A novel efflux transporter, ArsK, is responsible for bacterial resistance to arsenite, antimonite, trivalent roxarsone and methylarsenite

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Running Head: The novel arsenic efflux transporter ArsK

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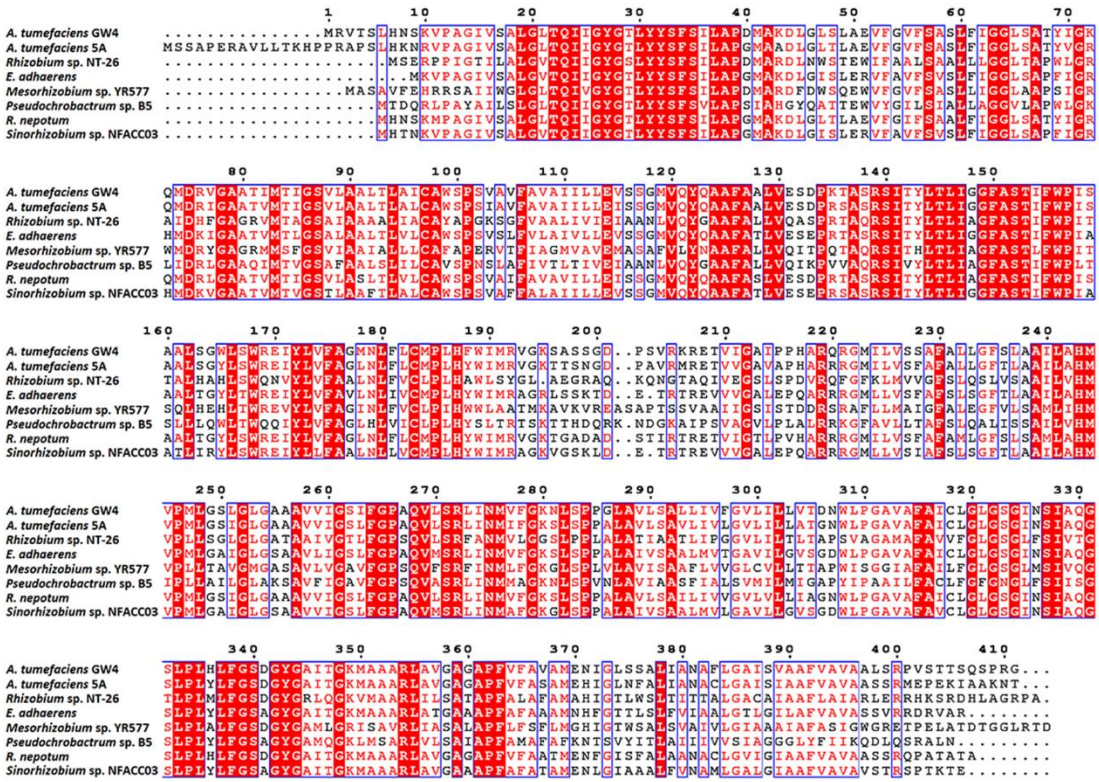

Figure S1. Multiple alignment of ArsK sequences. The protein sequence of ArsK from *Agrobacterium tumefaciens* GW4 (KDR86814) is compared with ArsK sequences from *Agrobacterium tumefaciens* 5A (WP_080581087), *Rhizobium* sp. NT-26 (WP_052642607), *Ensifer adhaerens* (WP_034801600), *Mesorhizobium* sp. YR577 (WP_091917949), *Pseudochrobactrum* sp. B5 (WP_075657088), *Rhizobium nepotum* (WP_045020795) and *Sinorhizobium* sp. NFACC03 (WP_093232735). The multiple alignment was calculated with Clustal Omega and ESPript 3.0.

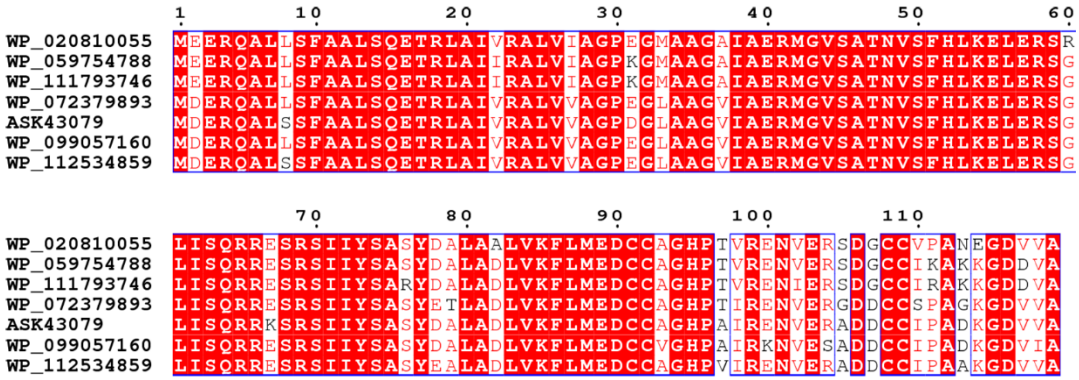

Figure S2. Multiple alignment of ArsR2 sequences. The protein sequence of ArsR2 from *Agrobacterium tumefaciens* GW4 (WP_020810055, this study) was compared with ArsR sequences from *Agrobacterium* sp. D14 (WP_059754788), Rhizobiales bacterium (WP_111793746), *Rhizobium tibeticum* (WP_072379893), *Agrobacterium* sp. 7 (ASK43079), *Rhizobium* sp. ACO-34A (WP_099057160) and Rhizobiales bacterium (WP_112534859). The multiple alignment was calculated with Clustal Omega and ESPript 3.0.

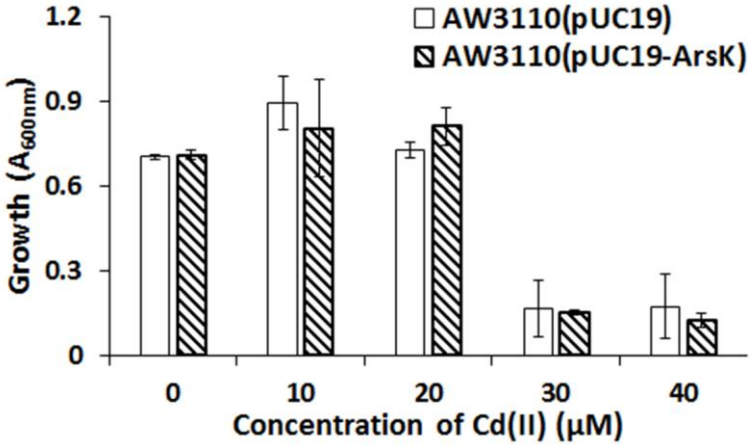

Figure S3. The resistance of strains AW3110 (pUC19) and AW3110 (pUC19-ArsK) to Cd(II). The data are shown as the means of three replicates.

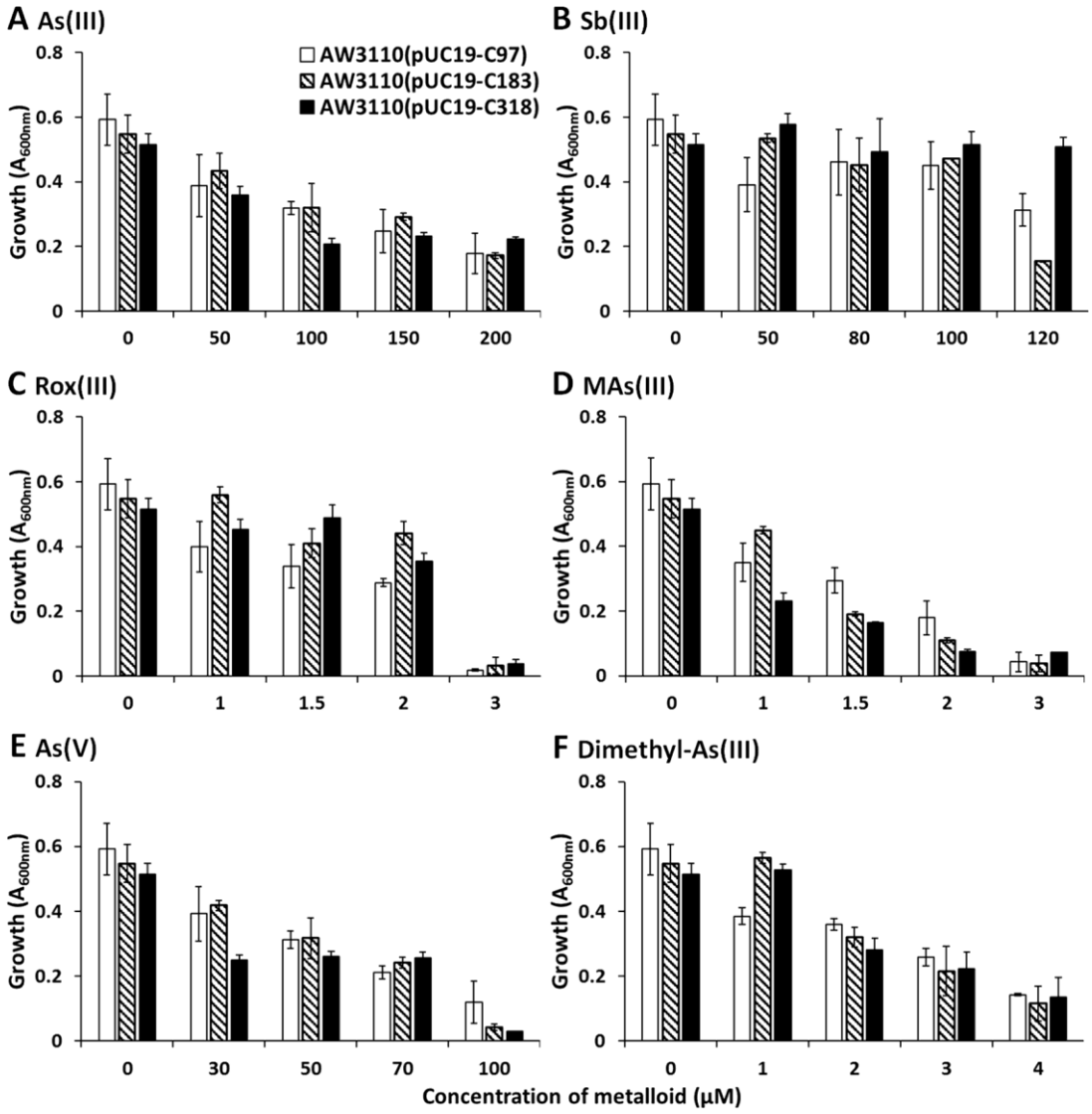

Figure S4. The resistance of several ArsK mutant strains to As(III), Sb(III), Rox(III), MAs(III), As(V) and Dimethyl-As(III). Growth of strains were measured with the addition of different amounts of As(III) (A), Sb(III) (B), Rox(III) (C), MAs(III) (D), As(V) (E) and Dimethyl-As(III) (F). The curves of AW3110 (pUC19) and AW3110 (pUC19-ArsK) in Figure 3 could be the negative and positive control. The data are shown as the means of three replicates.