Supplementary figure 2.8

```
$ ffq -l 2 CRX102289 -o metadata.json
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{
    "PRJNA102289": {
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omyces cerevisiae",
        "description": "Prolonged cultivation of Saccharomyces cerevisiae in aerobic, glucose-l
imited chemostat cultures (dilution rate, 0·10 h-1) resulted in a progressive decreas
e of the residual glucose concentration (from 20 to 8 mg l-1 after 200 generations). This
increase in the affinity for glucose was accompanied by a fivefold decrease of fermentative cap
acity, and changes in cellular morphology. These phenotypic changes were retained when single-c
ell isolates from prolonged cultures were used to inoculate fresh chemostat cultures, indicatin
g that genetic changes were involved. Kinetic analysis of glucose transport in an ‘evolved
’ strain revealed a decreased Km, while Vmax was slightly increased relative to the parent
al strain. Apparently, fermentative capacity in the evolved strain was not controlled by glucos
e uptake. Instead, enzyme assays in cell extracts of the evolved strain revealed strongly decre
ased capacities of enzymes in the lower part of glycolysis. This decrease was corroborated by g
enome-wide transcriptome analysis using DNA microarrays. In aerobic batch cultures on 20 g gluc
ose l-1, the specific growth rate of the evolved strain was lower than that of the parenta
l strain (0·28 and 0·37 h-1, respectively). Instead of the characteristic instan
taneous production of ethanol that is observed when aerobic, glucose-limited cultures of wild-t
ype S. cerevisiae are exposed to excess glucose, the evolved strain exhibited a delay of 90 min
 before aerobic ethanol formation set in. This study demonstrates that the effects of selection
 in glucose-limited chemostat cultures extend beyond glucose-transport kinetics. Although exten
sive physiological analysis offered insight into the underlying cellular processes, the evoluti
onary ‘driving force’ for several of the observed changes remains to be elucidated Ke
ywords: evolution Overall design: A crucial feature of bakers' yeast is its capacity to produce
 CO2, referred to as fermentative capacity (van Hoek et al., 1998). After prolonged glucose-lim
ited cultivation of S. cerevisiae, in addition to an increased affinity for glucose, we observe
d a dramatic decrease in fermentative capacity. Consequently, the aim of the present study was
to perform an integral analysis of the long-term adaptation of S. cerevisiae during prolonged g
lucose-limited, aerobic cultivation in chemostat cultures, with special emphasis on the regulat
ion of glucose transport and glycolytic capacity. To this end, we applied an integrated approac
h that combined transcriptome analysis, measurement of fermentative capacity and activities of
glucose transport and glycolytic enzymes, and characterization of cellular morphology.",
        "dbxref": "GSE8898",
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