





## Codon-optimized Cas9 sequence

ATG **GACTACAAAAGATCACGATGGCGACTACAAAAGATACGATATCGACTACAAAAGACGATGACGATAAA** **CCAAA**  
**GAAGAAGCGTAAGGTA** GACAAGAAGTACTCCATCGGACTCGACATCGGAACCAACTCCGTCGGATGGGCCGTCAT  
CACCGACGACTACAAGGTCCCATCCAAGAAGTTC AAGGTCTCGGAAACACCGACCGTCACTCCATCAAGAAGAA  
CCTCATCGGAGCCCTCTTCCGGATCCGGAGAGACCCGCGAGGCCACCCGTCTCAAGCGTACCGCCGTCGTCTCGT  
TACACCCGTCGTAAGAACCCTATCTGCTACCTCCAAGAGATCTTCTCCAACGAGATGGCCAAAGCAACTCTTCGAG  
TCTTCCACCGTCTCGAGGAGTCTTCTCGTCGAGGAGGACAAGAAGCACGAGCGTCAACCAATCTTCGGAAACA  
TCGTCGACGAGGTCGCCTACCACGAGAAGTACCCAACCATCTACCACCTCCGTAAGAAGTTCGCCGACTCCACCG  
ACAAGGCCGACTCCGTCATCTACCTCGCCCTCGCCACATGATCAAGTTCGGTGGACACTTCTCATCGAGGG  
AGACCTCAACCCAGACAACCTCCGACGTCGACAAGTCTTCATCCAACCTCGTCCAAATCTCAAGCAACTCTTCGAG  
GAGAACCCAATCAACGCCTCCCGTGTGACGCCAAGGCCATCTCTCCGCCGTCCTCCAAGTCCCGTCTGTCG  
AGAACCTCATCGCCAACTCCAGGAGAGAAGCGTAAACGGACTCTTCGGAAACCTCATCGCCTCTCCCTCGGACT  
CACCCAAACTTCAAGTCCAACCTTCGACCTCGCCGAGACGCCAAGTCCAACCTCTCCAAGGACACCTACGACGA  
CGACCTCGACAACCTCGCCAAATCGGAGCAATACGCCGACTCTTCTCGCCGCAAGCAACTCTTCGAG  
GCCATCTCTCTCCGACATCTCCGTGTAACCTCGAGATCACCAAGGCCCACTCTCCGCTCCATGATCAAGC  
GTTACGACGAGCACCACCAAGACCTCACCTCTCAAGGCCCTCGTCCGTAACAACTCCAGAGAAGTACAAG **gt**  
**aagtttaaacatataataactaactaacctgattatttaaatctcag** GAGATCTTCTTCGACCAATCCAAGAACGGATACGCCGGATACATCGAC  
GGAGGACCTCCCAAGGAGGTTCTACAAGTTCATCAAGCAATCTTCGAGAAGATGGACGGAACCGAGGAGAT  
CTCTGTAAGTCAACCGTGAAGGACTCTCCGTAAGCAACGTACCTTCGACAACGGATCCATCCACACCAAAATC  
CACCTCGAGAGCTCCACGCCATCTCCGTGTCGTAAGGACTTCTACCCATCTCTCAAGGACAACCGTGAAGA  
ATCGAGAAGATCTCACCTTCCGATCCATACTACGTCGGACCACTCGCCGTCGGAACCTCCGTTTCGCCTGGA  
TGACCCGTAAGTCCGAGGAGACCATCACCCATGGAACCTTCGAGGAGGTCGTCGACAAGGAGCCTCCGCCAAT  
CCTTCATCGACGCTATGACCAACTTCGACAAGAACTCCCAAAACGAGAAGGTCCTCCCAAGCAACTCTCTCTA  
CGAGTACTTACCGTCTACAACGAGCTCACCAAGGTCAGTACGTCACCGAGGGAATGCGTAAGCCAGCCTTCT  
CTCCGGAGAGCAAAAAGAGGCCATCGTCGACCTCTTCAAGACCAACCGTAAGGTCACCGTCAAGCAACTCAA  
GGAGGACTACTTCAAGAAGATCGAGTGCTTCGACTCCGTCGAGATCTCCGGAGTCGAGGACCGTTTCAACGCCCT  
CCTCGGAGACTCCCTCAAGATCATCAAGGACAAGGACTTCTCGACAACGAGGACTTCTCGACAACGAGGACAT  
CCTCGAGGACATCGTCTCACCTCACCTCTTCGAGGACCGTGGAAATGATCGAGGAGCGTCTCAAGACCTACGCC  
CACCTTTCGACGACAAGGTCATGAAGCAACTCAAGCGTCTGTCGTTACACCGGATGGGGACGTCCTCCCGTAAG  
CTCATTAACGGAAATCCGTGACAAGCAATCCGGAAG **gtaagtttaaacagttcggtaactaaccatacatatttaaatctcag** ACCATCTCG  
ACTTCTCAAGTCCGAGATTCGCCAACCGTAACCTCATGCAACTCATCCACGACGACTCCCTCACCTCAAGGA  
GGACATCCAAAAGGCCAAGTCTCCGGACAAGGACTCCCTCCACGAGCAAAATCGCCAACCTCGCCGGATCCCC  
AGCCATCAAGAAGGGAATCTCCAAACCGTCAAGATCGTCGACGAGCTCGTCAAGGTCATGGGACACAAGCCAG  
AGAACATCGTCATCGAGATGGCCCGTGAGAACCAACCCCAAAAGGGACAAAAGAAGTCCCGTGAGCGTATG  
AAGCGTATCGAGGAGGGAATCAAGGAGTTCGGATCCCAACTCTCAAGGAGCACCAGTCGAGAACCCAACT  
CCAAAACGAGAAGCTCTACCTTACTACCTCCAAAACGACGTCGATGTACGTCGACCAAGAGCTCGACATCAA  
CCGTCTCTCCGACTACGACGTCGACCACATCGTCCCACAATCTTCATCAAGGACGACTCCATCGACAACAAGGTC  
CTCACCCGTTCCGACAAGAACCGTGGAAAGTCCGACAACGTCCCATCCGAGGAGGTCGTAAGAAGATGAAGAAC  
TACTGGCGTCAACTCTCAACGCCAAGTCTACCCAACGTAAGTTCGACAACCTCACCAAGGCCGAGCGTGGA  
GGACTCTCCGACTCGACAAGGCCGGATTCTCAAGGTCACCAAGGTCGACTCGTCGAGACCCGTCAAATCACCAAGCAGTC  
GCCAAATCTCGACTCCCGTATGAACACCAAGTACGACGAGAACGACAAGCTCATCCGTGAGGTCAAGGTCATC  
ACCCTCAAGTCCAAGCTCGTCTCCGACTTCCGTAAGGACTTCCAATTCTACAAGGTCGTCGATCAACAACCTACC  
ACCACGCCACGACGCCTACTCAACGCCGTCGTCGGAACCGCCCTCATCAAGAAGTACCCAAAGCTCGAGTCCG  
AGTTCGTCACGGAGACTACAAGGTCACGACGTCGTAAGATGATCGCCAAGTCCGAGCAAGAGATCGGAAAAG **gt**  
**aagtttaaacatgattttactaactaactaatctgatttaaatctcag** GCCACCGCAAGTACTTCTTCTACTCCAACATCATGAACTTCTTCAAGA  
CCGAGATCACCTCGCCAACGGAGAGATCCGTAAGCGTCCACTCATCGAGACCAACGGAGAGACCGGAGAGATC  
GTCTGGGACAAGGGACGTCGTCGACCCGTCGTAAGGTCCTTCCATGCCACAAGTCAACATCGTCAAGAAG  
ACCGAGTCCAAACCGGAGGATTCTCCAAGGAGTCCATCTCCAAAGCGTAACTCCGACAAGCTCATCGCCGT  
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AAGGTCGAGAAGGGAAGTCCAAGAAGCTCAAGTCCGTAAGGACTCCTCGGAATCACCATCATGGAGCGTTCC  
TCCTTCGAGAAGAACCATCGACTTCTCGAGGCCAAGGGATACAAGGAGGTCAAGAAGGACCTCATCAAG  
CTCCCAAAGTACTCTTCGAGCTCGAGAACGGAGCTAAGCGTATGCTCGCTCCGCCGAGAGCTCCAAAAG  
GGAAACGAGCTCGCCCTCCCATCCAAGTACGTCAACTTCTCTACTCGCTCCCACTACGAGAAGCTCAAGGGAT  
CCCCAGAGGACAACGAGCAAAAGCAACTTTCGTCGAGCAACACAAGCACTACCTCGACGAGATCATCGAGCAA  
ATCTCCGAGTTCCTCAAGCGTGTATCTCGCCGACGCCAACCTCGACAAGGTCCTCTCCGCCTACAACAAGCACC  
GTGACAAGCCAATCCGTGAGCAAGCCGAGAACATCACCTTTCACCCTCACCAACCTCGGAGCCCCAGCCG  
CCTCAAGTACTTCGACACCACCATCGACCGTAAGCGTTACACCTCCACCAAGGAGGTCCTCGACGCCACCCTCAT  
CCCCAATCCATCACCGGACTCTACGAGACCCGATCGACCTTCCCAACTCGGAGGAGAC **ATGAGCCGTAGACG**  
**AAAAGCGAATCCGACAAAACCTGAGTGAACCGCAAGAAGCTTGCCAAGGAAGTTGAAAAT** TAA

 : 3X FLAG





 : SV40

 : Artificial intron

 : *egl-13*

## Chimeric RNA sequence with *rpr-1* promoter

```
cgattcggctaaaaatagcgaaaaacatcaaattgtattaaaaagaagcagttgaaatgagtgaggctcagagact  
acaaactacaaaaaggctcagcctcaaccaatgtagtgtaaaaattgatttttcagttaaaaacgatggtttgatgctttt  
acctatttacagatagaaaatttaaattcgcaaaaatcttaaaaataaacTTTTGTTGGTTTCGCTCGAAAATAGCTTAA  
ttgcagttttctcaaaaactctaaattcatgcgtccacgtggctttctatcaattaaataactaataataattttctcaaaa  
ctgccacgttacagcctgcatagcctctgaaactctacaattcccctctaactactagcgcgcctccccgcactcaa  
cacagcgagcggcggaacccgcggggtgctggccgctcggacacgctcccgtatataacgacgcggcgcgctcaag  
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AATAAGGCTAGTCCGTTATCAACTTGAAAAAGTGGCACCGAGTCGGTGCTT  
ttgtgggcttcagctttctgtgggcccgttttaggccaaatgatagaaagccacgtggaaatcatgaattaaagctatttcg  
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aacatagttttaactgaaaaaatcaattttaacactaaaaattggttgaggctgatcctttttagttttagtctctgagcc  
tactcaaaattcaaaagtcttttgatacaaattgatgattttcgtattttctagccgaaatcgtattttcaacatttcttaa  
caaaataggattgctcaaaatgataaacattatttaaaagtaccgttaaagttgtaccaaaaatagtgaaattattttttt
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-  : *rpr-1* promoter
-  : target RNA sequence, which is replaced by EcoRI
-  : guide RNA scaffold sequence
-  : *rpr-1* terminator

