Supporting Information for

Adventitious arsenate reductase activity of the catalytic domain of the human Cdc25B and Cdc25C phosphatases

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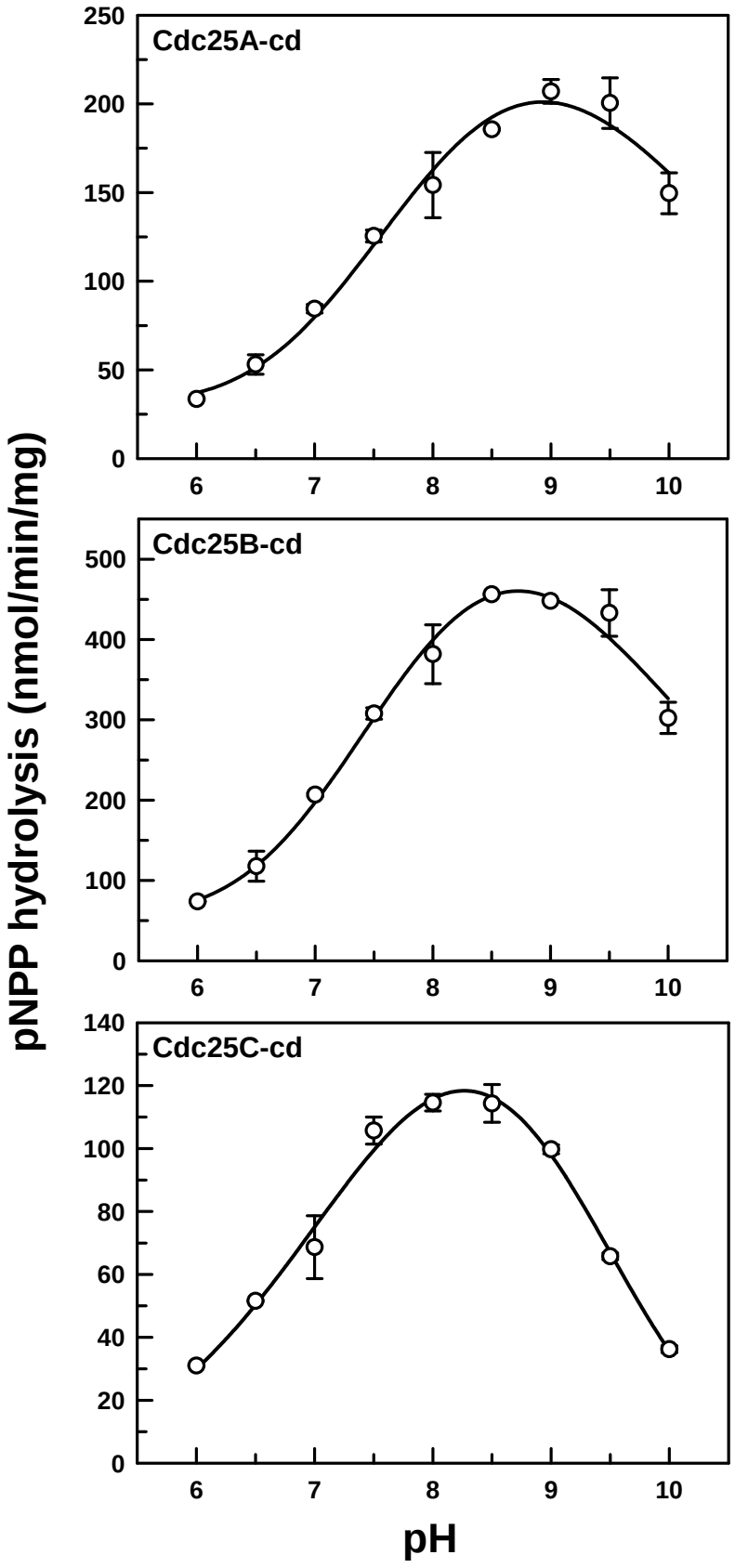
Figure S1. *pH profile of Cdc25-cd catalyzed phosphatase activity.* pNPP hydrolysis was performed with 0.5 μM Cdc25-cd and 20 mM pNPP. The phosphatase reactions were performed as described in the *Materials and Methods* section in a buffer system comprising of 50 mM Tris, 50 mM Bis-Tris propane, 100 mM sodium acetate, 50 mM NaCl, 1 mM EDTA, and 0.1 mg/ml BSA. The *error bars* represent standard deviations (n = 3).



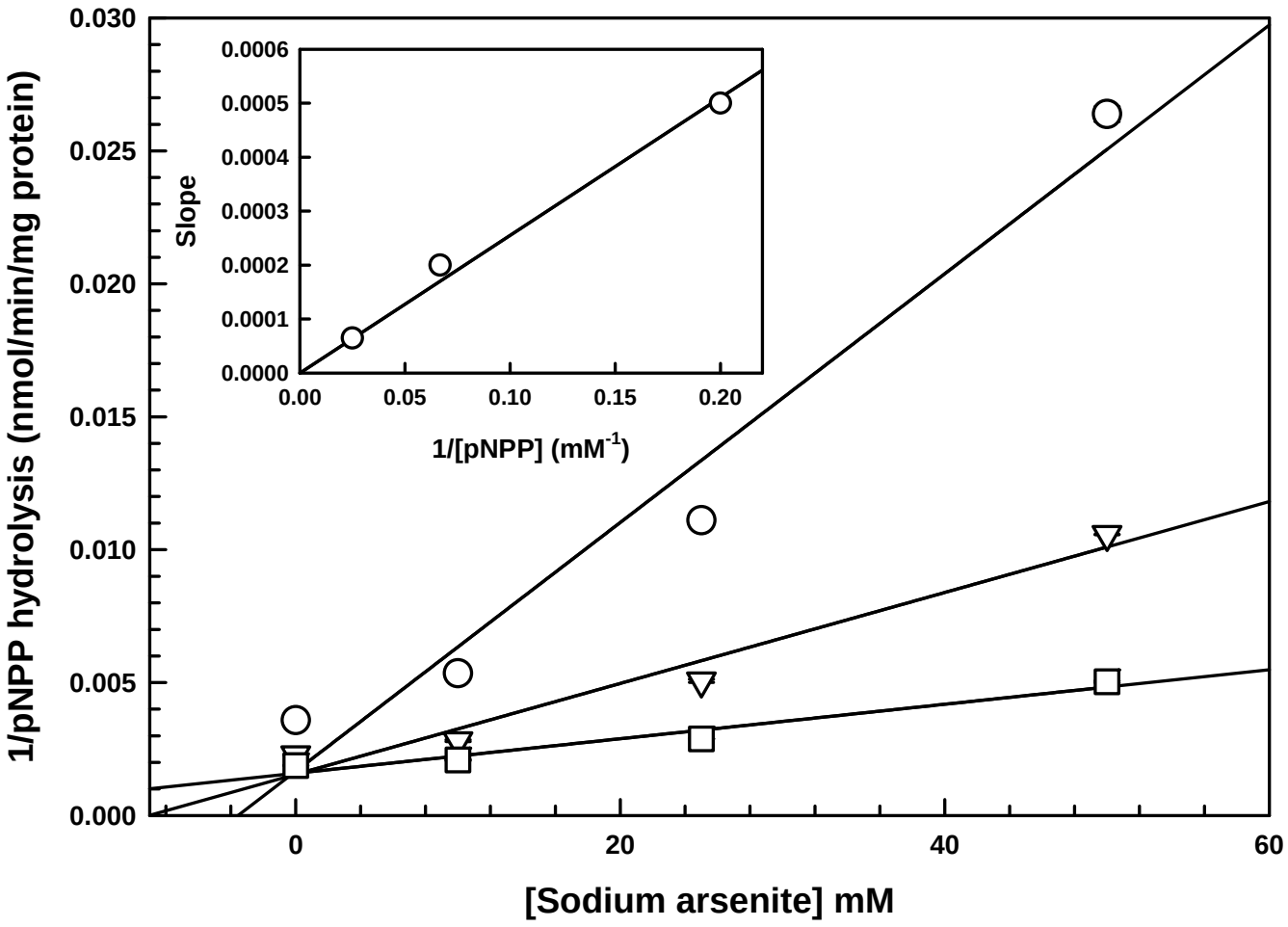


Figure S2. *Competitive inhibition of Cdc25B-cd catalyzed phosphatase activity by arsenite.* The Dixon plots show the dephosphorylation rates of 5 mM (○), 15 mM (▽), and 40 mM (□) pNPP when assayed in the presence of indicated concentrations of the inhibitor As(III). The *error bars* represent the standard errors from two independent assays. Inset, replot of the slopes of the Dixon plots; K_i was estimated using the equation $K_i = K_m / (V_{max} \times \text{slope})$.

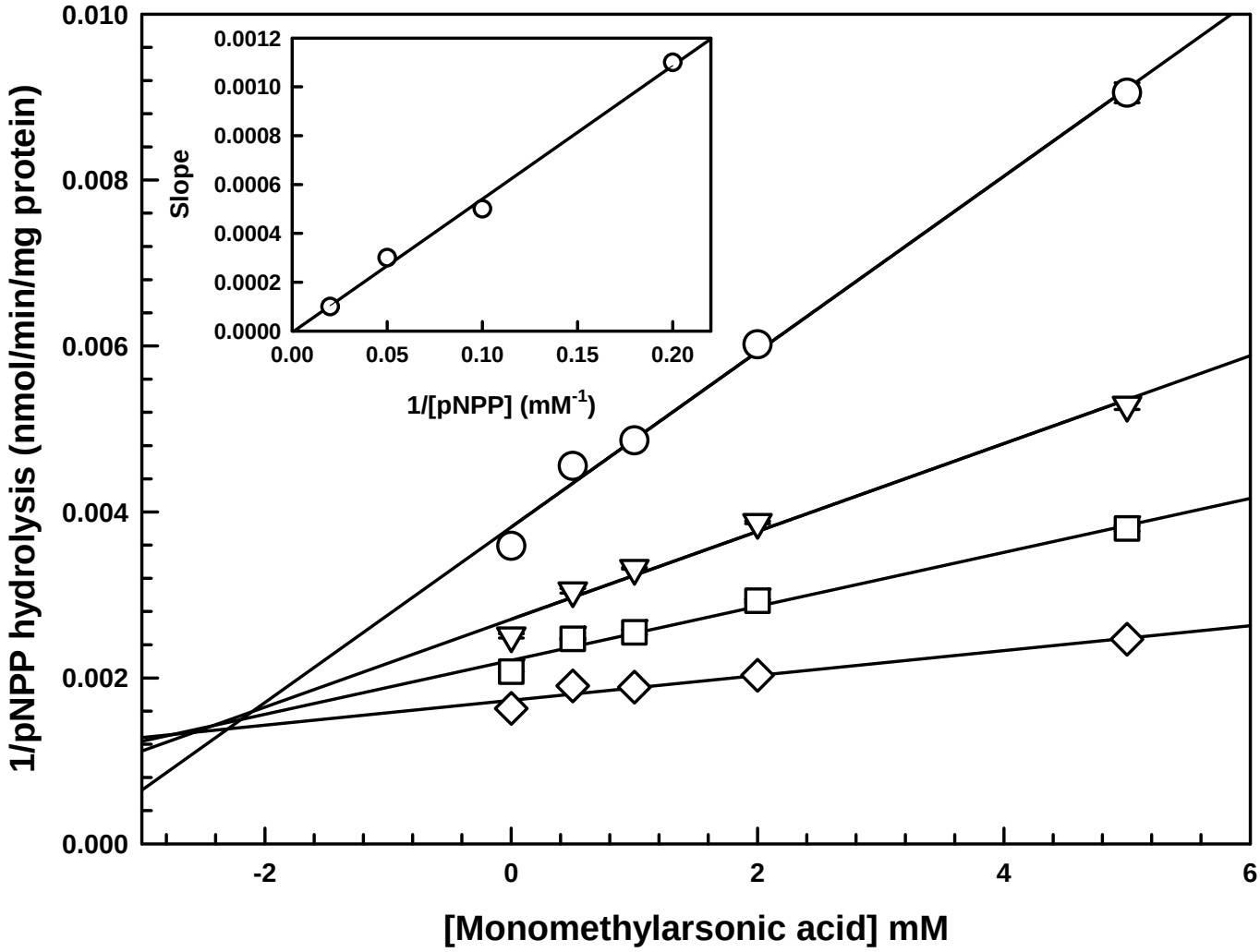


Figure S3. *Competitive inhibition of Cdc25B-cd catalyzed phosphatase activity by monomethylarsonic acid.* The Dixon plots show the dephosphorylation rates of 5 mM (○), 10 mM (▽), 20 mM (□) and 50 mM (◇) pNPP when assayed in the presence of indicated concentrations of the inhibitor MAs(V). The *error bars* represent the standard errors from two independent assays. Inset, replot of the slopes of the Dixon plots; K_i was estimated using the equation $K_i = K_m / (V_{max} \times \text{slope})$.

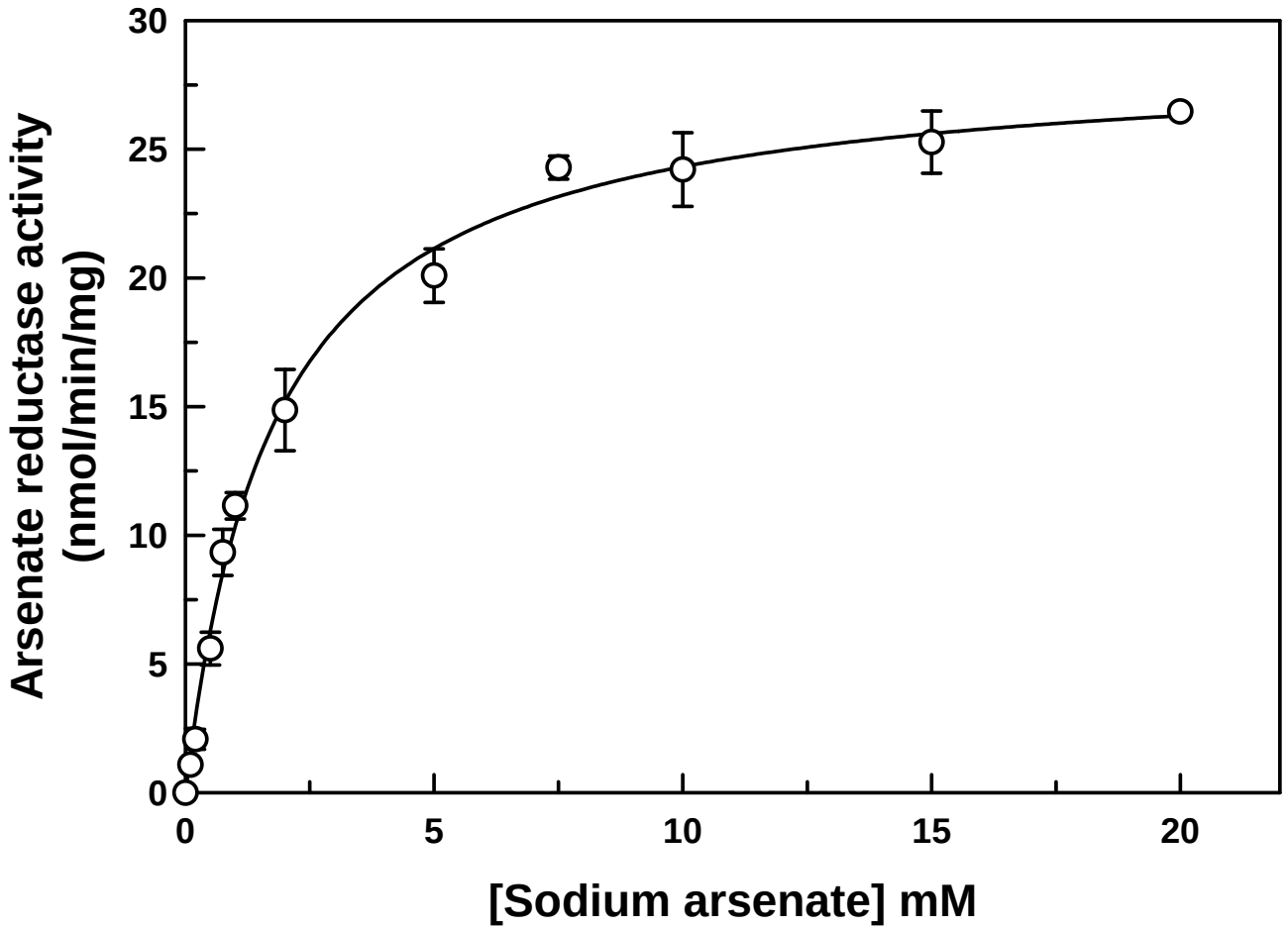


Figure S4. *Arsenate reductase activity of purified Cdc25B-cd.* The arsenate reductase activity of Cdc25B-cd was assayed with 2 mM GSH, 1 μM yeast glutaredoxin, and 50 nM yeast glutathione reductase. The rate of arsenate reductase activity was estimated from the oxidation of NADPH measured at 340 nm at each concentration of sodium arsenate, as described in the *Materials and Methods* section. The *error bars* represent the standard deviations (n = 3) calculated with SigmaPlot 11.0.

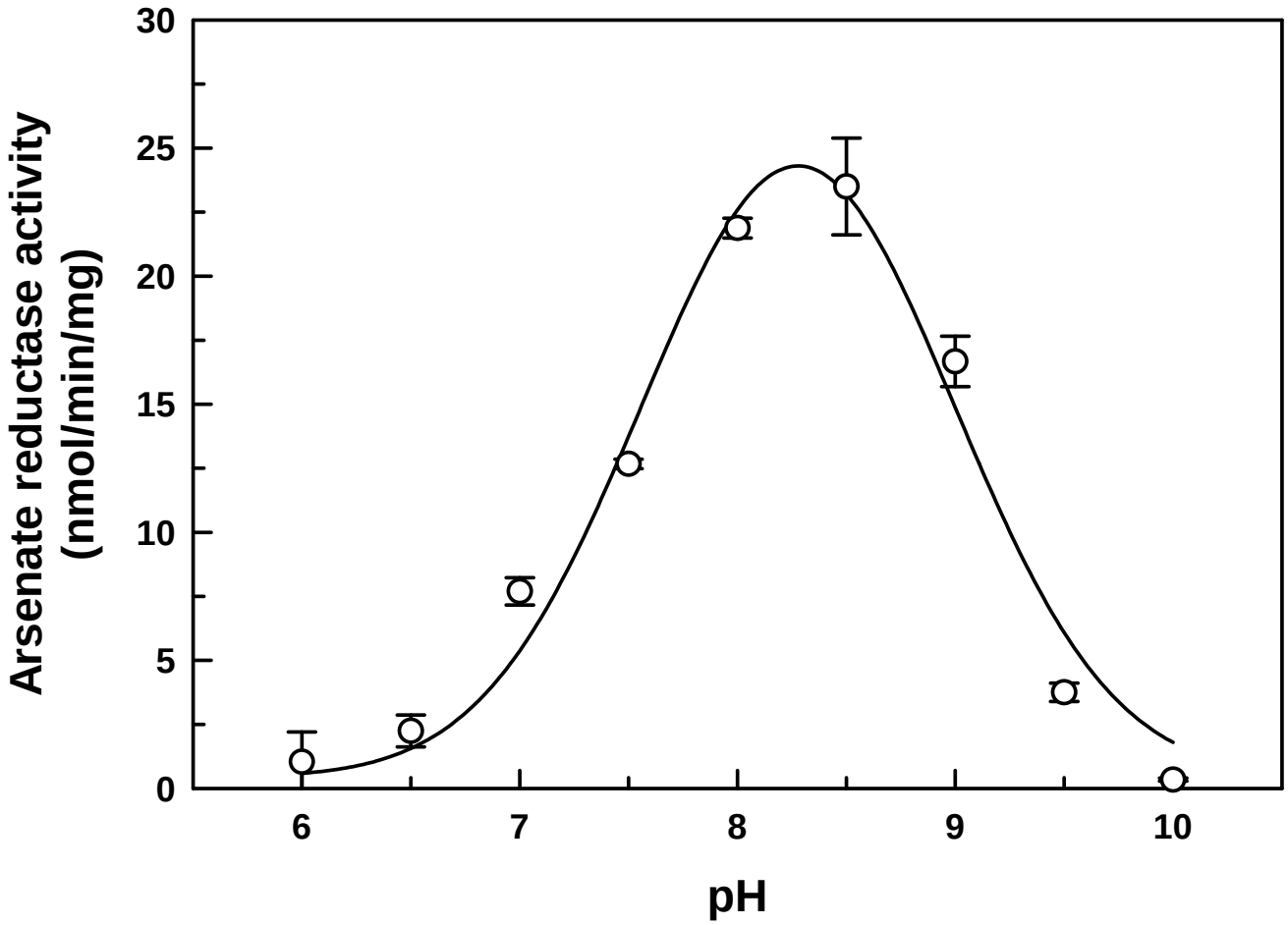


Figure S5. *pH profile of Cdc25B-cd catalyzed arsenate reductase activity*. The arsenate reductase activity of Cdc25B-cd at various pH was assayed with 10 μM of the purified enzyme, 0.25 mM NADPH, 2 mM GSH, 1.5 μM GLRX, and 85 nM GSR, as described in the *Materials and Methods* section. The buffer system consisted of 50 mM Tris, 50 mM Bis-Tris propane, 100 mM sodium acetate, 50 mM NaCl, 1 mM EDTA, and 0.1 mg/ml BSA. The *error bars* represent the standard deviations (n = 3) calculated with SigmaPlot 11.0.