**Table S1. *S. cerevisiae* cell cycle kinetics in different media**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Culture medium** | **Cell size (fL)** | **Td (h)** | **TG1 (h)** | **Reference** |
| YP+Dextrose | 34.3 | 1.3 | 0.3 | (Tyson *et al.* 1979) |
| YP+Fructose | 36.6 | 1.3 | 0.3 | (Tyson *et al.* 1979) |
| YP+Sucrose | 38.7 | 1.3 | 0.3 | (Tyson *et al.* 1979) |
| YP+Dextrose |  | 1.4 | 0.3 | (Slater *et al.* 1977) |
| MM2+Fructose | 34 | 1.5 | 0.4 | (Tyson *et al.* 1979) |
| MM2+Dextrose | 25.9 | 1.6 | 0.5 | (Tyson *et al.* 1979) |
| YP+Raffinose |  | 1.7 | 0.4 | This study |
| YP+Dextrose |  | 1.7 | 0.5 | This study |
| YP+Raffinose | 18 | 1.8 | 0.6 | (Tyson *et al.* 1979) |
| MM+Dextrose+Ammonia |  | 1.8 | 0.9 | (Rivin and Fangman 1980) |
| MM+Dextrose+Glutamine |  | 1.8 | 1.0 | (Rivin and Fangman 1980) |
| MM1+Dextrose | 17.8 | 2.0 | 0.7 | (Tyson *et al.* 1979) |
| MM1+Maltose | 25.5 | 2.0 | 0.7 | (Tyson *et al.* 1979) |
| MM1+Fructose | 22.8 | 2.1 | 0.8 | (Tyson *et al.* 1979) |
| YP+Maltose | 21.2 | 2.1 | 0.9 | (Tyson *et al.* 1979) |
| SF |  | 2.2 | 0.7 | (Slater *et al.* 1977) |
| YP+Glycerol |  | 2.2 | 0.7 | This study |
| YP+Ethanol |  | 2.2 | 0.8 | This study |
| Glucose-limited chemostat | 38.8 | 2.3 | 0.5 | (Brauer *et al.* 2008) |
| Leucine-limited chemostat | 27.6 | 2.3 | 0.7 | (Brauer *et al.* 2008) |
| Uracil-limited chemostat | 41 | 2.3 | 0.7 | (Brauer *et al.* 2008) |
| Phosphorous-limited chemostat | 46.3 | 2.3 | 0.8 | (Brauer *et al.* 2008) |
| YP+Sorbitol | 15.9 | 2.3 | 0.8 | (Tyson *et al.* 1979) |
| YP+Galactose |  | 2.3 | 0.8 | This study |
| Nitrogen-limited chemostat | 30.6 | 2.3 | 1 | (Brauer *et al.* 2008) |
| Sulfur-limited chemostat | 29.9 | 2.3 | 1 | (Brauer *et al.* 2008) |
| Glucose-limited chemostat | 18.9 | 2.3 | 1 | (Guo *et al.* 2004) |
| Nitrogen-limited chemostat | 30 | 2.3 | 1 | (Guo *et al.* 2004) |
| Glucose-limited chemostat |  | 2.3 | 1.5 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 2.3 | 1.5 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 2.3 | 1.6 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 2.3 | 1.6 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 2.3 | 2.1 | (Henry *et al.* 2010) |
| YP+Gluconate | 25.8 | 2.4 | 0.6 | (Tyson *et al.* 1979) |
| MM+Dextrose+Glutamate |  | 2.4 | 0.7 | (Johnston *et al.* 1980) |
| MM+Dextrose+Ammonia |  | 2.6 | 0.9 | (Johnston *et al.* 1980) |
| YP+Galactose | 21.5 | 2.6 | 1.1 | (Tyson *et al.* 1979) |
| Glucose-limited chemostat |  | 2.7 | 0.3 | (Jagadish and Carter 1977) |
| Glucose-limited chemostat |  | 2.7 | 0.4 | (Jagadish and Carter 1977) |
| YP+Glycerol | 24.1 | 2.7 | 1.2 | (Tyson *et al.* 1979) |
| Uracil-limited chemostat | 37.3 | 2.8 | 0.7 | (Brauer *et al.* 2008) |
| Glucose-limited chemostat | 33.6 | 2.8 | 1 | (Brauer *et al.* 2008) |
| YP+Dextrose |  | 2.8 | 1.0 | (Jagadish and Carter 1977) |
| Nitrogen-limited chemostat | 23.9 | 2.8 | 1.1 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat | 29.9 | 2.8 | 1.1 | (Guo *et al.* 2004) |
| Leucine-limited chemostat | 36.6 | 2.8 | 1.2 | (Brauer *et al.* 2008) |
| Phosphorous-limited chemostat | 37.3 | 2.8 | 1.2 | (Brauer *et al.* 2008) |
| Glucose-limited chemostat | 19 | 2.8 | 1.3 | (Guo *et al.* 2004) |
| Sulfur-limited chemostat | 26.1 | 2.8 | 1.5 | (Brauer *et al.* 2008) |
| Glucose-limited chemostat |  | 2.8 | 1.8 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 2.8 | 1.8 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 2.8 | 1.8 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 2.8 | 1.9 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 2.8 | 2.1 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 2.8 | 2.2 | (Henry *et al.* 2010) |
| Glucose-limited chemostat |  | 2.9 | 0.7 | (Carter and Jagadish 1978) |
| YP+Dextrose |  | 3 | 0.8 | (Carter and Jagadish 1978) |
| YP+Mannitol | 20 | 3.2 | 1.0 | (Tyson *et al.* 1979) |
| YP+Trehalose | 17.8 | 3.2 | 1.0 | (Tyson *et al.* 1979) |
| MM3+Acetate | 21.6 | 3.2 | 1.1 | (Tyson *et al.* 1979) |
| Glucose-limited chemostat |  | 3.2 | 1.2 | (Carter and Jagadish 1978) |
| MM+Dextrose+Proline |  | 3.3 | 1.4 | (Jagadish and Carter 1977) |
| MM+Dextrose+Ammonia+CHX |  | 3.3 | 1.6 | (Hartwell and Unger 1977) |
| SEY |  | 3.3 | 1.7 | (Slater *et al.* 1977) |
| MM+Dextrose+Methionine |  | 3.3 | 1.9 | (Rivin and Fangman 1980) |
| Glucose-limited chemostat |  | 3.5 | 1.1 | (Jagadish and Carter 1977) |
| Nitrogen-limited chemostat | 29.3 | 3.5 | 1.3 | (Guo *et al.* 2004) |
| Leucine-limited chemostat | 35.1 | 3.5 | 1.5 | (Brauer *et al.* 2008) |
| Uracil-limited chemostat | 41 | 3.5 | 1.5 | (Brauer *et al.* 2008) |
| Phosphorous-limited chemostat | 32.1 | 3.5 | 1.7 | (Brauer *et al.* 2008) |
| Glucose-limited chemostat | 17.9 | 3.5 | 1.8 | (Guo *et al.* 2004) |
| Glucose-limited chemostat | 32.1 | 3.5 | 1.9 | (Brauer *et al.* 2008) |
| Sulfur-limited chemostat | 26.9 | 3.5 | 2 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat | 24 | 3.5 | 2.1 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat |  | 3.5 | 2.1 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 3.5 | 2.3 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 3.5 | 2.5 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 3.5 | 2.8 | (Henry *et al.* 2010) |
| Glucose-limited chemostat |  | 3.5 | 2.9 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 3.5 | 2.9 | (Henry *et al.* 2010) |
| MM+Dextrose+Proline |  | 3.8 | 1.6 | (Carter and Jagadish 1978) |
| Glucose-limited chemostat |  | 3.9 | 1.4 | (Jagadish and Carter 1977) |
| MM+Dextrose+Leucine |  | 4 | 1.8 | (Johnston *et al.* 1980) |
| Nitrogen-limited chemostat |  | 4 | 3.1 | (Henry *et al.* 2010) |
| Glucose-limited chemostat |  | 4.2 | 1.8 | (Carter and Jagadish 1978) |
| Glucose-limited chemostat |  | 4.3 | 2.1 | (Carter and Jagadish 1978) |
| SE |  | 4.3 | 2.4 | (Slater *et al.* 1977) |
| MM+Dextrose+Threonine |  | 4.3 | 2.6 | (Rivin and Fangman 1980) |
| EMM+Galactose | 22.9 | 4.5 | 2.2 | (Tyson *et al.* 1979) |
| Uracil-limited chemostat | 41.8 | 4.6 | 2 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat | 29.6 | 4.6 | 2 | (Guo *et al.* 2004) |
| Phosphorous-limited chemostat | 31.3 | 4.6 | 2.3 | (Brauer *et al.* 2008) |
| Glucose-limited chemostat |  | 4.6 | 2.3 | (Jagadish and Carter 1977) |
| Glucose-limited chemostat | 29.9 | 4.6 | 2.6 | (Brauer *et al.* 2008) |
| Glucose-limited chemostat | 19 | 4.6 | 2.6 | (Guo *et al.* 2004) |
| Leucine-limited chemostat | 38.1 | 4.6 | 2.9 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat |  | 4.6 | 3.1 | (Henry *et al.* 2010) |
| Sulfur-limited chemostat | 27.6 | 4.6 | 3.2 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat | 23.9 | 4.6 | 3.5 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat |  | 4.6 | 3.5 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 4.6 | 3.6 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 4.6 | 3.8 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 4.6 | 3.9 | (Henry *et al.* 2010) |
| Glucose-limited chemostat |  | 4.6 | 4 | (Henry *et al.* 2010) |
| MM1+Glycerol | 16.9 | 4.9 | 3.1 | (Tyson *et al.* 1979) |
| YP+Glycerol |  | 5.2 | 3.0 | (Carter and Jagadish 1978) |
| YP+Glycerol |  | 5.2 | 3.2 | (Jagadish and Carter 1977) |
| MM+Dextrose+Ammonia+CHX |  | 5.4 | 3.6 | (Hartwell and Unger 1977) |
| MM+Dextrose+Tryptophan |  | 5.6 | 3.8 | (Johnston *et al.* 1980) |
| Glucose-limited chemostat |  | 6.2 | 2.6 | (Jagadish and Carter 1977) |
| Glucose-limited chemostat |  | 6.2 | 3.9 | (Jagadish and Carter 1977) |
| MM4+Acetate | 19.5 | 6.4 | 3.4 | (Tyson *et al.* 1979) |
| MM+Dextrose+Proline |  | 6.4 | 4.5 | (Johnston *et al.* 1980) |
| Glucose-limited chemostat |  | 6.6 | 4.5 | (Carter and Jagadish 1978) |
| MM+Dextrose+Proline |  | 6.7 | 4.7 | (Rivin and Fangman 1980) |
| Nitrogen-limited chemostat | 33.2 | 6.9 | 3 | (Guo *et al.* 2004) |
| Glucose-limited chemostat | 18.9 | 6.9 | 4.3 | (Guo *et al.* 2004) |
| Glucose-limited chemostat | 36.6 | 6.9 | 4.4 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat |  | 6.9 | 4.8 | (Henry *et al.* 2010) |
| Uracil-limited chemostat | 47.8 | 6.9 | 5 | (Brauer *et al.* 2008) |
| Phosphorous-limited chemostat | 40.3 | 6.9 | 5.1 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat |  | 6.9 | 5.1 | (Henry *et al.* 2010) |
| Leucine-limited chemostat | 38.1 | 6.9 | 5.3 | (Brauer *et al.* 2008) |
| Sulfur-limited chemostat | 27.6 | 6.9 | 5.3 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat | 29.9 | 6.9 | 5.5 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat |  | 6.9 | 5.8 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 6.9 | 6.1 | (Henry *et al.* 2010) |
| Glucose-limited chemostat |  | 6.9 | 6.6 | (Henry *et al.* 2010) |
| Nitrogen-limited chemostat |  | 6.9 | 6.6 | (Henry *et al.* 2010) |
| Glucose-limited chemostat |  | 7 | 4.6 | (Carter and Jagadish 1978) |
| MM3+Citrate | 16.9 | 7.3 | 3.6 | (Tyson *et al.* 1979) |
| MM+Ethanol+Ammonia |  | 7.5 | 4.7 | (Carter and Jagadish 1978) |
| EMM+Acetate+Pthalate | 18.9 | 7.6 | 4.2 | (Tyson *et al.* 1979) |
| MM+Dextrose+Threonine |  | 7.6 | 4.6 | (Johnston *et al.* 1980) |
| MM+Dextrose+Ammonia+CHX |  | 8.2 | 6.5 | (Hartwell and Unger 1977) |
| MM+Ethanol+Ammonia |  | 8.3 | 5.9 | (Jagadish and Carter 1977) |
| MM+Acetate |  | 8.5 | 6.1 | (Jagadish and Carter 1977) |
| Glucose-limited chemostat |  | 8.6 | 6.5 | (Carter and Jagadish 1978) |
| Glucose-limited chemostat |  | 9.1 | 5.9 | (Jagadish and Carter 1977) |
| Glucose-limited chemostat |  | 11.7 | 8.4 | (Carter and Jagadish 1978) |
| MM+Dextrose+Ammonia+CHX |  | 11.9 | 10.6 | (Hartwell and Unger 1977) |
| Glucose-limited chemostat | 42.5 | 13.9 | 11.3 | (Brauer *et al.* 2008) |
| Leucine-limited chemostat | 43.3 | 13.9 | 11.5 | (Brauer *et al.* 2008) |
| Phosphorous-limited chemostat | 40.4 | 13.9 | 11.7 | (Brauer *et al.* 2008) |
| Sulfur-limited chemostat | 31.3 | 13.9 | 11.9 | (Brauer *et al.* 2008) |
| Nitrogen-limited chemostat | 32.8 | 13.9 | 12 | (Brauer *et al.* 2008) |
| Uracil-limited chemostat | 47.8 | 13.9 | 12 | (Brauer *et al.* 2008) |
| Glucose-limited chemostat |  | 17.9 | 12.5 | (Carter and Jagadish 1978) |
| Glucose-limited chemostat | 34.3 | 21.6 | 15.6 | (Jagadish and Carter 1977) |

Brauer, M. J., C. Huttenhower, E. M. Airoldi, R. Rosenstein, J. C. Matese *et al.*, 2008 Coordination of growth rate, cell cycle, stress response, and metabolic activity in yeast. Mol Biol Cell 19**:** 352-367.

Carter, B. L., and M. N. Jagadish, 1978 Control of cell division in the yeast Saccharomyces cerevisiae cultured at different growth rates. Exp Cell Res 112**:** 373-383.

Guo, J., B. A. Bryan and M. Polymenis, 2004 Nutrient-specific effects in the coordination of cell growth with cell division in continuous cultures of Saccharomyces cerevisiae. Arch Microbiol 182**:** 326-330.

Hartwell, L. H., and M. W. Unger, 1977 Unequal division in Saccharomyces cerevisiae and its implications for the control of cell division. J Cell Biol 75**:** 422-435.

Henry, K. A., H. M. Blank, S. A. Hoose and M. Polymenis, 2010 The unfolded protein response is not necessary for the G1/S transition, but it is required for chromosome maintenance in Saccharomyces cerevisiae. PLoS One 5**:** e12732.

Jagadish, M. N., and B. L. Carter, 1977 Genetic control of cell division in yeast cultured at different growth rates. Nature 269**:** 145-147.

Johnston, G., R. Singer, S. Sharrow and M. Slater, 1980 Cell division in the yeast Saccharomyces cerevisiae growing at different rates. Microbiology 118**:** 479-484.

Rivin, C. J., and W. L. Fangman, 1980 Cell cycle phase expansion in nitrogen-limited cultures of Saccharomyces cerevisiae. J Cell Biol 85**:** 96-107.

Slater, M. L., S. O. Sharrow and J. J. Gart, 1977 Cell cycle of Saccharomycescerevisiae in populations growing at different rates. Proc Natl Acad Sci U S A 74**:** 3850-3854.

Tyson, C. B., P. G. Lord and A. E. Wheals, 1979 Dependency of size of Saccharomyces cerevisiae cells on growth rate. J Bacteriol 138**:** 92-98.