

Supplementary Table S1. Primers used for RT-qPCR.

Genes	Primers	
<i>sod-3</i>	Forward	5'-ATTCGCCAACCCATGATGG-3'
	Reverse	5'-GCTCCCAAACGTCAATTCCA-3'
<i>daf-16</i>	Forward	5'-TTTCCGTCCCCGAACTCA-3'
	Reverse	5'-ATTCGCCAACCCATGATGG-3'
<i>act-1</i>	Forward	5'-CCAGGAATTGCTGATCGTATGCAGAA-3'
	Reverse	5'-TGGAGAGGGAAGCGAGGATAGA-3'
<i>ctl-2</i>	Forward	5'-TTCGCTGAGGTTGAACAATCCG-3'
	Reverse	5'-GTTGCTGATTGTCATAAGCCATTGC-3'
<i>ctl-1</i>	Forward	5'-TTTCAACGGTCGCTGGAGAA-3'
	Reverse	5'-AGTCTGTGGATTGCGCTTCA-3'
<i>hsp-16.2</i>	Forward	5'-CTGCAGAATCTCTCCATCTGAGTC-3'
	Reverse	5'-AGATTCTGAAGCAACTGCACC-3'
<i>hsf-1</i>	Forward	5'-TTGACGACGACAAGCTTCCAGT-3'
	Reverse	5'-AAAGCTTGCACCAGAATCATCCC-3'
<i>gst-1</i>	Forward	5'-CCCTCAAGCTCACGTACTTC-3'
	Reverse	5'-AGCGAGATGACGGATGATAG-3'
<i>gst-4</i>	Forward	5'-TCCGTCAATTCACTTCTTCCG-3'
	Reverse	5'-AAGAAATCATCACGGGCTGG-3'
<i>age-1</i>	Forward	5'-CCTGAACCGACTGCCAATC-3'
	Reverse	5'-GTGCTTGACGAGATATGTGTATTG-3'
<i>pdh-1</i>	Forward	5'-ATCGCGGAGACCCATTTGTT-3'
	Reverse	5'-AACAGGAACATTCGGCGTCT-3'
<i>sgk-1</i>	Forward	5'-CACCGACTTTGGGCTCTGTAA-3'
	Reverse	5'-CTTGAGACGAAGTGGCTGGTT-3'
<i>skn-1</i>	Forward	5'-AGTGTTCGGCGTTCCAGATTTC-3'
	Reverse	5'-GTCGACGAATCTTGCGAATCA-3'
<i>akt-2</i>	Forward	5'-ACATTCAGCGAAGCACGAACA-3'
	Reverse	5'-TACATGACCACTCCGACTCCC-3'
<i>daf-2</i>	Forward	5'-GCGGATACACAGCAAGAATAAC-3'
	Reverse	5'-GAGCCACAAGCACCAGAAC-3'

Supplementary Table S2. The survival times of different strains under Mn stress.

Stains	Treatment	Mean survival time (h)
N2	Mn	14.00±0.000
	Mn + Se-PCS (0.1 mg/mL)	14.33±1.528
	Mn + Se-PCS (0.2 mg/mL)	14.67±1.155
	Mn + Se-PCS (0.3 mg/mL)	18.67±1.155
	Mn + Se-PCS (0.4 mg/mL)	16.33±2.082
	Mn + Se-PCS (0.5 mg/mL)	17.00±1.000
CF1038 <i>daf-16(mu86)</i>	Mn	13.00±1.000
	Mn + Se-PCS (0.3 mg/mL)	12.67±1.155
CB1370 <i>daf-2(e1370)</i>	Mn	#
	Mn + Se-PCS (0.3 mg/mL)	#
TJ1052 <i>age-1(hx546)</i>	Mn	13.33±1.155
	Mn + Se-PCS (0.3 mg/mL)	13.67±1.528
VC204 <i>akt-2(ok393)</i>	Mn	22.33±0.577
	Mn + Se-PCS (0.3 mg/mL)	22.00±1.000
VC345 <i>sgk-1(ok538)</i>	Mn	14.67±1.155
	Mn + Se-PCS (0.3 mg/mL)	19.67±0.577
EU1 <i>skn-1(zu67)</i>	Mn	12.67±1.155
	Mn + Se-PCS (0.3 mg/mL)	12.33±0.577
GR1307 <i>daf-16(mgDf50)</i>	Mn	14.00±0.000
	Mn + Se-PCS (0.3 mg/mL)	14.67±1.155

Note: # means the survival time was longer than 24 h, and after 40 h stress, the survival rate was still higher than 65%.