



Supplementary Figure 1. Aberrant HSC activation proceeds full development of MPN in *Ptpn11*^{E76K/+}/*Prx1-Cre*⁺ mice. *Ptpn11*^{E76K/+}/*Prx1-Cre*⁺ and *Ptpn11*^{+/+}/*Prx1-Cre*⁺ mice at 5-10 months old were sacrificed. Cells isolated from BM were assayed by multiparameter FACS to determine the pool size ($n = 5$ mice/group) (a), cell cycle distribution ($n = 5$ mice/group) (b) of HSCs (Lin⁻Sca-1⁺c-Kit⁺CD150⁺CD48⁻Flk2⁻).