**Supplementary File 3. Multiple Linear Models: variables, significance, and explained variance.**

|  |  |
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|   | Multiple Linear Model (p-values of included variables) |
| Model Parameter  | Model 1 | Model 2\*\* | Model 3\*\*\* | Model 4 | Model 5 |
| Intercept  | 3.7E-04 | 8.9E-07 | 3.1E-05 | 0.0009 | 1.75E-05 |
| Dot6 pre-stress AUC | 0.016 | 0.0004 | 0.00011 | 0.0070 |  |
| Msn2 pre-stress AUC | NaN |  |  |  |  |
| Msn2 – Dot6 AUC | 0.468 |  |  |  |  |
| Sum of Dot6 peak heights (pre-stress) | 0.767 |  |  |  |  |
| Sum of Msn2 peak heights(pre-stress) | 0.016 | 0.0024 | 0.00010 | 0.0007 |  |
| Dot6 acute stress peak height | 1.4E-07 | 6.3E-10 | 1.0E-08 | 3.41E-10 | 0.00013 |
| Msn2 acute stress peak height | 0.125 |  |  |  |  |
| Msn2 acclimation AUC | 0.017 | 0.0084 |  |  |  |
| G1 (at time of stress)\* | 0.438 |  |  |  |  |
| S-phase (at time of stress) | 0.528 |  |  |  |  |
| G2 (at time of stress) | 0.233 |  |  |  |  |
| M-phase (at time of stress) | 0.221 |  |  |  |  |
| Cell/colony size at experiment start | 0.042 | 0.0104 |  |  |  |
| Pre-stress growth rate | 2.2E-06 | 4.0E-07 | 2.7E-08 |  | 1.59E-06 |
|  |  |  |  |  |  |
| R2 (explained variance) | 0.45 | 0.40 | 0.35 | 0.22 | 0.26 |

\*Cell-cycle phase included four binary parameters (i.e. dummy variables) corresponding to the four cell-cycle phases (G1, S, G2 and M phase). See the Methods section for how these were scored.

\*\* Model 2 only included all the significant dependent variables from Model 1.

\*\*\* Model 3 excluded Msn2 acclimation AUC and Cell/colony size from Model 2 as the p-values did not pass Holm-Bonferroni correction.