Supplemental Figure 5. Multiple sequence alignments of *At*MDL1-, *At*MDL2- and *At*MDL3-like proteins.

Angiosperm MIF proteins with similarity to *AtMDL*1

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S._lycopersicum_XP004242799     1 MPTLNLFTNLPVDAVIASDILKDATKAVAKIIGKPESYVMILLNGGVPIAFAGTEAPAAY
A._thaliana_AtMDL1              1 MPTLNLFTNIPVDAVTCSDILKDATKAVAKIIGKPESYVMILLNSGVPIAFAGTEEPAAY
G._max_NP001238163              1 MPTLDLFTNVPVDTVVASDILRDATKAVAKIIGKPESYVMILLNGGVPIAFAGTEEPAAY
L._japonicus_AFK37854           1 MPTLNLFTNIPVDAVVASDILRDATKAVAKIIGKPESYVMILLNGGVPIAFGGTEEPAAY
V._vinifera_XP002264373         1 MPTLNLFTNVPVDAVVASDILKDCTKAVAKIIGKPESYVMILLNGGVPIEFAGTEEPAAY
P._persica_XP007225890          1 MPTLNLFTNLPVDAVVASDILKDATKAVSKIIGKPESYVMILLNGSVPMAFAGTEEPAAY
B._distachyon_XP003577817       1 MPQLSISTNVPVDAIVAADILKDCSRALAKIIGKPESYVMVSINGCVPTSFAGSEEPAAY
H._vulgare_BAJ88384             1 MPQLSLSTNVPVDAVVAADILRDCSRALARIIGKPESYVTVSIDGSVPTSFAGSEEPAAY
O._sativa_NP001058472           1 MPQLSLTTNVPVDAVVAADIIKDCSKALARIIGKPESYVMVSISGSVPMSFAASEEPAAY
S._bicolor_XP002438947          1 MPTLNLRTNVPVDAVVAADILKDCSKAVARIIGKPESYVMVSINGSVPMSFAGSEEPAAY
Z._mays_NP001150913             1 MPTLNLSTNVPVDAVVAADILRDCSKAVARIIGKPESYVMVSVNGSVPMSFAASEEPAAY
consensus                       1 **.*...**.***.....**..*...*...********..... **. *...*.****

S._lycopersicum_XP004242799    61 GELISIGGLGPSVNGKLSSTIAEILQTKLSIDSDRFYIKFYDSPRPFFGFNGSTF
A._thaliana_AtMDL1             61 GELISIGGLGPGVNGKLSETISEILQIKLSIDSSRFYIKFYDSPRPFFGYNGSTF
G._max_NP001238163             61 GELISIGGLGPSVNGKLSSTIAEILETKLYIDSSRFYIKFYDVQRSFFGFNGSTF
L._japonicus_AFK37854          61 GELISIGGLGPSVNGKLSSTIAEILQTKLYIDGSRFYIKFYDVQRSFFGFNGSTF
V._vinifera_XP002264373        61 GELISIGGLGPSVNGKLSSTIAEIIQTKLSIDSARFYVKFYDVERSFFGFNGSTF
P._persica_XP007225890         61 GELISIGGIGPSVNGKLSSTIAEILETKLSIDSSRFYIKFYDVERPFFGFNGSTF
B._distachyon_XP003577817      61 GEIMSIGGLGPGVNGKLSAALAEILETKLSISRSRFYVKFDDVQGYNLGFNGSTF
H._vulgare_BAJ88384            61 GEIMSIGGLGPGVNGKLSAALADILEAKLSISPSRFYVKFDDVQGYNVGFNGTTF
O._sativa_NP001058472          61 GELMSIGGIGPGVNGKLSAALAEILETKLSVSRSRFYVKFDDVKGFNLGFNGSTF
S._bicolor_XP002438947         61 GELVSIGGIGPGVNGKLSAAVAEVLETKLSVSRSRFYIKFDDVQRSNFGFNGSTF
Z._mays_NP001150913            61 GELVSIGGIGPGVNGKLSAAVAEVLEAKLSVSRSRFYIKFDDVRGHNFGFNGSTF
consensus                      61 **..****.**.****** ........**... .***.**.*. . ..*.**.**
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Angiosperm MIF proteins with similarity to *AtMDL2*

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S._lycopersicum_XP004249062     1 MPCLNISTNVNLEGVDTSSVLSEATSTVAKLIGKPEAYVMIVLKGSVPMAFGGTEQPAAY
A._thaliana_AtMDL2              1 MPCLNLSTNVNLDGVDTSSILSEASSTVAKIIGKPENYVMIVLKGSVPMSFGGTEDPAAY
G._max_NP001236304              1 MPCLNLSTNVSLEGVDTSSILAEATSSVASIIGKPEAYVMIVLKGSVPIAFGGNEQPAAY
V._vinifera_XP002263560         1 MPCLNLSTNVSLDGVDTSSILSEATSTVAKIIGKPEAYVMIVLKGSVPIAFGGTEQPAAY
P._persica_XP007207497          1 MPCLNISANVSLEGVDTSSILSEATSTVAKIISKPEAYVMIVLKGSVPIAFGGTEQPAAY
L._japonicus_AFK37368           1 MPCLNLSTNVNLDGVDTSSILSEATSTVATLIGKPEAYVMIVLKGSVPVSFGGTEQPAAY
G._max_NP001237629              1 MPCLNLSTNVNLDGIDTSSILSEATSTVASIIGKPEAYVMIVLKGSVPISHGGSEQPAAY
H._vulgare_BAJ92045             1 MPCLNVSTNVNLEGVDTSAVLADASSTVATIIGKPEAYVMVVLKGSVPMAFGGTQEPAAY
B._distachyon_XP003579042       1 MPCLNVSTNVNLDGVDTSAVLADASSAVATIIGKPEAYVMVVLKGSVPMAFGGTQEPAAY
O._sativa_ABG22330              1 MPCLNVSTNVNLDGVDTSAVLADASKTVATIIGKPEAYVMVVLKGSVPMAFGGTQEPAAY
S._bicolor_XP002441679          1 MPCLNVSTNVNLEGVDTSVILAEASKSVANIIGKPEAYVMVVLKGSVPMAFGGTQEPAAY
Z._mays_XP008677331             1 MPCLNVSTNVNLEGVDTSAILAEASKSVANIIGKPEAYVMVVLKGSVPMAFGGTQEPAAY
consensus                       1 *****.*.**.*.*.***..* .*...**..*.***.***.*******...**...****

S._lycopersicum_XP004249062    61 GELVSIGGLNADVNKKLSAAIADILETKLSIPKSRFFLKFYDTKGSFFGWNGSTF
A._thaliana_AtMDL2             61 GELVSIGGLNADVNKKLSAAVSAILETKLSVPKSRFFLKFYDTKGSFFGWNGATL
G._max_NP001236304             61 GELVSIGGLNPSVNKELSAAIASILETKLSVPKSRFFLKFYDTKGSNFGWNGSTF
V._vinifera_XP002263560        61 GELVSIGGLNPGTNKELSAAISAILETKLSVPKSRFFLKFYDSKGSNFGWNGSTF
P._persica_XP007207497         61 GELVSIGGLNPDVNKKLSAAIAAILETKLSVPKSRFFLKFYDTKGSNFGWNGSTF
L._japonicus_AFK37368          61 GELVSIGGLNPDVNKKLSAAIASILETKLSVPKSRFFLKFYDTKGSNFGWNGSTF
G._max_NP001237629             61 GELVSIGGLSPDVNKKLSAGIASILENKLSVPKSRFYLKFYDTKGSNFGWNGSTF
H._vulgare_BAJ92045            61 GELVSIGGLNPDVNKKLSAGIASILESKLSISKSRFYLKFHDSKRSDFGWNGTTF
B._distachyon_XP003579042      61 GELVSIGGLSPDVNKKLSAGIAAILESKLSIPKSRFYLKFHDSKRSDFGWNGTTF
O._sativa_ABG22330             61 GELVSIGGLNPDVNKKLSAGIASILESKLSIPKGRFYLKFYDSKRSDFGWNGTTF
S._bicolor_XP002441679         61 GELVSIGGLNPDVNKKLSAGIASILESKLSVPKSRFYLKFYDSKRSDFGWNGSTF
Z._mays_XP008677331            61 GELVSIGGLNPDVNKKLSAGIASILESKLSVPKSRFYLKFYDSKRSDFGWNGSTF
consensus                      61 *********....**.***....***.***..*.**.***.*.*.* *****.*.
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Angiosperm MIF proteins with similarity to *AtMDL3* (harboring a putative C-terminal PTS1 signal)

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S._lycopersicum_XP004249685     1 MPCFNLSTNVNLDGVDTSDFFSEATKAVSSIIGKPENFVMVVLKGSVDISFG-GNKEPAA
V._vinifera_XP002264120         1 MPCVDISTNVNLEGVDADPIFSDVTKAVASIIGKPENYVMVLLKGSVAISFE-GNKEPAA
G._max_ACU19241                 1 MPCLYITTNLNLDGVDTNPVFSEATTAVSTIIGKPEKFVMVILKSSVPISFE-GNKEPAA
L._japonicus_AFK35159           1 MPCLYIHTNINLDGVDTDSIFSEATTAVSTIIGKPEKFVMVLLKGSVPISFE-CNKEPAA
P._persica_XP007207503          1 MPCLYISTNVNLDGFDTDSIFSEATKAISSITGKPEDYVMVLLKGSVPISFGRSTSEPAA
A._thaliana_AtMDL3              1 MPCLYITTNVNFDGVNTDPFYSEVTKAVASIVGRPQNLVMVVLKGSVEIVFG-GNKEAAA
consensus                       1 ***....**.*..*.......*..*.*...*.*.*...***.**.**.*.*  ...*.**

S._lycopersicum_XP004249685    60 FAEIVSMGGINSDVKRKLIATLGGICQNRFSIPRTRFFLKVYDTTMATKFSKL
V._vinifera_XP002264120        60 FAEIISMGGINSEVKRKLIATIGTILQTKLSIPRTRFFLKVYDTTMAHKIAKL
G._max_ACU19241                60 YAEIVSMGGISTEVKRKLIATIGTILQSNLSIPRTRFFLKVFDVSAFRTNSKM
L._japonicus_AFK35159          60 YAEIISMGGINSEVKKKLIYTIGTILQSKLSIPRTRFFLKVFDTTLFRNKSKL
P._persica_XP007207503         61 YGELVAMGGINKPVKRQLIATLGTIMEAKLSIPKTRFFLKVVDISTATG-SKL
A._thaliana_AtMDL3             60 YAEIVSMGGITKQVKRELIATVGSILHTHFSIHPTRFIFKVFDINSLPLPSKL
consensus                      61 ..*...****...**..**.*.*.*.....**..***..**.*.....  .*.
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