Supplemental Materials

Applied Microbiology and Biotechnology

Title: Cr(VI) reduction and physiological toxicity are impacted by resource ratio in *Desulfovibrio vulgaris*

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Figure S1

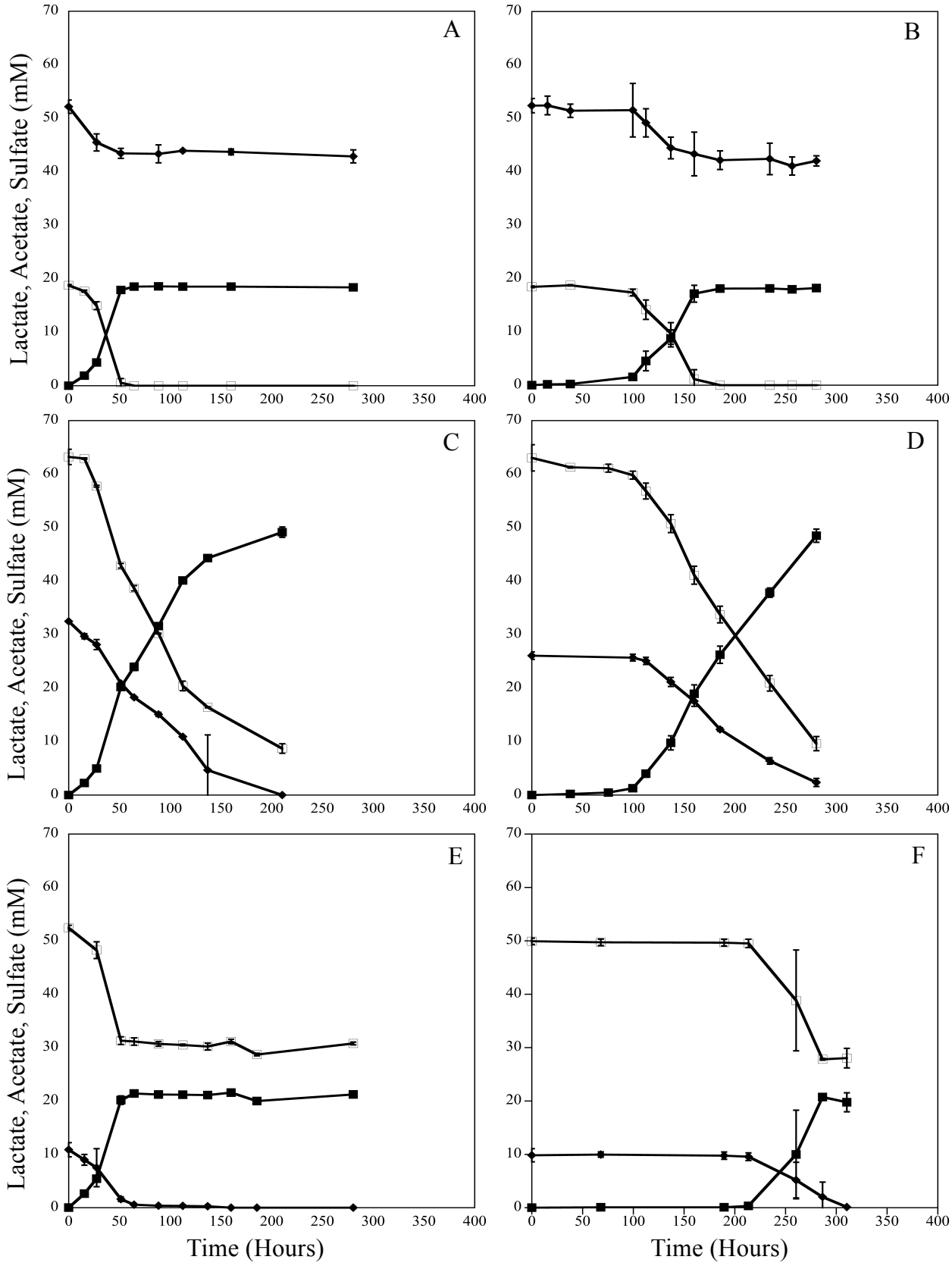

Figure S1. Lactate (●), acetate (■), and sulfate (◆) concentrations throughout growth at 20°C with 0 (a, c, e) and 50 (b, d, f) µM Cr(VI) under EDL (a,b), BAL (c,d), and EAL (e,f) conditions.

Table S1. Strains used in this study

Strain	Features of Interest	Source
a-select	*deoR endA1 recA1 relA1 gyrA96 hsdR17* (r_k^- m_k^+) *supE44 thi-1 phoA* D*(lacZYA argF)U169* F80*lacZ* DM15 l^- F^-	Bioline
JW710	parental strain for deletion strains, D*upp*; $5FU^r$	(1)
JW9153	JW710 DDVU0053::(P_{npt}-*npt-upp*); Km^r $5FU^s$	This study
JW9155	JW710 DDVU0279::(P_{npt}-*npt-upp*); Km^r $5FU^s$	This study
JW9157	JW710 DDVU1999::(P_{npt}-*npt-upp*); Km^r $5FU^s$	This study
JW9167	JW9153 DDVU0053 D(P_{npt}-*npt-upp*); $5FU^r$	This study
JW9169	JW9155 DDVU0279 D(P_{npt}-*npt-upp*); $5FU^r$	This study
JW9171	JW9157 DDVU1999 D(P_{npt}-*npt-upp*); $5FU^r$	This study
JW9198	JW9167 DDVU0053 DDVU0279::(P_{npt}-*npt-upp*); Km^r $5FU^s$	This study
JW9199	JW9198 DDVU0053 DDVU0279 D(P_{npt}-*npt-upp*); $5FU^r$	This study
JW9200	JW9199 DDVU0053 DDVU0279 DDVU1999::(P_{npt}-*npt-upp*); Km^r $5FU^s$	This study
JW9201	JW9200 DDVU0053 DDVU0279 DDVU1999 D(P_{npt}-*npt-upp*); $5FU^r$	This study
Plasmids		
pCR8/GW/TOPO	parental plasmid, source for pUC Sp^r	Invitrogen
pSC27	source plasmid for P_{npt}-*npt*, Km^r	(1)
pMO746	source plasmid for P_{npt}-*npt-upp* selectable/counter-selectable cassette; Amp^r Km^r	(2)
pMO417	pCR8/GW/TOPO, marker-exchange plasmid for DVU0053; Sp^r Km^r	This study
pMO419	pCR8/GW/TOPO, marker-exchange plasmid for DVU0279; Sp^r Km^r	This study
pMO421	pCR8/GW/TOPO, marker-exchange plasmid for DVU1999; Sp^r Km^r	This study
pMO9152	pMO417, marker-exchange plasmid for DVU0053, P_{npt}-*npt-upp*; Sp^r Km^r	This study
pMO9154	pMO419, marker-exchange plasmid for DVU0279, P_{npt}-*npt-upp*; Sp^r Km^r	This study
pMO9156	pMO421, marker-exchange plasmid for DVU1999, P_{npt}-*npt-upp*; Sp^r Km^r	This study
pMO9166	pMO417, marker-less deletion plasmid for DVU0053; Sp^r	This study
pMO9168	pMO419, marker-less deletion plasmid for DVU0279; Sp^r	This study
pMO9170	pMO421, marker-less deletion plasmid for DVU1999; Sp^r	This study
pMO9154	pMO419, marker-exchange plasmid for DVU0279, P_{npt}-*npt-upp*; Sp^r Km^r	This study
pMO9156	pMO421, marker-exchange plasmid for DVU1999, P_{npt}-*npt-upp*; Sp^r Km^r	This study
pMO9166	pMO417, marker-less deletion plasmid for DVU0053; Sp^r	This study
pMO9168	pMO419, marker-less deletion plasmid for DVU0279; Sp^r	This study
pMO9170	pMO421, marker-less deletion plasmid for DVU1999; Sp^r	This study

Table S2. Primers used in this study

Name	Sequence*	Purpose
DVU0053-1b	CGGGAAAGACCTCCGCCTTG	Cloning of upstream region of DVU0053
DVU0053-2	AAGACTGTAGCCGTACCTCGAATCTA CGTCCCGTGTTCCCTGTTTG	Cloning of upstream region of DVU0053, with overhang for annealing to kanamycin-resistance gene
DVU0053-3	AATCCGCTCACTAAGTTCATAGACCG CATATGGGTGCTGTCAGGTC	Cloning of downstream region of DVU0053, with overhang for annealing to kanamycin-resistance gene
DVU0053-4	AGCAGCCCATGTTGAGGTCG	Cloning of downstream region of DVU0053
bc0050f	TAGATTCGAGGTACGGCTACAGTCTT ATCTCTGAAGAAGCCGACAC CCCCAGAGTCCCGCTCAG	Amplification of kanamycin-resistance gene
bc0050r	CGGTCTATGAACTTAGTGAGCGGATT AGTAACAGTCGTGAACATCG GAGGTAGCTTGCAGTGGGCT	Amplification of kanamycin-resistance gene
DVU0279-1	GACTGCGGGAGCATCATGCG	Cloning of upstream region of DVU0279
DVU0279-2	AAGACTGTAGCCGTACCTCGAATCTA ATGCGCCTCCTTTGCGATTT	Cloning of upstream region of DVU0279, with overhang for annealing to kanamycin-resistance gene
DVU0279-3	AATCCGCTCACTAAGTTCATAGACCG CGTTGATGACAGACGTGACG	Cloning of downstream region of DVU0279, with overhang for annealing to kanamycin-resistance gene
DVU0279-4	ATGAGATTCGCGCCCTGTAC	Cloning of downstream region of DVU0279
bc0051-f	TAGATTCGAGGTACGGCTACAGTCTT ATCGAACTAACGTACATGCC CCCCAGAGTCCCGCTCAG	Amplification of kanamycin-resistance gene
bc0051-r	CGGTCTATGAACTTAGTGAGCGGATT ATCGCCTAACCTAGATACAG GAGGTAGCTTGCAGTGGGCT	Amplification of kanamycin-resistance gene

DVU1999-1	CCCCAAACCCCATCTCGATCGAG	Cloning of upstream region of DVU1999
DVU1999-2	AAGACTGTAGCCGTACCTCGAATCTA CTGGGGAGACGTTGCGTCTT	Cloning of upstream region of DVU1999, with overhang for annealing to kanamycin-resistance gene
DVU1999-3	AATCCGCTCACTAAGTTCATAGACCG ACCCGACAGTGAGCCGCCAG	Cloning of downstream region of DVU1999, with overhang for annealing to kanamycin-resistance gene
DVU1999-4	ATGATTTGGGCGGCTTCGGC	Cloning of downstream region of DVU1999
bc0052-f	TAGATTCGAGGTACGGCTACAGTCTT GTGTGACATGCTGCTAGAAC CCCCAGAGTCCCGCTCAG	Amplification of kanamycin-resistance gene
bc0052-r	CGGTCTATGAACTTAGTGAGCGGATT GCGTCGTAATAGTGGTTATC GAGGTAGCTTGCAGTGGGCT	Amplification of kanamycin-resistance gene
pMR->pMLD-Km	GAACACGGCGGCATCAGAG	Amplification of marker-replacement plasmid
pMR->pMLD-Cm	GCACCAAGTAAGACTGTAGCCGTACCTCGAATCTA	Amplification of marker-replacement plasmid
KanR-upp-pMR-F	AACAGACAATCGGCTGCTCTGATG	Amplification of kan^r-upp cassette
KanR-upp-pMR-R	TAGATTCGAGGTACGGCTACAGTCTT ACTTGGTGCCGAATATCTTGTCGCC	Amplification of kan^r-upp cassette; contains overhang for common sequence
DVU0053-MLD-F	GGAACACGGGACGCATATGGGTGCTGTCAGGTCTTCG	Amplification from marker-replacement plasmid to construct the marker-less deletion plasmid for DVU0053
DVU0053-MLD-R	CAGCACCCATATG CGTCCCGTGTTCCCTGTTTGC	Amplification from marker-replacement plasmid to construct the marker-less deletion plasmid for DVU0053
DVU0279-MLD-F	AAAGGAGGCGCATCGTTGATGACAGACGTGACGTTCC	Amplification from marker-replacement plasmid to

DVU1999-MLD-R	CTCACTGTCGGGT CTGGGGAGACGTTGCGTCTT	Amplification from marker-replacement plasmid to construct the marker-less deletion plasmid for DVU1999

* - underlined region represents overhang used for annealing to neighboring PCR product in SOE and SLIC reactions.

REFERENCES

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2. **Parks JM, Johs A, Podar M, Bridou R, Hurt RA Jr, Smith SD, Tomanicek SJ, Qian Y, Brown SD, Brandt CC, Palumbo AV, Smith JC, Wall JD, Elias DA, Liang L.** 2013. The genetic basis for bacterial mercury methylation. Science **339**:1332–1335.