**Table S2: Oligonucleotides used in this study**

| No. | Oligonucleotides | Description or sequence (5' to 3') | Source/ reference |
|---|---|---|---|
| 1 | oMSMEG_4486-A fw | GAT<u>AAGCTT</u>ACACCTTGTCGATCGCGATG<br>(forward primer situated at position 4567714-4567733)[a], *Hind* III restriction site underlined | this work |
| 2 | oMSMEG_4486-A rev | GATC<u>GTCTCG</u>TGGTCGTGGGCCTCG<br>(reverse primer situated at position 4569214-4569229)[a], *Bsm* BI restriction site underlined | this work |
| 3 | oMSMEG_4486-B fw | ATC<u>GTCTC</u>GACCACGCCAGCGAGGACCG<br>(forward primer situated at position 4569525-4569537)[a], *Bsm* BI restriction site underlined | this work |
| 4 | oMSMEG_4486-B rev | CT<u>GGTACC</u>CACCTGCACCGCGCCGACAT<br>(reverse primer situated at position 4571019-4571038)[a], *Kpn* I restriction site underlined | this work |
| 5 | oMSMEG_4486-4487B_fw | GAT<u>CGTCTC</u>GACCAATCAGGTGAGGAAC<br>(forward primer situated at position 4569952-4569965)[a], *Bsm* BI restriction site underlined | this work |
| 6 | oMSMEG_4487B_rev | CAT<u>GGTACC</u>GGCACAAGATGGGTGAGGCGGTGCTCATC<br>(reverse primer situated at position 4571423-4571451)[a], *Kpn* I restriction site underlined | Eckelt et al., 2014 |
| 7 | oMSMEG_4486-4487-Del_fw | CGTAGATCTCGCCGGATTGG<br>(forward primer situated at position 4568989-4569008)[a] | this work |
| 8 | oMSMEG_4487-Del_rev | GTGAGGTCGTCGAGGAGTTG<br>(reverse primer situated at position 4570202-4570221)[a] | this work |
| 9 | oRTMSMEG-furB fw | CACCGGTGAGTCGGTGTA<br>(forward primer situated at position 4569735-4569752)[a] | this work |
| 10 | oRTMSMEG-furB rev | CTCGATCGTGTGGCTGAC<br>(reverse primer situated at position 4569880-4569897)[a] | this work |
| 11 | oRTmsmeg4486 fw | ATCGCGATCGTTTTGCAG<br>(forward primer situated at position 4569317-4569334)[a] | this work |
| 12 | oRTmsmeg4486 rev | GAGCCGGTAGAGCACCTC<br>(reverse primer situated at position 4569461-4569478)[a] | this work |
| 13 | oMS4487-K1 | GATC<u>TCTAGA</u>GTAGCGAGTTACCGGGGTGAAAC<br>(forward primer situated at position 4569076-4569098)[a], *Xba* I restriction site underlined | this work |
| 14 | oMS4487-K2 | GATC<u>AAGCTT</u>ATCATCACGTCTGGTTCCCGGCGGGCCG<br>(reverse primer situated at position 4569928-44569951)[a], *Hind* III restriction site underlined | this work |
| 15 | oMS4487-K5 | GATC<u>AAGCTT</u>ATCATCACCTGCGGTCCTCGCTGGCGTG<br>(reverse primer situated at position 4569521-4569544)[a], *Hind* III restriction site underlined | this work |
| 16 | oSmtB-FlagOL_fw | **AGACGATGACGACAA**GTGATGAT<u>AAGCTT</u>ATCGATGTCGACGTA<br>(forward primer situated at position 4569172-4569208)[a], bases of FLAG-tag bold, bases of pMV plasmid underlined | this work |
| 17 | oSmtB-FlagOL_rev | **CATCGTCTTTGTAGTC**CCTGCGGTCCTCGCTGGCGTGCGCGATC<br>(reverse primer situated at position 4569514-4569541)[a], bases of FLAG-tag bold | this work |
| 18 | oFurB-CFlag-HA_fw | GATC<u>CAGCTG</u>GTAGCGAGTTACCGGGGTGAAACCCG<br>(forward primer situated at position 4569076-4569101)[a], *Pvu* II restriction site underlined | this work |
| 19 | oFurB-CHA_rev | GATC<u>AAGCTT</u>TCA**AGCGTAATCTGGAACATCGTATGGGTA**CGTCTGGTTCCCGGCGGGCC<br>(reverse primer situated at position 4569929-4569948)[a], *Hind* III restriction site underlined, bases of HA-tag bold | this work |
| 20 | oRTmsmeg_0755fw | GGCGCCTATATGGAGGTC<br>(forward primer situated at position 841645-841662)[a] | this work |
| 21 | oRTmsmeg_0755rev | GTGACGATTCGGACAGGAT<br>(reverse primer situated at position 841476-841494)[a] | this work |
| 22 | oRTmsmeg_6069fw | AGTACGCATCGTCGAGTTCA<br>(forward primer situated at position 6134480-6134499)[a] | this work |
| 23 | oRTmsmeg_6069rev | GCTGATTCGATCCACATGAC<br>(reverse primer situated at position 6134610-6134629)[a] | this work |
| 24 | oRT_MSMEG_3084fw | GTGCCAAGAAGGTCATCATC<br>(forward primer situated at position 3157638-3157657)[a] | Eckelt et al., 2014 |
| 25 | oRT_MSMEG_3084rev | ACTCGTCATTGAGCACCTTG<br>(reverse primer situated at position 3157780-3157799)[a] | Eckelt et al., 2014 |
| 26 | oJEM-MSSmtB1_fw | GATC<u>AGTACT</u>TCTCGGCGTACGCCTCCT<br>(forward primer situated at position 4568740-4568757)[a], *Sca* I restriction site underlined | this work |
| 27 | oJEM-MSSmtB1_rev | CAT<u>GGATCC</u>TGTTCGGTCAAATTGGAAA<br>(reverse primer situated at position 4569192-4569210)[a], *BamH* I restriction site underlined | this work |
| 28 | oJEM-MS0755-1_fw | GATC<u>AGTACT</u>TGGGTTGCGGAAGTGCGG<br>(forward primer situated at position 842250-842233)[a], *Sca* I restriction site underlined | this work |
| 29 | oJEM-MS0755-1_rev | CAT<u>GGATCC</u>GTGGCCCGCGCCCATTCCC<br>(reverse primer situated at position 842101-842115)[a], *BamH* I restriction site underlined | this work |
| 30 | oCHIP-MSsmtB_fw | GGTGCAACAGAGTAGCGAGT<br>(forward primer situated at position 4569065-4569084)[a] | this work |
| 31 | oCHIP-MSsmtB_rev | GTGTTCGGTCAAATTGGAAA<br>(reverse primer situated at position 4569192-4569211)[a] | this work |
| 32 | oCHIP-MSZitA_fw | GTGTGGTGACTGTGATCGTG<br>(forward primer situated at position 842084-842103)[a] | this work |
| 33 | oCHIP-MSZitA_rev | GTGGTTGTCGTGCGTCAT<br>(reverse primer situated at position 842208-842225)[a] | this work |
| 34 | oCHIP-MSzur_fw | CACCATCACCACCACCTG<br>(forward primer situated at position 4569769-4569786)[a] | this work |
| 35 | oCHIP-MSzur_rev | CTCGATCGTGTGGCTGAC<br>(reverse primer situated at position 4569880-4569867)[a] | this work |
| 36 | oCHIP-MSZitAint_fw | GTGGTGACGGTGACGATG<br>(forward primer situated at position 841586-841603)[a] | this work |
| 37 | oCHIP-MSZitAint_rev | GGCGCCTATATGGAGGTC<br>(reverse primer situated at position 841645-841662)[a] | this work |
| 38 | oRTmsmeg0750_fw | CTCGTCGTCTTCATCGAGTC<br>(forward primer situated at position 838645-838664)[a] | this work |
| 39 | oRTmsmeg0750_rev | CCGATGATGTAACCCACCT<br>(reverse primer situated at position 838471-838489)[a] | this work |
| 40 | oRTmsmeg4488 fw | ACGCCATCTCCTCGATCT<br>(forward primer situated at position 4570051-4570068)[a] | this work |
| 41 | oRTmsmeg4488 rev | TGCACCGTGAGGTCGT<br>(reverse primer situated at position 4570212-4570227)[a] | this work |

[a] The position numbers given related to GenBank accession no. NC_008596

Eckelt E, Jarek M, Fromke C, Meens J, Goethe R. 2014. Identification of a lineage specific zinc responsive genomic island in Mycobacterium avium ssp. paratuberculosis. BMC Genomics 15:1076.