Supplementary Figure S9: Complementary switch experiments

Overexpression of the alternative isoenzyme or parallel pathway can restore wild-type-like $\alpha$ values. If the drastically reduced $\alpha$ values are indeed due to the introduced gene expression bottlenecks, then wild-type-like $\alpha$ values should be restored through overexpression of the alternative isoenzyme or parallel pathway. acnA overexpression in an acnB mutant reduced the lag phase after a glucose to acetate shift. The growth curves of the acnB mutant containing the acnA overexpression plasmid are plotted together with the determined alpha values (circles: 2 g L$^{-1}$ acetate, triangles: 0.75 g L$^{-1}$ acetate, filled symbols: +0.1mM IPTG, empty symbols: no IPTG). The behavior of the $\Delta$ppsA was fully reverted to wild-type behavior through overexpression of pckA (Kao et al., 2005) and the extensive apparent 'lag times' of $\Delta$maeBsfcA were markedly reduced through overexpression of ppsA (Kao et al., 2005).