```
                  10        20        30        40        50        60        70        80        90       100
          ....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|
Lmip_F    GGCAATGTCAACGACAATTGC
L. feeleii sg. 1  GGCAATGTCAACGACAATTGCTGCGGCTGATGCGACAGCTACAACATCATTAAATAGTGACATGGATAAGTTGTCTTATAGCATTGGCGCTGATTTAGGT
L. feeleii sg. 2  GGCAATGTCAACGACAATTGCTGCGGCTGATGCGACAGCTACAACATCATTAAATAGTGACATGGATAAGTTGTCTTATAGCATTGGCGCTGATTTAGGT
L. tunisiensis    GGCAATGTCAACGACAATTGCTGCAGCTGATGCGGCAACTACAACATCATTAAATAGTGACATGGATAAGTTGTCTTATAGCATTGGCGCTGATTTAGGT
Lmip_R    ....................................................................................................

                 110       120       130       140       150       160       170       180       190       200
          ....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|
Lmip_F
L. feeleii sg. 1  AAGAATTTTAAAAAGCAAGGCATCGAAATCAGTCCGGCTGCTATGGCTAAGGGATTACAAGACGGCATGAGTGGTGGTCAACTGTTGCTGACTGAACAAC
L. feeleii sg. 2  AAGAATTTTAAAAAGCAAGGCATCGAAATCAGTCCGGCTGCTATGGCTAAGGGATTACAAGACGGCATGAGTGGTGGTCAACTGTTGCTGACTGAACAAC
L. tunisiensis    AAGAATTTTAAGAAGCAAGGTATCGACATCAGTCCTGCTGCTATGGCTAAGGGATTACAAGACGGCATGAGTGGTGGTCAACTGTTGCTGACTGAACAAC
Lmip_R    ....................................................................................................

                 210       220       230       240       250       260       270       280       290       300
          ....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|
Lmip_F
L. feeleii sg. 1  AAATGAAAGACGTTTTAAATAAATTTCAAAAAGACCTAATGGCAAAACGAAATGCGGAATTCACTAAAAAAGCTGAAGAAAATAAAGCGAAAGGTGAAGC
L. feeleii sg. 2  AAATGAAAGACGTTTTAAATAAATTTCAAAAAGACCTAATGGCAAAACGAAATGCTGAATTCACTAAAAAAGCTGAAGAAAATAAAGCGAAAGGTGAAGC
L. tunisiensis    AAATGAAAGATGTTTTAAATAAGTTTCAAAAAGACCTAATGGCAAAGCGAAATGCTGAATTCACCAAAAAAGCTGAAGAGAACAAAGCTAAAGGTGAAGC
Lmip_R    ....................................................................................................

                 310       320       330       340       350       360       370       380       390       400
          ....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|
Lmip_F
L. feeleii sg. 1  GTTCATGAGCCAGAATAAGGCCAAAGAAGGCGTAGTTAGTTTGCCAAGCGGGTTACAATATAAAATAATCCAGGCTGGTACTGGTGCAAAACCAGCAAAA
L. feeleii sg. 2  GTTCATGAGCCAGAATAAGGCCAAAGAAGGCGTAGTTAGTTTGCCAAGCGGGTTACAATATAAAATAATCCAGGCTGGTACTGGTGCAAAACCAGCAAAA
L. tunisiensis    ATTCATGAGCCAAAACAAGGCTAAAGAAGGTGTAGTCAGTTTGCCAAGTGGATTGCAATACAAAGTAATCCAAACGGGTAGTGGTGCAAAGCCCGCGAAA
Lmip_R    ....................................................................................................

                 410       420       430       440
          ....|....|....|....|....|....|....|....|....|..
Lmip_F
L. feeleii sg. 1  GATGACACTGTCACTGTTGAATACACTGGCAAGTTAATTGATGGCCA
L. feeleii sg. 2  GATGACACTGTTACTGTTGAATACACTGGCAAGTTAATTGATGGCCA
L. tunisiensis    GATGACACTGTCACTGTTGAATACACTGGTAAGTTAATTGATGGCCA
Lmip_R    ........................ACTGGCAAGTTAATTGATGGCCA
```

**Supplementary Figure 3** Alignment of DNA sequences of *mip* gene of *L. feeleii* and *L. tunisiensis (*Bioedit 7.2). sg., serogroup. GenBank accession number: *L. feeleii* sg. 1 (U92205), *L. feeleii* sg. 2 (AF022341), *L. tunisiensis* (JN191172).