Supplementary Information

Fig S1. Densitometric tracings of *S. cerevisiae* Sod2p activity gels and α–Sod2p immunoblots. Both bands corresponding to Sod2p activity (nondenaturing gels) and the single band corresponding to the Sod2 polypeptide (immunoblots) were scanned by NIH IMAGE software. The integrated density of the bands was measured relative to the background and then normalized to the value of WT cells = 100. Shown are the averages of 2-4 independent experimental trials where error bars indicate range of values obtained.
Fig S2. Reproducible effects of BPS on manganese association with Sod2p in WT cells. Two additional trials of the experiment in Fig. 2E are shown. In the three trials, BPS treatment resulted in a 44% (Fig. 2E), 56% (A) and 33% (B) increase in manganese association with Sod2p.

Fig S3. Expressing AFT1-1<sup>up</sup> allele in wild type (WT) cells did not repress SOD2 activity. The BY4741 (WT) and the <i>mtm1</i>Δ mutant cells were transformed with the AFT1-1<sup>up</sup> expressing plasmid as described in Materials and Methods or with the empty vector (pRS313). The indicated yeast strains were assayed for Sod2p enzymatic activity and Sod2p protein as in Fig 2.