# Enhanced bacitracin production by systematically engineering S-adenosylmethionine supply modules in *Bacillus licheniformis*

Running title: Enhancing bacitracin production in B. licheniformis

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**Table S1** The primers used in this research

| Primer names | Sequences (from 3' to 5') |
|---|---|
| pHY-F | GTTTATTATCCATACCCTTAC |
| pHY-R | CAGATTTCGTGATGCTTGTC |
| T2-F | ATGTGATAACTCGGCGTA |
| T2-R | GCAAGCAGCAGATTACGC |
| P43-F | CGGAATTC TGATAGGTGGTATGTTTTCG |
| P43-R | GTGTACATTCCTCTCTTACCTA |
| SAM2-F | TAAGAGAGGAATGTACACATGTCCAAGAGCAAAACTTTCT |
| SAM2-R | TCCGTCCTCTCTGCTCTTTTAAAATTCCAATTTCTTTGGT |
| $MetK_{Bl}$-F | TAAGAGAGGAATGTACACATGAGCAAAAACCGTCGGTTA |
| $MetK_{Bl}$-R | TCCGTCCTCTCTGCTCTTTTAATTATTCTCCTAATGCATCTTTC |
| $MetK_{Cg}$-F | TAAGAGAGGAATGTACAC |
| $MetK_{Cg}$-R | TCCGTCCTCTCTGCTCTTT |
| TamyL-F | AAGAGCAGAGAGGACGGATTTC |
| TamyL-R | GCTCTAGAGCCGCAATAATGCCGTCGCACTG |
| SAM2-F1 | CGGGATCCCGTGAGGCGATGGATGTTCT |
| SAM2-R1 | CGAAAACATACCACCTATCATTGACGAACCGTATCCGC |
| SAM2-F2 | GCGGATACGGTTCGTCAATGATAGGTGGTATGTTTTCG |
| SAM2-R2 | TCTTACCGTTTGCTGAGTGCGCAATAATGCCGTCGCACTGGC |
| SAM2-F3 | GCCAGTGCGACGGCATTATTGCGCACTCAGCAAACGGTAAGA |
| SAM2-R3 | GCTCTAGAGCTGTCAAACGCTCCGGTGG |
| SAM2-KYF | AGCTTCAATGCTACCCAAGCAGC |
| SAM2-KYR | GCCTTGTCTGAAATACATATA |
| $MetH_{Bl}$-F | TAAGAGAGGAATGTACACATGACAAATGTAAAAACGAG |
| $MetH_{Bl}$-R | TCCGTCCTCTCTGCTCTTTTAATTAAACAGTCTGAGCGAGTTTG |
| $MetH_{Cg}$-F | TAAGAGAGGAATGTACACATGAGCCAGAACCGCATCAGGACC |
| $MetH_{Cg}$-R | TCCGTCCTCTCTGCTCTTTTTAGAACAGTTCCTTTGATGCAA |
| Met6-F | TAAGAGAGGAATGTACACATGGTTCAATCTGCTGTCTTA |
| Met6-R | TCCGTCCTCTCTGCTCTTTTTAATTCTTGTATTGTTCACGG |
| PmetH-F1 | CGACTTTCCGGGAGCGACTTC |
| PmetH-R1 | TGAATCTCGCCGAAATCGCAGGTTGTTTTCTCCTTTTCTTTC |
| PmetH-F2 | GAAAGAAAAGGAGAAAACAACCTGCGATTTCGGCGAGATTCA |
| PmetH-R2 | CAGCTGGTCATTGATGTTAGACATATAAAAATTCTCCTTTTTGAT |
| PmetH-F3 | ATCAAAAAGGAGAATTTTTATATGTCTAACATCAATGACCAGCTG |
| PmetH-R3 | CCCATCGGTTCGATCGTGCCTGA |
| PmetH-KYF | ATATGAGGTCGCTGATCCATATT |
| PmetH-KYR | CTGACGGCCGTCCTCGCAAGGGAA |
| metN-F1 | GCTCTAGACACGAATCTGATTGACAA |
| metN-R1 | TCTGTAATCGTTCCGTGCCCATGCCGATCTTCCTTT |
| metN-F2 | AAAGGAAGATCGGCATGGGCACGGAACGATTACAGA |
| metN-R2 | GCGAGCTCAAACTCAGCACAAGCGAACC |
| metN-KYF | TTAAACGAAATTACAACTGCTA |
| metN-KYR | TAGCCGTATGTGATCGCC |

| | |
|---|---|
| metP-F1 | GCTCTAGACGGAGGTTCTGCTCTGTG |
| metP-R1 | AACTCAGCACAAGCGAACGACGAGCCTTGCGATGTA |
| metP-F2 | TACATCGCAAGGCTCGTCGTTCGCTTGTGCTGAGTT |
| metP-R2 | GCGAGCTCTTGGCGTCAATGTCACCG |
| metP-KYF | CGGAGGTTCTGCTCTGTG |
| metP-KYR | ACCGCTATGCCGTTGTTG |
| metN-F | TAAGAGAGGAATGTACACATGATTACATTTGAAGGCGTTGAA |
| metN-R | TCCGTCCTCTCTGCTCTTTTAATTATACCTCCCTGATGCGAATG |
| metP-F | TAAGAGAGGAATGTACACATGTTTGAAAAACTGTTTCCAA |
| metP-R | TCCGTCCTCTCTGCTCTTTTACTCAGAAACAGAAATGACA |
| PmetPQ-F1 | GCTCTAGATCAGGCACGGTTGAAGTA |
| PmetPQ-R1 | TCTCGCCGAAATCGCAGGATGCTTCAGCGTTTCCTGT |
| PmetPQ-F2 | ACAGGAAACGCTGAAGCATCCTGCGATTTCGGCGAGA |
| PmetPQ-R2 | CTTCCCACAGCTGCTCCATATAAAAATTCTCCTTTTTGAT |
| PmetPQ-F3 | ATCAAAAAGGAGAATTTTTATATGGAGCAGCTGTGGGAAG |
| PmetPQ-R3 | GCGAGCTCGCCGTTTACATAGGCAAGG |
| PmetPQ-KYF | AGTGCCCTATGAAACCCG |
| PmetPQ-KYR | AGCGGCTTTGCTTCTTCA |
| speD-F1 | GCTCTAGAGTTGACCTTGTGGCTGAT |
| speD-R1 | AATCGGCAGCTACGTTCGGATCCCCCACAGTTCGGAGATA |
| speD-F2 | TATCTCCGAACTGTGGGGGATCCGAACGTAGCTGCCGAT |
| speD-R2 | GCGAGCTCCTTCCAGCACTTCCTTTAC |
| speD-KYF | GGAAGAATGCACGGCCTGGC |
| speD-KYR | CTCCTCTTTCTTCCGACACC |
| mtnN-F1 | GCTCTAGACGGAAAGGGAGTCACAGG |
| mtnN-R1 | TGATAGGAAACCTGTGCGATTGACTTTGCCGATGCC |
| mtnN-F2 | GGCATCGGCAAAGTCAATCGCACAGGTTTCCTATCA |
| mtnN-R2 | GCGAGCTCATCGCACCCTTCATTCCG |
| mtnN-KYF | CGGGTGACAAGGGAAATA |
| mtnN-KYR | TTATGTCCGTGCGGTTCT |
| RT-bacA-F | GTATCTGCCGATCGACCCTG |
| RT-bacA-R | TCACAATCGATTCCGTCCGC |
| RT-bacT-F | ACTATCAAATGAGCGGGGCG |
| RT-bacT-R | GGATTGGGCAAGGTATGCAG |
| RT-bacB-F | GGACGAATCAGGCGAGAGAG |
| RT-bacB-R | GGACGAATCAGGCGAGAGAG |
| RT-bacC-F | GGACGAATCAGGCGAGAGAG |
| RT-bacC-R | TGATCTTCCTTCGCCACCAC |
| RT-abrB-F | CTAGGACGCGTGGTGATTCC |
| RT-abrB-R | CCAATTTACCGCCTGCAAGT |

**Fig. S1** Effects of SAM addition on the cell growth of *B. licheniformis*.

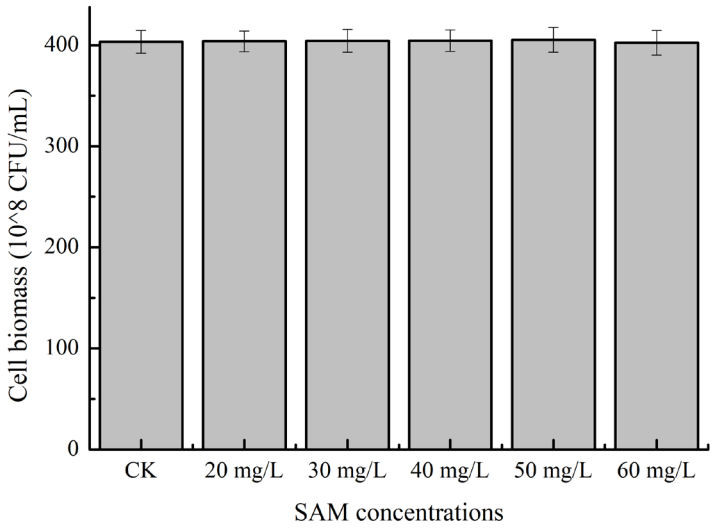

**Fig. S2** The concentrations of intracellular Met and SAM before (24 h) and after (30 h) SAM addition.

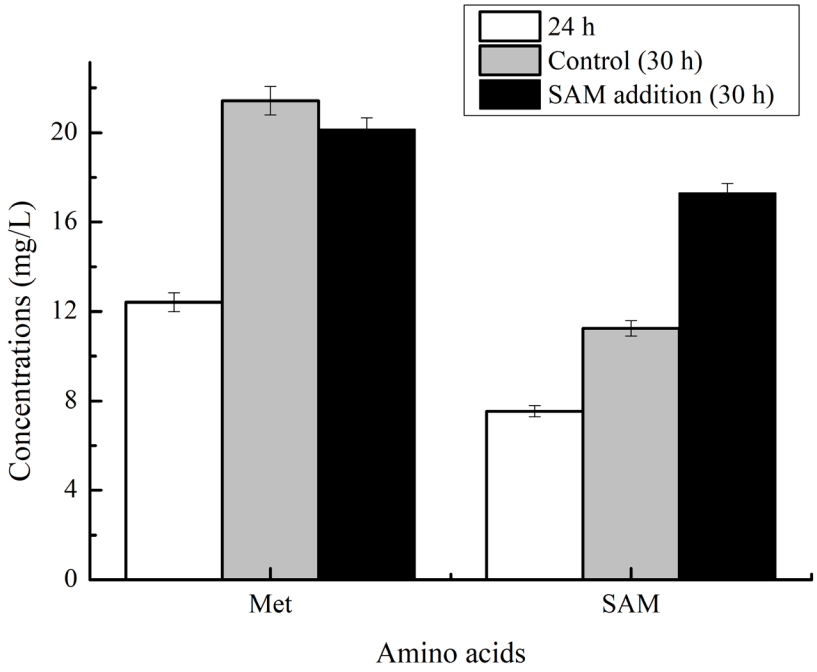

Fig.S3 Effects of SAM addition on the transcriptional level of regulator gene *abrB*.