**Supplementary File 1. List of oligonucleotides**

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| **Designation** | **Source or reference** | **Identifiers** | **Additional information** |
| *Cd4Cre*-F | (Dong et al., 2008) | PCR primers | AGGGTCGGAGACAATAACGG |
| *Cd4Cre*-R | (Dong et al., 2008) | PCR primers | TTGCGAACCTCATCACTCGT |
| WT *Cul3*-F | The Jackson Lab | PCR primers | CAGGGCTGTAATTCTGTCTGG |
| Mutant *Cul3*-F | The Jackson Lab | PCR primers | AGACTGCCTTGGGAAAAGCG |
| *Cul3*-R | The Jackson Lab | PCR primers | ATGCTCCCTACCATGCAAAC |
| *Acly*-F | (Teng et al., 2015) | RT-PCR primers | AAGAAGGAGGGGAAGCTGAT |
| *Acly*-R | (Teng et al., 2015) | RT-PCR primers | TCGCATGTCTGGGTTGTTTA |
| *Actin*-F | (Gareau et al., 2011) | RT-PCR primers | GGCTGTATTCCCCTCCATCG |
| *Actin*-R | (Gareau et al., 2011) | RT-PCR primers | GGCTGTATTCCCCTCCATCG |
| *Acly* siRNA#1-F | Suzhou GenePharma | siRNAs | GCAAAGAACUCCUGUACAATT |
| *Acly* siRNA#1-R | Suzhou GenePharma | siRNAs | UUGUACAGGAGUUCUUUGCTT |
| *Acly* siRNA#2-F | Suzhou GenePharma | siRNAs | GGAUGACAUUUCCUAUGUUTT |
| *Acly* siRNA#2-R | Suzhou GenePharma | siRNAs | AACAUAGGAAAUGUCAUCCTT |
| *Cul3* siRNA-F | (Zhang et al., 2015) | siRNAs | AUAAUUUGUACAUGCAAGCAAGGUC |
| *Cul3* siRNA-R | (Zhang et al., 2015) | siRNAs | GACCUUGCUUGCAUGUACAAAUUAU |
| *Klhl25* siRNA#1-F | Suzhou GenePharma | siRNAs | GCCGAUACUUUGAGGCCAUTT |
| *Klhl25* siRNA#1-R | Suzhou GenePharma | siRNAs | AUGGCCUCAAAGUAUCGGCTT |
| *Klhl25* siRNA#2-F | Suzhou GenePharma | siRNAs | CCGAGAUAUGGUGUCCAAATT |
| *Klhl25* siRNA#2-R | Suzhou GenePharma | siRNAs | UUUGGACACCAUAUCUCGGTT |
| *Klhl25* siRNA#3-F | Suzhou GenePharma | siRNAs | GCAGCCAGAUCUUCAUCAUTT |
| *Klhl25* siRNA#3-R | Suzhou GenePharma | siRNAs | AUGAUGAAGAUCUGGCUGCTT |
| *Cpt1* siRNA-F | (Hao et al., 2021) | siRNAs | CAUCCAUGCAUACCAAAGUTT |
| *Cpt1* siRNA-R | (Hao et al., 2021) | siRNAs | ACUUUGGUAUGCAUGGAUGTT |
| Negative control siRNA-F | Suzhou GenePharma | siRNAs | UUCUCCGAACGUGUCACGUTT |
| Negative control siRNA-R | Suzhou GenePharma | siRNAs | ACGUGACACGUUCGGAGAATT |

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