Markus Ralser et al.,

Dynamic re-routing of the carbohydrate flux is key to counteracting oxidative stress

"Quantification of Yeast Carbohydrate Metabolites"

Strain and condition	Measured concentration		Calculated high aired concentration
strain and condition	(nmol/ml*OD _{see})	SD	Calculated biological concentration (mMol)
BY4741	1,59	0,16	0,76
BY4741 with H ₂ O ₂			, , , , , , , , , , , , , , , , , , ,
2 2	2,36	0,20	1,13
MR101 (70% TPI activity)	1,99	0,21	0,95
MR105 (20% TPI activity)	2,60	0,11	1,24
Glyceraldehyde-3-phosphate	(gly3p)		
Strain and condition	Measured concentration		Calculated biological concentration
	$(nmol/ml*OD_{666})$	SD	(mMol)
3Y4741	0,12	0,03	0,06
BY4741 with H ₂ O ₂	0,19	0,02	0,09
MR101 (70% TPI activity)	0,07	0,01	0,04
MR105 (20% TPI activity)	0,08	0,02	0,04
Glucose-6-phosphate and Fru	actose-6-phosphate (measured a	s the sun	n of both) (g6p)
Strain and condition	Measured concentration		Calculated biological concentration
	$(nmol/ml*OD_{sss})$	SD	(mMol)
3Y4741	1,32	0,08	0,63
BY4741 with H ₂ O ₂	2,02	0,12	0,96
MR101 (70% TPI activity)	1,69	0,29	0,80
FD 40 5 (200 (FFD)	2,93	0,31	1,40
MR105 (20% TPI activity)	2,75	0,51	1,10
MR105 (20% TPI activity) Ribose-5-phosphate (r5p)	2,73	0,51	.,
, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Measured concentration	0,31	·
Ribose-5-phosphate (r5p)	,	SD	·
Ribose-5-phosphate (r5p) Strain and condition	Measured concentration	,	Calculated biological concentration
Ribose-5-phosphate (r5p) Strain and condition 3Y4741	Measured concentration	SD	Calculated biological concentration (mMol)
Ribose-5-phosphate (r5p) Strain and condition 3Y4741 3Y4741 with H ₂ O ₂	Measured concentration (nmol/ml*OD_w) 1,44 2,84	SD 0,07 0,06	Calculated biological concentration (mMol) 0,69 1,36
Ribose-5-phosphate (r5p)	Measured concentration (nmol/ml*0D _{aal}) 1,44	<i>SD</i> 0,07	Calculated biological concentration (mMol) 0,69
Ribose-5-phosphate (r5p) Strain and condition BY4741 BY4741 with H ₂ O ₂ MR101 (70% TPI activity)	Measured concentration (mmobim**OD_m) 1,44 2,84 1,52 2,08	SD 0,07 0,06 0,08	Calculated biological concentration (mMol) 0,69 1,36 0,73
Ribose-5-phosphate (r5p) Strain and condition BY4741 BY4741 with H ₂ O ₂ MR101 (70% TPI activity) MR105 (20% TPI activity) Sedoheptulose-7-Phosphate (Measured concentration (mmobim**OD_m) 1,44 2,84 1,52 2,08	SD 0,07 0,06 0,08	Calculated biological concentration (mMol) 0,69 1,36 0,73 0,99
Ribose-5-phosphate (r5p) Strain and condition 3Y4741 3Y4741 with H ₂ O ₂ MR101 (70% TPI activity) MR105 (20% TPI activity) Sedoheptulose-7-Phosphate (Measured concentration (annolim1*OD) 1,44 2,84 1,52 2,08 87p)	SD 0,07 0,06 0,08	Calculated biological concentration (mMol) 0,69 1,36 0,73 0,99
Ribose-5-phosphate (r5p) Strain and condition 3Y4741 3Y4741 with H ₂ O ₂ MR101 (70% TPI activity) MR105 (20% TPI activity) Sedoheptulose-7-Phosphate (Strain and condition	Measured concentration (annolim1*OD an) 1,44 2,84 1,52 2,08 87p) Measured concentration	SD 0,07 0,06 0,08 0,30	Calculated biological concentration (mMol) 0,69 1,36 0,73 0,99 Calculated biological concentration
Ribose-5-phosphate (r5p) Strain and condition BY4741 BY4741 with H ₂ O ₂ MR101 (70% TPI activity) MR105 (20% TPI activity) Sedoheptulose-7-Phosphate (Strain and condition BY4741	Measured concentration (mmol/ml*OD_m) 1,44 2,84 1,52 2,08 \$\frac{57p}{mol/ml*OD_m}\$ Measured concentration (mmol/ml*OD_m) 1,41	SD 0,07 0,06 0,08 0,30 SD 0,12	Calculated biological concentration (mMol) 0,69 1,36 0,73 0,99 Calculated biological concentration (mMol) 0,67
Ribose-5-phosphate (r5p) Strain and condition BY4741 BY4741 with H ₂ O ₂ MR101 (70% TPI activity) MR105 (20% TPI activity)	Measured concentration (amoliml*OD_a) 1,44 2,84 1,52 2,08 s7p) Measured concentration (mmoliml*OD_a)	SD 0,07 0,06 0,08 0,30	Calculated biological concentration (mMol) 0,69 1,36 0,73 0,99 Calculated biological concentration (mMol)

Glycerol-3-phosphate (gol3p)

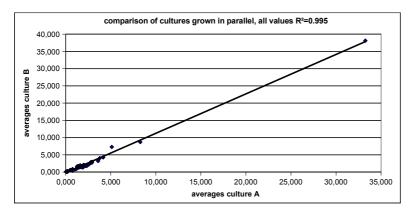
Strain and condition	Measured concentration	Cc	alculated biological concentration
	$(nmol/ml*OD_{soi})$	SD	(mMol)
BY4741	0,81	0,09	0,39
BY4741 with H ₂ O ₂	0,69	0,15	0,33
MR101 (70% TPI activity)	0,57	0,02	0,27
MR105 (20% TPI activity)	0,57	0,19	0,27

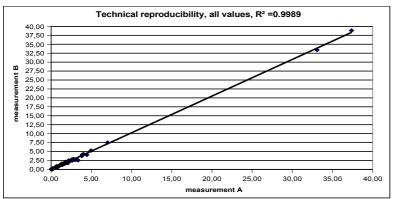
6-Phosphogluconate (6pg)

Strain and condition	Measured concentration		Calculated biological concentration
	$(nmol/ml*OD_{660})$	SD	(mMol)
BY4741	0,03	0,003	0,02
BY4741 with H ₂ O ₂	0,21	0,02	0,10
MR101 (70% TPI activity)	0,07	0,005	0,03
MR105 (20% TPI activity)	0,12	0,02	0,06

Xylulose-5-phosphate and Ribulose-5-phosphate (measured as the sum of both) (x5p)

Strain and condition	Measured concentration		Calculated biological concentration
	$(nmol/ml*OD_{600})$	SD	(mMol)
BY4741	0,49	0,03	0,23
BY4741 with H ₂ O ₂	3,90	0,16	1,86
MR101 (70% TPI activity)	0,58	0,06	0,28
MR105 (20% TPI activity)	0,98	0,15	0,47





(Upper panel) For analyzing the biological reproducibility, the metabolite concentrations were measured from cultures grown in parallel.

(Lower panel) For quality control of the metabolite quantifications and for analyzing the technical reproducibility, each metabolite was measured in duplicate.