**Supplementary File 1. Genotype distribution of *Isl2* KO and conditional KO mice**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Offspring | | | | | |
| Age | Genotype | No. Expected | No. Observed | Chi-square value | *P* |
| Embryonic stages | *Isl2+/+* | 77 (25%) | 86 (28%) | 7.739 | 0.0209 |
| *Isl2+/−* | 153 (50%) | 129 (42%) |
| *Isl2−/−* | 77 (25%) | 92 (30%) |
| Total | 307 | 307 |  |  |
| Postnatal stages | *Isl2+/+* | 108 (25%) | 131 (30%) | 43.102 | < 0.0001 |
| *Isl2+/−* | 217 (50%) | 253 (58%) |
| *Isl2−/−* | 108 (25%) | 49 (11%) |
| Total | 433 | 433 |  |  |
| Embryonic stages | *Isl2F/+* | 21 (25%) | 20 (25%) | 0.498 | 0.9194 |
| *Isl2F/KO* | 20 (25%) | 22 (27%) |
| *Isl2F/+*; Olig2-Cre | 20 (25%) | 18 (22%) |
| *Isl2F/KO*; Olig2-Cre | 20 (25%) | 21 (26%) |
| Total | 81 | 81 |  |  |
| Postnatal stages | *Isl2F/+* | 18 (25%) | 29 (42%) | 25.840 | < 0.0001 |
| *Isl2F/KO* | 17 (25%) | 23 (33%) |
| *Isl2F/+*; Olig2-Cre | 17 (25%) | 17 (25%) |
| *Isl2F/KO*; Olig2-Cre | 17 (25%) | 0 (0%) |
| Total | 69 | 69 |  |  |

Genotype distribution of *Isl2* null and conditional KO mice. Expected Mendelian inheritance and observed inheritance after breeding between *Isl2* heterozygotes or between *Isl2+/−*; Olig2-Cre and *Isl2F/F*. *P*-values of the Mendelian ratios were calculated using chi-square tests.