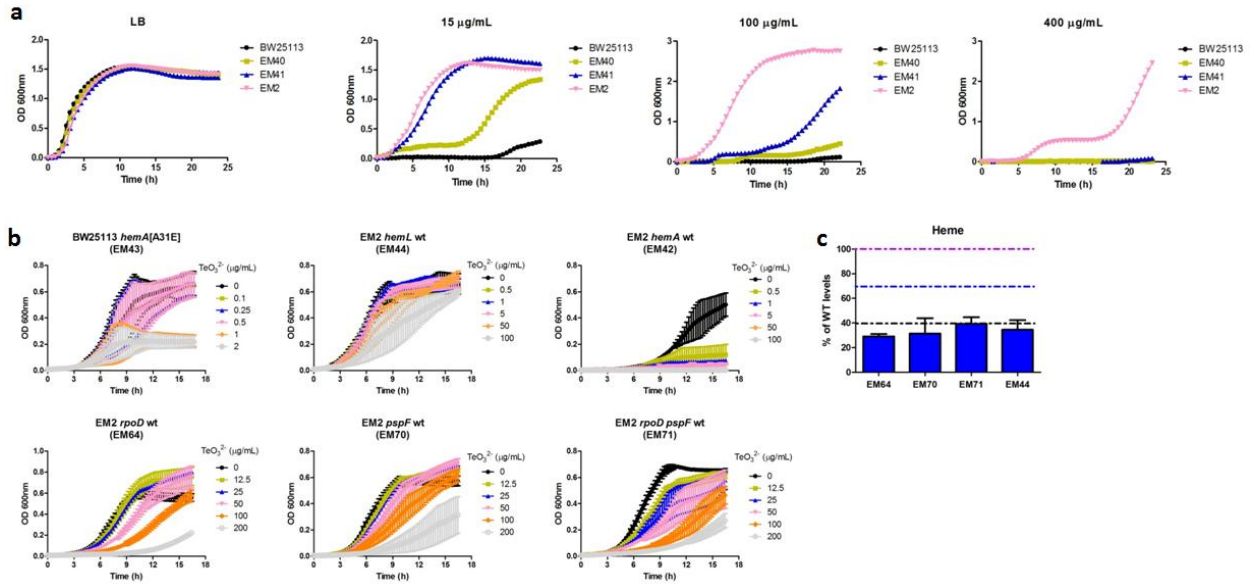
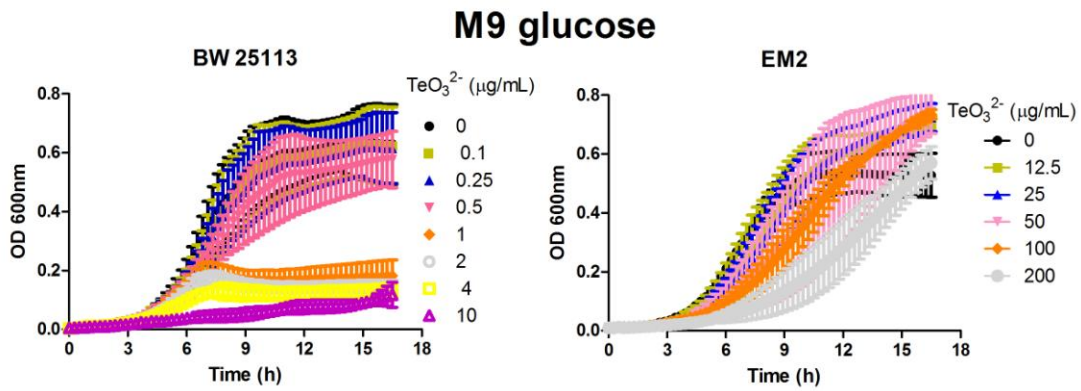


Supplementary Figure 1.



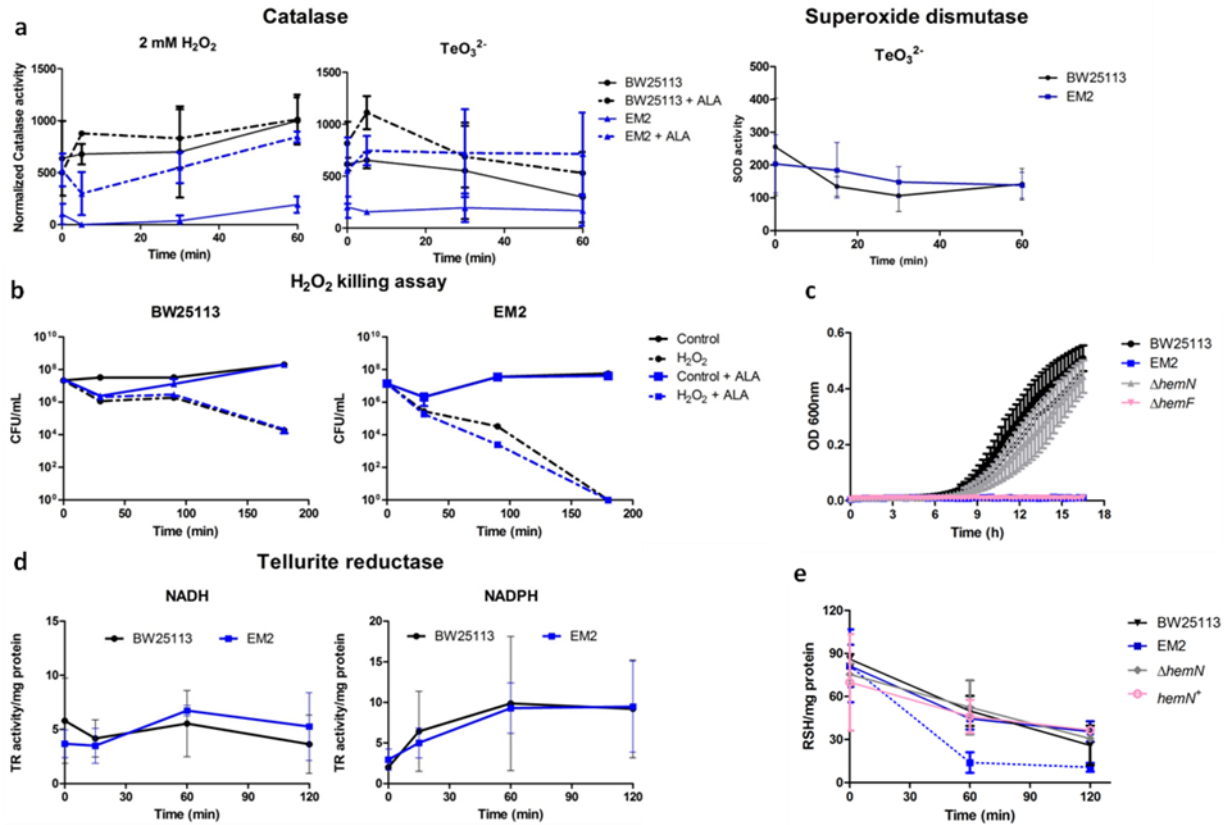
Selection of mutants conferring increased tellurite resistance. **a)** Representative growth curves of strains BW25113, EM40, EM41 and EM2 in LB medium in the presence of the indicated tellurite concentrations. **b)** Representative growth curves of strains EM42, EM43, 44, 64, 70, and 71 in M9 medium in the presence of the indicated tellurite concentrations. Values represent the mean of 3 biological replicates. In all figures, error bars represent SD. **c)** Strains EM 44, EM64, EM70 and EM71 were grown in M9 medium and the heme content was measured in cell extracts. For comparison, the level of heme in strains BW25113 (magenta line), EM43 (blue line) and EM2 (black line) are shown. Values represent the mean of three biological replicates. Error bars represent SD. TeO_3^{2-} : tellurite.

Supplementary Figure 2.



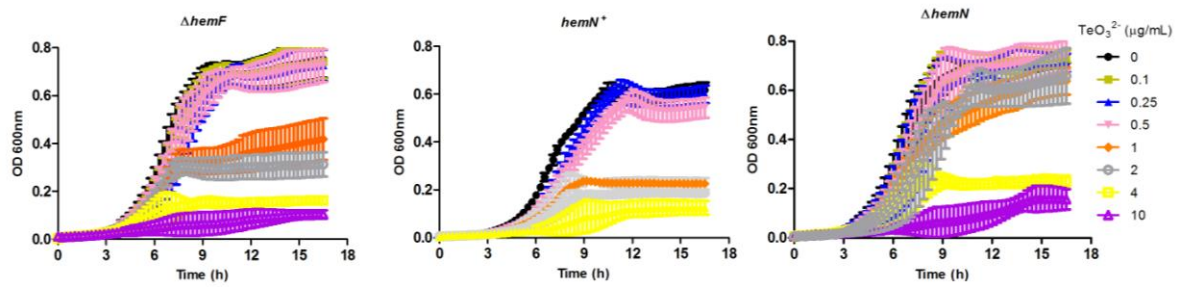
Representative growth curves of strains BW25113 and EM2 with tellurite. Representative growth curves of strains BW25113 and EM2 in M9 medium in the presence of the indicated tellurite concentrations. Values represent the mean of 3 biological replicates. Error bars represent SD. TeO_3^{2-} : tellurite.

Supplementary Figure 3.



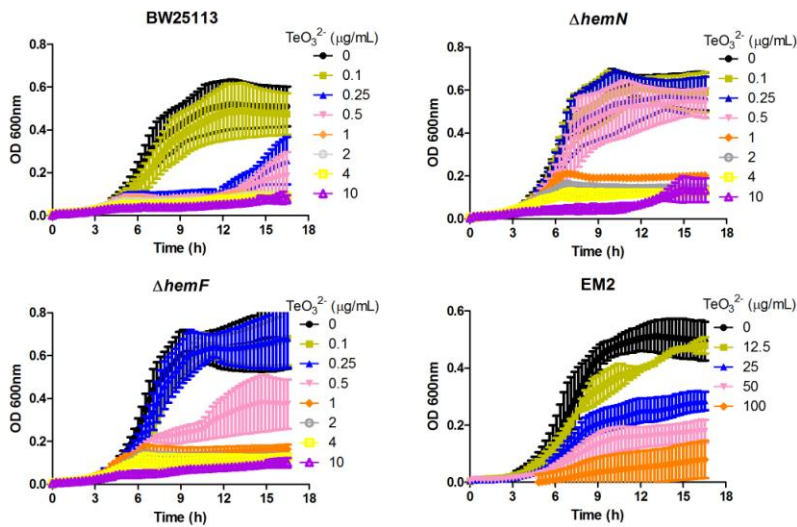
Increased thiols, H₂O₂ detoxification or resistance are not required for tellurite resistance. **a)** Strains BW25113 and EM2 were grown in M9 medium with or without 25 μ g/mL ALA to an OD 600nm of \sim 0.4 and treated with 2 mM H₂O₂ (left panel) or tellurite (middle and right panel, 25 μ g/mL for strain BW25113 and 400 μ g/mL for strain EM2) and catalase (left and middle panels) or superoxide dismutase (SOD, right panel) activity were determined at the indicated time points. SOD activity was normalized by mg of protein. Values represent the mean of three biological replicates. Error bars represent SD. **b)** Overnight cultures of strains BW25113 and EM2 were inoculated into M9 medium supplemented or not with 25 μ g/mL ALA, challenged or not with 2 mM H₂O₂ and CFU/mL were quantified at the indicated time points. Values represent the mean of three biological replicates. Error bars represent SD. **c)** Representative growth curves of strains BW25113, EM2, $\Delta hemN$ and $\Delta hemF$ in M9 medium with 0.3 mM H₂O₂. Values represent the mean of three biological replicates. Error bars represent SD. **d)** Strains BW25113 and EM2 were grown as in **a)**, exposed to tellurite and tellurite reductase (TR) activity was determined with NADH or NADPH as cofactor. Values represent the mean of three biological replicates. Error bars represent SD. **e)** Strains BW25113, $\Delta hemN$, $hemN^+$ and EM2 were grown as in **a)**, exposed to 25 μ g/mL tellurite and total intracellular thiols were determined and normalized by mg of protein. Strain EM2 was also treated with 400 μ g/mL tellurite, and thiols were determined (blue dashed line). Values represent the mean of three biological replicates. Error bars represent SD. TeO₃²⁻ : tellurite; RSH: μ M thiols.

Supplementary Figure 4.



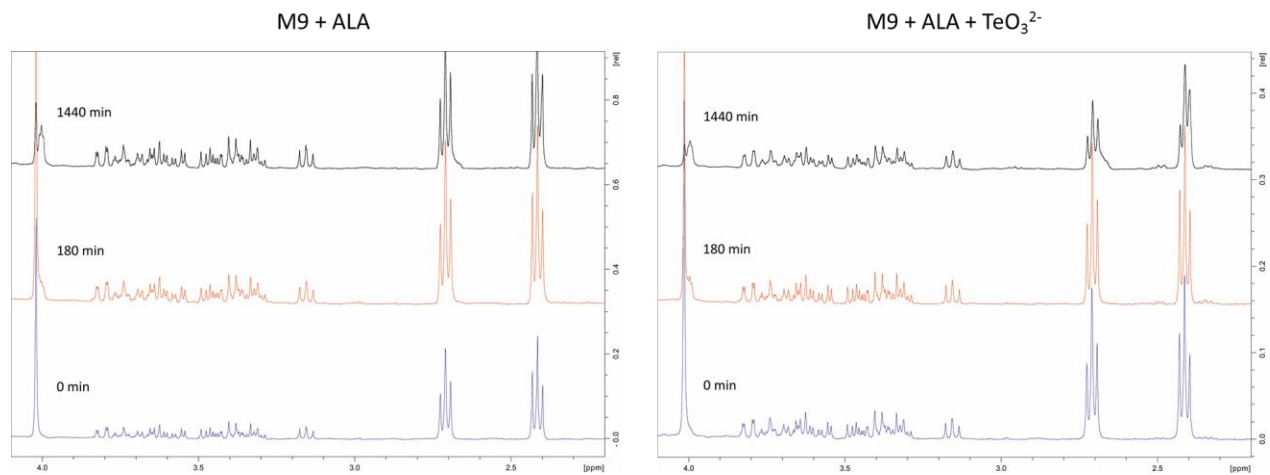
Representative growth curves of strains $\Delta hemF$, $hemN^+$ and $\Delta hemN$ with tellurite. Representative growth curves of strains $\Delta hemF$, $hemN^+$ and $\Delta hemN$ in M9 medium in the presence of the indicated tellurite concentrations. Values represent the mean of 3 biological replicates. Error bars represent SD. TeO_3^{2-} : tellurite.

Supplementary Figure 5.



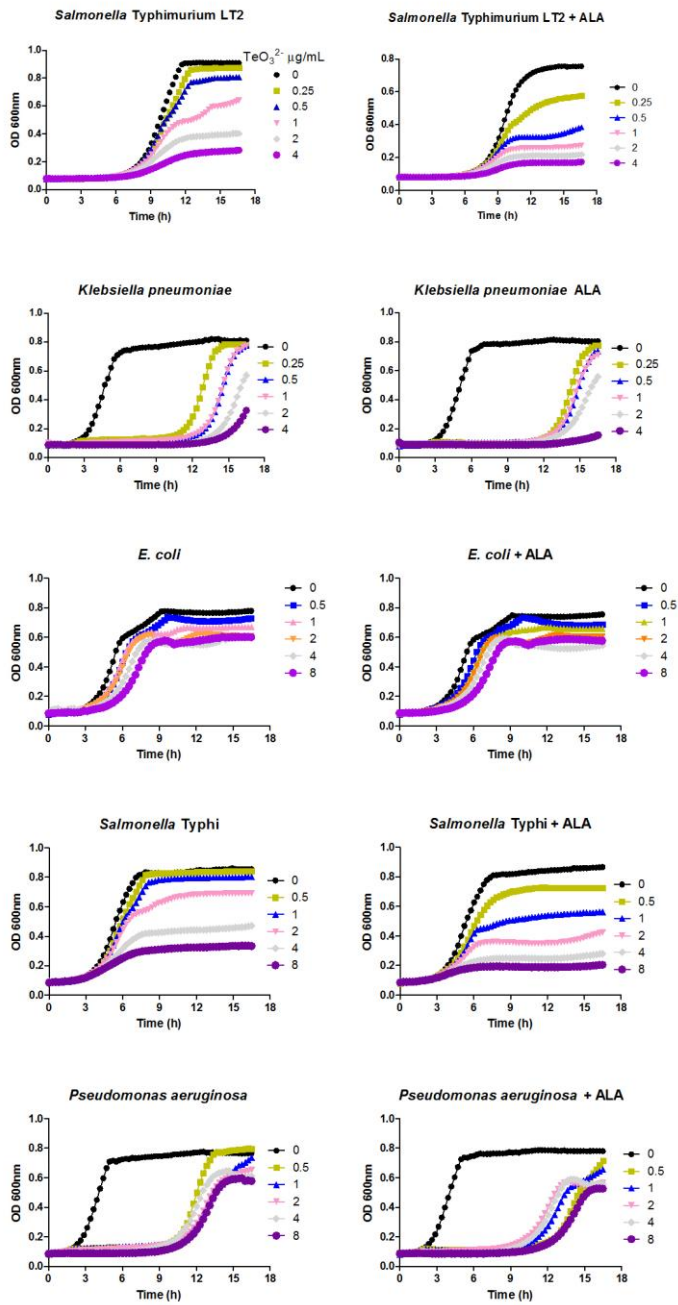
Representative growth curves of strains BW25113, EM2, $\Delta hemN$ and $\Delta hemF$ in M9 medium supplemented with 25 $\mu g/mL$ ALA and varying tellurite concentrations. Values represent the mean of 3 biological replicates. TeO_3^{2-} : tellurite.

Supplementary Figure 8.



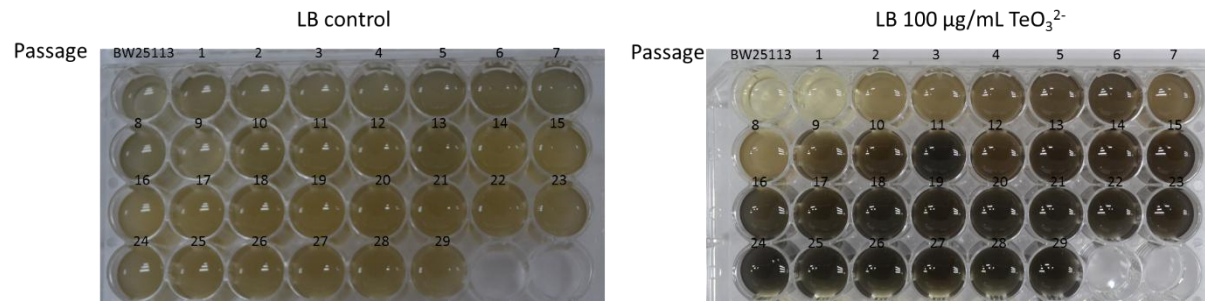
¹H NMR spectra of ALA in M9 medium with or without tellurite. All the measurements were carried out in M9 medium with 5 mg ALA and with or without 5 mg tellurite. TeO₃²⁻ : tellurite.

Supplementary Figure 9.



Evaluation of the effect of ALA and tellurite on selected pathogens. Representative growth curves of selected pathogens in M9 medium supplemented with 25 µg/mL ALA in the presence of the indicated tellurite concentrations. TeO_3^{2-} : tellurite.

Supplementary Figure 10.



***E. coli* growth in the presence of high tellurite concentrations results in black deposits of elemental tellurium.** Representative growth curves in LB medium containing or not 100 µg/mL tellurite of colonies isolated from each passage during directed evolution experiment. Number at the top of each well indicates the passage at which the corresponding colony was isolated. Strains EM40, EM41 and EM2 were isolated at passages 3, 13, and 26, respectively. Blackening of the growth culture is due to tellurite reduction to tellurium. TeO₃²⁻ : tellurite.

Supplementary Table 1. Nonsynonymous mutations found in evolved strains.

Strain(s)	Gene	Nucleotide change	Amino acid change
EM 40, EM41, EM2	<i>yigE</i>	GCC → GTC	A22V
EM 41, EM2	<i>rpoD</i>	CGT → AGT	R603S
EM 2	<i>pspF</i>	CTC → CAC	L52H
EM 2	<i>hemA</i>	GCG → GAG	A31E
EM 2	<i>hemL</i>	GCG → GTG	A118V

Supplementary Table 2. Primers used in this study.

Primer name	SEQUENCE 5' → 3'	Amplified product
Gibson_pKD34F	GTGTAGGCTGGAGCTGCT	Plasmid pKD3
Gibson_pKD34R	AATCGCTCAAGACGTGTAATG	
Gibson_hemAF	CACGTCTTGAGCGATTATGACCCTTTAGCACTCGG	<i>hemA</i> for cloning in plasmid pKD3
Gibson_hemAR	AGCTCCAGCCTACACTACTCCAGCCCGAGGCTG	
Gibson_hemLF	CACGTCTTGAGCGATTATGAGTAAGTCTGAAAATCTTTAC	<i>hemL</i> for cloning in plasmid pKD3
Gibson_hemLR	AGCTCCAGCCTACACTCACAACCTCGCAAACAC	
Gibson_rpoDF	ATTACACGTCTTGAGCGATTACCAACCTCATGAAATAAG	<i>rpoD</i> for cloning in plasmid pKD3
Gibson_rpoDR	GAAGCAGTCCAGCCTACACTTAATCGTCCAGGAAGCTAC	
Gibson_pspFF	ATTACACGTCTTGAGCGATTTAGCGAATTACACTAACAAG	<i>pspF</i> for cloning in plasmid pKD3
Gibson_pspFR	GAAGCAGTCCAGCCTACACCTAAATCTGGTGCTTTTTTC	
Gibson_hemNF	ATTACACGTCTTGAGCGATTCTAGCCGCCAGAGACGC	<i>hemN</i> for cloning in plasmid pKD3
Gibson_hemNR	GAAGCAGTCCAGCCTACACTTAATCACCCGAGAGAAGTCTGCTGC	
wanner_muthemAF	GATGCAAGCAGACTAACCCT	<i>hemA::cat</i> cassette for restoring <i>hemA</i>
wanner_hemAR	AAATGCACCCTGTAAAAAAGAAAATGATGTACTGC ATATGAATATCCTCCTTAG	
wanner_muthemLF	GCACCAGTACAAGCAGCCTG	<i>hemL::cat</i> cassette for restoring <i>hemL</i>
wanner_hemLR	AGGCGTTCACGCCGATCCGACAAACCATGCTGGACATATGAATATC CCTCCTTAG	
wanner_hemN2F	CGTAGCCGCCAGAGACGC	<i>hemN::cat</i> cassette for restoring <i>hemN</i>
wanner_hemNR	GTTTTCTACTTTGTAAACGAAGCGCCATTCACTATCATATGAATATCC TCCTTAG	
wanner_rpoD2F	CACCAACCTCATGAAATAAG	<i>rpoD::cat</i> cassette for restoring <i>rpoD</i>
wanner_rpoDR	CCGGGTGCGGCGTAACGCCTGATCCGGCCTACCGACATATGAATATC CTCCTTAG	
wanner_pspF2F	TTAGCGAATTACACTAACAAG	<i>pspF::cat</i> cassette for restoring <i>pspF</i>
wanner_pspFR	ACGCCGCATCCGGCAAGTTGTATTGCTCAACTTCGCATATGAATATCCT CCTTAG	