

Developing an enhanced chimeric permuted intron-exon system for circular RNA therapeutics

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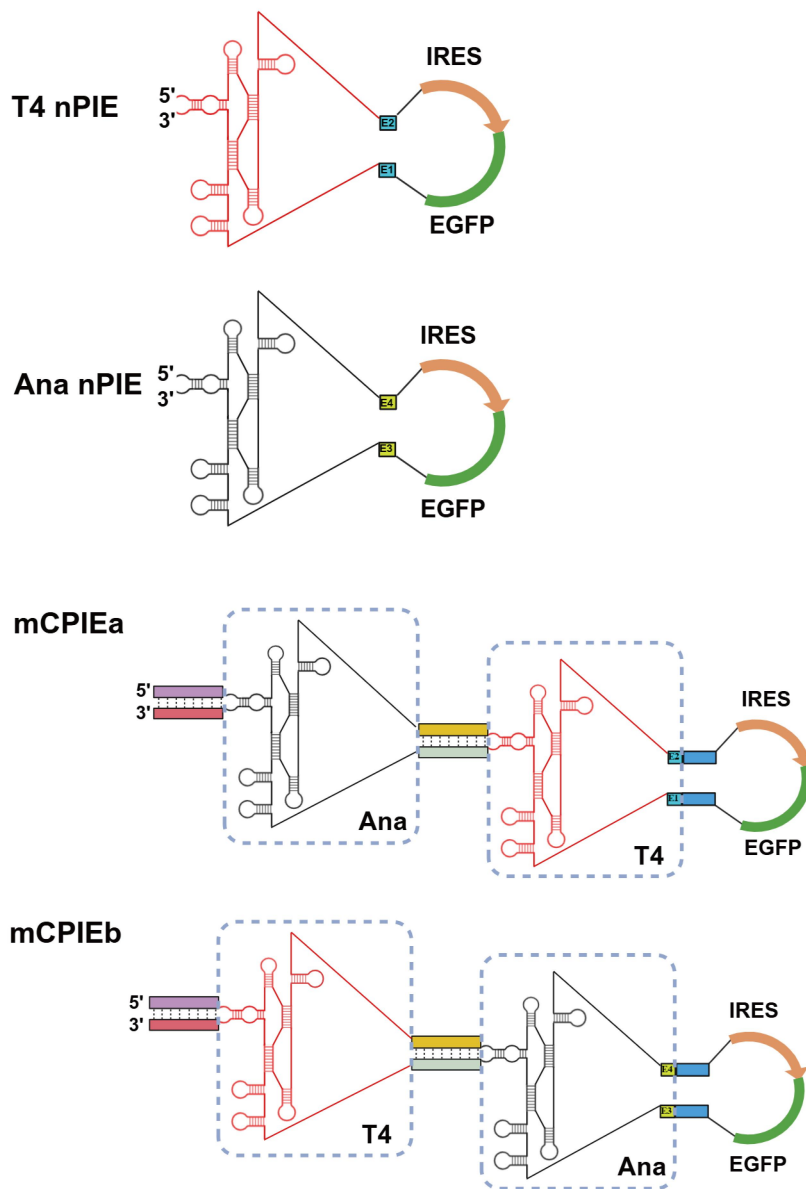


Figure S1. A schematic diagram depicts the components of the T4-nPIE, Ana-nPIE, mCPIEa, and mCPIEb systems.

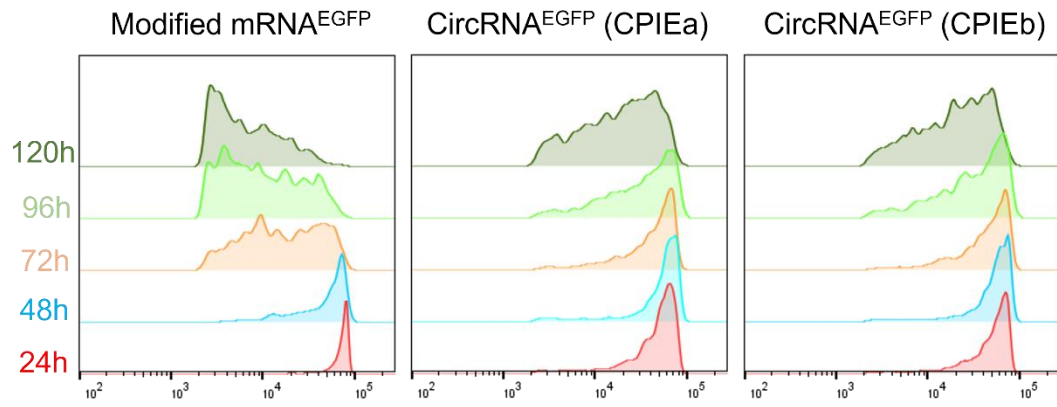


Figure S2. Assessment of EGFP expression in 293F cells transfected with circRNA^{EGFP} (CPIEa), circRNA^{EGFP} (CPIEb) and modified mRNA^{EGFP} over 5 days by flow cytometry.

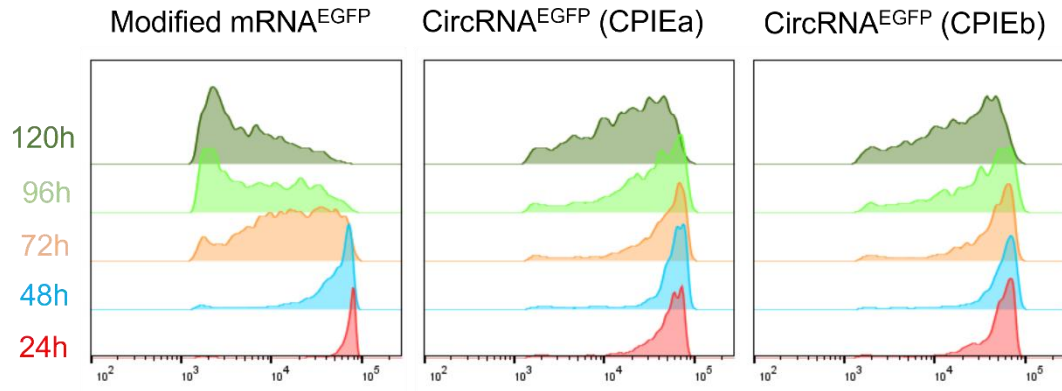


Figure S3. Assessment of EGFP expression in 293T cells transfected with circRNA^{EGFP} (CPIEa), circRNA^{EGFP} (CPIEb) and modified mRNA^{EGFP} over 5 days by flow cytometry.

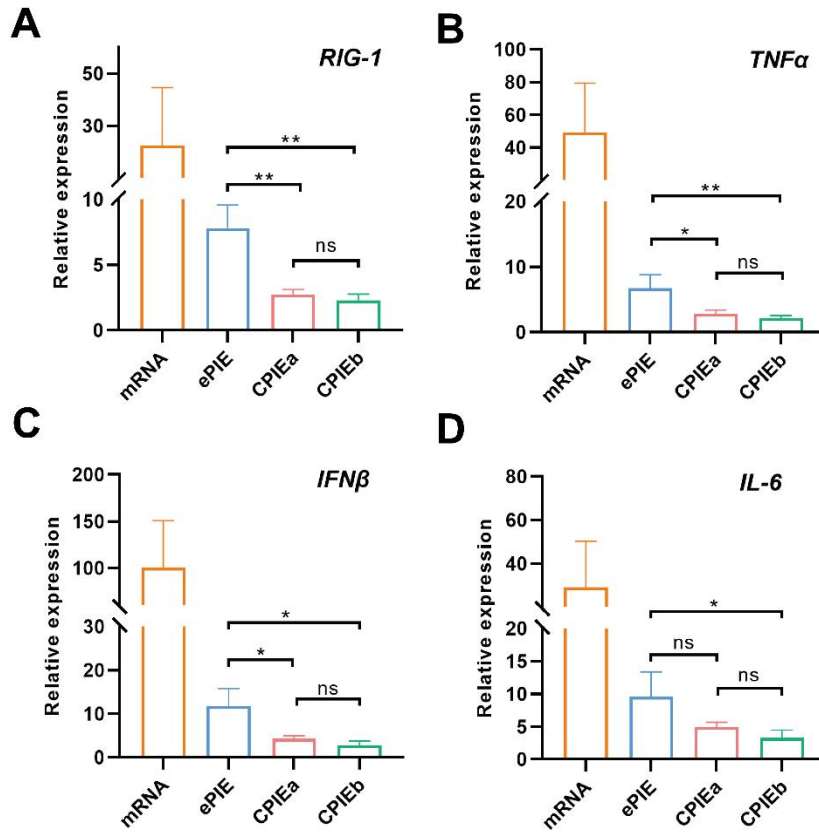


Figure S4. RT-qPCR analysis was performed to evaluate the relative expression of specific genes, *RIG-1* (a), *TNFα* (b), *IFNβ* (c) and *IL-6* (d) in A549 cells transfected with ePIE- and CPIE-generated circRNA^{EGFP} at 12 h post-transfection. Notably, the unmodified linear mRNA^{EGFP} served as control. The mRNA expression levels were normalized not only using actin as a reference gene, but also by considering intracellular mRNA or circRNA quantities to account for variations in transfection efficiencies and RNA stability.

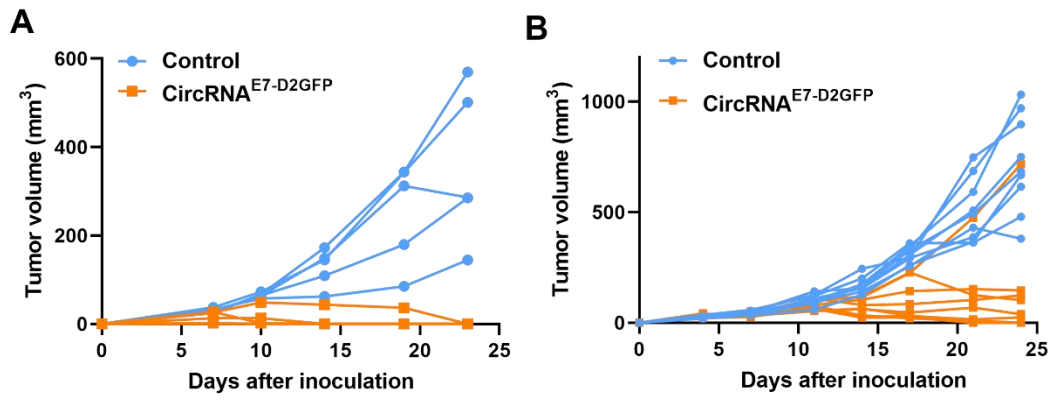


Figure S5. Individual tumor growth curves of the mice from control and vaccinated groups in Figure 6B and Figure 6D.

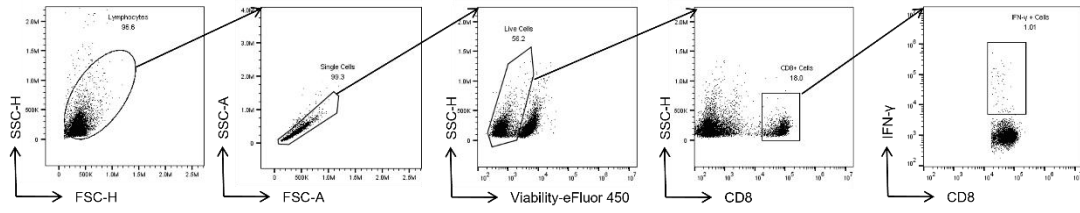


Figure S6. Flow cytometric gating strategies for the identification of IFN- γ ⁺CD8⁺ T cells subset.

Table S1

IVT templates	
<p>CircRNA^{EGFP} templete (T4 nPIE)</p>	<p>GGTTCTACATAAATGCCTAACGACTATCCCTTTGGGGAGTAGGGTCAAGTGACTCGA AACGATAGACAACCTTGCTTTAAACAAGTTGGAGATATAGTCTGCTCTGCATGGTGACA TGCAGCTGGATATAATTCCGGGGTAAGATTAACGACCTTATCTGAACATAATGCTACC GTTTAATATTGCGTCATTTAAAACAGCCTGTGGGTTGATCCCACCCACAGGCCATT GGGCGCTAGCACTCTGGTATCACGGTACCTTTGTGCGCCTGTTTTATACCCCCTCCC CCAACTGTAACCTAGAAGTAACACACACCCGATCAACAGTCAGCGTGGCACACCAG CCACGTTTTGATCAAGCACTTCTGTTACCCCGGACTGAGTATCAATAGACTGCTCAC GCGGTTGAAGGAGAAAAGCGTTCGTTATCCGGCCAACACTCTCGAAAAACCTAGTAA CACCGTGGAAGTTGCAGAGTGTTCGCTCAGCACTACCCAGTGTAGATCAGGTGC ATGAGTCACCGCATTCCCCACGGGCGACCGTGGCGGTGGCTGCGTTGGCGGCTGC CCATGGGGAAACCCATGGGACGCTCTAATACAGACATGGTGCGAAGAGTCTATTGA GCTAGTTGGTAGTCCTCCGGCCCCTGAATGCGGCTAATCCTAACTGCGGAGCACAC ACCCTCAAGCCAGAGGGCAGTGTGTCGTAACGGGCAACTCTGCAGCGGAACCGAC TACTTTGGGTGTCCGTGTTTCATTTTATTCTATACTGGCTGCTTATGGTGACAATTG AGAGATCGTTACCATATAGCTATTGGATTGGCCATCCGGTGACTAATAGAGCTATTAT ATATCCCTTTGTTGGGTTTATACCACTTAGCTTGAAAGAGGTTAAAACATTACAATTC ATTGTTAAGTTGAATACAGCAAAGCCACCATGGTGAGCAAGGGCGAGGAGCTGTTTC ACCGGGTGGTGCCATCCTGGTCGAGCTGGACGGCGACGTAAACGGCCACAAGT TCAGCGTGTCCGGCGAGGGCGAGGGCGATGCCACCTACGGCAAGCTGACCCTGAA GTTTCATCTGCACCACCGCAAGCTGCCCGTGCCCTGGCCACCCTCGTGACCACCC TGACCTACGGCGTGCAGTGCTTCAGCCGCTACCCCGACCACATGAAGCAGCAGCAGC TTCTTCAAGTCCGCCATGCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAA GGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTCGAGGGCGACACCCCT GGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTG GGGCACAAGCTGGAGTACAACACTACAACAGCCACAACGTCTATATCATGGCCGACAA GCAGAAGAACGGCATCAAGGTGAACCTCAAGATCCGCCACAACATCGAGGACGGC AGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGCGACGGCCCCG TGCTGCTGCCGACAACCACTACCTGAGCACCCAGTCCGCCCTGAGCAAAGACCC CAACGAGAAGCGCGATCATATGGTCTGCTGGAGTTCGTGACCGCCGCGGGGATC ACTCTCGGCATGGACGAGCTGTACAAGTAAAGATGTTTTCTGGGTTAATTGAGGC CTGAGTATAAGGTGACTTATACTTGAATCTATCTAAACGGGGAACCTCTCTAGTAG ACAATCCCGTGCTAAATTGTAGGACT</p>
<p>CircRNA^{EGFP} templete (Ana nPIE)</p>	<p>TGACTTACAACATAATCGGAAGGTGCAGAGACTCGACGGGAGCTACCCTAACGTCAA GACGAGGGTAAAGAGAGAGTCCAATTCTCAAAGCCAATAGGCAGTAGCGAAAGCT GCAAGAGAATGAAAATCCGTTTAAAACAGCCTGTGGGTTGATCCCACCCACAGGCC CATTGGGGCGCTAGCACTCTGGTATCACGGTACCTTTGTGCGCCTGTTTTATACCCCCT CCCCAACTGTAACCTAGAAGTAACACACACCCGATCAACAGTCAGCGTGGCACACC AGCCACGTTTTGATCAAGCACTTCTGTTACCCCGGACTGAGTATCAATAGACTGCTC ACGCGGTTGAAGGAGAAAAGCGTTCGTTATCCGGCCAACACTCTCGAAAAACCTAGT AACACCGTGGAAGTTGCAGAGTGTTCGCTCAGCACTACCCAGTGTAGATCAGGT CGATGAGTCACCGCATTCCCCACGGGCGACCGTGGCGGTGGCTGCGTTGGCGGCT GCCATGGGGAAACCCATGGGACGCTCTAATACAGACATGGTGCGAAGAGTCTATT</p>

	<p>GAGCTAGTTGGTAGTCTCCGGCCCTGAATGCGGCTAATCCTAACTGCGGAGCAC ACACCCTCAAGCCAGAGGGCAGTGTGTCGTAACGGGCAACTCTGCAGCGGAACCG ACTACTTTGGGTGTCCGTGTTTCATTTTATTCTATACTGGCTGCTTATGGTGACAAT TGAGAGATCGTTACCATATAGCTATTGGATTGGCCATCCGGTGACTAATAGAGCTATT ATATATCCCTTTGTTGGGTTTATACCACTTAGCTTGAAAGAGGTTAAAACATTACAAT TCATTGTTAAGTTGAATACAGCAAAGCCACCATGGTGAGCAAGGGCGAGGAGCTGT TCACCGGGTGGTGCCATCCTGGTCGAGCTGGACGGCGACGTAAACGGCCACAA GTTACAGCGTGTCCGGCGAGGGCGAGGGCGATGCCACCTACGGCAAGCTGACCCTG AAGTTCATCTGCACCACGGCAAGCTGCCCCTGCCCTGGCCCACCCTCGTGACCAC CCTGACCTACGGCGTGCAGTGTTCAGCCGCTACCCCGACCACATGAAGCAGCAGC ACTTCTTCAAGTCCGCCATGCCC GAAGGCTACGTCCAGGAGCGCACCATCTTCTTC AAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTCGAGGGCGACACC CTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCC TGGGGCACAAGCTGGAGTACAACACTACAACAGCCACAACGTCTATATCATGGCCGAC AAGCAGAAGAACGGCATCAAGGTGAACTTCAAGATCCGCCACAACATCGAGGACG GCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGGCGACGGCCC CGTGCTGCTGCCGACAACCACTACCTGAGCACCCAGTCCGCCCTGAGCAAAGAC CCCAACGAGAAGCGCGATCACATGGTCTGCTGGAGTTCGTGACCGCCGCCGGGAT CACTCTCGGCATGGACGAGCTGTACAAGTAAACGGACTTAAATAATTGAGCCTTAA AGAAGAAATTCTTTAAGTGGATGCTCTCAAACCTACGGGAAACCTAAATCTAGTTATA GACAAGGCAATCCTGAGCCAAGCCGAAGTAGTAATTAGTAAGTTA</p>
<p>CircRNA^{EGFP} temple (mCPIEa)</p>	<p>TTATAATGTGGATGTATATATGACTTACAACCTAATCGGAAGGTGCAGAGACTCGACG GGAGCTACCCTAACGTCAAGACGAGGGTAAAGAGAGAGTCCAATTCTCAAAGCCA ATAGGCAGTAGCGAAAAGCTGCAAGAGAATGTGGATTGGCAGCCAGACTGCGGTTCT ACATAAATGCCTAACGACTATCCCTTTGGGGAGTAGGGTCAAGTGACTCGAAACGA TAGACAACCTTGCTTTAACAAGTTGGAGATATAGTCTGCTCTGCATGGTGACATGCAG CTGGATATAATTCCGGGTAAGATTAACGACCTTATCTGAACATAATGCTACCGTTTA ATATTGCGTCATAAAAAACAAAAACAAAAACAAAAACAAAATTAATAACAGCCTG TGGGTTGATCCCACCCACAGGCCATTGGGCGCTAGCACTCTGGTATCACGGTACCT TTGTGCGCCTGTTTATACCCCTCCCCAACTGTAACCTAGAAAGTAAACACACACCG ATCAACAGTCAGCGTGGCACACCAGCCACGTTTTGATCAAGCACTTCTGTTACCCC GGACTGAGTATCAATAGACTGCTCACGCGTTGAAGGAGAAAGCGTTCGTTATCCG GCCAACTACTTCGAAAAACCTAGTAACACCGTGGAAGTTGCAGAGTGTTTCGCTCA GCACTACCCAGTGTAGATCAGGTGATGAGTCACCGCATTCCCCACGGGCGACCG TGGCGGTGGCTGCGTTGGCGGCCTGCCATGGGAAACCCATGGGACGCTCTAATA CAGACATGGTGCGAAGAGTCTATTGAGCTAGTTGGTAGTCTCCGGCCCTGAATG CGGCTAATCCTAACTGCGGAGCACACCCCTCAAGCCAGAGGGCAGTGTGTCGTA ACGGGCAACTCTGCAGCGGAACCGACTACTTTGGGTGTCCGTGTTTCATTTTATTCC TATACTGGCTGCTTATGGTGACAATTGAGAGATCGTTACCATATAGCTATTGGATTGG CCATCCGGTGACTAATAGAGCTATTATATATCCCTTTGTTGGGTTTATACCACTTAGCT TGAAAGAGGTTAAAACATTACAATTCATTGTTAAGTTGAATACAGCAAAGCCACCAT GGTGAGCAAGGGCGAGGAGCTGTTACCGGGTGGTGCCATCCTGGTCGAGCTG GACGGCGACGTAAACGGCCACAAGTTCAGCGTGTCCGGCGAGGGCGAGGGCGATG CCACCTACGGCAAGCTGACCCTGAAGTTCATCTGCACCACCGGCAAGCTGCCCGTG</p>

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<p>CircRNA^{EGFP} templete (mCPIEb)</p>	<p>TTATAATGTGGATGTATATAGGTTCTACATAAATGCCTAACGACTATCCCTTTGGGGA GTAGGGTCAAGTGACTCGAAACGATAGACAACCTTGCTTTAACAAGTTGGAGATATA GTCTGCTCTGCATGGTGACATGCAGCTGGATATAATTCCGGGGTAAGATTAACGACC TTATCTGAACATAATGTGGATTGGCAGCCAGACTGCTGACTTACAACATAATCGGAAG GTGCAGAGACTCGACGGGAGCTACCCTAACGTCAAGACGAGGGTAAAGAGAGAGT CCAATTCTCAAAGCCAATAGGCAGTAGCGAAAGCTGCAAGAGAATGAAAATCCGTA AAAAACAAAAACAAAAACAAAAACAAAATTAACAGCCTGTGGGTTGATCCCA CCCACAGGCCATTGGGGCTAGCACTCTGGTATCACGGTACCTTTGTGCGCCTGTT TTATACCCCTCCCCAACTGTAAC TTAGAAGTAACACACACCGATCAACAGTCAG CGTGGCACACCAGCCACGTTTTGATCAAGCACTTCTGTTACCCCGGACTGAGTATC AATAGACTGCTCACGCGTTGAAGGAGAAAGCGTTCGTTATCCGGCCAACACTTTC GAAAAACCTAGTAACACCGTGAAGTTGCAGAGTGTTCGCTCAGCACTACCCCA GTGTAGATCAGGTCGATGAGTCACCGCATTCCCACGGGCGACCGTGGCGGTGGCT GCGTTGGCGGCCTGCCATGGGGAAACCCATGGGACGCTCTAATACAGACATGGTG CGAAGAGTCTATTGAGCTAGTTGGTAGTCTCCGGCCCCTGAATGCGGCTAATCCTA ACTGCGGAGCACACACCCTCAAGCCAGAGGGCAGTGTGTCGTAACGGGCAACTCT GCAGCGGAACCGACTACTTTGGGTGTCCGTGTTTCAATTTATCTATACTGGCTGCT TATGGTGACAATTGAGAGATCGTTACCATATAGCTATTGGATTGGCCATCCGGTGACT AATAGAGCTATTATATATCCCTTTGTTGGGTTTATACCACTTAGCTTGAAAGAGGTTA AAACATTACAATTCATTGTTAAGTTGAATACAGCAAAGCCACCATGGTGAGCAAGG GCGAGGAGCTGTTACCGGGGTGGTGCCATCCTGGTCGAGCTGGACGGCGACGT AAACGGCCACAAGTTCAGCGTGTCCGGCGAGGGCGAGGGCGATGCCACCTACGGC AAGCTGACCCTGAAGTTCATCTGCACCACCGGAAGCTGCCCGTGCCCTGGCCAC CCTCGTGACCACCCTGACCTACGGCGTGCAAGTGCCTCAGCCGCTACCCCGACCACA TGAAGCAGCAGACTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCG CACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTC GAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGG ACGGCAACATCCTGGGGCACAAGCTGGAGTACAACACTACAACAGCCACAACGTCTAT</p>

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<p>CircRNA^{EGFP} templete (CPIEb)</p>	<p>TTATAATGTGGATGTATATAGTTCTACATAAATGCCTAACGACTATCCCTTGGGGA GTAGGTCAAGTGACTCGAAACGATAGACAACCTTGCTTTAACAAGTTGGAGATATA GTCTGCTCTGCATGGTGACATGCAGCTGGATATAATTCCGGGGTAAGATTAACGACC TTATCTGAACATAATGCTACCGTTTAATATTGCGTCATTGGATTGGCAGCCAGACTGC TGACTTACAACATAATCGGAAGGTGCAGAGACTCGACGGGAGCTACCCTAACGTCAA GACGAGGGTAAAGAGAGAGTCCAATTCTCAAAGCCAATAGGCAGTAGCGAAAGCT GCAAGAGAATGAAAATCCGTAAAAAACAAAAACAAAAACAAAAACAAAAATTA AACAGCCTGTGGGTTGATCCACCCACAGGCCATTGGGCGCTAGCACTCTGGTAT CACGGTACCTTTGTGCGCCTGTTTTATACCCCTCCCCAAGTGAACCTAGAAGTA ACACACACCGATCAACAGTCAGCGTGGCACACCAGCCACGTTTTGATCAAGCACTT CTGTTACCCCGACTGAGTATCAATAGACTGCTCACGCGGTGAAGGAGAAAAGCGT TCGTTATCCGGCCAACACTTCGAAAAACCTAGTAACACCGTGGAAAGTTGCAGAGT GTTTCGCTCAGCACTACCCAGTGTAGATCAGGTCGATGAGTACCCGATTCCCCAC GGGCGACCGTGGCGGTGGCTGCGTTGGCGGCCTGCCATGGGGAAACCCATGGGA CGCTCTAATACAGACATGGTGCAGAGTCTATTGAGCTAGTTGGTAGTCTCCGGC CCCTGAATGCGGCTAATCCTAACTGCGGAGCACACCCCTCAAGCCAGAGGGCAGT GTGTCGTAACGGGCAACTCTGCAGCGGAACCGACTACTTTGGGTGTCCGTGTTCA TTTTATCCTATACTGGCTGCTTATGGTGACAATTGAGAGATCGTTACCATATAGCTAT TGGATTGGCCATCCGGTGACTAATAGAGCTATTATATATCCCTTTGTTGGGTTTATACC ACTTAGCTTGAAAGAGGTTAAAACATTACAATTCATTGTTAAGTTGAATACAGCAAA GCCACCATGGTGAGCAAGGGCGAGGAGCTGTTACCCGGGGTGGTGGCCATCCTGG TCGAGCTGGACGGCGACGTAACCGCCACAAGTTCAGCGTGTCCGGCGAGGGCGA GGGCGATGCCACCTACGGCAAGCTGACCTGAAGTTCATCTGCACCACCGGCAAGC TGCCCGTGCCCTGGCCACCCTCGTGACCACCCTGACCTACGGCGTGCAGTGCTTC AGCCGCTACCCGACCACATGAAGCAGCAGCACTTCTCAAGTCCGCCATGCCCGA AGGCTACGTCCAGGAGCGCACCATCTTCTCAAGGACGACGGCAACTACAAGACCC GCGCCGAGGTGAAGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGG CATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACCTAC AACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGA ACTTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGTCTGCCGACCACTAC CAGCAGAACACCCCATCGGGCAGCGCCCGTGCTGCTGCCCCGACAACCACTACCT GAGCACCCAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATCATATGGTC CTGCTGGAGTTCGTGACCGCCCGGGATCACTCTCGGCATGGACGAGCTGTACAA GTAAAAAAAAAAAAAAAAAAAAAAAAACGGACTTAAATAATTGAGCCTTAAAGAAGA AATCTTTAAGTGGATGCTCTCAAACCTCAGGGAAACCTAAATCTAGTTATAGACAAG GCAATCCTGAGCCAAGCCGAAGTAGTAATTAGTAAGTTAGCAGTCTGGCTGCCAAT CCAAGATGTTTTCTTGGGTTAATTGAGGCCTGAGTATAAGGTGACTTATACTTGTAA CTATCTAAACGGGGAACCTCTCTAGTAGACAATCCCGTGTCTAAATTGTAGGACTTATA TGCGTTCATATTATAG</p>

<p>CircRNA^{EGFP} templete (ePIE)</p>	<p>GGGAGACCCCTCGACCGTCGATTGTCCACTGGTCAACAATAGATGACTTACAACATAAT CGGAAGGTGCAGAGACTCGACGGGAGCTACCCTAACGTCAAGACGAGGGTAAAGA GAGAGTCCAATTCTCAAAGCCAATAGGCAGTAGCGAAAGCTGCAAGAGAATGAAA ATCCGTTGACCTTAAACGGTCGTGTGGGTTCAAGTCCCTCCACCCCCACGCCGGAA ACGCAATAGCCGAAAAACAAAAACAAAAACAAAAACAAAATTAACAGCCT GTGGGTTGATCCCACCCACAGGCCATTGGGGCGTAGCACTCTGGTATCACGGTACC TTTGTGCGCCTGTTTTATACCCCCTCCCCAACTGTAAGTACTAGAAAGTAACACACACC GATCAACAGTCAGCGTGGCACACCAGCCACGTTTTGATCAAGCACTTCTGTTACCC CGGACTGAGTATCAATAGACTGCTCACGCGGTTGAAGGAGAAAAGCGTTCGTTATCC GGCCAACTACTTCGAAAAACCTAGTAACACCGTGAAGTTGCAGAGTGTTCGCTC AGCACTACCCAGTGTAGATCAGGTCGATGAGTCACCGCATTCCACAGGGCGACC GTGGCGGTGGCTGCGTTGGCGGCCTGCCATGGGGAAACCCATGGGACGCTCTAAT ACAGACATGGTGCAGAGTCTATTGAGCTAGTTGGTAGCTCCCGGCCCTGAAT GCGGTAATCCTAACTGCGGAGCACACCCTCAAGCCAGAGGGCAGTGTGTCGTA ACGGGCAACTCTGCAGCGGAACCGACTACTTTGGGTGTCCGTGTTTCATTTTATTCC TATACTGGCTGCTTATGGTGACAATTGAGAGATCGTTACCATATAGCTATTGGATTGG CCATCCGGTGACTAATAGAGCTATTATATATCCCTTTGTTGGGTTTATACCACTTAGCT TGAAAGAGGTTAAACATTACAATTCATTGTTAAGTTGAATACAGCAAAGCCACCAT GGTGAGCAAGGGCGAGGAGCTGTTACCGGGGTGGTGCCATCCTGGTTCGAGCTG GACGGCGACGTAAACGGCCACAAGTTCAGCGTGTCCGGCGAGGGCGAGGGCGATG CCACCTACGGCAAGCTGACCCTGAAGTTCATCTGCACCACCGGCAAGCTGCCCGTG CCCTGGCCCACCCTCGTGACCACCCTGACCTACGGCGTGCAGTGCTTCAGCCGCTA CCCCGACCACATGAAGCAGCAGACTTCTTCAAGTCCGCCATGCCCGAAGGCTACG TCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGA GGTGAAGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGAC TTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACATAACAGCC ACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTCAAG ATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGA ACACCCCATCGGCGACGGCCCCGTGCTGCTGCCCGACAACCACTACCTGAGCACC CAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATCACATGGTCTCTGCTGG AGTTCGTGACCGCCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGTAAAAA AAAAAAAAAAAAAAAAACGGCTATTATGCGTTACCGGCGAGACGCTACGGACTTA AATAATTGAGCCTTAAAGAAGAAATTCTTTAAGTGGATGCTCTCAAACCTCAGGGAA ACCTAAATCTAGTTATAGACAAGGCAATCCTGAGCCAAGCCGAAGTAGTAATTAGTA AGACCAGTGACAATCGACGGATAACAGCATATCTAG</p>
<p>CircRNA^{E7-D2GFP} templete (CPIEb)</p>	<p>TTATAATGTGGATGTATATAGGTTCTACATAAATGCCTAACGACTATCCCTTTGGGGA GTAGGGTCAAGTACTCGAAACGATAGACAACCTTGCTTAAACAAGTTGGAGATATA GTCTGCTCTGCATGGTGCATGCAGCTGGATATAATTCCGGGGTAAGATTAACGACC TTATCTGAACATAATGCTACCGTTTAATATTGCGTCATTGGATTGGCAGCCAGACTGC TGACTTACAACATAATCGGAAGGTGCAGAGACTCGACGGGAGCTACCCTAACGTCAA GACGAGGGTAAAGAGAGAGTCCAATTCTCAAAGCCAATAGGCAGTAGCGAAAGCT GCAAGAGAATGAAAATCCGTAAAAACAAAAACAAAAACAAAAACAAAATTA AACAGCCTGTGGGTTGATCCCACCCACAGGCCATTGGGGCGTAGCACTCTGGTAT CACGGTACCTTTGTGCGCCTGTTTTATACCCCCTCCCCAACTGTAAGTACTAGAAAGTA</p>

	<p>ACACACACCGATCAACAGTCAGCGTGGCACACCAGCCACGTTTTGATCAAGCACTT CTGTTACCCCGACTGAGTATCAATAGACTGCTCACGCGGTGAAGGAGAAAAGCGT TCGTTATCCGGCCAACACTCTCGAAAAACCTAGTAACACCGTGGAAGTTGCAGAGT GTTTCGCTCAGCACTACCCAGTGTAGATCAGGTCGATGAGTCACCGCATCCCCAC GGGCGACCGTGGCGGTGGCTGCGTTGGCGGCCTGCCATGGGGAAACCCATGGGA CGCTCTAATACAGACATGGTGCAGAGAGTCTATTGAGCTAGTTGGTAGTCCCTCCGGC CCCTGAATGCGGCTAATCCTAACTGCGGAGCACACACCCCTCAAGCCAGAGGGCAGT GTGTCGTAACGGGCAACTCTGCAGCGGAACCGACTACTTTGGGTGTCGGTGTTCAT TTTTATTCCTATACTGGCTGCTTATGGTGACAATTGAGAGATCGTTACCATATAGCTAT TGGATTGGCCATCCGGTGACTAATAGAGCTATTATATATCCCTTTGTGGGTTTATACC ACTTAGCTTGAAAGAGGTTAAAACATTACAATTCATTGTTAAGTTGAATACAGCAAA GCCACCATGGGACCAGCAGGACAGGCAGAACCAGATAGAGCCCACTACAACATCG TGACCTTTTGTGCAAGTGCATGTGAGCAAGGGCGAGGAGCTGTTACCGGGGT GGTGCCCATCTGGTGCAGCTGGACGGCGACGTAAACGGCCACAAGTTCAGCGTG TCCGGCGAGGGCGAGGGCGATGCCACCTACGCAAGCTGACCCTGAAGTTCATCTG CACCACCGGCAAGCTGCCCGTGCCCTGGCCACCCTCGTGACCACCCTGACCTACG GCGTGCAGTGCTTCAGCCGTACCCCGACCACATGAAGCAGCACGACTTCTTCAAG TCCGCCATGCCGAAGGTACGTCCAGGAGCGCACCATCTTCTCAAGGACGACGG CAACTACAAGACCCGCGCCGAGGTGAAGTTCGAGGGCGACACCCTGGTGAACCGC ATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCTGGGGCACAAGC TGGAGTACAACATAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAAC GGCATCAAGGTGAAGTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGC TCGCCGACCACTACCAGCAGAACACCCCATCGGCGACGGCCCCGTGCTGCTGCC GACAACCACTACCTGAGCACCCAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGC GCGATCACATGGTCTGCTGGAGTTCGTGACCGCCGCCGGGATCACTCTCGGCATG GACGAGCTGTACAAGAAGCTTAGCCATGGCTTCCCGCCGGAGGTGGAGGAGCAGG ATGATGGCAGCTGCCCATGTCTTGTGCCAGGAGAGCGGGATGGACCGTCACCCT GCAGCCTGTGCTTCTGCTAGGATCAATGTGTAGAAAAAAAAAAAAAAAAAAAAAAC GGACTTAAATAATTGAGCCTTAAAGAAGAAATCTTTAAGTGGATGCTCTCAAACCTC AGGGAAACCTAAATCTAGTTATAGACAAGGCAATCCTGAGCCAAGCCGAAGTAGTA ATTAGTAAGTTAGCAGTCTGGCTGCCAATCCAAGATGTTTTCTTGGGTTAATTGAGG CCTGAGTATAAGGTGACTTATACTTGAATCTATCTAAACGGGGAACCTCTCTAGTAG ACAATCCCGTGCTAAATTGTAGGACTTATATGCGTTCATATTATAG</p>
<p>CircRNA^{dRBD} templete (CPIEb)</p>	<p>TTATAATGTGGATGTATATAGGTTCTACATAAATGCCTAACGACTATCCCTTTGGGGA GTAGGGTCAAGTACTCGAAACGATAGACAACCTTGCTTTAACAAGTTGGAGATATA GTCTGCTCTGCATGGTGACATGCAGCTGGATATAATTCCGGGGTAAGATTAACGACC TTATCTGAACATAATGCTACCGTTAATATTGCGTCATTGGATTGCGAGCCAGACTGC TGACTTACAACATAATCGGAAGGTGCAGAGACTCGACGGGAGCTACCCTAACGTCAA GACGAGGGTAAAGAGAGAGTCCAATTCTCAAAGCCAATAGGCAGTAGCGAAAGCT GCAAGAGAATGAAAATCCGTAAAAAACAAAAACAAAAACAAAAACAAAAATTA AACAGCCTGTGGGTTGATCCACCCACAGGCCATTGGGCGCTAGCACTCTGGTAT CACGGTACCTTTGTGCGCCTGTTTTATACCCCTCCCCAACTGTAACCTAGAAGTA ACACACACCGATCAACAGTCAGCGTGGCACACCAGCCACGTTTTGATCAAGCACTT CTGTTACCCCGACTGAGTATCAATAGACTGCTCACGCGGTGAAGGAGAAAAGCGT</p>

	TCGTTATCCGGCCAACACTACTTCGAAAAACCTAGTAACACCGTGGAAGTTGCAGAGT GTTTCGCTCAGCACTACCCCAGTGTAGATCAGGTCGATGAGTCACCGCATTCCCCAC GGGCGACCGTGGCGGTGGCTGCGTTGGCGGCCTGCCATGGGGAAACCCATGGGA CGCTCTAATACAGACATGGTGCGAAGAGTCTATTGAGCTAGTTGGTAGTCCTCCGGC CCCTGAATGCGGCTAATCCTAACTGCGGAGCACACACCCTCAAGCCAGAGGGCAGT GTGTCGTAACGGGCAACTCTGCAGCGGAACCGACTACTTTGGGTGTCGGTGTTC TTTTATTCTATACTGGCTGCTTATGGTGACAATTGAGAGATCGTTACCATATAGCTAT TGGATTGGCCATCCGGTGACTAATAGAGCTATTATATATCCCTTTGTGGGTTTATACC ACTTAGCTTGAAAGAGGTTAAAACATTACAATTCATTGTAAAGTTGAATACAGCAAA GCCACCATGATCCACAGCGTGTTCCTGCTGATGTTCCCTGACCCCTACCGAGAGC AGAGTGCAGCCACAGAGTCCATCGTGCGGTTTCCCAATATTACAAAACCTGTGTCCC TTCGGGGAAGTGTCAACGCCACAAGATTCGCTAGCGTGTATGCTTGAATAGAAA AAGAATTTCCAACCTGCGTGGCTGACTACAGCGTGTGTACAACCTCCGCTAGCTTCA GCACCTTCAAGTGTATGGGGTGAGCCCCACCAAGCTGAACGATCTGTGCTTTACC AATGTGTATGCCGACAGCTTCGTGATTAGAGGGGATGAGGTCCGGCAGATCGCTCC CGGCCAAACCGGAAGATCGCCGACTACAATTACAAGCTCCCCGATGACTTTACCG GCTGCGTGATCGCTGGAATAGCAACAACCTGGACTCCAAGGTGGGCGGAATTAC AATTACAGATACAGACTGTTTCGGAAGTCCAACCTGAAACCCTTCGAGCGGGATAT CTCCACCGAAATCTACCAAGCCGGGAGCAAGCCCTGTAACGGCGTGGAGGGCTTC AACTGCTACTTTCCCTGCAGAGCTACGGCTTTCAGCCCACCAACGGCGTGGGCTA TCAGCCCTACAGAGTGGTCGTGCTCAGCTTCGAGCTGCTCCATGCTCCCGCTACCGT GTGCGGCCCCAAGAAATCCACCAACCTGGTGAAGAACAAGCGGGTGCAGCCCACC GAGAGCATCGTCAGATTCCCCAACATCACCAACCTGTGCCCTTCGACGAGGTGTT CAACGCTACAAGATTGCTAGCGTGTACGCCTGGAATAGAAAAAGAATTAGCAATT GTGTGGCTGATTATAGCGTCTGTACAACCTTCGCCCCCTTCTTCGCTTCAAGTGCTA CGGCGTCTCCCCACAAAAGCTGAACGACCTGTGCTTCACCAACGTGTACGCCGATA GCTTTGTGATCAGAGGCAACGAAGTGAGCCAAATCGCCCCGGGCAGACCCGGCAA CATTGCCGACTACAATAAGCTGCCCGACGACTTCACCGGCTGCGTCATCGCTT GGAACAGCAATAAGCTGGACAGCAAGGTGGGCGGCAACTATAACTACCTCTACAGA CTGTTTCAGAAAGAGCAACCTGAAGCCTTTCGAGCGGGACATCAGCACCGAGATTA CCAAGCCGGCAACAAGCCCTGCAATGGCGTGGCTGGCTTCAACTGTTACTTCCCC TGCGCAGCTACGGCTTCAGACCCACCTACGGCGTGGGCCATCAGCCCTACCGGGTG GTCGTGCTGTCTTCGAGCTGTGCACGCTCCCGCCACCGTGTGTGGCCCCAAGAA AAGCACAATCTGGTCAAGAACAAGCATCACCATCACCTACTGAAAAAAAAAAAA AAAAAAAAAAAAACGGACTTAAATAATTGAGCCTTAAAGAAGAAATTCTTAAAGTGG ATGCTCTCAAACCTCAGGGAAACCTAAATCTAGTTATAGACAAGGCAATCCTGAGCC AAGCCGAAGTAGTAATTAGTAAGTTAGCAGTCTGGCTGCCAATCCAAGATGTTTCT TGGGTTAATTGAGGCCTGAGTATAAGGTGACTTATACTTGAATCTATCTAAACGGGG AACCTCTCTAGTAGACAATCCCGTGCTAAATTGTAGGACTTATATGCGTTCATATTATA G
qPCR primers	
EGFP-qF	CCACATGAAGCAGCAGCACTT
EGFP-qR	CGATGTTGTGGCGATCTTGA
Circ-qF	GATCACTCTCGGCATGGACGA

Circ-qR	GCAGTCTATTGATACTCAGTC
RIG-1-qF	TGTGGGCAATGTCATCAAAA
RIG-1-qR	GAAGCACTTGCTACCTCTTGC
IL-6-qF	AGACAGCCACTCACCTCTTCAG
IL-6-qR	TTCTGCCAGTGCCTCTTTGCTG
TNF α -qF	CTCTTCTGCCTGCTGCACTTG
TNF α -qR	ATGGGCTACAGGCTTGTCACTC
IFN β -qF	CTTGATTCTACAAAGAAGCAGC
IFN β -qR	TCCTCCTTCTGGAAGTCTGCA
β -actin-qF	CACCATTGGCAATGAGCGGTTT
β -actin-qR	AGGTCTTTGCCGGATGTCCACGT