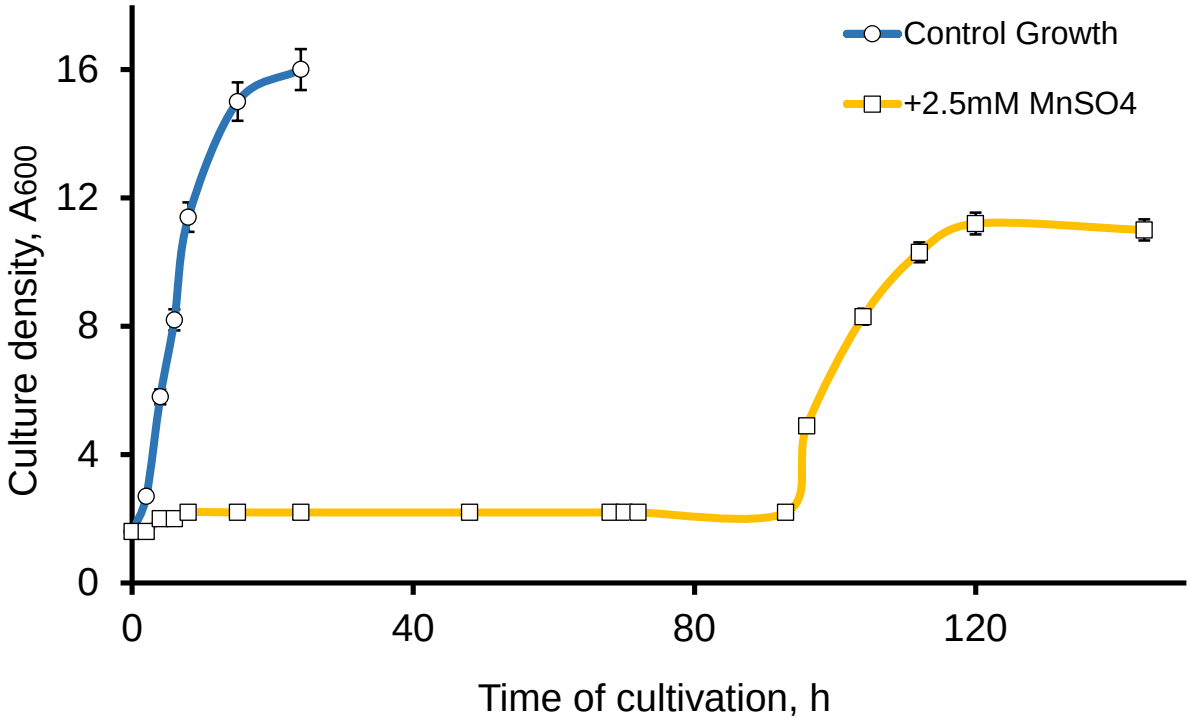
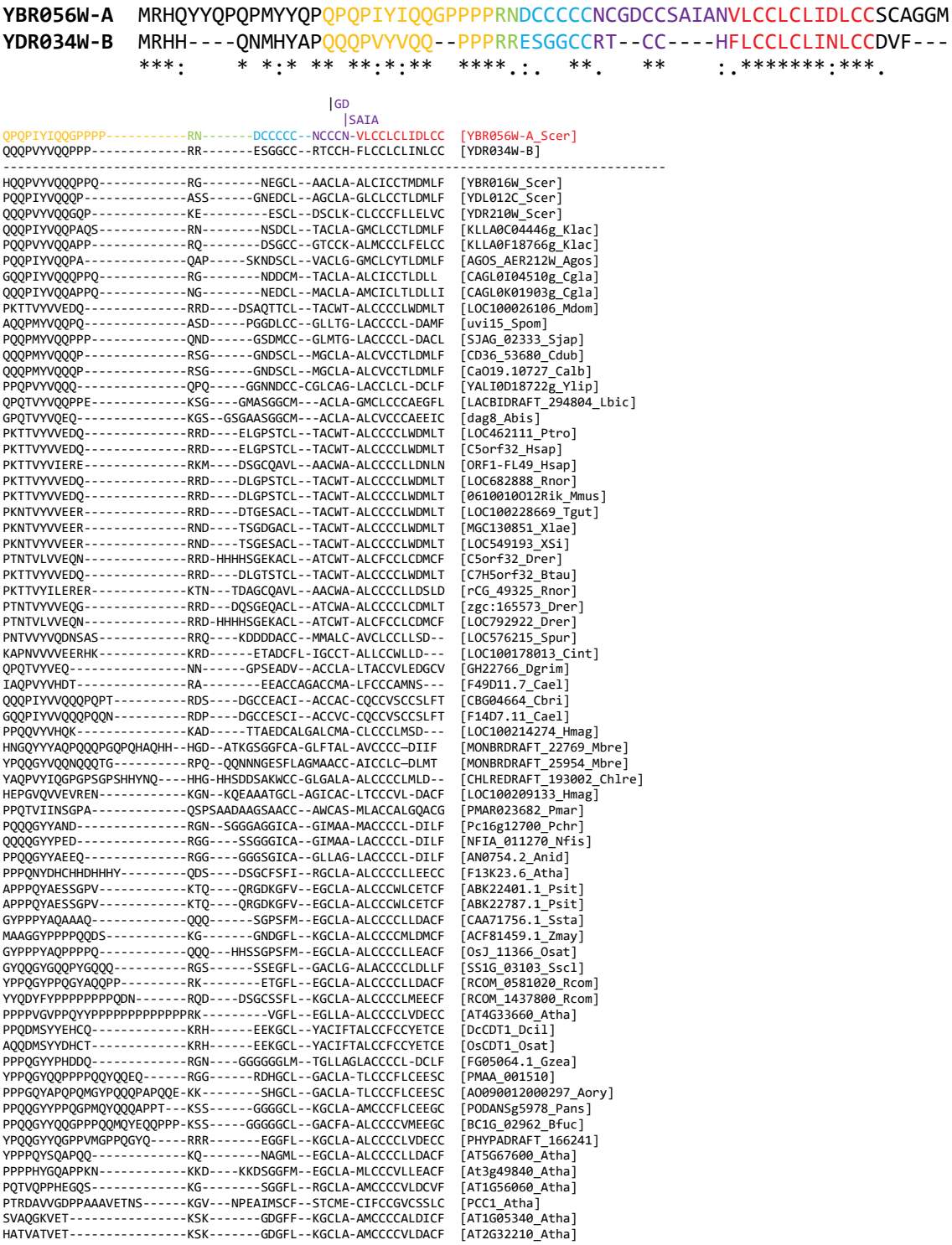
Electronic Supplementary Material (ESI) for Metallomics.



Supplementary Figure 1.
Growth of *S. cerevisiae* (CRY strain) in control conditions (blue curve) and in presense of manganese (orange curve).

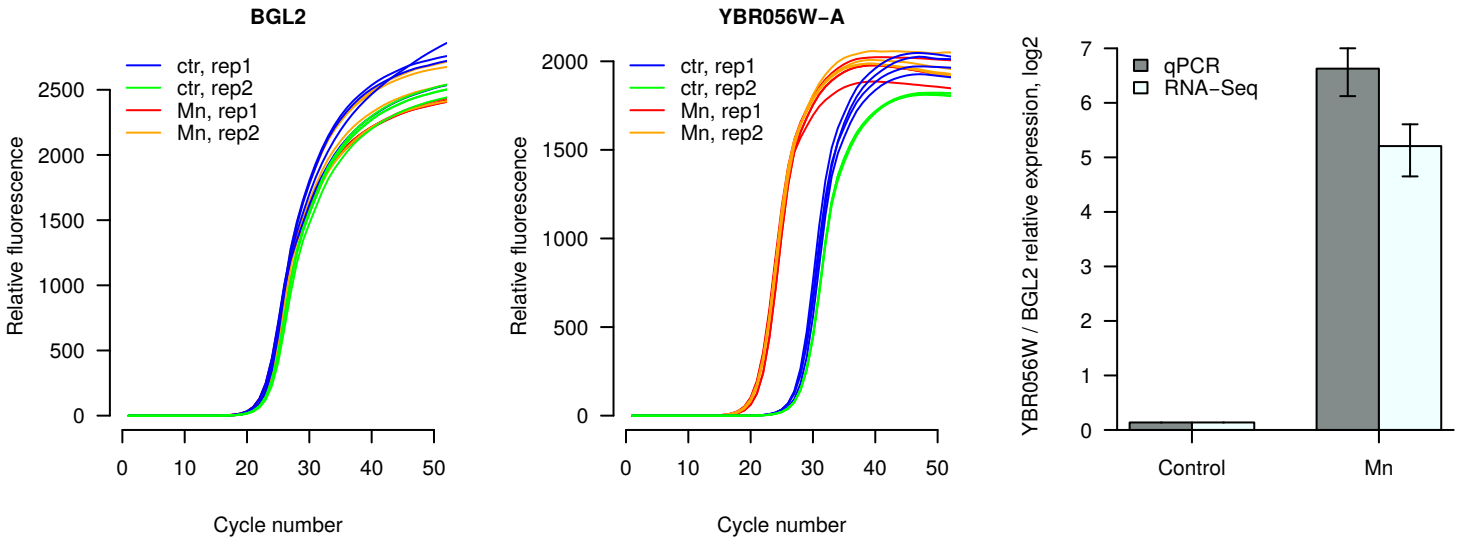
Supplementary Figure 2. Sequence alignment of the selected CYSTM family members



Initial alignment taken from T. M. Venancio and L. Aravind, *Bioinformatics*, 2010, **26**, 149–52.; alignment of **YBR056W-A** and **YDR034W-B** performed with ClustalW2. Separate conservative blocks of the total alignment are shown in different colors for clarity.

Supplementary Figure 3.

qPCR verifiation of YBR056W-A differential gene expression in control and manganese-adapted cells .



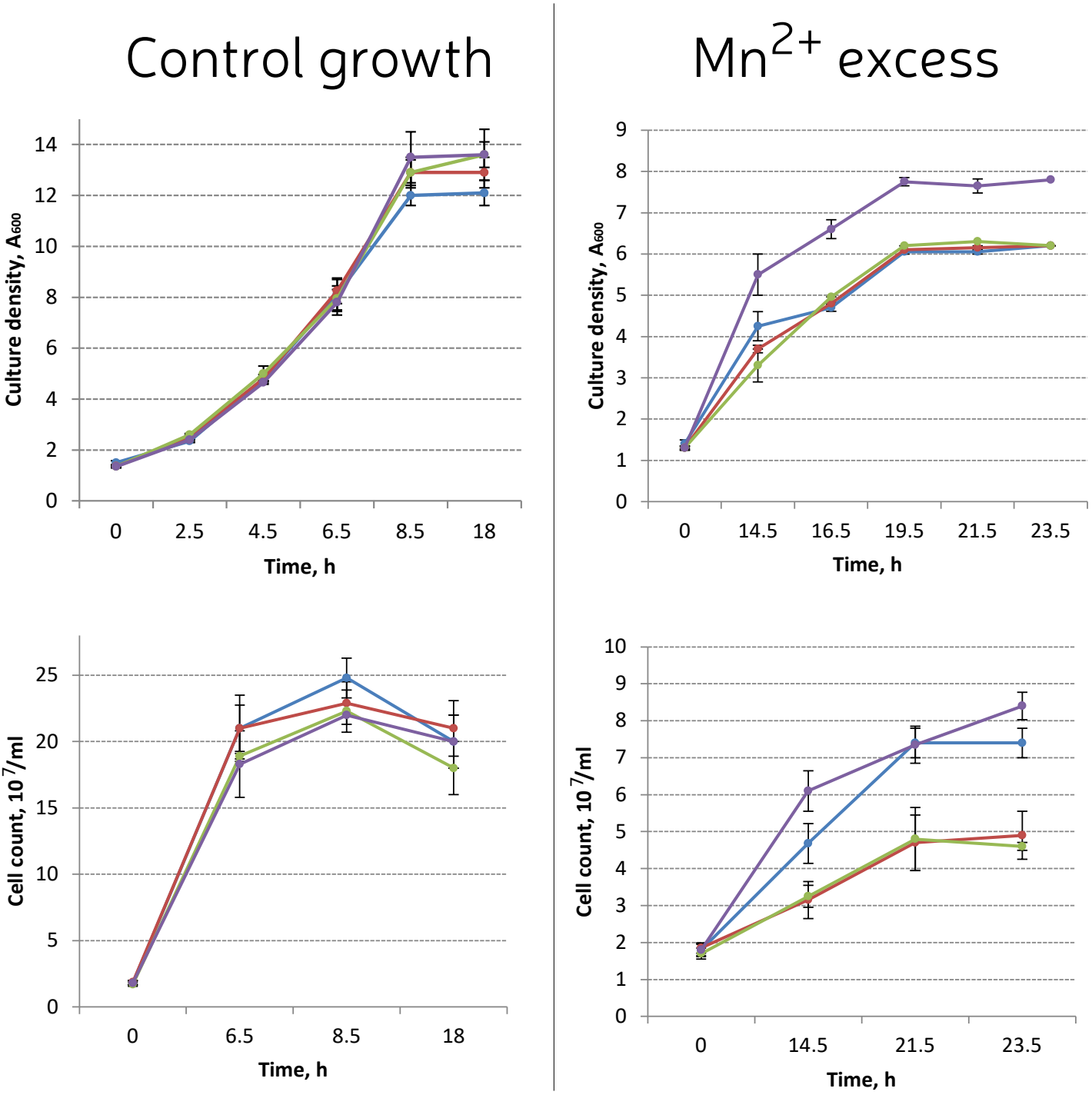
Panels: BGL2 (*left*) and YBR056W-A (*middle*) relative fluorescence curves.
(right) Log2 relative expression of YBR056W-A normalized to the reference gene BGL2.

The relative expression levels were calculated using the comparative delta Cp (second derivative maximum) method ($2^{-\Delta\Delta Cp}$). Relative expression level of YBR056W-A in control sample is taken as 1.

The fragments of the BGL2 (104 nt) and YBR056W-A (91 nt) were amplified using SYBR Green qPCR mix (qPCRmix-HS SYBR+LowROX, Evrogen) and specific primers (see below). qPCR reactions were performed in four replicates according following PCR cycle: 95 °C for 2 min; 95 °C for 15 s and 60 °C for 1 min for 50 cycles; 72 °C for 1 min. ROX was used as a passive reference dye. The No Template Control (NTC) reaction generated no measurable fluorescence. A dissociation curve was used to verify that the majority of fluorescence detected could be attributed to the labeling of specific PCR products, and to verify the absence of primer dimers and sample contamination.

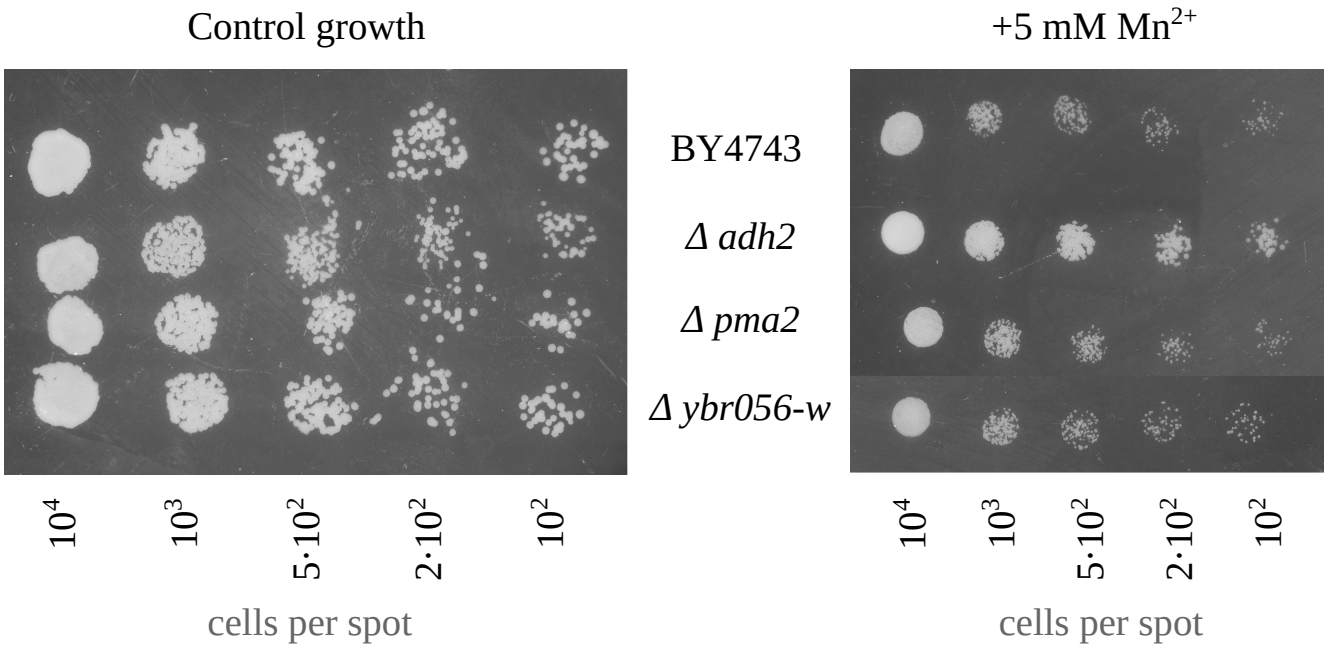
Primers for qPCR amplification were designedusing Primer-blast and OligoAnalyzertool (IDT).

Gene	Amplicon length	Primer sequences
YGR282C (BGL2)	104	Forward_BGL2 TTTCACAGCCTCCCAAGTTTC Reverse_BGL2 ATTCGGTTTCATAGTCGGAAGTG
YBR056W-A	91	Forward_YBR056W ATTATCAACCACAACCGCAAC Reverse_YBR056W AATCGCCACAGTTACAACAAC



Supplementary Figure 4.

The growth curves and cell count estimates of different S. cerevisiae strains grown in YPD medium and in YPD+2.5mM $MnSO_4$



Supplementary Figure 5.
Spot test of BY4743 and mutant strains grown on YPD with and without manganese excess.