

Supplementary Table 3: Oligonucleotides used in this study.

Primer Name	5'-3' Sequence	Description
<i>migC</i> mutant construction and confirmation		
<i>migC</i> _Up_F	GGTAAAAAGGATCGATCCTCT AGATTTCGTCATACCAATAGCTG TTATTTTC	pFLP2 cloning, 5' flanking region, forward for <i>migC</i> KO construct
<i>migC</i> _Up_R	TAGTTAGTCAAAGCGGCTCAAA TCAACAAG	pFLP2 cloning, 5' flanking region, Reverse for <i>migC</i> KO construct
<i>migC</i> _Down_F	GGAATAATGAAGAACATTGAAA TACTTCAATATTCTCTATG	pFLP2 cloning, 3' flanking region, forward for <i>migC</i> KO construct
<i>migC</i> _Down_R	AAGTTCCTATTCTCTAGGGGGA TCCGGGCGTCGGTATGAATATC	pFLP2 cloning, 3' flanking region, reverse for <i>migC</i> KO construct
<i>migC</i> _External_F	TGTTTATTTAAGAAAACTAAAA AAT	To generate unmarked <i>migC</i> mutant, forward
<i>migC</i> _External_R	TTTAAGCGCCATAGTTAATATGT C	To generate unmarked <i>migC</i> mutant, reverse
<i>migC</i> _Kan_F	TGAGCCGCTTTGACTAACTAGG AGGAATAAATGG	5' primer for amplifying <i>aphA</i> for <i>migC</i> KO construct
<i>migC</i> _Kan_R	TCAATGTTCTTCATTATTCCCTC CAGGTAC	3' primer for amplifying <i>aphA</i> for <i>migC</i> KO construct
<i>migC</i> complementation		
<i>migC</i> _Comp_F	CATGCATGAGCTCACTAGTGGA TCCGTGAAACTGATTGCCCAAA AAAC	Cloning into pKNOCK, forward
<i>migC</i> _Comp_R	GCAAGGCCTTCGCGAGGTACCT ATTGTTCAATTCTGCAAGC	Cloning into pKNOCK, reverse
<i>migC</i> GTPase and metal binding mutants		
<i>migC</i> _C71A_C73A_C74A_gBlock	CATGCATGAGCTCACTAGTGGA TCCTTTATGGCATCCTTAAATTC ATTAAAAAATAAATCAAACCTAA	gBlock for cloning into pKNOCK

	<p>TCGTTCTGACCTACATCGAACA TATAGGGCTGAATGATTAAGCT AGGACACATGCTAAGCCGAGCT TGGGATTACATCAATTAACCTAA CAATCTATTACGCCTATCTTAAC AATATGAAATATAACGTCCGTTT ATGTGCGTCTACTGTAAAATTAA AGCGCTACTTGAGCGTTAAAAA TGTGAAAGAATATTTTCGTATTGA GTAAAAAAAAGCAAGTTAGTTA CGTAAACAAAACACTCTGGCAT GAATTGTGAATGTCCTTAAATAG GATATTTTCGTTTAATTATTATTT TCTAAAGTTAATTTAGATAATTG ATGAGATGCATGTCACATATTTG GTGCTTTAGCCTGATAATTGAAA AGTATATCTTCAAAGTGAAAAAT TATTTTCATGCTACTTAAACAGT GATATACCTTTCTTAGTTTTTAA ACCTTGTTGATTTGAGCCGCTT GTGAAACTGATTGCCCAAAAAA CTGTTCTACCCATATTATTTCA GGGTTTTTAGGGGCAGGGAAAA CGACATTATTGCAACATTTATTA AGTCAGAAACCGAAAGATGAAG TGTGGGCTGTCTTAATGAATGA ATTTGGGCAAATCGGAGTCGAT CAACAACCTCCTACCTCAAGATC AAGGTTATGCAGTCAAAGAACT ATTGGGCGGCGCTTTAGCTGCT AGTAGCCAACCTCCTATGCATAT TGCTTTGGCTCGCTTGTTAAGT GAACAAAAGCCAGACCGACTCT TTATTGAACCTACAGGGCTTGG AGCTCCTTCGCAATTATTTGATC AGTTAACGGAACCACATTGGCA AAACAGCTTAGCTATGCGTGCA CTAGTGACTGTGGTTGATGGTA GTCGTCTGCATGACACCAATTG GGTCAAGCAAAACCTATATGAA GACCAATTAAAAGCTGCACAGA TTGTGGTGGTCTCTCATGCCGA TACCATGACTTTTGAAGATGAAC AGGCACTTGTTGAGCTTAAAGA AGAATACCAACCTTATCAGCAA CAATGGCTAAAGACTGAACATG GTCAACTTGAAGTGGCGCAAAT TGATGTGCCTGCGCGTTTAACT GAACGGTCTATACAACCTTTACT TAAGCTGCAAAAGCAAATGACC GAAGCCGAAGTTGTAAAAGAAA</p>	
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	TTCACCAACTGCCTTATCATTAT GTTGAGACGGCGCAGGGTTATA TGGTCGCGGGTTGGAAATTTCC TAAGCGTTGGAAATTTGAGTTTT ATGCTTTGCTCGATGTGTTGTG TGCACAACAAGACTGGCTACGT ATTAAGGGAATTTTAAATACAGA TCAGGGGTGGAAGACCTTTAAC TTTAATCCTGAGCAGTTTAACTA TAAGTCTGGTGAAGAGGGCATT GATAACCGCATTGAAATGATTA GCCAACATGAACATGACTGGCT GGCATTTGAACTGAACTATTA GCTTGCAGAATTGAACAATAGG TACCTCGCGAAGGCCTTGC	
<i>migC_E99A_F</i>	ACTCTTTATTGCGCCTACAGGG C	To generate <i>E99A</i> point mutant construct in pKNOCK, forward
<i>migC_E99A_R</i>	GCCCTGTAGGCGCAATAAAGAG T	To generate <i>E99A</i> point mutant construct in pKNOCK, reverse
<i>migC</i> overexpression		
<i>murD_OE_F</i>	TATCTGGTTGGCCTGCAAGGCC TGTGAAACTGATTGCCCAAAAA AC	Cloning into pKNOCK, forward
<i>murD_OE_R</i>	GAGGAGAAAGGATCTGGTACCT ATTGTTCAATTCTGCAAGC	Cloning into pKNOCK, reverse
<i>murD</i> sgRNA		
<i>murD_sgRNA_F</i>	TTACACTAGTGTGCGCAGGCTTG GGAATATCGTTTTAGAGCTAGA AATAGCAAG	Amplification of <i>murD</i> sgRNA, forward
<i>murD_sgRNA_R</i>	AAGTGGGCCCAAGCTTCAAAAA AAG	Amplification of <i>murD</i> sgRNA, reverse
Protein expression for purification		
<i>MigC_pHIS_F</i>	TAAC TT TAAGAAGGAGATATACA TATGAAACTGATTGCCCAAAAA CTG	Cloning <i>a1s_0934</i> into pHIS-Parallel1, forward

<i>MigC_pHIS_R</i>	TCGACGTAGGCCTTTGAATTCC TATTGTTCAATTCTGCAAGCTAA TA	Cloning <i>a1s_0934</i> into pHIS-Parallel1, reverse
<i>MigC_E99A_pHIS_F</i>	ACTCTTTATTGCGCCTACAGGG CTTG	To generate <i>E99A</i> point mutant construct in pHIS-Parallel1, forward
<i>MigC_E99A_pHIS_R</i>	CGGTCTGGCTTTTGTTAC	To generate <i>E99A</i> point mutant construct in pHIS-Parallel1, reverse
<i>MurD_pHIS_F</i>	GTATTTTCAGGGCGCCATGTTA ATACAACGTGGTGG	Cloning <i>a1s_0245</i> into pHIS-Parallel1, forward
<i>MurD_pHIS_R</i>	CTTTGAATTCCGGATCCATGTTA AACCAACGAATTGACGC	Cloning <i>a1s_0245</i> into pHIS-Parallel1, reverse
<i>MurC_pHIS_F</i>	TCAGGGCGCCATGTCTCCAACA ACAGCTGCG	Cloning <i>a1s_3335</i> into pHIS-Parallel1, forward
<i>MurC_pHIS_R</i>	CCGGATCCATGTTATTTACATA CAAATGGTGCTGTGC	Cloning <i>a1s_3335</i> into pHIS-Parallel1, reverse