

Table S1 Sequences of gRNA used in previously published *in vitro* studies and this *in vivo* work

| Reference | gRNA sequence (5' to 3') | Length |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------|---------|
| Jinek et al., Science 2012 | NNNNNNNNNNNNNNNNNNNNNGUUUUAGAGCUAGAAUAGCAAG UUAAAAUAAGGCUAGUCCG | 62 nts |
| Hwang et al., Nat Biotech 2013 | GGNNNNNNNNNNNNNNNNNNNGUUUUAGAGCUAGAAUAGCAAG UUAAAAUAAGGCUAGUCCGUUAUCAACUUGAAAAAGUGGCACCGA GUCGGUGCUUUU | 100 nts |
| This study | GGG/ANNNNNNNNNNNNNNNNNNNNGUUUUAGAGCUAGAAUAGCAA GUUAAAAUAAGGCUAGUCCGUUAUCAACUUGAAAAAGUGGCACCG AGUCGGUGCUUUUUUUU | 102 nts |
| | GGG/ANNNNNNNNNNNNNNNNNNNNGUUUUAGAGCUAGAAUAGCAAG UUAAAAUAAGGCUAGUCCGUUAUCAACUUGAAAAAGUGGCACCGA GUCGGUGCUUUUUUUU | 103 nts |