Modular control of multiple pathways of *Corynebacterium glutamicum* for 5-aminolevulinic acid production

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![Graph showing the growth of C. glutamicum strains F1 and F2](image)

Fig. S1 The growth of *C. glutamicum* strains F1, F2 in a medium containing ammonium as nitrogen source

Table S1 Primers used in this study
| Primers | Sequence |
|---------|----------|
| gdhAF   | CTGGAATTCCGGAATCTAAGGTGATCGCTG |
| gdhA R  | ACTGGATCCGAAGCCAGCTACACTTAGATTCCG |
| gdhAF   | GTGCTGCAGCAGCAGTATGGGACACAGAGAACG |
| gdhA R  | GTCAAGCTTACAGTCACCAGCTGCTGCTAGT |
| RhchemA F | AAGCTTAAAGGAGGACACCTACAGGTGACTG |
| RhchemA R | GGATCCAGAAGCCAGCTACACCTTAGATTCCG |
| aceA1 F | AGCGAATTCCGATCCAGCGCAAAGGTGCTGTC |
| aceA1 R | CTCGGATCTGGATTTCTCTGACGATTCG |
| aceA2 F | AGCTCTAGACTTCGACCAGATCGCAACCAGCTG |
| aceA2 R | GTCAAGCTTACAGTCACCAGCTGCTGCTG |
| Check 1 F | AGGCTGCGGCGATGTCAATGTAG |
| Check 1 R | TTTCTGGGTGCGATTCGCTG |
| Check 2 F | AGGCTGCGGCGATTCGCTG |
| Check 2 R | GTTCAACGCTGATTCGCTGCTG |

**Table S2 Transcriptomic profiles of C. glutamicum F1-P, F1-A, F2-A**

| Sample name | Total reads | Total mapped | Multiple mapped | Uniquely mapped |
|-------------|-------------|--------------|-----------------|-----------------|
| A1          | 8315944     | 8255081 (99.27%) | 78575 (0.94%) | 8176506 (98.32%) |
| A2          | 7789140     | 7731021 (99.25%) | 78385 (1.01%) | 7652186 (98.24%) |
| A3          | 7506966     | 7443287 (99.15%) | 85396 (1.14%) | 7357891 (98.01%) |
| B1          | 7767808     | 7437934 (95.75%) | 143952 (1.85%) | 7293982 (93.9%) |
| B2          | 7748094     | 7675343 (99.06%) | 105990 (1.37%) | 7569353 (97.69%) |
| B3          | 7597924     | 7529832 (99.1%) | 91194 (1.2%) | 7438638 (97.9%) |
| C1          | 8033310     | 7559076 (94.1%) | 90560 (1.13%) | 7468516 (92.97%) |
| C2          | 9874748     | 9278386 (93.96%) | 122548 (1.24%) | 9155838 (92.72%) |
| C3          | 11513572    | 10567419 (91.78%) | 135351 (1.18%) | 10432068 (90.61%) |

A: C. glutamicum/pXMJ19 (F1-P); B: C. glutamicum/pXMJ19-hemAC4(F1-A); C: C. glutamicum/gdhA/pXMJ19-hemAC4(F2-A)

**Table S3 Statistical results of differential genes**
| comparation | All | Up  | Down | threshold                  |
|------------|-----|-----|------|----------------------------|
| BvsA       | 1606| 774 | 832  | DESeq2 padj<0.05 |log2FoldChange|>0.0 |
| AvsC       | 167 | 91  | 76   | DESeq2 padj<0.05 |log2FoldChange|>0.0 |
| BvsC       | 589 | 380 | 209  | DESeq2 padj<0.05 |log2FoldChange|>0.0 |

A: C. glutamicum/pXMJ19 (F1-P); B: C. glutamicum/pXMJ19-hemAcA (F1-A); C: C. glutamicumΔgdhA/pXMJ19-hemAcA (F2-A)