

**Table S5:** Forward and reverse primers of gene sets used in expression studies.

Operon	Gene Id	Gene names	Protein accession ID	Primer name	qPCR Primer sequence (5'→ 3')
sMMO	NA	<i>mmoX</i>	CAA39068.2	Forward	TGGAGTGCTCGGTCAATCTG
				Reverse	GACACCACGGTCTGGTAGCC
	NA	<i>mmoR</i>	CAD61955.1	Forward	GACCGCTCTGCGCAAAGCC
				Reverse	CCCTCATAGCCGAACAATTCG
pMMO	NA	<i>mmoC</i>	CAB45257.1	Forward	AGGAGGAGGACGGCAAGGTT C
				Reverse	AGCACGAGACGCACGACATT GG
	NA	<i>pmo operon</i>	U31650.2	Forward	GCGTTCTTCTCGGGCTTCG
				Reverse	CGGCCTCACTCGTCTTCTCC
pMMO	NA	<i>pmoA</i>	AAA87220.2	Forward	TGCTGATCGGGGAGTGGATC
				Reverse	ACGTGCGGACGAAGTGGAA
	NA	<i>pmoB</i>	AAF37894.1	Forward	ACATGGCCGACTTCAAGGATC C
				Reverse	TCGCTGATGCGAAGATAAGAA CG
	NA	<i>pmoC</i>	AAF37893.1	Forward	TGGAAGACCCGTGACCGC
				Reverse	ATGTGCGACGGCGTGAAGT
<i>Mbn</i> operon (methanobactin)	CQW49_07125	NA	ATQ67685.1	Forward	AGGAAATCGACATCTGCGCT
				Reverse	GGAGATTGCAATTCGGCTCG
	CQW49_07130	NA	ATQ67686.1	Forward	FCCGCAGATCCGCCATATGAT
				Reverse	ATACGCAGATACGCCTGTCTG
	CQW49_07135	NA	ATQ67687.1	Forward	CATAGCGGCTGTCTGAAGGAA
				Reverse	GCCAATAAGGCGGAGATCGT
	CQW49_07140	NA	ATQ67688.1	Forward	AGAGAATATCGGCGAGACGC
				Reverse	TTTGACGACGCTGTTCGAGA
	CQW49_07175	NA	ATQ67694.1	Forward	GCAAATTCGGATCGGCGAAA
				Reverse	CGAGCAGAGCTCCTATGACG
	CQW49_07180	NA	ATQ67695.1	Forward	GTAGAGGATGAACGCCTCGC
				Reverse	CAATTGCCTCGTCTTCGGTG
	CQW49_07120	NA	ATQ67684.1	Forward	GTGAGAGCCTGACGTTCTC
				Reverse	GCAATCACCAGAAACGCTCC
	CQW49_07160	<i>mbnB</i>	ATQ70273.1	Forward	AGGGGAAAATATCGCGCAGT
				Reverse	AGGACACGCTCGATTTCTG
	CQW49_07155	<i>mbnC</i>	ATQ67691.1	Forward	AAAGCTCCAGTCGAAAGCGA
				Reverse	TATCAGCCTTCGGGCCTACT
	NA	<i>mbnA</i>	From literature	Forward	TGGAAACTCCCTTAGGAGGAA
				Reverse	CTGCACGGATAGCACGAAC
	CQW49_07170	<i>TonB</i>	ATQ67693.1	Forward	GTAGAGGATGAACGCCTCGC
				Reverse	GCAATCACCAGAAACGCTCC
Reference gene	CQW49_06935	16S rRNA	ATQ67650.1	Forward	TAGGCGGATTGTTAAGTCAGG
				Reverse	ATTTACCTCTACACTCGCAG

NA: Not Applicable

Note: The complete genome of *Methylosinus trichosporium* OB3b for the primer designing of the gene set was retrieved from the GenBank accession ID: CP023737.1.