**S3 Table**

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| Category | Name | Sequence | Note |
| For designated targets | HuVDRT1-PF | TGCTTGCTGTTCTTACAGGGAT | For human VDRT1 target sequence |
| HuVDRT1-PR | CAGAGGAACATCTGGAGCTGAG |
| HuVDRT2-PF | CAGACATGATGGACTCGTCCAG | For human VDRT2target sequence |
| HuVDRT2-PR | GAGCGAGAATCTGTCTGGAAAA |
| MoVDRT1PF | CGGTGGCTATGCTGAAGGTG | For mouse VDRT1 target sequence |
| MoVDRT1PR | GACACGGTGGGACTGAGAAG |
| MoVDRT2-PF | CTGGGTGTCCTTAAATAGCTCTC | For mouse VDRT2 target sequence |
| MoVDRT2-PR | AAGATCTTAGGTGGCCATGAGAC |
| For potential off-site targets | MoVDRT1OT1-PF | ACATTTTTGCTTTTAGTGTCCGC | For VDRT1 sgRNA in mouse genome |
| MoVDRT1OT1-PR | TGTTCTTGACTCTTAGGCTCTG |
| MoVDRT1OT2-PF | TGGTGATGTTGTAACCGGCTTT | For VDRT1 sgRNA in mouse genome |
| MoVDRT1OT2-PR | TCCGTAGAAGGAGCTGGAAGTG |
| MoVDRT1OT3-PF | TCAGCCTGCTTAGTGTTATG | For VDRT1 sgRNA in mouse genome |
| MoVDRT1OT3-PR | TCTGCAAGGACAAGATGATG |
| MoVDRT1OT4-PF | GGTTAGCGTGGCACATTAC | For VDRT1 sgRNA in mouse genome |
| MoVDRT1OT4-PR | TGGTGTAGTCCTGGCTGTC |
| MoVDRT1OT5-PF | CACATCCACCTCTACCCT | For VDRT1 sgRNA in mouse genome |
| MoVDRT1OT5-PR | CCTTATCCTAGACCTACCG |
| MoVDRT1OT5-PF | TTCCTTGCTTTGGGTGGTG | For VDRT1 sgRNA in mouse genome |
| MoVDRT1OT5-PR | TAGTCAGAGCAGGAGCTAAGAGT |
| M13R | AGCGGATAACAATTTCACACAGGA | For TA clone sequence |
| For qPCR | CYP27B1F | AACTCTTCTGCAAAGGGGGGC | For mouse CYP27B1 |
| CYP27B1R | CTGTGCGAAGTGTCCCAAAGC |
| CYP24A1F | AGCTGCACAAGCGCCTCAAC | For mouse CYP24A1 |
| CYP24A1R | CACAAAGGAAATCCGCACCAG |