**Supplementary Table 1 The cloning PCR primers used in this study**

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| --- | --- |
| pS273R fragments | Sequences (5’ - 3’) |
| pCAGGS-pS273R-2HA | F:TGTCTCATCATTTTGGCAAA*GAATTC*ATGTCTATATTAGAAA |
| R:ATCGTATGGGTAGCTGGT*GATATC*TGCGATGCGAAACAGATG |
| pET28a-pS273R | F:GGTGCCGCGCGGCAGC*CATATG*ATGTCTATATTAGAAAAAAT |
| R:GTGGTGGTGGTG*CTCGAG*TTATTATGCGATGCGAAACAGATG |
| P1 | F:gcgctaccggactc*agatct*ATGTCTATATTAGAAAAA |
| R:atcccgggcccgc*ggtacc*gtGTTACAAGGACGCTTGA |
| P2 | F:gcgctaccggactc*agatct*GTATATAAGGGAGAAGAG |
| R:atcccgggcccgc*ggtacc*gtTGCGATGCGAAACAGAT |
| P3 | F:gcgctaccggactc*agatct*ATGTCTATATTAGAAAA |
| R:atcccgggcccgc*ggtacc*gtGCAGGACTCCGAATCG |
| P4 | F:gcgctaccggactc*agatct*ATGTCTATATTAGAAAA |
| R:atcccgggcccgc*ggtacc*gtGCAACCGAGTGTCTCTT |
| P5 | F:gcgctaccggactc*agatct*ATGTCTATATTAGAAAA |
| R:atcccgggcccgc*ggtacc*gtTTTTTTTTCCAAAAAAG |
| P6 | F:gcgctaccggactc*agatct*ATGTCTATATTAGAAAA |
| R:atcccgggcccgc*ggtacc*gtAGAGGTGAGCTCTTTT |
| P7 | F:gcgctaccggactc*agatct*ATGTCTATATTAGAAAA |
| R:atcccgggcccgc*ggtacc*gtTTGTATTTTTTTACTTA |
| P8 | F:gcgctaccggactc*agatct*ATGTCTATATTAGAAAA |
| R:atcccgggcccgc*ggtacc*gtTAAACAGCTATCTTTGT |
| P9 | F:gcgctaccggactc*agatct*ATGTCTATATTAGAAAA |
| R:atcccgggcccgc*ggtacc*gtGTTTGTAAGATGCTCT |
| P10 | F:gcgctaccggactc*agatct*ATGTCTATATTAGAAAA |
| R:atcccgggcccgc*ggtacc*gtACAGCTATCTTTGTTT |
| P11 | F:gcgctaccggactc*agatct*TCTATATTAGAAAAAAT |
| R:atcccgggcccgc*ggtacc*gtTGCGATGCGAAACAGA |
| P12 | F:gcgctaccggactc*agatct*ATGTCTATATTAGAAAA |
| R:atcccgggcccgc*ggtacc*gtTGCGATGCGAAACAGA |

**Note:** All the amplified PCR fragments were ligated into vectors by Seamless Cloning/In-Fusion Cloning. F, forward; R, reverse. The restriction sites are italic.