**Table S1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Spearman** ** | **Spearman p-value** | **Pearson *r*** | **Pearson p-value** | **Number of Data Points** |
| **All Conditions** | -0.70 | 2x10-13 | -0.28 | 0.006 | 79 |
| **Natural conditions (only Glucose, Nitrogen, and Phosphate Limitation)** | -0.87 | 2x10-8 | -0.69 | 8x10-5 | 67 |
| **Only Glucose Limitation** | -0.59 | 0.008 | -0.54 | 0.016 | 16 |
| **Only Nitrogen Limitation** | -0.74 | 2x10-5 | -0.77 | 1x10-5 | 23 |
| **Only Phosphate Limitation** | -0.66 | 5x10-5 | -0.50 | 0.033 | 28 |
| **Only Leucine Auxotroph** | 0 | 1 | 0 | 1 | 7 |
| **Only Uracil Auxotroph** | -0.15 | 0.5 | -0.61 | 0.13 | 5 |
| **All Conditions** (Cytosolic Metabolites) | -0.73 | 2x10-8 | -0.37 | 0.0075 | 43 |
| **Natural conditions (only Glucose, Nitrogen, and Phosphate Limitation)** (Cytosolic Metabolites) | -0.81 | 7x10-7 | -0.23 | 0.14 | 36 |
| **Only Glucose Limitation** (Cytosolic Metabolites) | -0.64 | 0.069 | -0.61 | 0.07 | 7 |
| **Only Nitrogen Limitation** (Cytosolic Metabolites) | -0.83 | 5 x10-4 | -0.82 | 5 x10-4 | 12 |
| **Only Phosphate Limitation** (Cytosolic Metabolites) | -.70 | 8x10-4 | -0.64 | 0.003 | 17 |
| **Only Leucine Auxotroph** (Cytosolic Metabolites) | 0 | 1 | 0 | 1 | 4 |
| **Only Uracil Auxotroph** (Cytosolic Metabolites) | 0 | 0.67 | -0.5 | 0.33 | 3 |