**Supplementary Table 5. Top-30 promoter combinations as recommended by JBEI ART in explorative mode.**

| Priority | Promoter | *PCK1* | Promoter | *TAL1* | Promoter | *TKL1* | Promoter | *CDC19* | Promoter | *PFK1* | Predicted |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | pTPI1 | | pCHO1 | | pPGK1 | | pURA1 | | pRPL15B | | 189.3 |
| 2 | pICL1 | | pACS1 | | pBUD6 | | pCDC19 | | pTPK2 | | 202.9 |
| 3 | pTPI1 | | pCHO1 | | pPGK1 | | pTEF2 | | pRPL15B | | 189.8 |
| 4 | pTPI1 | | pCYC1 | | pPGK1 | | pURA1 | | pTEF1 | | 179.1 |
| 5 | pTDH3 | | pCYC1 | | pMLS1 | | pURA1 | | pRPL15B | | 185.8 |
| 6 | pICL1 | | pACS1 | | pBUD6 | | pCDC14 | | pTPK2 | | 208.0 |
| 7 | pTPI1 | | pCYC1 | | pPGK1 | | pURA1 | | pRPL15B | | 190.3 |
| 8 | pPCK1 | | pCYC1 | | pPGK1 | | pURA1 | | pRPL15B | | 184.1 |
| 9 | pPCK1 | | pCHO1 | | pMLS1 | | pTEF2 | | pTPK2 | | 113.4 |
| 10 | pTPI1 | | pCHO1 | | pPGK1 | | pURA1 | | pTEF1 | | 179.3 |
| 11 | pTPI1 | | pENO2 | | pPGK1 | | pURA1 | | pRPL15B | | 202.7 |
| 12 | pTPI1 | | pREV1 | | pPGK1 | | pTEF2 | | pRPL15B | | 179.3 |
| 13 | pTPI1 | | pCYC1 | | pPGK1 | | pTEF2 | | pRPL15B | | 183.2 |
| 14 | pICL1 | | pENO2 | | pTKL1 | | pCDC19 | | pTPK2 | | 175.5 |
| 15 | pTPI1 | | pCHO1 | | pPGK1 | | pCDC19 | | pRPL15B | | 182.9 |
| 16 | pTPI1 | | pCHO1 | | pPGK1 | | pCDC14 | | pRPL15B | | 181.0 |
| 17 | pACT1 | | pCYC1 | | pPGK1 | | pURA1 | | pTEF1 | | 185.5 |
| 18 | pPCK1 | | pCYC1 | | pURE2 | | pTEF2 | | pTPK2 | | 189.3 |
| 19 | pICL1 | | pACS1 | | pMLS1 | | pCDC19 | | pTPK2 | | 126.0 |
| 20 | pTPI1 | | pCHO1 | | pPGK1 | | pTEF2 | | pTEF1 | | 180.2 |
| 21 | pTPI1 | | pCHO1 | | pPGK1 | | pURA1 | | pTDP2 | | 146.0 |
| 22 | pPCK1 | | pCHO1 | | pPGK1 | | pTEF2 | | pRPL15B | | 172.9 |
| 23 | pTPI1 | | pCHO1 | | pPGK1 | | pTEF2 | | pTDP2 | | 146.0 |
| 24 | pTPI1 | | pENO2 | | pPGK1 | | pTEF2 | | pRPL15B | | 207.5 |
| 25 | pTPI1 | | pACS1 | | pPGK1 | | pTEF2 | | pRPL15B | | 186.0 |
| 26 | pPCK1 | | pCHO1 | | pPGK1 | | pURA1 | | pRPL15B | | 172.6 |
| 27 | pTDH3 | | pCYC1 | | pURE2 | | pURA1 | | pRPL15B | | 239.8 |
| 28 | pACT1 | | pCYC1 | | pPGK1 | | pURA1 | | pRPL15B | | 193.6 |
| 29 | pICL1 | | pACS1 | | pMLS1 | | pCDC14 | | pTPK2 | | 125.7 |
| 30 | pTPI1 | | pCYC1 | | pPGK1 | | pTEF2 | | pTEF1 | | 172.7 |

Note: Size of color bars indicate promoter expression strength (see Figure 1), and column "Predicted" shows predicted mean specific rate of GFP synthesis.