Title

Plasma-sensitive *E. coli* mutants reveal plasma resistance mechanisms

Authors

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Key words (max. 6)

disinfection, atmospheric pressure plasma, iron-sulphur cluster, antibacterial mechanism, stress response, non-thermal plasma

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Supplementary Material

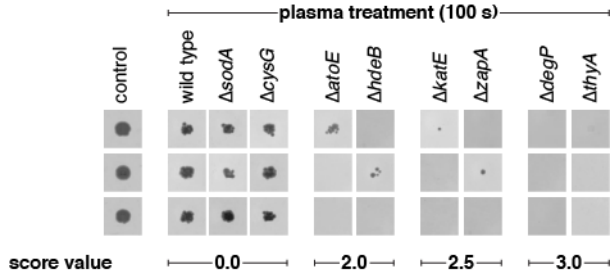

Fig. S1 Examples of the grading of plasma sensitivity in the screening of the KEIO collection using the spot assay. Cells of an overnight culture were spotted onto LB agar (2 µl) and exposed to the µAPPJ for 100 s. After incubation at 37 °C for 16 h, growth or the absence of growth was recorded. The wild type treated with gas only served as control. The results of three independent experiments were used (top, middle, bottom rows).

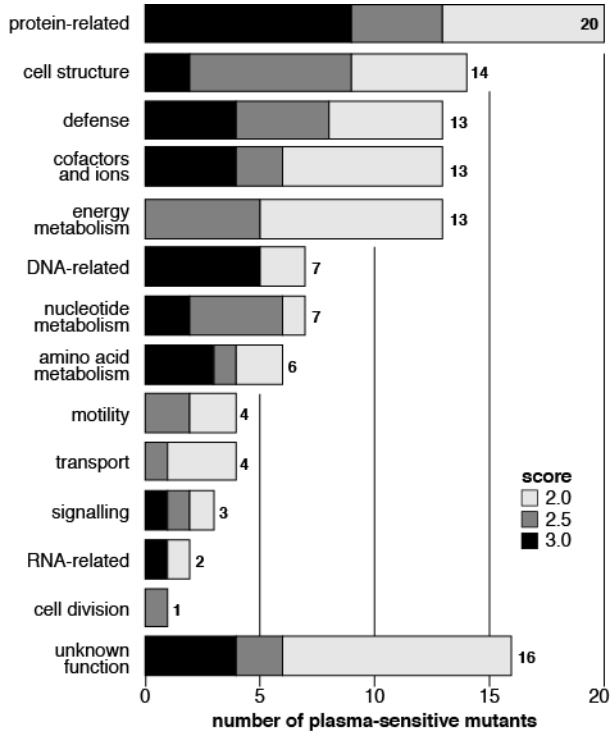

Fig. S2 GO terminology of the 87 identified genes.

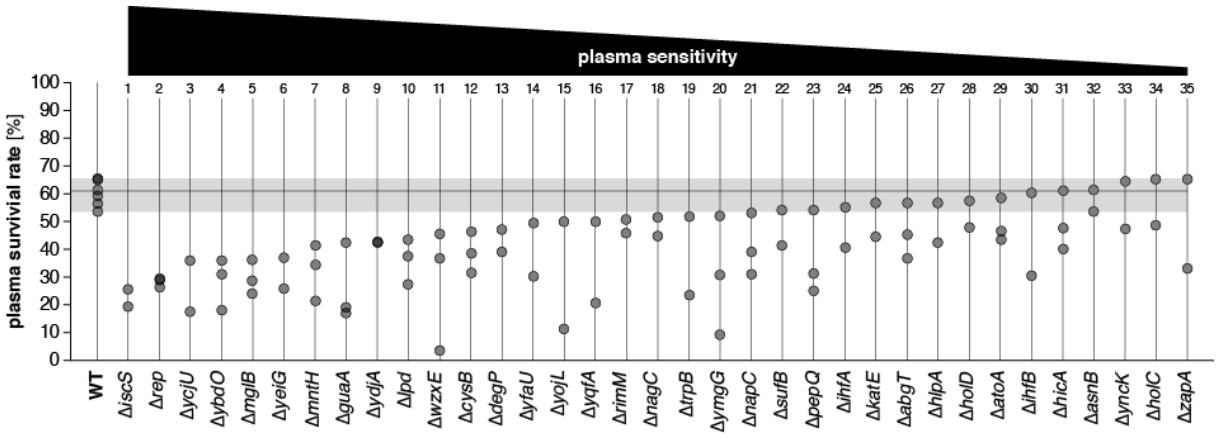

Fig. S3 Quantitation of plasma sensitivity. Low-density cell suspensions were placed onto a filter paper and exposed to the effluent of the μAPPJ with or without ignition of the plasma. After resuspending the cells in saline solution they were plated for CFU determination after overnight incubation. Data are shown for mutants with increased sensitivity compared to the wild type. Each data point represents one independent replicate.

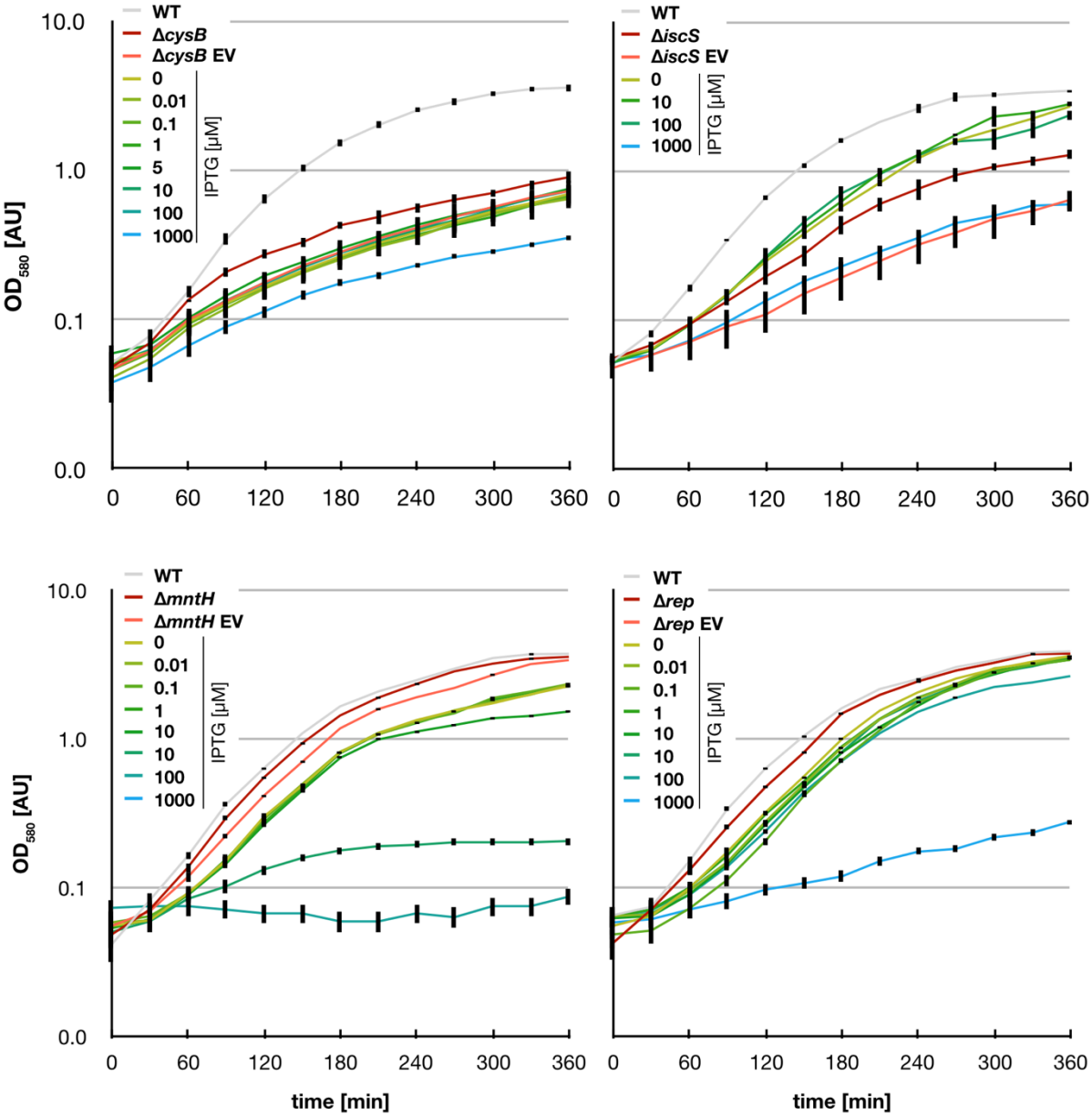

Fig. S4 Growth curves of the wild type, the four deletions strains analysed in detail, the deletion strains harbouring the empty vector pCA24N (EV), and the complemented strains with induction at different IPTG concentrations. The data reflect three independent biological experiments. Shown are the averages and standard deviations.

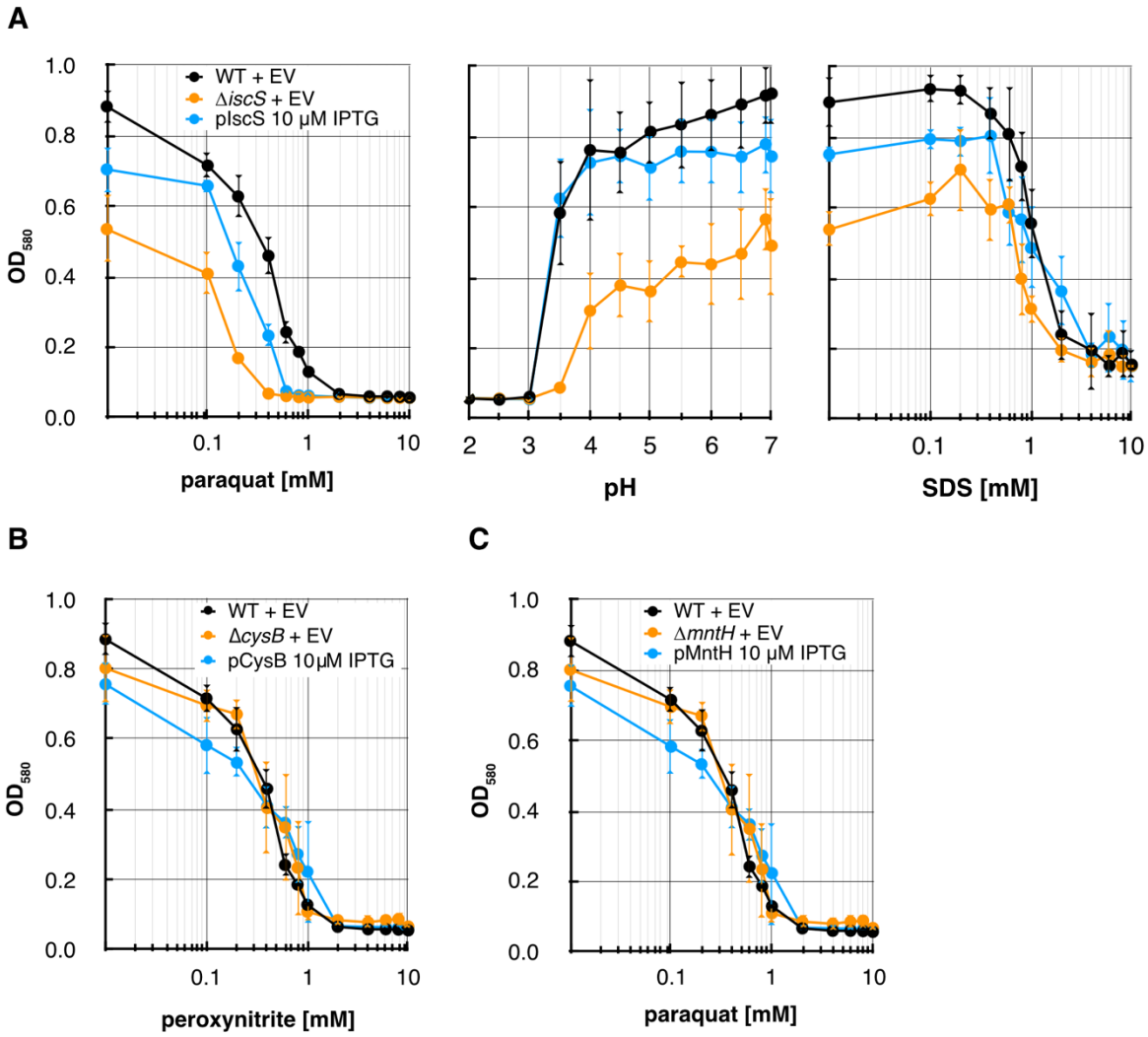

Fig. S5 Sensitivity of the complemented strains. Optical densities at 580 nm of the wild type, the deletion strains harbouring the empty vector pCA24N (EV), and the corresponding complemented strains are shown. Cells were incubated at different stressor concentrations for 16 h. Complementation was performed by induction with (A) 10 μM IPTG (*iscS*), (B) 1 μM IPTG (*cysB*), or (C) 0.1 μM IPTG (*mntH*). Data represent three independent experiments.