

Additional file 2: Alignment of 14 *pmmSP1* alleles aligned to *pmmSP1* reference gene (Accession no. FJ824669)

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          10      20      30      40      50      60
PMMSP1 (FJ824669)  AAAAAATGAGAAAAAACTGGAGGAAGAAAAAATCAAGGCGGCAGCACAAAATGTAAGCGG
A64_PMMSP1      .....
B86_PMMSP1      .....
C183_PMMSP1     .....
D216_PMMSP1     .....
E267_PMMSP1     .....
F297_PMMSP1     .....
G359_PMMSP1     .....
H405_PMMSP1     .....
I406_PMMSP1     .....
J534_PMMSP1     .....
K612_PMMSP1     .....
L631_PMMSP1     .....
M639_PMMSP1     .....
N645_PMMSP1     .....

          70      80      90      100     110     120
PMMSP1 (FJ824669)  CCATGTTTCCGGAGCAGATGAAACATCAAACAGTCATGGATCATCTGGAGGAGGAGGATC
A64_PMMSP1      .....
B86_PMMSP1      .....C.....C.....C.AC...A.
C183_PMMSP1     .....
D216_PMMSP1     .....
E267_PMMSP1     .....
F297_PMMSP1     .....
G359_PMMSP1     .....
H405_PMMSP1     .....C.....TC.....C.AC...A.
I406_PMMSP1     .....C.....C.....C.AC...A.
J534_PMMSP1     .....C.....TC.....C.AC...A.
K612_PMMSP1     .....C.....TC.....C.AC...A.
L631_PMMSP1     .....
M639_PMMSP1     .....
N645_PMMSP1     .....C.....TC.....C.AC...A.

          130     140     150     160     170     180
PMMSP1 (FJ824669)  AACACAAACAGTAACGACAACACCATCAACTACAACAACAGCAACTACATCATCACAAAC
A64_PMMSP1      .....
B86_PMMSP1      ...GG.CA..C-----GG...GGACA.G..GG.GC...
C183_PMMSP1     ...G.....A.....
D216_PMMSP1     .....
E267_PMMSP1     ...G.....
F297_PMMSP1     .....
G359_PMMSP1     .....
H405_PMMSP1     ...GG.CA..CTGGAG...GG.A...GG...GGACA.G..GG...G.
I406_PMMSP1     ...GG.CA..CTGGAG...GG.A...GG...TGG-
J534_PMMSP1     ...GG.CA..CTGGAG...GG.A...GG...GGACA.G..GG...G.
K612_PMMSP1     ...GG.CA..CTGGAG...GG.A...GG...GGACA.G..GG...G.
L631_PMMSP1     .....
M639_PMMSP1     ...G.....G.A.....
N645_PMMSP1     ...GG.CA..CTGGAG...GG.A...GG...GGACA.G..GG...G.

          190     200     210     220     230     240
PMMSP1 (FJ824669)  AGTATCAGTAGGAGAAACAGGATCAGCACAAAGCA-CAAGCACAAC--CACAAACCACAACC
A64_PMMSP1      .....G-----
B86_PMMSP1      G.G.A..AC...C..G...CA...TGG...A..GAACA.G.AAG...G.TGG.G.
C183_PMMSP1     .....
D216_PMMSP1     .....G-----G.....
E267_PMMSP1     .....G-----
F297_PMMSP1     .....G-----
G359_PMMSP1     .....
H405_PMMSP1     T.G.G..ACG...AC.....CA...GG...A.GG.A...AGG...G..GG.G.
I406_PMMSP1     .....
J534_PMMSP1     T.G.G..ACG...AC.....CA...GG...A.GG.A...AGG...G..GG.G.
K612_PMMSP1     T.G.G..ACG...AC.....CA...GG...A.GG.A...AGG...G..GG.G.
L631_PMMSP1     .G...C.CA..C.CA..C.CAG.T...T...G-GT...T...G.
M639_PMMSP1     GA...C.CA..C.CA..C.CAG.T...T...G-GT...T...G.
N645_PMMSP1     T.G.G..ACG...AC.....CA...GG-----

          250     260     270     280     290     300
PMMSP1 (FJ824669)  A-CAACCACAACC--ACAAAC--ACAAACACAAACACAAACCAACCACAAGCAGCAGG

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D216_PMMSP1      .....
E267_PMMSP1      .....
F297_PMMSP1      .....
G359_PMMSP1      .....
H405_PMMSP1      .CTAAA.CA.A.-T..A.-----..ATT.G..TCGTT.ATC.GA..TT.TC...ATT.C.
I406_PMMSP1      ..TA.A..A.A.-T.....-..ATT.G..TCGTT.TTC.GA..TT.TC...ATT.C.
J534_PMMSP1      ..AA.G...A.AA.....-..T.G.G.A...A.....A.....A...
K612_PMMSP1      ..AA.G...A.AA.....-..T.G.G.A...A.....A.....A...
L631_PMMSP1      ..AA.....-..T.G.G.A..A.A.CA.G..-A.....T...
M639_PMMSP1      ..AA.....-..T.G.G.A..A.A.CA.G..-A.....T...
N645_PMMSP1      ..TA.A..A.A.-T.....-..ATT.G..TTCGTT.TTC.GA..TT.TC...ATT.C.

                    550      560      570      580      590      600
PMMSP1 (FJ824669)  GCTGCAGGACCCACAAACAGAGACAGAAGTAGAAGAAACT
A64_PMMSP1        .....
B86_PMMSP1        ..AA.G...A..AC.GG.C.AG.T.G..C.AC..G...AA
C183_PMMSP1        .....
D216_PMMSP1        .....
E267_PMMSP1        .....
F297_PMMSP1        .....
G359_PMMSP1        .....
H405_PMMSP1        ATAT.TT..A..GCT.T.TGACTTTTT
I406_PMMSP1        ATAT.TT..AA.GCT.T.TGACTTTTT
J534_PMMSP1        ..AA.G...A..-C.GG.C.AG...G..C.ACG.G...A
K612_PMMSP1        ..AA.G...A..AC.GG.C.AG...G..C.ACG.G...AACAGGACAAGCTGGAAGCAAC
L631_PMMSP1        ..AA.G...A..AC.GG.C.AG...G..C.ACG.G...AA
M639_PMMSP1        ..AA.G...A..AC.GG.C.AG...G..C.ACG.G...AA
N645_PMMSP1        ATAT.TT..AA.GCT.T.TGACTTTTT

                    610      620      630      640      650      660
PMMSP1 (FJ824669)  -----CAGGA--AATTGGAATCGTTGTTCCGACATTGTCCAAATTGCAATATCTTGA
A64_PMMSP1        .....
B86_PMMSP1        .....CA.GC...GCAACA.GAA.A...GA...GC..G.GC.A.AG..
C183_PMMSP1        .....
D216_PMMSP1        .....
E267_PMMSP1        .....
F297_PMMSP1        .....
G359_PMMSP1        .....
H405_PMMSP1        .....
I406_PMMSP1        .....
J534_PMMSP1        .....CA.GC...GCA-CA.GAA.A...GA...GC..G.GC..AG..
K612_PMMSP1        GGGAAACA...CA.GCA...GCAACG.GAA.A...GA...GC..G.GC.A.AG..
L631_PMMSP1        .....CA.GC...GCAACG.AAA.A...GA...GC..G.GC.A.AG..
M639_PMMSP1        .....CA.GC...GCAACA.GAA.A...GA...GC..G.GC.A.AG..
N645_PMMSP1        .....

                    670      680      690      700      710      720
PMMSP1 (FJ824669)  AAAGCTATATGACTTTTT
A64_PMMSP1        .....
B86_PMMSP1        ..C.A.AGG.CA.GC.GGAGCAACAGGAACAACAGGACAA
C183_PMMSP1        .....GAAAAC TGCTTATGTGTGCATATCAACATTTTGGT
D216_PMMSP1        .....
E267_PMMSP1        .....
F297_PMMSP1        .....
G359_PMMSP1        .....
H405_PMMSP1        .....
I406_PMMSP1        .....
J534_PMMSP1        ..C.A.AGG.CA.GC.GGAG-AACAGGAACAACAGGACAG-C
K612_PMMSP1        ..C.A.AGG.CA.GC.GGAGCAACAGGAACAACAGGACAAAGCTGGAAGCAACAGGAACAAC
L631_PMMSP1        ..C.A.AGG.CA.GC.GGAGCAACAGGAACAACAGGACAA
M639_PMMSP1        ..C.A.AGG.CA.GC.GGAGCAACAGGAACAACAGGACAA
N645_PMMSP1        .....

                    730      740      750      760      770      780
PMMSP1 (FJ824669)  -----GCAGGACAAGCAGGA-GCAACAGAACCCAAACAGAGACCGAAGTAGAAGAAA
A64_PMMSP1        .....
B86_PMMSP1        -----AAATAACTCAACCATGAATGAAACGTTACTACAACAAATATAAACTGAAGATAGAAGAAG
C183_PMMSP1        .....
D216_PMMSP1        .....
E267_PMMSP1        .....
F297_PMMSP1        .....

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 (Accession no. FJ824669)

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G359_PMSP1 -----
H405_PMSP1 -----
I406_PMSP1 -----
J534_PMSP1 AGGACA-GCAGGACA-GCAGGA-GCAACAGAACCAAA-CAGAGACG-AAGTAGAAGAA-
K612_PMSP1 AGGACAAGCAGGACAAGCAGGA-GCAACAGAACCAAGCAGAGACGGAAAGTAGAAGAAA
L631_PMSP1 -----GCAGGACAAGCAGGAAGCAACAGAACCAAAACAGAGACCGAAGTAGAAGAAA
M639_PMSP1 -----GCAGGACAAGCAGGA-GCAACAGAACCAAGCAGAGACGGAAAGTAGAAGAAA
N645_PMSP1 -----

          790      800      810      820      830      840
.....|.....|.....|.....|.....|.....|.....|.....|.....|.....|
PMSP1 (FJ824669)
A64_PMSP1 -----
B86_PMSP1   CTCAGGAAATTGGAATCGTTGTTCCGACATTGTCCAAATTGCAATATCTTGAAAAGCTAT
C183_PMSP1  ATAAGAAATTTATTAGAGAATGCGCC-----
D216_PMSP1 -----
E267_PMSP1 -----
F297_PMSP1 -----
G359_PMSP1 -----
H405_PMSP1 -----
I406_PMSP1 -----
J534_PMSP1  CTCAGGAAATT--GGATCGTTGTTT-C-GAC-TTGTCCAA-TTGCA-TATCTTGAAA-GCTAT
K612_PMSP1  CTCAGGAAATTGGAATCGTTGTTCCGACATTGTCCAAATTGCAATATCTTGAAAAGCTAT
L631_PMSP1  CTCAGGAAATTGGAATCGTTGTTCCGACATTGTCCAAATTGCAATATCTTGAAAAGCTAT
M639_PMSP1  CTCACGAAATTGGAATCGTTGTTCCGACATTGTCCAAATTGCAGTATCTTGAAAAGCTAT
N645_PMSP1  -----

          850
.....|.....|.....|.....|.....|.....|.....|.....|.....|.....|
PMSP1 (FJ824669)
A64_PMSP1 -----
B86_PMSP1   ATGACTTTTT-
C183_PMSP1 -----
D216_PMSP1 -----
E267_PMSP1 -----
F297_PMSP1 -----
G359_PMSP1 -----
H405_PMSP1 -----
I406_PMSP1 -----
J534_PMSP1  ATGACTTTTT--
K612_PMSP1  ATGACTTTTT-
L631_PMSP1  ATGACTTTTTT
M639_PMSP1  GTGACTTTTT-
N645_PMSP1  -----
    
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