

SUPPLEMENTARY FIG. S3. Phylogeny of eukaryotic monothiol glutaredoxins. Experimental location data, except for the proteins in the main text, from Refs. (2, 8). Bootstrap values of 95 and higher are indicated. Species overlap between a partition (in *red*) of the tree that includes the *Saccharomyces cerevisiae* Grx5, mitochondrial GLRX5 and chloroplastic Grx5 *versus* a partition (in black) that contains cytoplasmic Grx3 and Grx4 indicates an ancient, paralogous relationship between mitochondrial and chloroplastic monothiol glutaredoxins on the one hand and cytoplasmic monothiol glutaredoxins on the other hand. Notice that the phylogenetic cooccurrence of BolA1 and Grx5 is not perfect. In contrast to BolA1, a mitochondrial Grx5-like protein is present in the anaerobes *Giardia intestinalis* (12) and *Blastocystis hominis*. Furthermore, the monothiol glutaredoxin from the anaerobic species *Encephalitozoon cuniculi*, which does not have a *BolA1* gene, can replace Grx5 in *S. cerevisiae* (4). Mit, mitochondrial; Chl, chloroplastic; Cyt, cytoplasmic