

# **Identification of a metallochaperone for an arsenite-translocating ATPase**

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# ArsD and ArsA are related

R

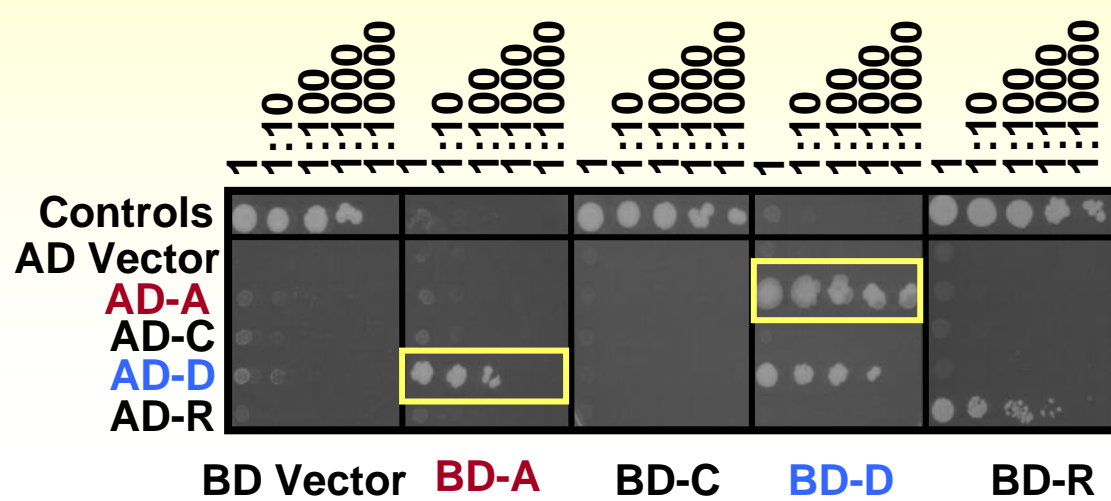
B

C

*Many bacteria*



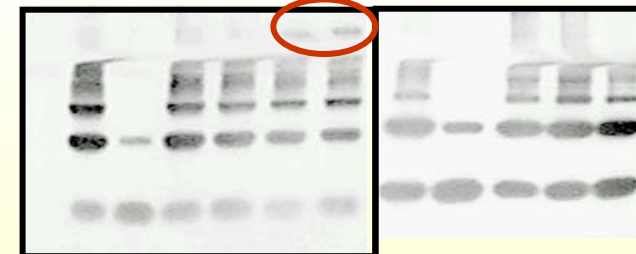
# ArsD and ArsA interact



	1	2	3	4	5	6	7	8	9	10	11	12
ArsA	+		+	+	+	+	+			+	+	+
ArsD		+	+	+	+	+	+					
CadC									+	+	+	+
Sb(III)					+		+					+
MgCl <sub>2</sub>						+	+				+	+
ATP						+	+				+	+
bBBr	+	+		+	+	+	+	+		+	+	+



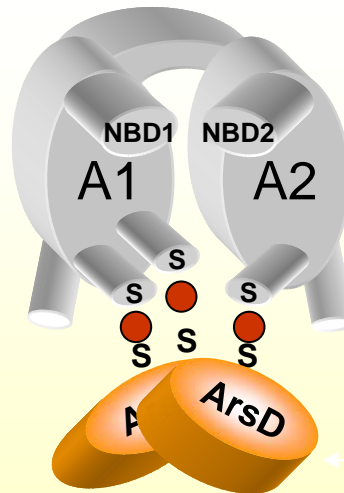
Anti-ArsA



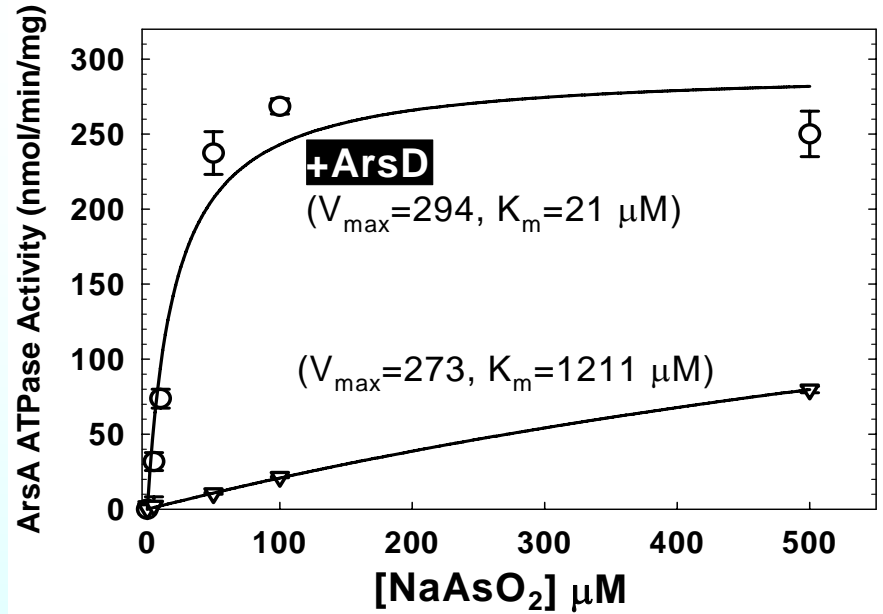
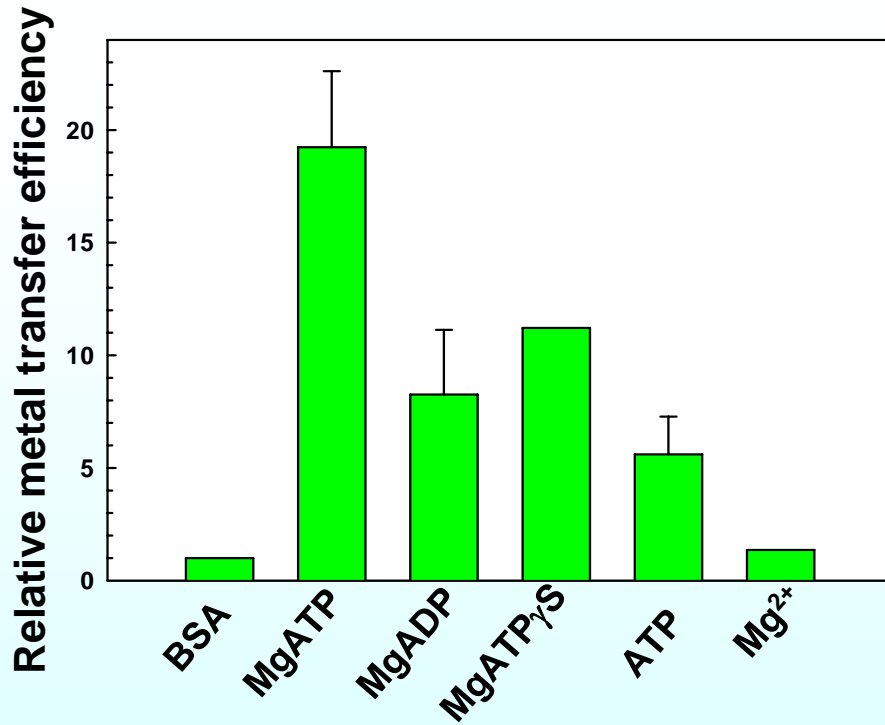
Anti-ArsD

Anti-CadC

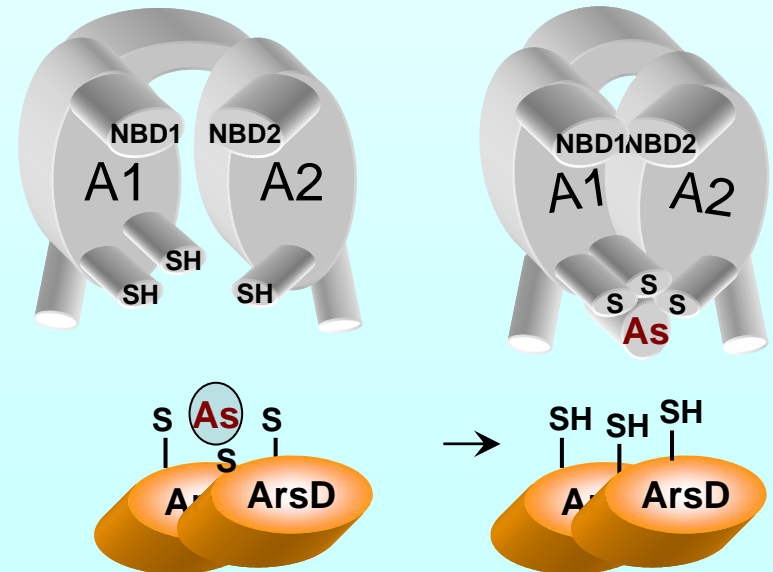
- Physically
- Through metal binding sites
- ArsA in nucleotide-bound form



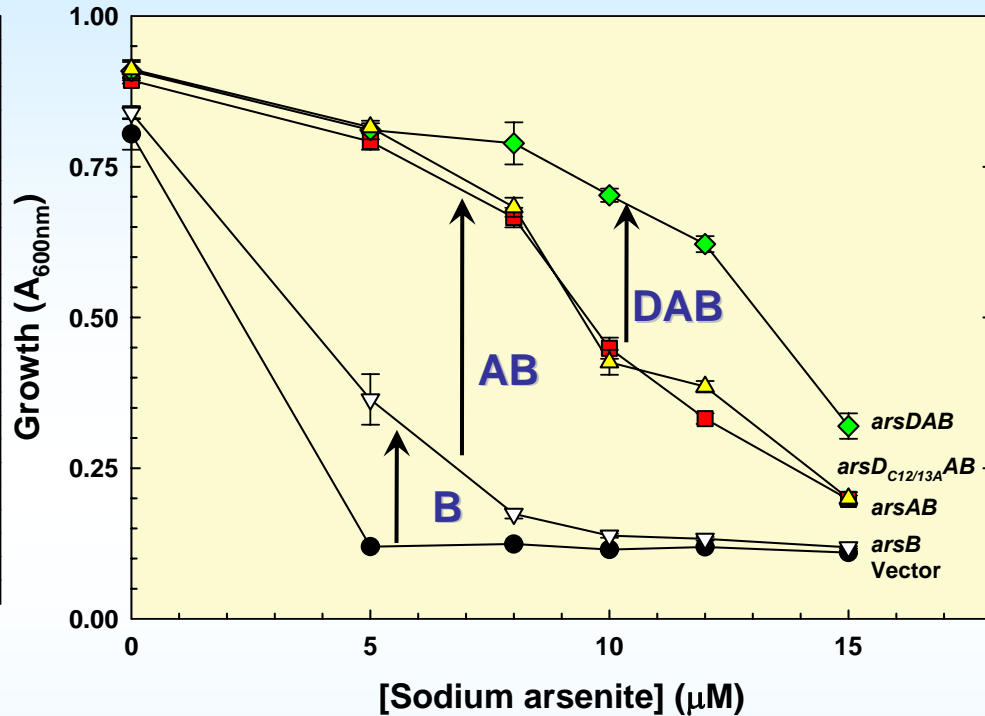
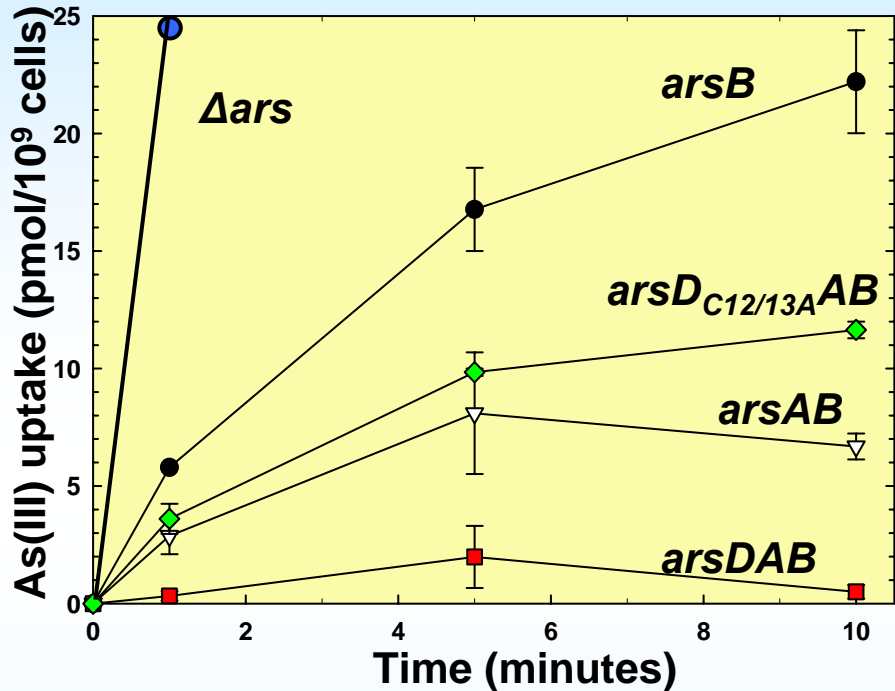
# Metal transfer and ATPase activities



- The transfer requires a nucleotide but not hydrolysis
- ArsD increases the affinity of ArsA for metals
- ArsA can work at lower metal concentrations

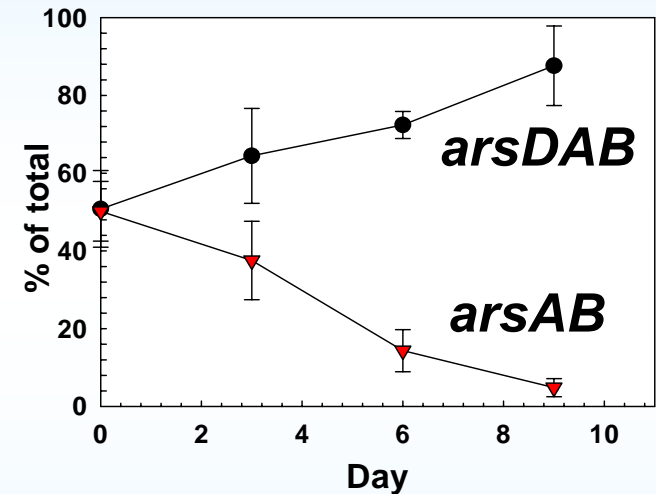
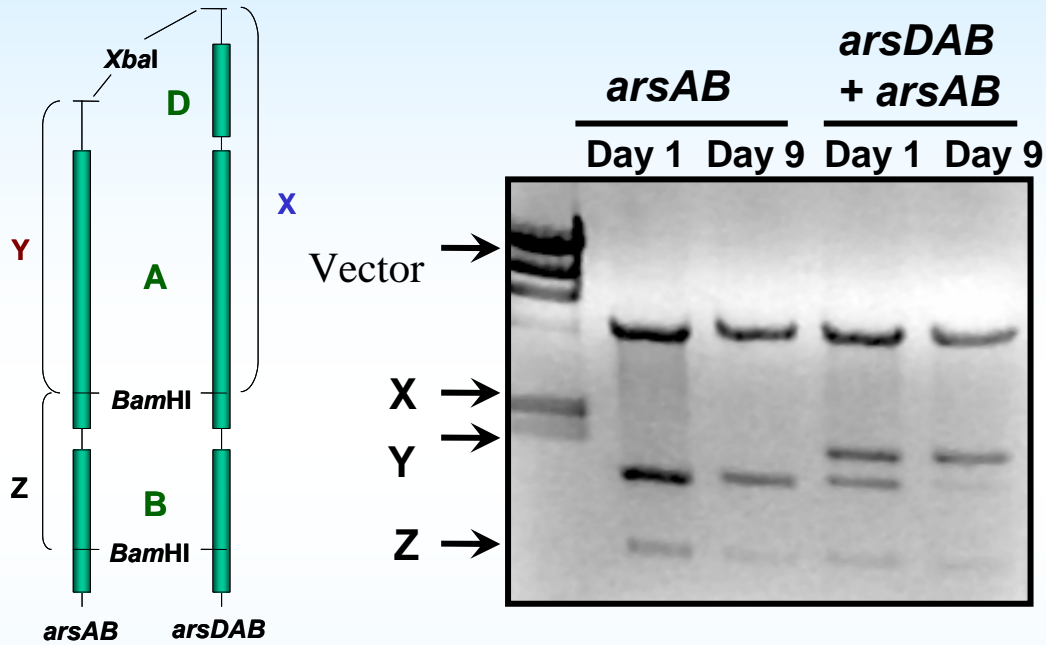


# ArsD increases ArsAB-mediated efflux and resistance



- By interacting with ArsA through the metal binding site!
- Effects at low As(III) concentration?

# ArsD confers a competitive advantage



- At physiological As(III) concentrations.
- The answer to why *arsD* and *arsA* genes are always found together!

# ArsD: a metallochaperone for an arsenite-translocating ATPase

