

Highlights

- Phenazines are bacterial and archeal virulence factors and respiratory pigments
- Their biosynthesis from chorismate involves five enzymes encoded in the *phz*-operon
- Structural biology was instrumental in finding the unique activities of PhzF and PhzB
- The tricyclic phenazine scaffold forms from two identical but unstable aminoketones
- Unrefined handling of reactive intermediates impacts pathway end-product ratios