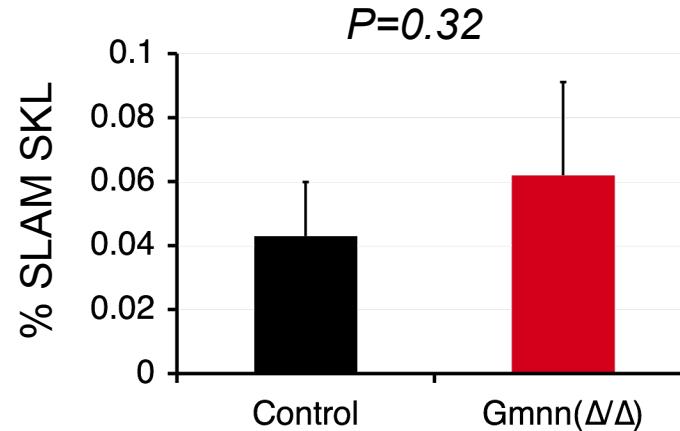
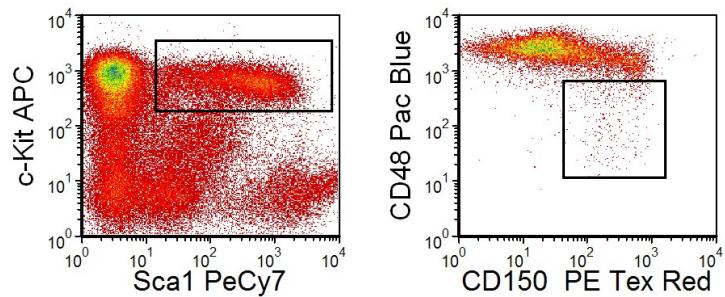


## Control

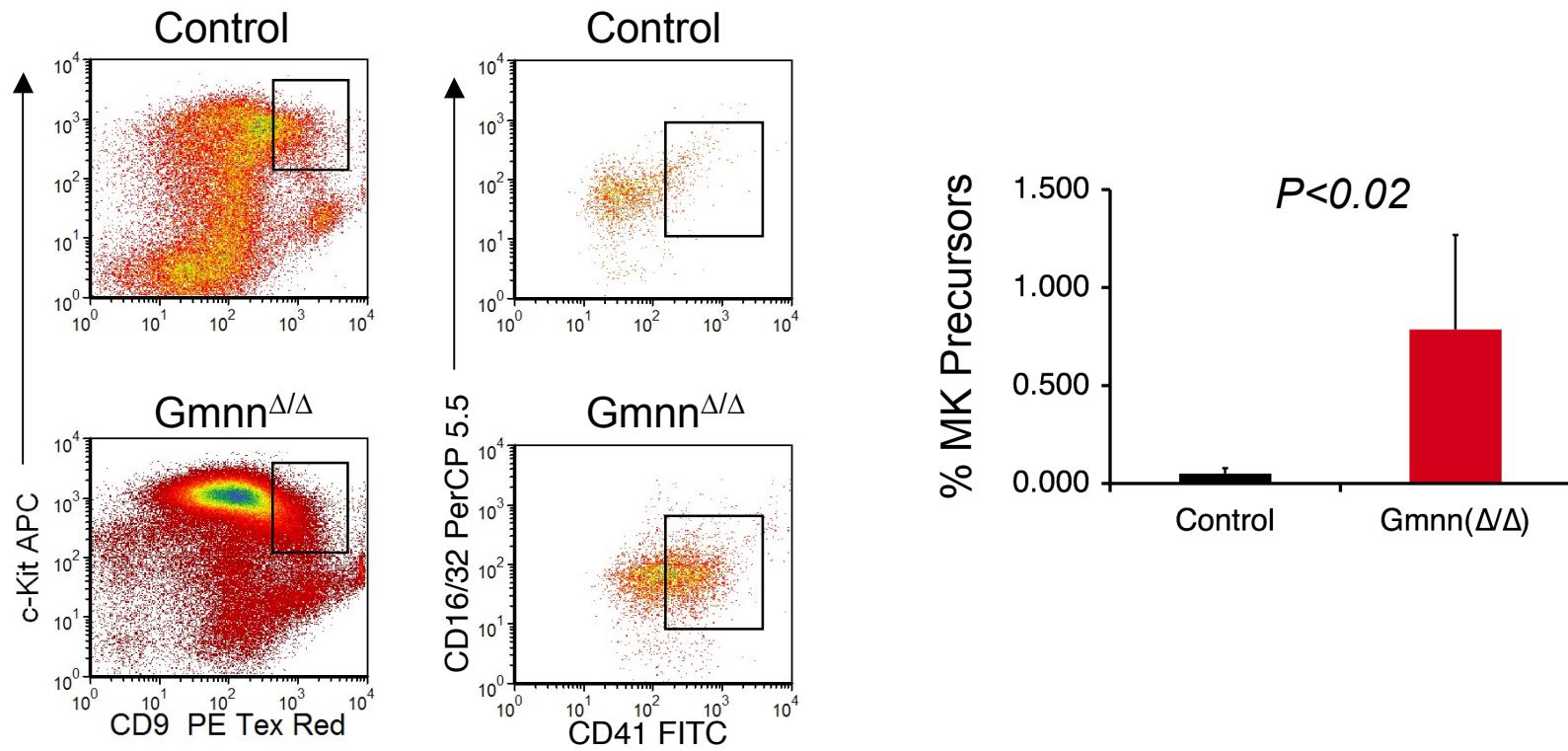


## Mx1-Cre/Gmnn<sup>fl/fl</sup>



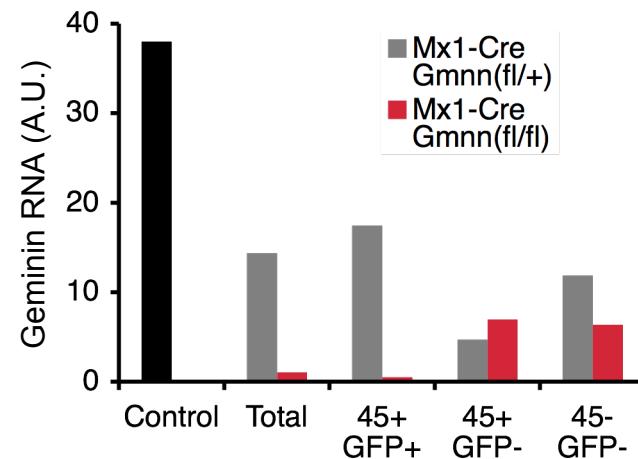
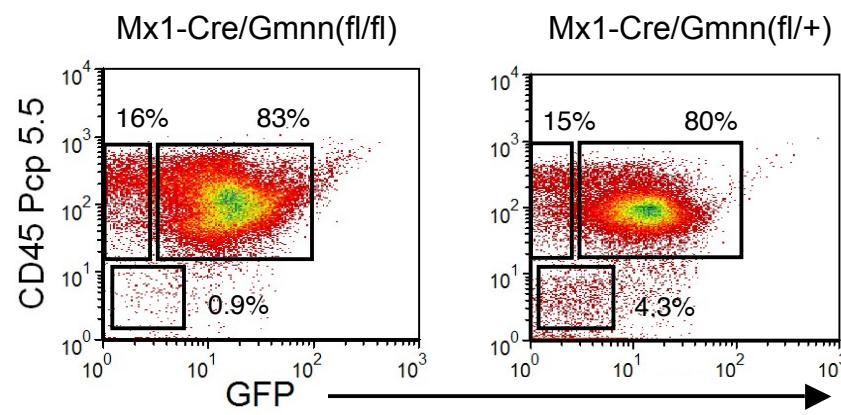
### Supplementary Figure 1. Gmnn(Δ/Δ) Marrow contains normal numbers of SLAM SKL Cells.

Mx1-Cre/Gmnn(Δ/Δ) mice and control littermates were injected with plpC and marrow cells were isolated 2-3 weeks later. The number of SLAM SKL (CD48<sup>-</sup> CD150<sup>+</sup> Lin<sup>-</sup> c-Kit<sup>+</sup> Sca1<sup>+</sup>) cells was determined by flow cytometry.



**Supplementary Figure 2. Megakaryocyte Precursors are Increased in *Gmnn*(Δ/Δ) Marrow.**

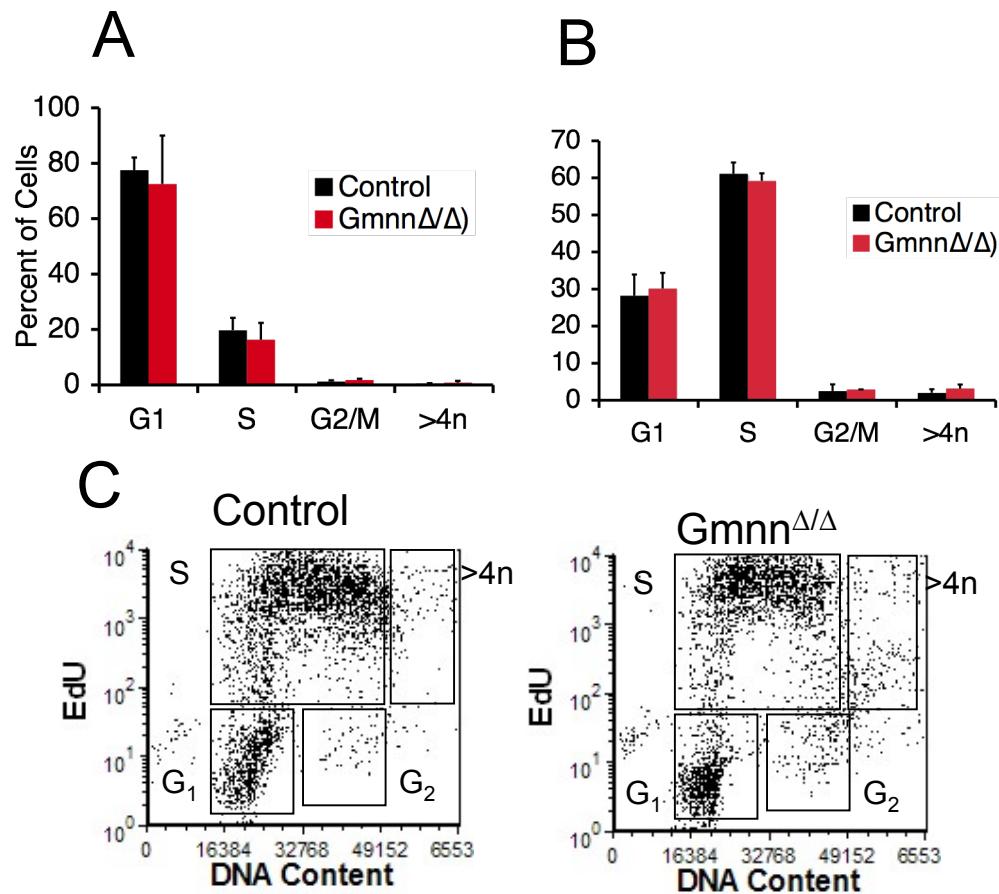
Mx1-Cre/*Gmnn*(fl/fl) mice and control littermates were injected with plpC and marrow cells were isolated 2-3 weeks later. The number of megakaryocyte precursors (Lin<sup>-</sup> c-Kit<sup>+</sup> Sca1<sup>-</sup> CD9<sup>+</sup> CD41<sup>+</sup>) was determined by flow cytometry.



### Supplementary Figure 3. GFP(-) cells are a mixture of non-hematopoietic cells and cells partially Deleted Geminin.

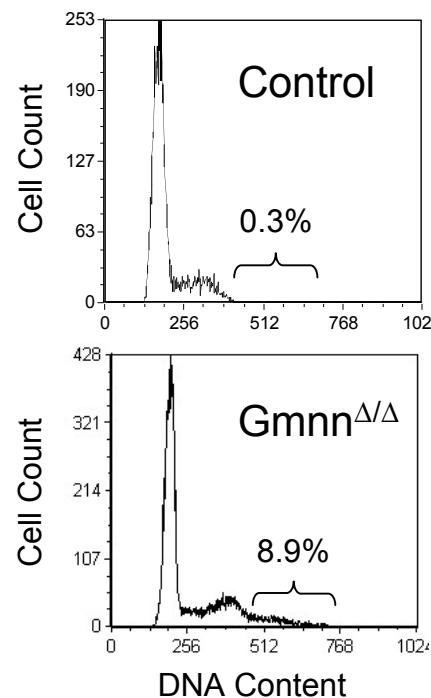
(A) A Mx1-Cre/Gmnn(+/+)/R26R-GFP mouse and a Mx1-Cre/Gmnn(+/+)/R26R-GFP littermate were injected with plpC and marrow cells were isolated. Cells were stained with antibodies to CD45.

(B) Geminin RNA levels were measured in the cell populations indicated. Control indicates Geminin RNA level in Gmnn(+/+) marrow.

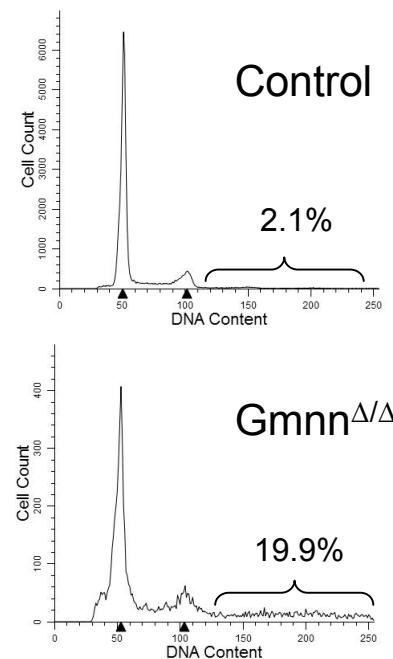


**Supplementary Figure 4. Re-Replication shortly after Geminin Deletion.**  
 Mx1-Cre/ $Gmnn^{\text{fl/fl}}$  mice and control littermates were injected with plpC and marrow cells were harvested 2-4 days afterwards. The number of cells with each DNA content are shown. A, Total Marrow Cells; B,  $\text{Ter119}^+ \text{CD71}^+$  Cells; C, Typical flow profiles for  $\text{Ter119}^+ \text{CD71}^+$  cells.

## A CD34+ Cells



## B Colony Cells



### Supplementary Figure 5. Re-Replication in $Gmnn(\Delta/\Delta)$ White Blood Cells.

Mx1-Cre/ $Gmnn^{fl/fl}$  mice and control littermates were injected with pIpC and marrow cells were harvested 14 days afterwards.

(A) CD34+ cells were purified by FACS and the DNA content was measured by staining with propidium iodide.

(B) Total marrow cells were cultured in methylcellulose. Colony cells were recovered and the DNA content was measured by staining with propidium iodide.