

**Table S5**  $V_{max}$  values measured under ‘ $V_{max}$  optimized assay’ conditions (data were taken from [1]).

Parameter	D = 0.1 h <sup>-1</sup>	D = 0.1 h <sup>-1</sup>	D = 0.35 h <sup>-1</sup>	D = 0.35 h <sup>-1</sup>	
	Non-starved	4h N-starved	Non-starved	4h N-starved	
$V_{max,hk}$	483	326	552	498	mM.min <sup>-1</sup>
$V_{max,pgi}$	1665	1573	1141	1117	mM.min <sup>-1</sup>
$V_{max,pfk}$	173	133	98	74	mM.min <sup>-1</sup>
$V_{max,ald}$	165	122	251	147	mM.min <sup>-1</sup>
$V_{max,gapdh}^*$	296 <sup>a</sup>	241 <sup>a</sup>	198 <sup>a</sup>	205 <sup>a</sup>	mM.min <sup>-1</sup>
$V_{max,gapdh}$	1646	1341	1101	1141	mM.min <sup>-1</sup>
$V_{max,pgk}$	2808	3063	1662	1364	mM.min <sup>-1</sup>
$V_{max,gpm}$	1493	n.d.	1503	543	mM.min <sup>-1</sup>
$V_{max,eno}$	264	n.d.	285	n.d.	mM.min <sup>-1</sup>
$V_{max,pyk}$	779	761	965	773	mM.min <sup>-1</sup>
$V_{max,pdc}$	153	224	219	72	mM.min <sup>-1</sup>
$V_{max,adh}$	2696	2025	438	289	mM.min <sup>-1</sup>

<sup>a</sup> Forward  $V_{max}$  value of GAPDH was not measured but calculated with the Haldane relationship using the kinetic parameters from [2].

n.d.: Not determined due to practical issues.

## References

1. van Eunen K, Dool P, Canelas AB, Kiewiet J, Bouwman J, et al. (2010) Time-dependent regulation of yeast glycolysis upon nitrogen starvation depends on cell history. *IET Syst Biol* 4: 157-168.
2. Teusink B, Passarge J, Reijenga CA, Esgalhado E, van der Weijden CC, et al. (2000) Can yeast glycolysis be understood in terms of in vitro kinetics of the constituent enzymes? Testing biochemistry. *Eur J Biochem* 267: 5313-5329.