

Supplementary Table 1. Desiccation tolerance of mutant strains carrying deletions in genes identified as beneficial by phenomics¹.

Mutant	Affected protein function/annotation	Phenomics, fold under-representation	Survival (%)	SD (%)
Intolerant deletion mutants (<10% survival of desiccation)				
<i>cox16Δ</i>	assembly of cytochrome c oxidase	-510	8	1
<i>rim15Δ</i>	glucose-repressible protein kinase	-264	6	1
<i>tdh1Δ</i>	glyceraldehyde-3-phosphate dehydrogenase	-3	2	1
Deletion mutants severely affected (10-34% survival of desiccation)				
<i>bck1Δ</i>	MAPKKK of the cell integrity pathway	-52	17	1
<i>blm10Δ</i>	nuclear assembly and regulation of proteasome	-11	16	1
<i>cat8Δ</i>	transcription factor	-8	24	1
<i>hap2Δ</i>	transcription factor	-111	13	1
<i>kre1Δ</i>	cell wall glycoprotein	-11	34	8
<i>ksp1Δ</i>	putative serine/threonine protein kinase	-39	26	1
<i>mir1Δ</i>	mitochondrial phosphate carrier	-18	14	1
<i>opi3Δ</i>	phospholipid methyltransferase	-19	29	2
<i>ptk2Δ</i>	putative serine/threonine protein kinase	-143	13	1
<i>ras2Δ</i>	regulates nitrogen starvation response etc.	-40	10	1
<i>rhr2Δ</i>	DL-glycerol-3-phosphatase	-46	22	1
<i>sel1Δ</i>	ER-associated protein degradation	-23	34	1
<i>sin3Δ</i>	DNA binding subunit of histone deacetylase	-5	27	3
Deletion mutants moderately affected (35-60% survival of desiccation)				
<i>fbp26Δ</i>	fructose-2,6-bisphosphatase	-166	38	1
<i>msn2Δ</i>	transcription factor	-3	40	1
<i>sak1Δ</i>	upstream kinase for the Snf1 complex	-34	46	6
<i>tcb1Δ</i>	calcium/lipid binding protein	-4	36	3
<i>ubi4Δ</i>	ubiquitin, essential for stress response	-87	49	3
<i>yak1Δ</i>	serine-threonine protein kinase	-166	35	3
Deletion mutants not adversely affected (>60% survival of desiccation)				
<i>fps1Δ</i>	glycerol efflux	-25	65	2
<i>hog1Δ</i>	MAP kinase	-24	63	3
<i>msn1Δ</i>	transcription factor	-7	62	1
<i>pbs2Δ</i>	MAP kinase kinase	-28	66	1
<i>slt2Δ</i>	MAP kinase; CWI, cell cycle progression	-32	78	1
<i>ssk1Δ</i>	signal transduction; MAPKKK for Hog1	-4	61	1
<i>tdh3Δ</i>	glyceraldehyde-3-phosphate dehydrogenase	-3	68	2

1: Strains derived from BY4741 were grown individually to the post-diauxic phase of growth in YEPD media before drying. The proportion of cells surviving desiccation was measured as

detailed in the Methods, and the mean and standard deviation (SD) of three replicate experiments is shown. Survival of the parental strain BY4741 was 70% \pm 6%.