

Table S2: Differentially expressed genes and proteins in *E. coli* M1/5 in response to altered *clbR* or *clbQ* expression.

| Identifier | Annotation | M1/5 <i>rpsLK42R</i> Δ <i>clbR</i> (pBAD24) | M1/5 <i>rpsLK42R</i> (pBAD24- <i>tetAp-clbR-</i> <i>rrnBt</i>) | M1/5 <i>rpsLK42R</i> Δ <i>clbQ</i> (pBAD24) | M1/5 <i>rpsLK42R</i> (pBAD24- <i>tetAp-clbQ-</i> <i>rrnBt</i>) |
|---------------------------|----------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------|
| <i>De-regulated Genes</i> | | | | | |
| HLK60_20145 | <i>araC</i> | 0.125 | -1.900 | 0.876 | -3.206 |
| HLK60_06095 | <i>aroF</i> | 1.597 | 2.000 | 1.980 | 1.694 |
| HLK60_09125 | <i>clbB</i> | -4.381 | 0.613 | 0.179 | -0.391 |
| HLK60_09130 | <i>clbC</i> | -3.236 | 1.222 | 0.639 | -0.149 |
| HLK60_09135 | <i>clbD</i> | -3.794 | 0.935 | 0.304 | -0.566 |
| HLK60_09140 | <i>clbE</i> | -3.482 | 1.029 | 0.150 | -0.410 |
| HLK60_09145 | <i>clbF</i> | -3.536 | 1.245 | 0.396 | -0.184 |
| HLK60_09150 | <i>clbG</i> | -2.820 | 1.157 | 0.410 | -0.461 |
| HLK60_09155 | <i>clbH</i> | -2.470 | 1.330 | 0.611 | 0.022 |
| HLK60_09160 | <i>clbI</i> | -2.388 | 1.474 | 0.930 | 0.304 |
| HLK60_09175 | <i>clbL</i> | -2.133 | 1.120 | 0.256 | -0.182 |
| HLK60_09195 | <i>clbP</i> | -0.455 | 0.600 | 0.182 | 3.466 |
| HLK60_09200 | <i>clbQ</i> | -0.792 | 0.178 | -4.445 | 6.861 |
| HLK60_09120 | <i>clbR</i> | -4.473 | 3.085 | -0.174 | -0.662 |
| HLK60_09205 | <i>clbS</i> | -0.424 | 0.046 | -2.137 | 1.125 |
| HLK60_22730 | <i>dgkA</i> | -0.049 | -2.100 | -0.699 | -0.392 |
| HLK60_20655 | <i>fhuF</i> | -0.177 | -2.769 | -0.062 | -0.354 |
| HLK60_19145 | <i>flhB</i> | -1.848 | 0.544 | -1.957 | 3.345 |
| HLK60_09980 | <i>fliA</i> | -1.405 | -3.264 | -1.515 | -1.463 |
| HLK60_08760 | <i>hisA</i> | -1.506 | -2.991 | -3.538 | -2.878 |
| HLK60_08770 | <i>hisB</i> | -1.853 | -2.605 | -2.543 | -2.594 |
| HLK60_08775 | <i>hisC</i> | -2.286 | -2.889 | -2.304 | -2.634 |
| HLK60_08780 | <i>hisD</i> | -2.135 | -2.553 | -1.211 | -2.359 |
| HLK60_08755 | <i>hisF</i> | -1.005 | -3.016 | -3.389 | -2.481 |
| HLK60_08765 | <i>hisH</i> | -2.293 | -2.974 | -3.403 | -2.856 |
| HLK60_00110 | <i>gidH</i> | -0.920 | -0.078 | -2.252 | 0.110 |
| HLK60_00250 | hypothetical protein | 0.917 | 2.129 | 1.485 | 2.345 |
| HLK60_03660 | <i>yghW</i> | -0.533 | -0.815 | -1.149 | -2.216 |
| HLK60_08465 | <i>yegR</i> | -1.653 | -2.382 | -1.062 | -1.581 |
| HLK60_08750 | <i>hisI</i> | -0.347 | -2.550 | -3.164 | -2.230 |
| HLK60_08905 | hypothetical protein | 1.765 | 2.451 | 0.807 | 2.045 |
| HLK60_09335 | integrase | 1.180 | -0.456 | 1.070 | 2.345 |
| HLK60_09590 | hypothetical protein | -1.990 | -2.041 | -0.778 | -1.918 |
| HLK60_12140 | hypothetical protein | -0.458 | -2.246 | -0.217 | -0.638 |
| HLK60_12255 | hypothetical protein | -0.405 | 0.544 | 0.485 | 2.252 |
| HLK60_13680 | hypothetical protein | -1.493 | -0.843 | -1.795 | -2.743 |
| HLK60_14510 | hypothetical protein | -0.331 | -1.382 | -0.762 | -2.166 |
| HLK60_18780 | <i>ykgM</i> | 1.456 | 2.984 | 2.147 | 0.900 |
| HLK60_20130 | <i>yabI</i> | -0.688 | -3.558 | 0.265 | -3.813 |

| Identifier | Annotation | M1/5 <i>rpsLK42R</i> Δ <i>clbR</i> (pBAD24) | M1/5 <i>rpsLK42R</i> (pBAD24- <i>tetAp-clbR</i> - <i>rrnBt</i>) | M1/5 <i>rpsLK42R</i> Δ <i>clbQ</i> (pBAD24) | M1/5 <i>rpsLK42R</i> (pBAD24- <i>tetAp-clbQ</i> - <i>rrnBt</i>) |
|------------------------------|----------------------|-------------------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------|
| HLK60_25335 | hypothetical protein | 1.568 | 2.340 | 1.611 | 0.264 |
| HLK60_25435 | <i>ssb</i> | 0.917 | 1.351 | 0.485 | 2.593 |
| HLK60_25465 | hypothetical protein | -0.727 | 1.222 | 0.164 | 2.023 |
| HLK60_00085 | <i>ibpB</i> | -0.790 | 0.589 | 0.390 | 3.683 |
| HLK60_22775 | <i>malG</i> | 0.425 | 1.074 | -0.363 | 2.082 |
| HLK60_10305 | <i>mepM</i> | 1.203 | 2.056 | 1.289 | 0.765 |
| HLK60_04320 | <i>papA</i> | -2.106 | -0.456 | 0.107 | -0.655 |
| HLK60_17685 | <i>purK</i> | -4.106 | -1.157 | -0.630 | -0.449 |
| HLK60_13375 | <i>pyrF</i> | 1.710 | 1.766 | 2.070 | 2.618 |
| HLK60_18785 | <i>rpmJ</i> | 1.748 | 3.274 | 2.382 | 0.809 |
| HLK60_11510 | <i>sodB</i> | -0.183 | -2.041 | -0.136 | -0.070 |
| HLK60_25530 | <i>traV</i> | 1.080 | 1.922 | 0.485 | 2.193 |
| HLK60_13485 | <i>trpCF</i> | 1.116 | 1.702 | 1.458 | 2.061 |
| HLK60_13480 | <i>trpD</i> | 1.019 | 2.134 | 1.441 | 2.116 |
| HLK60_13475 | <i>trpE</i> | 1.187 | 2.600 | 1.388 | 2.050 |
| HLK60_06100 | <i>tyrA</i> | 1.744 | 1.950 | 2.100 | 1.849 |
| HLK60_21480 | <i>ulaE</i> | 0.180 | 0.544 | 0.070 | 2.667 |
| HLK60_09915 | <i>ybcL</i> | -0.121 | -2.105 | -0.231 | -0.554 |
| HLK60_01370 | <i>yhhY</i> | 1.595 | 2.470 | 1.864 | 1.345 |
| HLK60_23835 | <i>yihQ</i> | 0.917 | 0.544 | 0.485 | 2.345 |
| HLK60_23805 | <i>yihV</i> | 0.180 | 2.351 | 0.485 | 0.667 |
| HLK60_09740 | <i>zinT</i> | 1.634 | 2.912 | 1.975 | 0.671 |
| HLK60_10300 | <i>znuA</i> | 1.248 | 2.001 | 1.265 | 0.731 |
| De-regulated Proteins | | | | | |
| HLK60_00030 | YidA | 1.817 | 2.217 | 1.802 | 1.675 |
| HLK60_00080 | IbpA | 0.045 | 0.714 | 0.191 | 3.588 |
| HLK60_00085 | IbpB | -0.173 | 0.347 | 0.162 | 3.662 |
| HLK60_00300 | Gmk | 1.616 | 2.359 | 2.263 | 1.789 |
| HLK60_01035 | HdeB | -1.287 | -2.219 | -1.823 | -1.876 |
| HLK60_01060 | HutX | 2.35 | 2.756 | 2.337 | 2.222 |
| HLK60_01135 | UspA | 1.49 | 2.199 | 2.004 | 1.707 |
| HLK60_01340 | YhhA | -1.806 | -2.383 | -1.754 | -2.431 |
| HLK60_01690 | Rpe | 1.955 | 2.169 | 2.037 | 1.832 |
| HLK60_01695 | Gph | 2.33 | 2.621 | 2.132 | 2.079 |
| HLK60_01700 | TrpS | 3.851 | 4.138 | 3.99 | 3.645 |
| HLK60_01810 | hypothetical protein | 5.648 | 5.234 | 5.653 | 4.43 |
| HLK60_01820 | YheU | -1.433 | -2.246 | -1.056 | -2.146 |
| HLK60_02040 | RpsQ | 4.543 | 5.069 | 5.228 | 4.665 |
| HLK60_02405 | Rng | 2.314 | 2.364 | 2.116 | 2.341 |
| HLK60_02475 | ZapE | 8.609 | 11.652 | 7.697 | 9.869 |
| HLK60_02490 | SspA | 1.598 | 1.69 | 2.442 | 1.825 |
| HLK60_02570 | RapZ | 3.638 | 3.381 | 3.666 | 3.451 |
| HLK60_02575 | PtsN | 5.47 | 5.808 | 4.822 | 5.84 |

| Identifier | Annotation | M1/5 | M1/5 | M1/5 | M1/5 |
|-------------|----------------------|-----------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|
| | | <i>rpsLK42R</i> Δ <i>clbR</i> (pBAD24) | <i>rpsLK42R</i> (pBAD24- <i>tetAp-clbR-rrnBt</i>) | <i>rpsLK42R</i> Δ <i>clbQ</i> (pBAD24) | <i>rpsLK42R</i> (pBAD24- <i>tetAp-clbQ-rrnBt</i>) |
| HLK60_02620 | MlaF | 11.053 | 12.572 | 12.334 | 11.065 |
| HLK60_02770 | RpsO | 1.622 | 1.626 | 2.075 | 1.645 |
| HLK60_03010 | TdcF | 2.212 | 2.929 | 3.084 | 2.666 |
| HLK60_03040 | YhaJ | -1.326 | -2.085 | -1.399 | -1.588 |
| HLK60_03195 | EbgC | 2.693 | 3.888 | 4.429 | 3.227 |
| HLK60_04605 | YgfI | 14.106 | 14.365 | 14.276 | 13.784 |
| HLK60_04925 | LysA | 2.231 | 2.32 | 2.076 | 2.129 |
| HLK60_05115 | hypothetical protein | 1.573 | 1.719 | 2.178 | 1.713 |
| HLK60_05260 | FucO | 10.81 | 12.507 | 12.176 | 10.744 |
| HLK60_05285 | QueF | 3.057 | 2.584 | 3.092 | 2.858 |
| HLK60_05525 | IspF | -2.102 | -3.419 | -2 | -2.884 |
| HLK60_05550 | RpoS | 10.935 | 12.901 | 10.814 | 10.503 |
| HLK60_05895 | ProV | 1.638 | 2.015 | 2.148 | 1.742 |
| HLK60_06030 | NadK | 11.572 | 11.514 | 11.479 | 11.678 |
| HLK60_06255 | RseB | -1.63 | -2.494 | -2.745 | -1.912 |
| HLK60_06610 | PurM | 3.233 | 3.226 | 3.272 | 3.118 |
| HLK60_06715 | AegA | -0.243 | -0.112 | -0.066 | 2.569 |
| HLK60_06725 | YpfG | 4.894 | 5.559 | 5.483 | 4.546 |
| HLK60_06890 | CysA | 4.103 | 4.487 | 4.317 | 4.203 |
| HLK60_06935 | ZipA | 3.148 | 3.338 | 3.751 | 2.705 |
| HLK60_06940 | LigA | 1.959 | 2.21 | 1.647 | 1.882 |
| HLK60_07430 | YfcE | 14.227 | 14.598 | 14.197 | 13.131 |
| HLK60_07465 | HxpA | 4.955 | 5.67 | 5.667 | 5.109 |
| HLK60_07480 | AlaA | 2.782 | 2.678 | 1.968 | 2.838 |
| HLK60_07660 | NudI | 2.146 | 0.654 | 2.118 | 1.506 |
| HLK60_07710 | GlpB | 2.287 | 1.841 | 2.746 | 1.819 |
| HLK60_07825 | RcsB | 2.401 | 2.783 | 2.508 | 2.383 |
| HLK60_07975 | YejK | 2.288 | 2.535 | 2.79 | 2.148 |
| HLK60_08555 | Dcd | 4.343 | 4.348 | 4.6 | 4.173 |
| HLK60_08680 | RfbB | 1.841 | 2.363 | 1.83 | 1.955 |
| HLK60_08685 | RfbD | 2.749 | 3.613 | 3.046 | 2.884 |
| HLK60_08690 | RfbA | 3.06 | 3.319 | 3.222 | 3.351 |
| HLK60_08725 | CpsG | 2.278 | 2.52 | 2.391 | 2.574 |
| HLK60_08745 | WzzB | 4.449 | 4.784 | 4.434 | 4.263 |
| HLK60_08765 | HisH | 1.398 | 2.75 | 1.233 | 1.492 |
| HLK60_08835 | YeeX | 2.242 | 2.01 | 2.224 | 2.113 |
| HLK60_08925 | hypothetical protein | 11.598 | 10.787 | 11.291 | 10.634 |
| HLK60_09120 | ClbR | 0.374 | 5.656 | 0.655 | 0.545 |
| HLK60_09130 | ClbC | nd | 13.256 | 11.4 | 10.511 |
| HLK60_09135 | ClbD | 1.084 | 2.232 | 1.411 | 1.241 |
| HLK60_09145 | ClbF | -3.876 | 4.455 | 1.227 | 1.061 |
| HLK60_09200 | ClbQ | 0.757 | 1.11 | 0.472 | 7.738 |

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|--------------------|----------------------|--------------------------------------------|------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------|
| | | <i>rpsLK42R</i> <i>ΔclbR</i> +pBAD24 | <i>rpsLK42R</i> pBAD24- <i>tetAp-clbR-</i> <i>rrnBt</i> | <i>rpsLK42R</i> <i>ΔclbQ</i> +pBAD24 | <i>rpsLK42R</i> pBAD24- <i>tetAp-clbQ-</i> <i>rrnBt</i> |
| HLK60_09285 | YbtE | 3.522 | 3.591 | 3.51 | 2.837 |
| HLK60_09820 | YedP | 12.047 | 11.734 | 11.861 | 10.658 |
| HLK60_10090 | YecI | 4.126 | 4.065 | 4.298 | 3.872 |
| HLK60_10115 | OtsA | 2.567 | 2.519 | 2.217 | 2.17 |
| HLK60_10690 | MsrB | 8.078 | 8.115 | 7.919 | 8.271 |
| HLK60_11185 | hypothetical protein | 1.67 | 2.006 | 1.831 | 1.813 |
| HLK60_11190 | FtsH4 | -2.291 | -2.411 | -1.626 | -1.144 |
| HLK60_11355 | MenI | 2.24 | 2.495 | 2.815 | 2.442 |
| HLK60_11375 | SufC | 3.396 | 4.011 | 3.655 | 2.927 |
| HLK60_11410 | FumD | -0.335 | -0.328 | 0.499 | -2.232 |
| HLK60_11675 | YdgJ | 7.288 | 10.847 | 11.969 | 10.315 |
| HLK60_11720 | UidC | 10.84 | 11.973 | 11.238 | 11.385 |
| HLK60_11930 | Dcp | 2.071 | 2.277 | 2.177 | 1.799 |
| HLK60_12230 | hypothetical protein | 8.692 | 8.962 | 8.656 | 8.42 |
| HLK60_12660 | hypothetical protein | -2.785 | -4.59 | nd | nd |
| HLK60_13010 | hypothetical protein | 1.693 | 2.208 | 2.181 | 1.974 |
| HLK60_13445 | CobO | 3.674 | 3.224 | 3.869 | 3.74 |
| HLK60_13525 | hypothetical protein | 11.474 | 12.082 | 12.141 | 11.2 |
| HLK60_13820 | hypothetical protein | 4.456 | 4.565 | 4.234 | 4.31 |
| HLK60_14080 | YchN | 3.466 | 3.675 | 3.613 | 3.222 |
| HLK60_14185 | DhaL | 2.301 | 1.09 | 1.413 | 1.945 |
| HLK60_14355 | YmgD | 2.145 | 2.512 | 1.576 | 1.252 |
| HLK60_14565 | NudJ | 7.085 | 7.131 | 6.926 | 7.231 |
| HLK60_14630 | hypothetical protein | 3.488 | 2.766 | 3.082 | 2.86 |
| HLK60_14990 | LolE | 3.822 | 4.016 | 4.398 | 3.981 |
| HLK60_15295 | YceI | 12.259 | 12.835 | 12.257 | 12.489 |
| HLK60_15395 | YcdY | 2.854 | 3.001 | 3.451 | 0.704 |
| HLK60_15515 | YmdF | -2.259 | -2.759 | -3.518 | -1.847 |
| HLK60_15595 | CspG | 1.453 | 2.707 | 2.363 | 2.214 |
| HLK60_15685 | YccU | 4.484 | 4.664 | 4.356 | 4.042 |
| HLK60_15850 | LdtD | 4.767 | 5.611 | 4.606 | 4.984 |
| HLK60_16545 | MoaC | -2.629 | -1.936 | -2.128 | -2.429 |
| HLK60_16635 | YbhA | 2.588 | 2.853 | 2.571 | 2.823 |
| HLK60_16685 | GalM | 1.92 | 2.741 | 2.51 | 2.469 |
| HLK60_16785 | YbgC | 3.036 | 3.148 | 2.939 | 2.856 |
| HLK60_16835 | SdhB | 0.785 | 0.929 | 0.931 | 2.841 |
| HLK60_16880 | PxpA | 10.21 | 11.775 | 11.038 | 11.13 |
| HLK60_17470 | Fes | 2.885 | 3.503 | 3.403 | 2.793 |
| HLK60_17680 | PurE | 1.891 | 2.073 | 1.839 | 1.922 |
| HLK60_17900 | Gsk | 3.196 | 2.607 | 2.9 | 3.027 |
| HLK60_18100 | ClpP | 2.091 | 2.395 | 2.099 | 2.186 |
| HLK60_18175 | YajL | 1.541 | 2.321 | 1.929 | 1.357 |
| HLK60_18385 | IraP | 1.924 | 2.456 | 2.129 | 1.855 |

| Identifier | Annotation | M1/5 | M1/5 | M1/5 | M1/5 |
|---------------------|----------------------|--------------------------------------------|------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------|
| | | <i>rpsLK42R</i> <i>ΔclbR</i> +pBAD24 | <i>rpsLK42R</i> pBAD24- <i>tetAp-clbR-</i> <i>rrnBt</i> | <i>rpsLK42R</i> <i>ΔclbQ</i> +pBAD24 | <i>rpsLK42R</i> pBAD24- <i>tetAp-clbQ-</i> <i>rrnBt</i> |
| HLK60_18425 | IprA | 2.609 | 2.725 | 2.567 | 2.575 |
| HLK60_18570 | YahO | -4.35 | -4.754 | -5.681 | -5.62 |
| HLK60_19435 | MetN | 3.334 | 3.631 | 3.549 | 3.585 |
| HLK60_19650 | ErpA | -1.264 | -1.563 | -1.321 | -2.124 |
| HLK60_19720 | PcnB | 2.967 | 3.251 | 2.622 | 2.547 |
| HLK60_19765 | PanB | 3.497 | 3.941 | 3.46 | 3.381 |
| HLK60_19870 | PdhR | 11.001 | 8.99 | 12.011 | 10.076 |
| HLK60_20005 | MurG | 4.409 | 4.446 | 5.217 | 4.637 |
| HLK60_20015 | MurD | 2.109 | 2.007 | 2.331 | 2.055 |
| HLK60_20025 | MurF | 4.864 | 3.312 | 5.564 | 3.33 |
| HLK60_20030 | MurE | 0.692 | 0.964 | 0.686 | 2.505 |
| HLK60_20035 | FtsI | 1.869 | 2.471 | 2.207 | 1.864 |
| HLK60_20040 | FtsL | 10.182 | 12.306 | 11.802 | 9.358 |
| HLK60_20270 | CaiA | 7.572 | 13.873 | 10.616 | 9.894 |
| HLK60_20440 | ThrB | 2.024 | 2.552 | 3.308 | 2.407 |
| HLK60_20900 | UxuA | 2.899 | 3.218 | 2.84 | 3.029 |
| HLK60_21180 | PepA | 1.804 | 2.124 | 1.875 | 1.681 |
| HLK60_21205 | RraB | 0.064 | 0.268 | 3.284 | -1.199 |
| HLK60_21210 | ArgF | 2.306 | 2.727 | 2.516 | 2.384 |
| HLK60_21595 | Rnr | 0.071 | 0.112 | 0.071 | 3.467 |
| HLK60_21690 | RsgA | 2.852 | 1.684 | 2.872 | 2.217 |
| HLK60_21725 | FrdB | -1.89 | -2.515 | -4.851 | -2.047 |
| HLK60_21745 | Blc | 2.207 | 2.148 | 2.323 | 1.975 |
| HLK60_22150 | hypothetical protein | 2.179 | 2.741 | 2.194 | 2.134 |
| HLK60_22190 | YdiA | 3.551 | 4.157 | 3.074 | 8.014 |
| HLK60_22725 | LexA | 13.849 | 14.026 | 13.907 | 13.262 |
| HLK60_22820 | YjbD | -0.895 | -1.444 | -2.315 | -1.284 |
| HLK60_22980 | YjaG | 2.883 | 3.341 | 2.497 | 2.758 |
| HLK60_23140 | BtuB | 2.61 | 1.811 | 3.157 | 1.758 |
| HLK60_23200 | ArgC | 1.619 | 1.85 | 2.415 | 1.975 |
| HLK60_23240 | FrwB | -1.661 | -2.314 | -1.435 | -1.977 |
| HLK60_023370 | ZapB | 3.578 | 3.653 | 3.95 | 3.288 |
| HLK60_23380 | GlpK | 3.387 | 2.948 | 3.178 | 3.279 |
| HLK60_24260 | hypothetical protein | 2.167 | 2.583 | 1.92 | 2.499 |
| HLK60_24305 | CyaY | 11.889 | 11.993 | 13.599 | 11.855 |
| HLK60_24315 | HemC | 8.077 | 9.203 | 8.858 | 8.571 |
| HLK60_24495 | IlvG | 1.911 | 2.18 | 1.748 | 2.052 |
| HLK60_24675 | AtpC | 2.573 | 2.544 | 2.574 | 2.445 |
| HLK60_24750 | YieH | 6.191 | 6.227 | 6.784 | 6.297 |
| HLK60_25190 | hypothetical protein | 2.534 | 2.591 | 1.468 | 2.424 |
| HLK60_24910 | VirB11 | 3.213 | 3.441 | 2.696 | 3.019 |

De-regulated genes and proteins are listed with a fold-change relative to the wild type with a base mean ≥ 10 and a \log_2 -fold change ≤ -2 or $\geq +2$. Indicated are changes in gene/protein expression relative to wild type strain M1/5 *rpsLK42R* (pBAD24).