

**Supplementary Table 8: Common Insertion Sites retrieved from hematopoietic tumors derived from *Cdkn2a*<sup>-/-</sup> HSPCs transduced with the different vector**

| Mouse Treatment <sup>(a)</sup>     | Vector <sup>(b)</sup> | CIS gene <sup>(c)</sup> | CIS power <sup>(d)</sup> | Span (Kb) <sup>(e)</sup> |    |
|------------------------------------|-----------------------|-------------------------|--------------------------|--------------------------|----|
| <i>Cdkn2a</i> <sup>-/-</sup> HSPCs | SINLV.SF.GFP.PRE      | Tas2r143                | 5                        | 5                        |    |
|                                    |                       | Vegfc                   | 5                        | 117                      |    |
|                                    |                       | Tmem47                  | 5                        | 17                       |    |
|                                    |                       | <b>Braf</b>             | 4                        | 3                        |    |
|                                    |                       | Senp8                   | 4                        | 0.1                      |    |
|                                    |                       | Lyst                    | 4                        | 95                       |    |
|                                    |                       | Rasa1                   | 4                        | 57                       |    |
|                                    |                       | Pcmt1                   | 3                        | 27                       |    |
|                                    |                       | Lrrc4c                  | 3                        | 5                        |    |
|                                    |                       | Macro2                  | 3                        | 0.2                      |    |
|                                    |                       | Slc35d1                 | 3                        | 1                        |    |
|                                    |                       | Atp10d                  | 3                        | 13                       |    |
|                                    |                       | Phf14                   | 3                        | 6                        |    |
|                                    |                       | Kif5b                   | 3                        | 7                        |    |
|                                    |                       | Tpk1                    | 3                        | 16                       |    |
|                                    |                       | Smarcad1                | 3                        | 0.1                      |    |
|                                    |                       | Ankrd10                 | 3                        | 0.1                      |    |
|                                    |                       | Dhsrx                   | 3                        | 2                        |    |
|                                    |                       | LV.SF.LTR               | Nsd1                     | 5                        | 94 |
|                                    |                       |                         | <b>Braf</b>              | 4                        | 2  |
|                                    | Thrb                  |                         | 4                        | 55                       |    |
|                                    | Cdc216                |                         | 4                        | 31                       |    |
|                                    | Hrsp12                |                         | 3                        | 15                       |    |
|                                    | Diap1                 |                         | 3                        | 36                       |    |
|                                    | Fxyd5                 |                         | 3                        | 0.1                      |    |
|                                    | Smc3                  |                         | 3                        | 21                       |    |
|                                    | Rsu1                  | 3                       | 44                       |                          |    |

- a) **Mouse Treatment:** These CIS were identified by analyzing LV integrations from tumor derived from Wild type mice transplanted with *Cdkn2a*<sup>-/-</sup> HSPCs transduced with the indicated vector
- b) **Vector:** Vector treatment group
- c) **CIS gene:** gene identified as CIS by the algorithm described by Abel et al based on MonteCarlo simulation
- d) **CIS power:** number of times that the indicated gene is targeted by vector integration
- e) **Span:** Genomic window in Kb where are clustered all the different vector integrations that constitute the CIS.

\*Highlighted in red are gene that are repeated in the table