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Novel mechanisms of selenate and selenite reduction in the obligate aerobic bacterium *Comamonas testosteroni* S44

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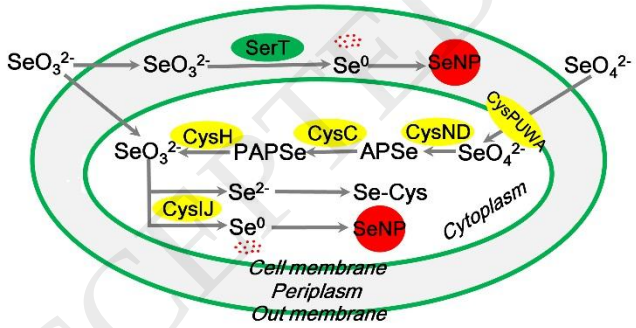
Graphical Abstract



HIGHLIGHTS· Se(VI) reduction was catalyzed by enzymes of the sulfate reducing pathway.

· Enzyme SerT is a novel selenite reductase in the periplasm.

· Se(IV) reduction can be generated through at least two pathways in strain S44.

· The aerobic bacteria and enzymes have a potential for bioremediation of Se