

**Figure S1. Alignment of MMP1081, MMP1082 and MMP1083 with WbuX, WbuY and WbuZ, respectively.**

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WbuX      MENKNYQICNHCIMDTSDPHITFDDSGVCNYCANYKNNILPTWRKGLFSDVSLSEMASKI 60
MMP1081   MVQK---ICKRCIMDMTDPNIVFDENGYCNHCYNALEQNSKIKVNMAEKNKELKKIVNLI 57
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WbuX      KADAKNSDFDCIIGLSGGLDSSYAAYIAKEKMGLRPLLPHVDAGWNTDQAVGNIEKLI 120
MMP1081   KKNGKKNRYDCIIGVSGGVDSYVAYLVK-KLGLKPLAVHLDNGWNSLAIMNIENTLKK 116
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WbuX      LGLELYTEVVNWEEMKDLQLSFLKSGIPDQDLVQDASFFSSLYKFARQHRIKHVITGSNF 180
MMP1081   LDIDLTRVNLNWEFVKDLQLSFLKASVPDLEIPTDHAIATLYEVAHKFGIKYIISGHN 176
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WbuX      STECCREPEEWGGYLGIDTLLFNDIHTKFGKPLKTFPLVDILVYKIYYQKILGMKVHHP 240
MMP1081   ITESIGVPMWSNGHY--DWKYISGLQKFKGNIKLLDYPKMTPLN-IFYYQFIKDIKMIRI 233
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WbuX      LNLVFPNKKDAENELNKKFGWQPFQHKHHSRFRFRFYEDYWLPRRFGYKRRRAHFSSLI 300
MMP1081   LNYADYDKKRVVELIEKEFSWKDYPTKHGESIYTHFIQSYILPEKFGYDKRKCHLSNLI 293
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WbuX      TGQMSREQALERISKPEMDEHFLKQEFYVAHKLGISVENLQELFFMPKTKYKDYKNKRW 360
MMP1081   SEQITRAEALGQFKKPLFTPQELEELINYSCKLEISRKEFESLMKLPNKSYYDYPS--Y 351
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WbuX      LIGLGANVLRALGLEKRYFR 380
MMP1081   ENSKFYKFLRETYKKIRV- 370
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WbuY      MITIIDYGIGNIQAFNLVYKRLGINAGVARSVDDIFSAATHLIPPGVGAFDQAMTLFNNSG 60
MMP1082   MIAIIDYGMGNVGSIKNMIKIGFDAIITNDPELISKATKLILPGVGSFDSGMTNLKELG 60
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WbuY      LRDSIEKRVYEEKIPIIGICVGMQMLATSSEEGSMPGLGWIPGTVRAFSSNISSQNLMP 120
MMP1082   LIDILNKKVVQEKTPLLGICLGMHLLTNSSEEGRLKGLGFINAKTVKFK---LSNKFKIP 117
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WbuY      HMGWNNLIKRTSTPLLKDFAVEPS-FYFLHSYYYECDDTGDVLATANYGHNFHCIISRNN 179
MMP1082   HMGWN-YVKFSIKNKLSDNLIENSRFYFVHSYYVICEDKKNILMTTEYENEFTSAVSKDN 176
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WbuY      IYGIQCHPEKSHSSGSQLLKNFAEI- 204
MMP1082   IYGVQFHPEKSHKFGMKLMENFIKQA 202
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wbuZ MLRPRIIPCLLIHDSGLVKTVPNFKSPKYVGDPINAVKIFNEKEADELMVLDIDATSRGLE 60  
MMP1083 MYRNRIIPCLLLKDERLVKTVKFKDPNYIGDPLNAVRIFNDKEADELFFIDISASKR-ES 59  
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wbuZ PNYDLIKKLAAECRMPLCYGGVTSVAQATKIISLGVEKVSISAAVENPNLVRELA EAV 120  
MMP1083 INFDLLKKISSQSFMPPLGYAGGIKCLNDAKKIFSIGFEKISLNTIVLKNPDLITEISKIY 119  
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wbuZ GKQSVVVLDIIKRKGLFSKGYELSTRNNTRKHKIDPVSAKEMADLGAGEIVINFDND 180  
MMP1083 GSQSVLVTIDVKKN--FFGK-YYVYNHLKKKITKYNPVDFAKMEVLGAGELVINCVDND 176  
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wbuZ GVMGGYDVAYCSTIKSQINIPVTFLLGAGSYDHLALIDQCGIVGAAAGSLFVFKGKYRA 240  
MMP1083 GVMKGYNLKLIQEISKAVKIPIVALGGAGSLKDLDLDAIN-VGASAAGAGSLFIYYGPHKA 235  
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wbuZ VLISYPTPEQKDIICNGVMSNRL 263  
MMP1083 VLINYPRGD----- 244  
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Table S1. Primers used in this study.

Primer name	Sequence <sup>a</sup> (5'–3')	Restriction site
1081upstream.rt.for	CATGACTAATCATGACTTCCCAAATGTC	
1081upstream.rt.rev	GTATGCTACATAAGTACTGTCTACG	
MMP1081_For_RT	ACTAGAGCGGAAGCATTAGGACAG	
MMP1082_Rev_RT	CCTGAATCGAAAGATCCCCTCCCGG	
MMP1082_For_RT	TATACTAATGACTACGGAATACG	
MMP1083_Rev_RT	TAATGCCGCCAGCATAACCCAGAGGCATG	
MMP1084-083.RT.Rev	GTTTTGGGTGCTGGAGAACTCG	
MMP1084-083.RT.For	AATTTGGCGAATACTACGAAGC	
MMP1081_For_Up	<u>CGGGATCC</u> AGATACGGAGATATTGAAG	<i>Bam</i> HI
MMP1081_Rev_Up	AT <u>GGCGCGCC</u> GTTCAGTCATGTCCATAATGC	<i>Asc</i> I
MMP1081_For_Down	AT <u>GGCGCGCC</u> AGCGGAAGCATTAGGACAG	<i>Asc</i> I
MMP1081_Rev_Down	<u>CGGGATCC</u> GAACTCCATAGATGTTATCC	<i>Bam</i> HI
MMP1082_For_Up	ATC <u>GGGATCC</u> TGGCGTAGACAGTACTTATGTAGC	<i>Bam</i> HI
MMP1082_Rev_Up	ATC <u>GGCGCGCC</u> CCATTCCATAATCAATTATTGC	<i>Asc</i> I
MMP1082_For_Down	ATC <u>GGCGCGC</u> CTATGGAGTTCAATTCATCCTG	<i>Asc</i> I
MMP1082_Rev_Down	ATC <u>GGGATCC</u> GGAGCAATATTAATCTCCTCTCGG	<i>Bam</i> HI
MMP1083_For_Up	ATC <u>GGGATCC</u> CTAGAGCGGAAGCATTAGGACAG	<i>Bam</i> HI
MMP1083_Rev_Up	ATC <u>GGCGCGCC</u> GGATCACCTATATAATTTGGATC	<i>Asc</i> I
MMP1083_For_Down	ATC <u>GGCGCGC</u> CATCCGAGAGGAGATTAATATTGCTCC	<i>Asc</i> I
MMP1083_Rev_Down	ATC <u>GGGATCC</u> TGGTTATGCTGGCGATGCAGTGG	<i>Bam</i> HI
MMP1081_For_Seq	GATGCAGTATGCCATTTGAG	
MMP1081_Rev_Seq	TCATTGGTTATAATAGCGTC	
MMP1082_For_Seq	CTAGAGCGGAAGCATTAGGACAG	

MMP1082_Rev_Seq	TATCATTGAATATCCTGACTGC	
MMP1083_For_Seq	TCGAAGGATAACATCTATGGAG	
MMP1083_Rev_Seq	TGGATTTATGGATAAACACATTG	
MMP1081_For_Comp	CCAATGCATGGTTCAAAAAATATGTAAAAGATGCATTA TGG	<i>NsiI</i>
MMP1081_Rev_Comp	GCTCTAGATTAGTGATGGTGGTGATGATGGTAAACCCT TATTTTTTTTATATGTTTCTC	<i>XbaI</i>
MMP1082_For_Comp	GGATGCATGATAGCAATAATTGATTATGG	<i>NsiI</i>
MMP1082_Rev_Comp	AAACGCGTCTATGCCTGTTTTATAAAATTCTCC	<i>MluI</i>
MMP1083_For_Comp	GGATGCATGTATAGGAATAGAATAATACC	<i>NsiI</i>
MMP1083_Rev_Comp	GGACGCGTTTAATCTCCTCTCGGATAGTTTA	<i>MluI</i>
MMP1082_For_SDM	GGCATTGTTTAGGAATGCACTTATTAACCAATTTCG	
MMP1082_Rev_SDM	CGAATTGGTTAATAAGTGCATTCCTAAACAAATGCC	

<sup>a</sup> The restriction sites indicated are underlined.