Supplementary Table 1. Complete list of names and reactions mediated used for identification of metabolic marker genes. Genes listed in red were not found in genomes or metagenom

	Process/Gene type	Gene
Iron/Manganese	**Iron/manganese reduction**	mtrA mtrC
	Iron/manganese oxidation	cyc1 cyc2 cyt 572 cymA mtoA mtoB foxE foxY foxZ
Sulfur	**Sulfide oxidation**	fcc sqr
	Sulfite reduction	dsrD
	Sulfur oxidation	dsrA dsrB dsrL dsrE dsrF dsrH sor
	Thiosulfate oxidation	soxB soxY soxC
	Sulfate reduction	asrA asrB asrC
	Thiosulfate disproportionation	phsA
Hydrogen	**FeFe hydrogenase**	Group B1/B3 Group A
	Ni-Fe Hydrogenase	Group 1 Group 2a Group 2b Group 3a Group 3b Group 3c Group 3d Group 4
Methane	**Methane oxidation - Partculate methane monooxygenase**	pmoA pmoB pmoC
Nitrogen	**Nitrite oxidation**	nxrA nxrB
	Nitrate reduction	napA napB narA narB narD narG
	Nitrite reduction	nrfA nrfD nirB nirD nirG

	Nitric oxide reduction	norB norC
	Nitrous oxide reduction	nosD nosZ nosF nosY
Oxygen	**Oxygen metabolism - cytochrome c oxidase, caa3-type**	CoxA CoxB
C1 compounds	**Formate oxidation**	formate dehydrogenase, alpha subunit formate dehydrogenase, beta subunit formate dehydrogenase, gamma subunit fhcD fae
Carbon monoxide	**CO oxidation**	coxS coxM coxL
Halogenated compounds	**Halogenated compounds breakdown**	redH
	Perchlorate reduction	pcrA pcrB