

Supplemental Figure 1. Gene deletion schematic. A PCR-generated deletion strategy was used to systematically replace each sORF from its start to its stop codon with a *kanMX* module and two unique 20-mer molecular bar codes (http://sequence-www.stanford.edu/group/yeast_deletion_project/deletions3.html). Each deletion "cassette" was constructed using two sequential PCR reactions. In the first amplification, UPTAG and DNTAG primers amplify the *kanMX* gene. These primers consist of genomic sequence that flank the ORF (directly proximal and distal to the start and stop codons respectively), a common primer site (U1 or D1), a unique tag or "molecular bar-code" and sequences homologous to the ends of the *kanMX* cassette (U2 or D2). A second PCR reaction uses two ORF specific 45-mer oligonucleotides (UP_45 and DOWN_45) to extend the ORF specific homology to 45 bp, increasing the targeting specificity during mitotic recombination of the gene disruption cassette. The PCR products were used to transform a diploid strain and sORF deletions were selected on media containing G418.

