





Supplementary Figure 1. Representative example of liver infiltrated hematopoietic tumoral cells in *Cdkn2a*^{-/-} mice. Each row represents a single mouse, Mouse ID and the type of treatment is indicated on the right. a) Representative example of hematoxylin and eosin-stained sections from tumor-infiltrated liver (10x magnifications, left column and 20x magnifications, right column). The liver of the mice was severely infiltrated by hematopoietic tumoral cells. b) Immuno-histochemical analysis (20x magnifications) of hematopoietic tumoral cells infiltrating the liver: F4/80+ (left column) and B220 (right column). This analysis reveals that *Cdkn2a*^{-/-} mice treated with integration competent LVs developed histiocytic sarcomas (F4/80+) at a significantly higher frequency than Mock- or IDLV-treated mice. (c) Immuno-fluorescence analysis (20x magnifications) of the liver of a WT C57 mouse (first row), used as negative control for the staining, and from tumor infiltrated liver from *Cdkn2a*^{-/-} mice injected with SIN.LV.SF.GFP.WPRE. In column order, from left to right: Topro3, for nuclei (TP3); Green Fluorescent protein (GFP); CD45 Panleukocytic marker (CD45); Merge of the analyses. Immuno-fluorescence analyses confirmed that the tumor infiltrating liver in SIN.LV.SF group of mice were of hematopoietic origin and vector marked.