

1 **Table S1.** Description of primer, amplification details used for quantitative PCR analysis

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Target group	Primer	Reference	Sequence (5'–3')	Amplification details
Bacteria	Bacteria-338F	Wang et al., 2014	CCTACGGGAGGCAGCAG	95°C 2min, 35 cycles, 95°C 30s, 60°C 30s, 72°C 30s, 80°C 15s
	Bacteria-518R		ATTACCGCGGCTGCTGG	
Archaea	Ar-109F	Lueders et al., 2000	ACGGCTCAGTAACACGT	95°C 2min, 95°C 30s, 57°C 30s, 72°C 30s, 80°C 30s, 35 cycles
	Ar-912R		CTCCCCCGCCAATTCCTTTA	
<i>mcrA</i>	mlas mcrA-rev	Steinberg et al., 2009	GGTGGTGTMGDDTTCACMCARTA CGTTCATBGCCTTVGGRTAGT	95°C 3min 30s, 36 cycles, 95°C 15s, 55°C 30s, 72°C 30s, 83°C 30s
<i>pmoA</i>	A189f mb661r_nd	Holmes et al., 1999	GGNGACTGGGACTTCTGG CCGGMGCAACGTCYTACC	95°C 10min, 40cycles, 95°C 30s, 60°C 30s, 72°C 30s, 85°C 15s
<i>Bacterial-amoA</i>	amoA1F amoA2R	Rotthauwe et al., 1997	GGGGTTTCTACTGGTGGT CCTCKGSAAAGCCTTCTTC	95°C 5min, 95°C 30s, 55°C 30s, 72°C 30s, 83°C 15s, 40 cycles
<i>Bacterial-nirK</i>	F1aCu	Hallin et al., 1999	ATCATGGTSGTGCCGCG	95°C 10min, 6 touch down cycles: 95°C 15s, 63°C 30s (-1°C), 72°C 30s;
	R3Cu		GCCTCGATCAGRTTGTGGTT	95°C 15s, 58°C 30s, 72°C 30s, 80°C 30s, 35 cycles
<i>Bacterial-nirS</i>	cd3aF R3cd	Petersen et al., 2012	GTSAACGTSAAGGARACSGG GASTTCGGRTGSGTCTTGA	95°C 10min, 94°C 1min, 57°C 1min, 72°C 1min, 83°C 30s, 40 cycles

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