

**Supplementary Table S1.** The sequences of *GUS*, *cadA*, and the native promoters used in the study.

| Name   | 5' - 3' sequence   |
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| <b><i>GUS</i></b><br><b>gene:</b><br>1812bp  | ATGCTGCGCCCCGTGGAGACCCCCACCCGCGAGATCAAGAAGCTGGACGGCCTGTGGGC<br>CTTCAGCCTGGACCGCGAGAACTGCGGCATCGACCAGCGCTGGTGGGAGAGCGCCCTGC<br>AAGAGAGCCGCGGATCGCGGTGCCCCGCGAGCTTCAACGACCAGTTCGCGGACGCCGA<br>CATCCGCAACTACGCGGGCAACGTGTGGTACCAGCGCGAGGTGTTTCATCCCCAAGGGCT<br>GGGCGGGCCAGCGCATCGTGCTGCGCTTCGACGCGGTGACCCACTACGGCAAGGTGTGG<br>GTGAACAACCAGGAGGTCATGGAGCACCAGGGCGGCTACACCCCTTCGAGGCGGACG<br>TGACCCCTACGTGATCGCCGGCAAGAGCGTGCGCATCACCGTGTGCGTGAACAACGAG<br>CTGAACTGGCAGACCATCCCCCGGCATGGTCATTACCGACGAGAACGGCAAGAAGAA<br>GCAGAGCTACTTCCACGACTTCTTCAACTACGCCGGCATCCACCGCAGCGTGATGCTGTA<br>CACCACCCCAACACCTGGGTGGACGACATCACCGTGGTGACCCACGTGGCCCAGGACT<br>GCAACCACGCGAGCGTGGACTGGCAGGTGGTGGCCAACGGCGACGTGAGCGTGGAGCT<br>GCGCGACGCCGACCAGCAGGTGGTGGCGACCGGCCAGGGCACCAGCGGCACCCTGCAA<br>GTGGTGAACCCCACTGTGGCAGCCCGCGAGGGCTACCTGTACGAGCTGTGCGTGAC<br>CGCCAAGAGCCAGACCGAGTGCAGACATCTACCCCTGCGCGTGGGCATCCGCAGCGTGG<br>CCGTGAAGGGCGAGCAGTTCCTGATCAACCACAAGCCCTTCTACTTCACCGGCTTCGGC<br>CGCCACGAGGACGCCGACCTGCGCGGAAGGGCTTCGACAACGTGCTGATGGTGCACG<br>ACCACGCGCTGATGGACTGGATCGGCGCCAACAGCTACCGCACCAGCCACTACCCCTAC<br>GCGGAGGAGATGCTGGACTGGGCGGACGAGCAGGCATCGTGGTCATTGACGAGACCG<br>CCGCGGTGGGCTTCAACCTGAGCCTGGGCATCGGCTTCGAGGCGGGCAACAAGCCCAAG<br>GAGCTGTACAGCGAGGAGGCCGTGAACGGCGAGACCCAGCAGGCCACCTGCAAGCCA<br>TCAAGGAGCTGATCGCGCGGACAAGAACCACCCAGCGTGGTCATGTGGAGCATCGCG<br>AACGAGCCCGACACCCGCCCCCAGGGCGCCCGCGAGTACTTCGCCCCCTGGCCGAGGC<br>CACCCGCAAGCTGGACCCACCCGCCCCATCACCTGCGTGAACGTGATGTTCTGCGACG<br>CGCACACCGACACCATCAGCGACCTGTTCGACGTGCTGTGCCTGAACCGCTACTACGGC<br>TGGTACGTGCAGAGCGGCGACCTGGAGACCGCCGAGAAGGTGCTGGAGAAGGAGCTGC<br>TGGCGTGGCAGGAGAAGCTGCACCAGCCCATCATCATCACCGAGTACGGCGTGGACACC<br>CTGGCCGGCCTGCACAGCATGTACACCGACATGTGGAGCGAGGAGTACCAGTGCGCCTG<br>GCTGGACATGTACCACCGCGTGTTCGACCGCGTGAGCGCGGTGGTGGGCGAGCAGGTGT<br>GGAACCTCGCCGACTTCGCGACCAGCCAGGGCATCCTGCGCGTGGGCGGCAACAAGAA<br>GGGCATCTTACCCGCGACCGCAAGCCCAAGAGCGCGGCCTTCCTGCTGCAAAAAGCGCT<br>GGACCGGCATGAACTTCGGCGAGAAGCCCCAGCAGGGCGGCAAGCAGTAA |
| <b><i>cadA</i></b><br><b>gene:</b><br>2148bp | ATGAACGTTATTGCAATATTGAATCACATGGGGGTTTATTTTAAAGAAGAACCCATCCGTG<br>AACTTCATCGCGCGCTTGAACGTCTGAACTTCCAGATTGTTTACCCGAACGACCGTGACG<br>ACTTATTAATACTGATCGAAAACAATGCGCGTCTGTGCGGCGTTATTTTGACTGGGATAA<br>ATATAATCTCGAGCTGTGCGAAGAAATTAGCAAAATGAACGAGAACCTGCCGTTGTACGC<br>GTTTCGCTAATACGTATTCCACTCTCGATGTAAGCCTGAATGACCTGCGTTTACAGATTAGC<br>TTCTTTGAATATGCGCTGGGTGCTGCTGAAGATATTGCTAATAAGATCAAGCAGACCACTG<br>ACGAATATATCAACACTATTCTGCCTCCGCTGACTAAAGCACTGTTTAAATATGTTTCGTGA<br>AGGTAAATATACTTTCTGTACTCCTGGTCACATGGGCGGTACTGCATTCCAGAAAAGCCC<br>GGTAGGTAGCCTGTTCTATGATTTCTTTGGTCCGAATACCATGAAATCTGATATTTCCATTT<br>CAGTATCTGAACTGGGTTCTCTGCTGGATCACAGTGGTCCACACAAAGAAGCAGAACAG  |

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|  | <p>TATATCGCTCGCGTCTTTAACGCAGACCGCAGCTACATGGTGACCAACGGTACTTCCACT<br/> GCGAACAAAATTGTTGGTATGTACTCTGCTCCAGCAGGCAGCACCATTCTGATTGACCGT<br/> AACTGCCACAAATCGCTGACCCACCTGATGATGATGAGCGATGTTACGCCAATCTATTTCC<br/> GCCCCACCCGTAACGCTTACGGTATTCTTGGTGGTATCCCACAGAGTGAATTCCAGCACG<br/> CTACCATTGCTAAGCGCGTGAAAGAAACACCAAACGCAACCTGGCCGGTACATGCTGTA<br/> ATTACCAACTCTACCTATGATGGTCTGCTGTACAACACCGACTTCATCAAGAAAACACTG<br/> GATGTGAAATCCATCCACTTTGACTCCGCGTGGGTGCCTTACACCAACTTCTCACCGATT<br/> ACGAAGGTAAATGCGGTATGAGCGGTGGCCGTGTAGAAGGGAAAGTGATTACGAAACC<br/> CAGTCCACTCACAACTGCTGGCGGCGTTCTCTCAGGCTTCCATGATCCACGTTAAAGGT<br/> GACGTAAACGAAGAAACCTTTAACGAAGCCTACATGATGCACACCACCACTTCTCCGCA<br/> CTACGGTATCGTGGCGTCCACTGAAACCGCTGCGGCGATGATGAAAGGCAATGCAGGTA<br/> AGCGTCTGATCAACGGTTCTATTGAACGTGCGATCAAATCCGTAAAGAGATCAAACGTC<br/> TGAGAACGGAATCTGATGGCTGGTTCTTTGATGTATGGCAGCCGGATCATATCGATACGAC<br/> TGAATGCTGGCCGCTGCGTTCTGACAGCACCTGGCACGGCTTCAAAAACATCGATAACG<br/> AGCACATGTATCTTGACCCGATCAAAGTCACCCTGCTGACTCCGGGGATGGAAAAAGAC<br/> GGCACCATGAGCGACTTTGGTATTCCGGCCAGCATCGTGGCGAAATACCTCGACGAACAT<br/> GGCATCGTTGTTGAGAAAACCGGTCCGTATAACCTGCTGTTCTGTTTCAGCATCGGTATCG<br/> ATAAGACCAAAGCACTGAGCCTGCTGCGTGCTCTGACTGACTTTAAACGTGCGTTCGAC<br/> CTGAACCTGCGTGTGAAAAACATGCTGCCGTCTCTGTATCGTGAAGATCCTGAATTCTAT<br/> GAAAACATGCGTATTCAGGAACTGGCTCAGAATATCCACAAACTGATTGTTTACCACAAT<br/> CTGCCGGATCTGATGTATCGCGCATTTGAAGTGCTGCCGACGATGGTAATGACTCCGTATG<br/> CTGCATTCCAGAAAGAGCTGCACGGTATGACCGAAGAAGTTTACCTCGACGAAATGGTA<br/> GGTCGTATTAACGCCAATATGATCCTTCCGTACCCGCCGGGAGTTCCTCTGGTAATGCCGG<br/> GTGAAATGATCACCGAAGAAAGCCGTCCGGTTCTGGAGTTCCTGCAGATGCTGTGTGAA<br/> ATCGGCGCTCACTATCCGGGCTTTGAAACCGATATTCACGGTGCATACCGTCAGGCTGATG<br/> GCCGCTATACCGTTAAGGTATTGAAAGAAGAAAGCAAAAAATAA</p> |
| <p><b>PSAD</b><br/> <b>promoter:</b><br/> 822bp</p>            | <p>GATCCCACACACCTGCCCCTCTGCCTGACAGGAAGTGAACGCATGTCGAGGGAGGCCTC<br/> ACCAATCGTCACACGAGCCCTCGTCAGAAACACGTCTCCGCCACGCTCTCCCTCTCACG<br/> GCCGACCCCGCAGCCCTTTTGCCCTTTCCTAGGCCACCGACAGGACCCAGGCGCTCTCA<br/> GCATGCCTCAACAACCCGTACTCGTGCCAGCGGTGCCCTTGTGCTGGTGTATCGTTGGAA<br/> GCGCATGCGAAGACGAAGGGGCGGAGCAGGCGGCCTGGCTGTTTCAAGGGCTCGCCGC<br/> CAGTTCGGGTGCCTTTCTCCACGCGCGCCTCCACACCTACCGATGCGTGAAGGCAGGCA<br/> AATGCTCATGTTTGCCCGAACTCGGAGTCCTTAAAAAGCCGCTTCTTGTGCTCGTTCCGA<br/> GACATGTTAGCAGATCGCAGTGCCACCTTTCCTGACGCGCTCGGCCCCATATTCCGACGC<br/> AATTGTCATTTGTAGCACAATTGGAGCAAATCTGGCGAGGCAGTAGGCTTTTAAGTTGCA<br/> AGGCGAGAGAGCAAAGTGGGACGCGGCGTGATTATTGGTATTTACGCGACGGCCCCGGCG<br/> CGTTAGCGGCCCTTCCCCAGGCCAGGGACGATTATGTATCAATATTGTTGCGTTCGGGCA<br/> CTCGTGCGAGGGCTCCTGCGGGCTGGGGAGGGGGATCTGGGAATTGGAGGTACGACCGA<br/> GATGGCTTGCTCGGGGGGAGGTTTCTCGCCGAGCAAGCCAGGGTTAGGTGTTGCGCTC<br/> TTGACTCGTTGTGCATTCTAGGACCCCACTGCTACTACAACAAGCCAAA</p>   |
| <p><b>GDH2</b><br/> <b>promoter:</b><br/> 1246bp<br/> (The</p> | <p>TCGCCACCAGTCATAGACCATCAACAGTCATCGTCGACCTTTTCCACCAATTCGGGGCTG<br/> TCGGAAATTCCTTACCCCGCATGTCGTGTACGGCCGCGGGGGAAGCCTCCCCTGGGCTG<br/> ATCCGCCCACTCCCTTTGAGCAATGGTTGGAGACCAAAAGCACGAGGTGTGGCGGCTGT<br/> CGGTGTAGGTGACGTCCTCCCTGGCGGCTGATTAAGGGCCGATCAGATGCTGGCGAAGA</p>  |

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| <p>letters in <b>bold</b> represent GDH2-D2 sequence. The letters in <b>red shading</b> represent GDH2-D1 sequence)</p> | <p>GCTGGGCAAAGAGGGCGGTGGAATGGAGCTGCTCAGTCGCGGAGGCGGCGGCCGGC<br/> AGCAGGACCGGCGCTGCAAAGCTGCTGGGCCTCCGTGTTCCGGTGACGCCGTCATGGAA<br/> TACGGCACATACGTTCCAAGTGCAGGGCGGGGAGATGGGTGGGCGGGCTAGCTGACGGTA<br/> AATCGGTGATTGGACCTGTGCAAGGTAAGTGTGTGCCGTGGGTGACTGCAGTGAGCCCCG<br/> TGTCTCTTCCCAGGCACTGCAAAATGAAGTGAGAAGTCGTGCCATGTGTGCATGTGATA<br/> ATTGTGATTGCGTCCTTGTGTGTGGTGAGCATGGACAAGAAAGTAATTCAAGTATACGAC<br/> AATCTATTGATTCTGCTGCTGGAGGGGAGGGTCACCGGGGCACCGTAGCATGCGGCGGC<br/> GGTGGCAGTTGGCAGCTACGGCTAGCCATGCATGATGCATCCCCCATGCACTGTGCGCG<br/> CAGTTACGATGGATCGATGAGGCAAGGCTTAGGGCAGACCAGGCGCGGTCCCTTCATGG<br/> TGCTTGTGCGATATGGTGGGACTGGTTTTCAACATGAGGCTGTGGTGAGACACCATGTGCG<br/> TCGGTACGCGTGGCGCGGAGCTGGTGCTGACGCGGGTGCTGGAAGTTGCGGGTAACGAA<br/> CCCAACGACCTGGCGTGGTGCTGGCTCATTCTGGGGGCGCTGGTCTCGGAGACCACTC<br/> CAATATTGTCAAAATCCTGTTTAGACAATGTTGCCGTGCTGCCACAGGCCGGGCGAG<br/> CTAGAGGAAGTGTCAAGCGTGCATGGGCGCTGACACGTTTCCGAGCTGGATGGTC<br/> GTCGCTGGACTCTCAAAAGTCCACGAACCTAGCGCCCGCAGCCATGTTG<b>CACATTC</b><br/> <b>GTCCGGTTGAGCTCGTATAACACATCTATTCACCTCGTTTTCAACATACGCTCTGGCGT</b><br/> <b>TACCGAACCTCTTTCGCCTGCGAGCTGCGTAAACAAGAGGCCAGCCCTGGTGGG</b><br/> <b>GGAGTTTGCGCAGGCTGGC</b></p>   |
| <p><b>LHCBM3</b><br/> <b>promoter:</b><br/> 1542bp</p>  | <p>CACTGCACCGAAAGGTGTAATGGATGGAAGGACCAGGTAGTTGTGAGCAGTGAGCGACG<br/> GGTTATGGCTGTAGTGTGGTGGGAGGCGCGTGGGCCGTGGACACCAGACGCGAGGGCTG<br/> TGGGGCTCTGACGCACACGAGGAGGAGGCACCAAGGCACGGCGGCCTGGGCCAGGG<br/> CGCGATGCCACACGGTACTGAGAGTGCACTGACCAGGCGGGCGGGGAGGAGGGGCGGG<br/> CAGGCACCTACGCCCCCTGCTGCCCTTGTAAACCCGACCGCCCGACCAGCACTGCAC<br/> TGCCCGTGGCAAGGCCTGCTGTGGCACTCATGTGCGCACTGCGTTCACCCCCCCCCCACA<br/> CACACACACAGCCACGCACAGCCAGCCAGCGGGCTGCGGCGATACCTGGAACCGTGGC<br/> AACTGGCAGTCGACATCTGTTGGCACCGCACCGCACGCCTGCGTCGTCTACGCACTGG<br/> CGCACCGGCTCGGCGGCGAGGGCGGCGCCTGCCAGCGGCCGACCAAGTCCCAACCAAC<br/> GCACGTCGGTCGCCAACCGCTGCAATCAGAGCCGACGATGCGCGCTGACCCCGTGTCA<br/> TGACGGGGCTCACGGCTGTTCTTAAGCGTGCGGGTCGCGAGGCTCGCGGCGTGTGCGG<br/> CGGCCCTTGTGAGCGCTGCAACGCTCGGGCTCTGGAGCGGGCCGGCCCCGAAGTCGAC<br/> AGGCCGTGGTGCCGGCTGGCCCTAGGGCCGCGCCCTGATGCGAGCGCTCAGTTGCCGAC<br/> TAGAAAACCTTGTGCGCTTCCCTACACAACAACAGCGCCGACCACATCTCGCTTGCT<br/> GTGCCACGCACCGAACTCGCTTCAAAACCGTGTGCGCACTTCTGAACACGCGCATCGCC<br/> GGACCGCCGGTTGTGACGCCACCCCGAGCCTTAGGTAAAGTATTCCACCACATCCTGC<br/> TGATGCGCTTGCTCGCTAGTCCATCAGACTTCGATATCATCCAGCGGTGGCGCGAAGCAG<br/> GAGCGCCCGTCGACATGCGCGACTGCACTCGCACCAAGCTAGCGGCTGAGCCCAAGCCC<br/> AACATCTAATTGGCGCTGTTGCTGGGTATGAAGTTAGCGCTACACTCAGCCCGATGAAGA<br/> GTTTATGACGAGCGACGGTTCAGATGCGTTCGGGAGCTGGACCACCGTCACGCAGAGCC<br/> CCAACAAAGGCTCCACATGTGCTAATGCAAACAACATGTATCACTTGTAACCAGCAGCTT<br/> TGCCAATGTGCATGATTGGCTTAGCGAGGCAGTCGCAAGCCTGGCGCGTGGCGCATTCT<br/> TGCAGCGCGCCAGCCCCCGAGCTTTAGCGGTCCATTGCAAGCTCAATGGGCCACGTCG<br/> CAATGCACCAGCGGGCGAGCGGACAGCGCACGCTGGCGCGCGACCGATCGGGCGCGGG<br/> GTCGATCGAGATGGCCGGGTACGGCGATCGGCGCGCGAGATGGGACCATGAACCCCTTC<br/> TTAAGCGACGCGCGCTCGTGAAATATCGTGACCGGCTTCAACCAGTCCCCACACATCAG</p> |

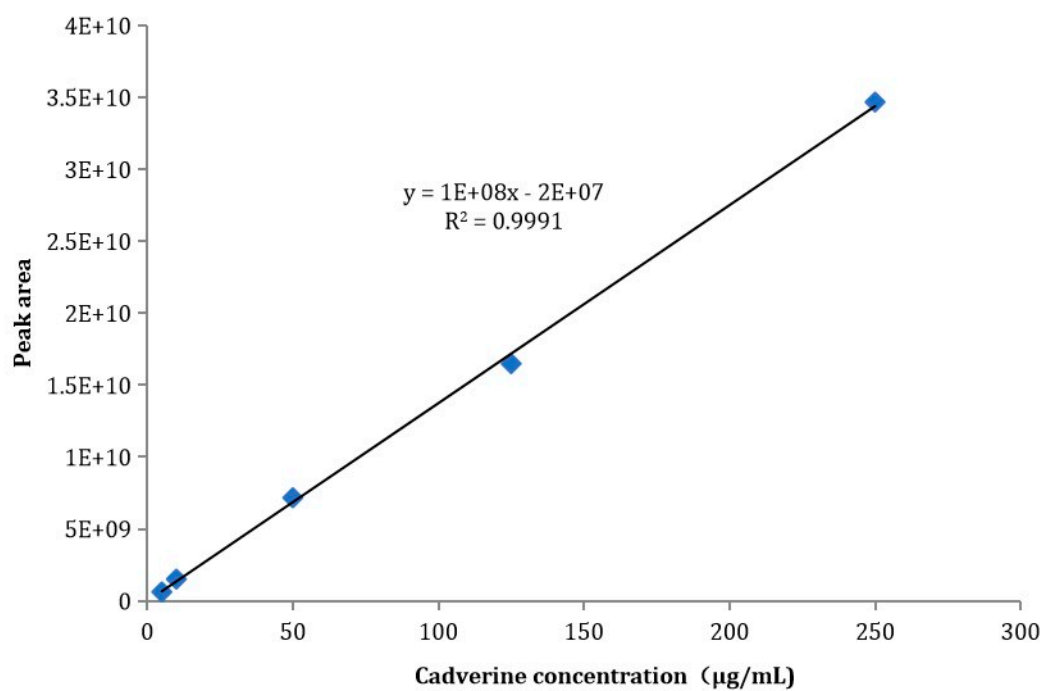
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|   | TCAAA  |
| <b>AR promoter:</b><br>461 bp   | TCGCTGAGGCTTGACATGATTGGTGCGTATGTTTGTATGAAGCTACAGGACTGATTTGGCG<br>GGCTATGAGGGCGCGGGAAGCTCTGGAAGGGCCGCGATGGGGCGCGCGGCGTCCAGAA<br>GGCGCCATACGGCCCGCTGGCGGCACCCATCCGGTATAAAAGCCCGCGACCCCGAACGG<br>TGACCTCCACTTTCAGCGACAAACGAGCACTTATACATACGCGACTATTCTGCCGCTATAC<br>ATAACCACTCAGCTAGCTTAAGATCCCATCAAGCTTGCATGCCGGGCGCGCCAGAAGGAG<br>CGCAGCCAAACCAGGATGATGTTTGTATGGGGTATTTGAGCACTTGCAACCCTTATCCGGA<br>AGCCCCCTGGCCCAAAAGGCTAGGCGCCAATGCAAGCAGTTCGCATGCAGCCCCCTGGA<br>GCGGTGCCCTCCTGATAAACCGGCCAGGGGGGCCTATGTTCTTT  |
| <b>ACP2 promoter:</b><br>1460 bp<br>(The letters with <u>underline</u> represent ACP2-D3 sequence. The letters in <b>bold</b> represent ACP2-D2 sequence. The letters in <b>red shading</b> represent ACP2-D1 sequence) | GGGTGCAAGCCTGGCCTGCACGCCCGCCTTACATGCACGCTCGGTGGTGGGGGCGTAC<br>AGGAGGCGGGCTGGCCAGGGCTTGCATCTTCCGGGAGCGGTGCTTACGCCCTCGGGC<br>GAGGATGTTTGGGCAAGGCCGGGGTGCATTCTCGCCGCGTGGGGCTGCATACGGTCCCC<br>GAATCTCGCCAAATCCCCCTTCCCGCGAGCGGGTTTTGGGGGGAATCCTAGTTTTTGGCT<br>CCGCCCCCCCCCAACGCTGAAAACCTGGGCACTTTTGGCCCCCTGCATGCCGTGGGCG<br>AGAACGTGGTCAGGTCCCTTCCCGCCTGCGGCGGCGGCCACCCCTAGCCCTGGGCCTG<br>GCCCCAATCCTCATATCGTGCCTCATGTCCCCGCACTCCCTCAGTCCACACCACTTGCCCCA<br>CTGCTGGGTATCCCTATTTCTAGTTTTATTTCAATTCATCGACGAGGGCAGGCCGCTTCGG<br>CGGCCGATAGCCACATACACCCCGCTAACCGACACCCAGTGTCTGCATACGCATGAGGCG<br>GAGCGGTCCCGTCACTGCAGTGGAGAAGCCCCCACCCCTGGATCGCTGGCTCAGCCCCAA<br>AGGACCGCAGACATATGCAGTCAAACCTGTGTGCTTAGCCTAAGCGCCGCTTCAGTAAG<br>GCTCGCTGTAACGGCTGAACTACACAACGCTTAGGCGCTGCTGGCGGGGGACATGCGCA<br><u>TGGACATGTCTGGACCGGAGCACGTCCAGCAGGGCCCCCTTCACACTGCAAATAAATGAC</u><br><u>ACAAATGACAGATAGGATGCTTGAAAGCGACGCGGCAGGTGCATTGTGGATGGCGGAAC</u><br><u>CAAGTGTGCTATGCTTCTGAGGGCCTCGACTAAGCGTCGCTTCGATAATGCTATCTAAAAC</u><br><u>AGACAAACAGCATAGGACCTGAGTTCGGGTCATGAAAGCGCTTGTCTGCTAACAGGCGT</u><br><u>CGGAACTTGCTGGGGTTCTAGAAAGGTAGAGGTGTTGCCCTACAGATCGGCTAACTGT</u><br><u>TTAAGAACTATCGTTCCAATAACGGTGCAGAAGCTAACAGCCAATTCGGCAAGCG</u><br><u>CGTGTCTTGTGACTGGGCGCTTACGACTGTTTTCAACGCTTACAGCGCGCCTATGA</u><br><u>CTTCTCCATGTTTCTAAACAACAACATTTCTTGTGGTATTTGCGTTGCAGTGCATG</u><br><u>GTGCTCGGAGCCTAAGCGCGAACTCGCAGGCCGTGCAGGCGTTGGGGCTTTGGTG</u><br><u>CAAGGCATTTTGGGTCAGCTTACTACTACATGCAAACGCTTGCAACCATGAGCGTAAT</u><br><u>TGGCAATGCATCAGGGCCCCACCGGTCGTTCTGCGGGCGTTTGTACCGCGC</u> <b>ATGGGT</b><br><b>CGGCGTTGGCATGGGCAGCGGGCGAGCAGATAAGCGCCCCGCGCCCGGACGTGCA</b><br><b>ACCTACACTTCCACAGCACCCAATCCTTCTCTGCTACTTTGCAGCCCAATCCACTA</b><br><b>CA</b> |
| <b>PETM promoter:</b><br>1088 bp  | TCAGGCGATTGCAACACCCTTGCGACAGCTGCAGCAAGCCCCTCGGTGACAAGCCAAAC<br>GTGATGCCTATAGTCTGCTCATAACAATTGAGGACCAGGGCTGAAGAGGTGCTGAAGTCG<br>AGTTAAAGTTCGATATTCGCGTCCATGAACGCGATTACTGGGGACAGTGTACGCTAGCAC<br>CTGTAACCTGTAAGTCCTAATACTTGCTCTCTCGTATGCGCAAATCCGCCAAAGCAGGCG<br>AGCAGCGGCACACCATGCGGTCCCTCACCTCTCCCGCACACGCTTGGGCCCCCGCCCCC<br>TCCCTTGCCCGGACCCTGGTCTCTGCCGCCCATTCCGAGAGCTAATCTTCTGATTCGACG<br>CCGAATGATAGCATAGCTGCAAATCCATACTAAAGGAGTTAGCAGGGGCGAAACAGGCT<br>GACTGAGATGGACTGTGCCTGGATGCCACCACATGCTGCTGTGCGTGCGACCTTAGGAGT  |

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|   | <p>ACGCTTTGCCCCCTCTGTTCTCATCTATATCTCTTGCGCGGAAGCGCAGTGAAGCGCTG<br/> ACAAGGTAATGAGGTCTCCTGCTGCGCACAATTTACCCCAAGGTGGATCCTTTGCGGCTA<br/> CAGAAAAGGCTGTGGTGGACATTGGGCGGGGTGCGAGAGTTTGGGTAGAGCGTGGCAG<br/> GGAGGGAGGACTTCAAGGGGAGAGGAAAGTGACGCCGGTAGGCGGTAGGCCCTAGCCG<br/> GTCCACGTTTCGAGGGCGCGCGTCTCGCCCGCTTTCCCGAAGCAGAGGGGTATGGAGT<br/> CAGAGGCGCTACAAGTGAGGCGTTTACATAAGTTTTAGGCGGCAAGACGCGGCTAGCGG<br/> CGACGCAGTTGGCCCGCAAGCCTCCAACGGGAAGCGAAATAGCGCAGGACACATTTTTT<br/> TACAACAATGTAAGGTGCAGTATGTACGCATATCAGTCCTGTATACCAAGGTATTTATTACA<br/> GGCCCCAATTCGGTTGCGCCAATCGGTACGGTGAGGATGGGCCCTCGCCCCGCAAGGAT<br/> AGAGCCCGCGGGCTTGACTGTCTCACCACGCTTCCAGTAGTCCACCGAGCCCGTACTTCT<br/> TCTATACAAGACCAAC</p>  |
| <p><b>FAP12</b><br/> <b>promoter:</b><br/> 2143bp</p> | <p>TGCGTTGCGTGGTGACACATACGGTAGCATTCGGTATACGGTACATACATGCATCTTGACC<br/> GCACCCGCTTCTGGAACCTCCCTAACACCAAGGTGACCACTCCCCGGTCACACAGTCGTG<br/> GCGGTCCTCTCCTCCGCCATGCCGCTTCTCCACCCTGGGAGGTTACCCACAGCCACAGT<br/> CTCCCCGGCCCCCTACATCCACCTGCCACCCACCAGCCCGCTTCCCCCGTCTCGTGTCT<br/> GTTATTGGCAAAGATGGACACAAGCCCTTCTTCCCGCACGCACCTGGGTTGACCACCTCC<br/> TCCGGCTCGAGCGGCCGCCACGCCAGCAGGTATGTAAAGTCCTCTAGCGGGCTGTTGCC<br/> CTCCGTGCCGCCGAAGGTGTACGCCACCCGGCACGCAGTGCTGCTTGCCTGCCACA<br/> CGTGTCATGCGCGCTTCTTGATCAGGGCCAGCTTCTGACTTAAGATGGCCAGAACCTGGC<br/> AGATGGACGAGAAGGGAAGCGTTGCGTGCGTGTGAGTGGTGGTTCGCCGGGGGTTAC<br/> ACCGCCGCCATAAGGCGCCGCACATGGACACACATACACATACAGCGCGTTTCTATAACT<br/> ATTAACACAACATACACGCCATACAAACACACGACCCGCCGCCGGCCGATTGCGCTGCC<br/> ACCCACTCACCTTGGTGTGCAGCCCAAACCTGCCAGTCCACGGGCATGGACGCCTTGCTC<br/> TCCGGCAGGCGGTTGAAGTCATTTCCGAGCCACTGGGGCACCTTGGTGGTGCTGGTCAG<br/> CAGCACGTAAACCTGCCGGGGTGAGGACATGAGGAGATGTAAGCAGATGTTGATAGGGG<br/> TTTGAGGCAGGAGCAGGAGCAGGAGCCCTCCCGCTGGCCTCTGAGCCACCCACCGCACC<br/> TGCACCGGCTGAAAGAAGCTGGCGTGCATGTAGTCCGGCCGGGCGAACGTGAAGTGCTC<br/> ATTGACGGCTGTGAAGCAGTACACGCACTTGTACGAAACACCTCGGGCATCTCGGCAT<br/> CGGACACGGCGGCCAGCTTGTGGGAGGTGGTGTCCACAGCGGCCGAGAAGCGTACTC<br/> CTTGACAGAAATCAAACATGGACGCTGGGTGACGGGCACACCCTGGGAGTCGCGGCCAT<br/> CGGAGTGCAGTGTGAGCTCCAGGATTCCGCGCTCCTTCATGCCAGGGGCGTGGCCGGCC<br/> GGCGTCGGGGGCACCTCGAGGATGGCGGGGCCGCCCGTGGAGATGCGCACGTTCTCCG<br/> TGGAGCACCTCCTCCGCGGGCTCCGACTTGCCCGCAGGCATTTCTGACACTTCGTCAGA<br/> AGTTTTCATGTTTATTACGTGGGTGTACCCACGGGGCCCAGGGCCCTTTTGCTCCGAGGA<br/> ATTCAAGTCCCAAGCGAGTTTTTCGAGACGCGCCCCCAAGCGTGCTGTGACTCAGCTA<br/> ATGCCTTGCGTTTGTCTCCTATCTGCTGCAGTTGGCACAGCGCGCAACTGAACACGACTA<br/> GCTAGCGCGTTTCGTAGAGTCCTAAGCGTGCGAGCATGAAGGGGGAGCTCTTTTATTGATT<br/> AGTCTCCAGCTGTTGCAAGAATGCGAAGACAGCTACACGTAGTTCGTCCACTTTGACAA<br/> GTAGAGTTTCTGCTTGCAGACATTCATCGCGGTTACAATATCAATATTGCTGTGCCCCG<br/> GGTAAATGGAATGCTCAATGGCTACAGCTGAAAGCATTGTCTTATTCGAAGTGACAGAAG<br/> CAGAAAACGTAGAAGCCCGCAAAGGGGGGGCCCGCCGGGTCGCAACGCGCCATGATCG<br/> GGGCAGTTAAGTCGATCGGGGAATCCGCGCACAACTAGCCCAATCAATATAGCTTAGC<br/> ACATTACATAAGCAGCAGGGCTGGGTGGCTGCGCTGGCGTTGTGCGGGCGGGAACAAAGT</p> |

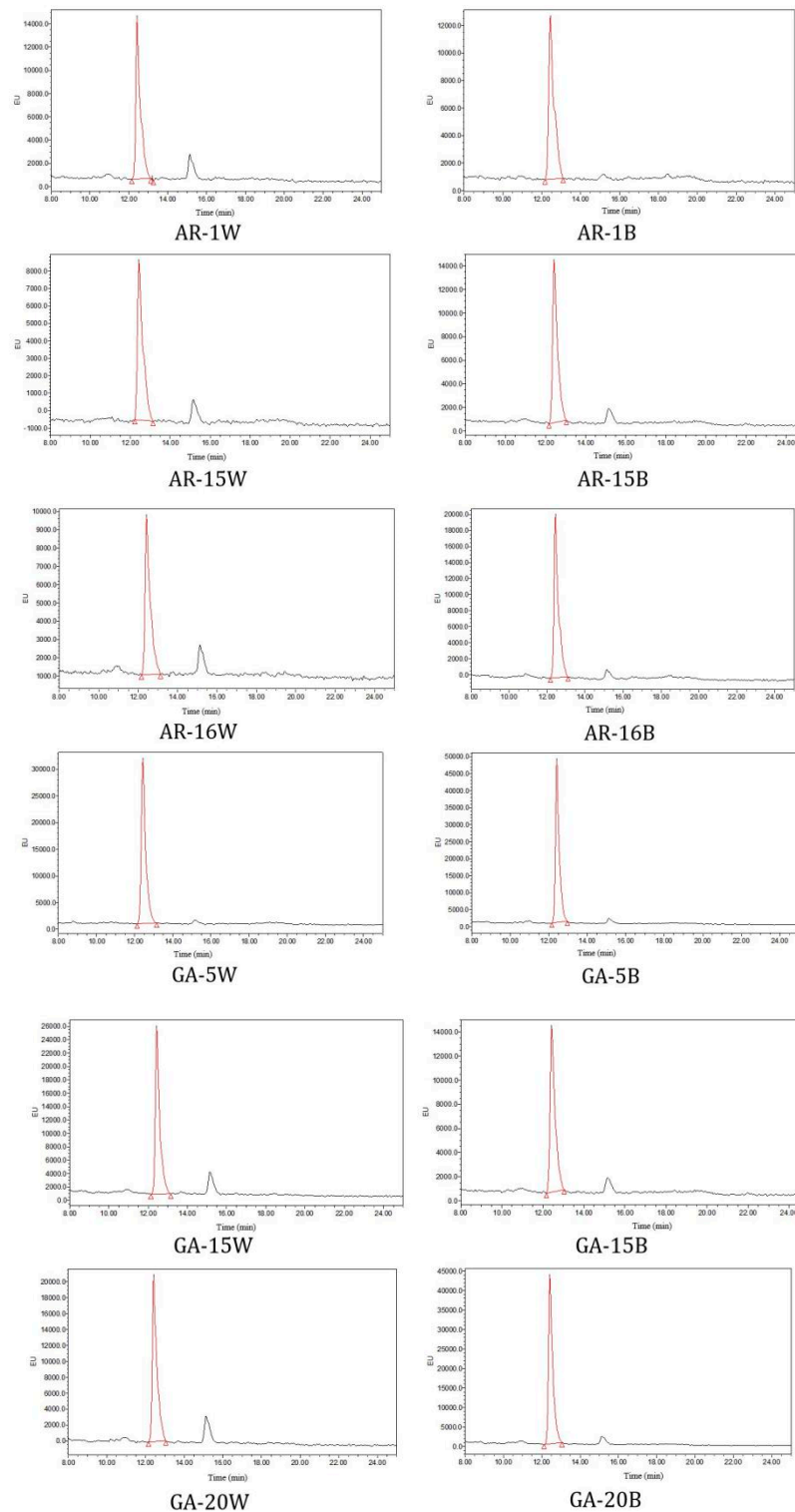
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|   | TGCTCTAAGGCCGACATCGAAGGTTCTGCGGATTGTTTCGATGGGCCCCACATAAACGACT<br>GCCTGCTTGCAGTTGATACATAACAGCTGTGCTGCGTTCATAGACAATTGTCACTGACAA<br>GTCTCAGTATTAGAACGTGATACTCAAGCACACTACTCGCGCACACCATCTTGCTTCCTCG<br>AACAGTCTTTCCAGGAAAACAACCTTGGCACAGAGTCGCCACGAGTTAAGGCGTATCAA<br>CC  |
| <b>FAP310</b><br><b>promoter:</b><br>1083bp | TGGTCCGTGTGCAAGCACGCCGGCTGCAACTCCAAGTCGTCCCAGGGCGTGCCGCTGCT<br>GGCGGAGCAGGCTTCCAGCTTCTTCTCGTCCAAGGCCAGGACGCCTGGCCCGCCTCGC<br>TGGAGGATGCCAAGACCATCAGCTTCAACACCTGGTGCCGCCACGAGGACGTTGAGGCC<br>TTCACCATTCCTCTGTACACCGCAGCTGGTGACGAGATGAAGGTCGCCGCTCAGGTGGGT<br>GCGCACTGGCGTGTAGAACACGTGCTTGTGGGTGGACGCAACGTGACTCGCACACATGA<br>AACACCGTAACAGCACCCACAGCGTGCCACAACATTTATCCTTGCTGTCTGTCGTTTCG<br>CTCATGTTTCGCTCTCTTTGCTCCCGCTCCCTCATTCCCTCAGGCATTCGGCAAGGCTGGCG<br>TGTCGGGCGCTGTGGTCGTTCTGGGCTACAGCTGGAAGGAGGGCGCCAAGGCCCGCTGG<br>GGCGAGCTGCTGGAGAAGCTGGTGTCTGACTTCGCCGCCGGTGCCTACGTGGTCCCCGC<br>TCAGGGCAACGCTGACGAGCACCCCGAGGCCGTTGACTCCGTTCTGGAGTCCGCCGCTG<br>ACGTGGCCGATGAGGCTGCCGAGGTGGTGCGCCGCTTCCTGCAGAGCGCCGCCGGCACC<br>TACCCCTCCCCCGCCCCACTCCTTCCCCCTCGTCCTCCCCCTCCCCCTCTCCCTCCCCCT<br>CCTCCTCTCCCTCCCCCTCTCCTTCTCCCTCTCCCTCCCCGTCTGCCTCCCCGTGCCCCTC<br>GCCCAGCCCCCTGCCGACGGCCATCCCTTCGCCAGCCCCGCCCTCGCCCCCTCCCCCTAG<br>CCCTCCCCCCCCTGCCCCCTGGCATTGCCAAGGTGGTCGAGGACTTCGTGGTCACTTATCA<br>GAACCAGACCATCGGCGACCAGGACCCCGCGGACCTGCAGAAGAACCAGACCGCCATC<br>AACAGTCTGGTCGATGACATCCAGAACACCTACGCGAAGGCCCTGGGCGTCAACGCGAC<br>GGCCATTGTTGTGCGTGGCTTCCTGTTTGTGTACCGCAACGGCACCGTGATCACCATCAC<br>GGTCGACACCA |

**Supplementary Table S2.** Information on the plasmids constructed in this study.

| Plasmid | Backbone      | Promoter        | Gene to express |
|---------|---------------|-----------------|-----------------|
| 1       | <i>pJIDCF</i> | AR              | <i>GUS</i>      |
| 2       | <i>pJIDCF</i> | PSAD            | <i>GUS</i>      |
| 3       | <i>pJIDCF</i> | PETM            | <i>GUS</i>      |
| 4       | <i>pJIDCF</i> | GDH2            | <i>GUS</i>      |
| 5       | <i>pJIDCF</i> | LHCBM3          | <i>GUS</i>      |
| 6       | <i>pJIDCF</i> | ACP2            | <i>GUS</i>      |
| 7       | <i>pJIDCF</i> | FAP12           | <i>GUS</i>      |
| 8       | <i>pJIDCF</i> | FAP310          | <i>GUS</i>      |
| 9       | <i>pJIDCF</i> | ACP2-D1         | <i>GUS</i>      |
| 10      | <i>pJIDCF</i> | ACP2-D2         | <i>GUS</i>      |
| 11      | <i>pJIDCF</i> | ACP2-D3         | <i>GUS</i>      |
| 12      | <i>pJIDCF</i> | GDH2-D1         | <i>GUS</i>      |
| 13      | <i>pJIDCF</i> | GDH2-D2         | <i>GUS</i>      |
| 14      | <i>pJIDCF</i> | GDH2-D1/ACP2-D1 | <i>GUS</i>      |
| 15      | <i>pJIDCF</i> | GDH2-D2/ACP2-D1 | <i>GUS</i>      |
| 16      | <i>pJIDCF</i> | HSP70A/ACP2-D1  | <i>GUS</i>      |
| 17      | <i>pJIDCF</i> | PSAD/ACP2-D1    | <i>GUS</i>      |
| 18      | <i>pJIDCF</i> | GDH2-D1/PSAD    | <i>GUS</i>      |
| 19      | <i>pJIDCF</i> | GDH20D1/ACP2-D1 | <i>GUS</i>      |
| 20      | <i>pJIDCF</i> | GDH2-D1/ACP2-D2 | <i>GUS</i>      |
| 21      | <i>pJIDCF</i> | AR              | <i>cadA</i>     |
| 22      | <i>pJIDCF</i> | GDH2-D1/ACP2-D1 | <i>cadA</i>     |



**Supplementary Figure S1.** Standard curve of cadverine concentration against peak area.



**Supplementary Figure S2.** HPLC spectra of cadverine measurements of different experimental samples. The peak of cadverine showed up at 12.5 min. AR, experimental groups with AR promoter. GA, experimental groups with GA chimeric promoter. W, white light. B, blue light. The number after the dashed line represents clone number.