

To my Mother, who always encouraged me to do my best.

To my Father, who inspires me to pursue all my goals.

And to my Brother, who is my best friend.

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## LIST OF ABBREVIATIONS

<i>arsR</i>	Acid responsive signaling (Response) Regulator (gene)
ArsR	Acid responsive signaling (Response) Regulator (protein)
<i>arsS</i>	Acid responsive signaling Sensor (gene)
ArsS	Acid responsive signaling Sensor (protein)
BeF <sub>3</sub> <sup>-</sup>	Beryllium fluoride
B-PER	Bacterial protein extraction reagent
DBD	DNA-binding domain
DIGE	Difference gel electrophoresis
EMSA	Electrophoretic mobility shift assay
EPR	Electron paramagnetic resonance
HK	Histidine kinase
HSQC	Heteronuclear single quantum coherence
IPTG	Isopropyl-β-thiogalactopyranoside
kDa	Kilodaltons
MALT	Mucosa-associated lymphoid tissue
MWCO	Molecular weight cut-off
NMR	Nuclear magnetic resonance
NOESY	Nuclear Overhauser Enhancement Spectroscopy
NTD	N-terminal domain
ORF	Open reading frame
PCA	Principal component analysis
PCR	Polymerase chain reaction
PDB	Protein data bank

PMSF	Phenylmethylsulfonylfluoride
R. M. S. D.	Root mean square deviation
Reagent (I)	(1-oxy-2,2,5,5-tetramethylpyrrolinyl-3-methyl)methanethiosulfonate
RR	Response regulator
SDSL	Site directed spin labeling
SDS-PAGE	Sodium-dodecyl-sulfate polyacrylamide gel electrophoresis
SNR	Signal to noise ratio
TCEP	Tris(2-carboxyethyl)phosphine
TCS	Two component system
wHTH	Winged helix-turn-helix