

Applied Microbiology and Biotechnology Supplemental Data

Article title: **Positive selection and functional diversification of transcription factor Cmr1 homologs in *Alternaria***

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> *Alternaria alstroemeriae* (NA)

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>*Alternaria alternata* (KJ939356[®])

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>*Alternaria angustioidea* (NA)

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>*Alternaria arborescens* (XM_028649146⁸)

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>*Alternaria arbusti* (NA)

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>*Alternaria atra* (NA)

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>*Alternaria brassicicola* (NA)

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>*Alternaria brassicae* (NA)

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>*Alternaria burnsii* (XM_038925615)

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>*Alternaria capsici* (NA)

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>*Alternaria carthami* (ACM_PT10841^b)

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>*Alternaria citriarbusi* (NA)

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>*Alternaria conjuncta* (NA)

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>*Alternaria consortialis* (NA)

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>*Alternaria crassa* (ACM_PT08031^b)

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>*Alternaria dauci* (ADC_PT01443)

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>*Alternaria destruens* (ADT_PT05662^b)

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>*Alternaria ethzedia* (NA)

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>*Alternaria fragariae* (AFG_PT01606⁵)

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>*Alternaria gansuensis* (NA)

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>*Alternaria gaisen* (AGS_PT02526⁵)

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>*Alternaria hordeiaustralica* (NA)

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>*Alternaria incomplexa* (NA)

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>*Alternaria infectoria* (J4E92_008460^a)

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>*Alternaria limoniasperae* (NA)

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>*Alternaria longipes* (NA)

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>*Alternaria macrospora* (NA)

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>*Alternaria mali* (AML_PT04777^o)

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>*Alternaria metachromatica* (J4E83_001950^o)

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>*Alternaria novae-zelandiae* (J4E88_001357⁹)

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>*Alternaria panax* (G6011_11168^a)

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>*Alternaria porri* (APR_PT04911⁵)

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>*Alternaria postmessia* (NA)

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>*Alternaria rosae* (XM_046164914⁹)

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>*Alternaria solani* (ASL_PT00349^b)

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>*Alternaria taquetica* (ATT_PT04326^b)

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>*Alternaria tangelonis* (NA)

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>*Alternaria tenuissima* (NA)

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>*Alternaria tomatophila* (ATM_PT05196^b)

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>*Alternaria tritici* (NA)

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>*Alternaria triticimaculans* (NA)

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>*Alternaria turkisia* (NA)

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>*Alternaria ventricosa* (NA)

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TCCAGACACCTGCGATGGACGAGTCCTTTTCGACCTGCAAAATGGTAGTTCGGCTTCGATGTTCTACCCCTCCAACAGGCACTCTTCGATAGCAGATGCCGGCATA
CTGATCTTGGTGCCATCATCGCGGCTCAAGATGGCTGGACTGTTTTCCGTTGCACTCCTTCTATTGCTTCAAGCTCGTGTCCACGCACAGCGAGACTCAACCTCGAGC
GGTTAGAGCTGAGCCTCAAGAATCAGGAGGCTGGGCTAATTGGTCCCGCTCGTGGGATGAATCCGACTTTCAACAAGGCGGGCAAAATCGCGGTATCGAAGTTGCAG
GAAGCCACGCGAGACAAACTTCTGCCATACCCAAAGCTTCTCCACAAGGCTTGGACATCCACAAGACGGAAGCAGCTCGTCCAGCAGTGGCGAGTCTCCAGG
ATCCACGGCCTCTCACTCCAACCTCGTTCTTCTCCACCTGCTCGCGCTCGGAGTACTTCTCAAGTCATACGCCAACTCTTTCGAACGCTATTATCCACCTCCGCCA
GAGGTGTGCTCGATACGAATGAACATAATGCAAACTACAACGACAAAGCATCGAGCTTGCTCATTCTCATGATGATTGCGCAGGGCGCCATGACCATCCCATCCATAG
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ACCTCGGTACCGTCACGTGAACGCACTTACTAATATTGGCGCAGCCTCATCTACTCTGGGTCATGGTAGACCAAGACTTATCGCTCTTCCACGATACCGCTCCACTGT
TCTCAGTAACAGAGTTTGGCGCGCGATGCCTGATTGCGATCGACTTTGGCAAGCGCAGACCGCCTCAGAGTGGTCTGAGATGTTCAACCAAGTCCATGAGTTCTCGA
ATGGGTACTCTTCAGTAGGCTCTGGGCGCAGACCACCTAGTCTCAGAGATCTCTCCGTTACTTTCTAGATGACGAAATCGTCGTACAGGATGTACAGGAGATTCTCT
GACACCTATGACACCTGCGTCTGCTCTCCACCCCTGCAGACTCTGGTCTGCCAGTATTGCCAGCTTCTCAGCTGCTTTTCCGATAGCGTCGCTTACGATCGCGGAA
CCGCGCACTGACAGCAGCGTCGACCCGCGTGCCTCAGAGAGGTGCAGGCGTTGCTAGGGCGTTGGTTCGATTGCGCGCAACGGTACATGAAGTCCAACCCAGTG
TGTCCGATGATGCATGCCAACCTGTAATGTCCATCTTATCAGCTTGAACGCTGTGTCCAACCTTTCAGAGATAGAGCGCCTTGC GCGTCGAGAGGGCGTGGACGGC
TCATACCAGCAGATGCTGTGGATGCACAAGAAGTGTCTGTCCGATGTACAGGAGGCCATACCCACGCCGTCAGGTCTTCGACTCATCGTGAGATGCCAAGAGG
TATCCGGCCGCCATGTTGGGCTGGCGCCGTCTACCGTGGCGTTTGGTCTTCTGGACTGATTGCTGGCAGATGGCGAGTCTTGAAGTCCCAACCAAGGATCGT
ATCAGCCATCGAACTCCGCGTCTCTGTGGATCGCCTTCTGCTGACCACCTACCATACTGAGGTATATGTCTCGCAGGGAGGGCATACCCACTCTGACCAAGCGCG
ACGGTACACACGTCCTTGGATAACGGGTTCCCATCTATCGCATTGTATCGACGTCCTTGATGAGGGTGTGCCACCAGGTTCTCCGATGGCATTCTGATAGTAAAC
TCGAGAAACTCGCGGAGGATAA

>*Alternaria viburni* (J4E79_003358⁹)

ATGGTCTTTTGCACATACTGTGGACAGTCGTTACCAGAGACGAGCATCTCGAACGACATATCTTGACTCGTATGTTGACCCCGCGTCTTTGCTCTTTCAATCTTCCTC
GCACCAGCTACCATCCAATCTTTCTCTGGGATATCTGCTAATCACTGTGGATGAGCAGACACCAACGTCAAGCCTTTCAAATGCTTCACATGTCATATGAGCTTTGCTC
GACGGTATGTGGCACCCCTTCCTTGCTCTTTCTCATCTGTGGCATCGACCGTTCGGAACAAAGTACTGACAGCCTCTTCAGAGATCTTTTGCAAAGACACTACACCGTA
CACGGCCGCAACCAAGAACGAAGAGGGACTCCCCCACAAGGCATAATACCAAAGTCCGCCGGCCGCACACCCATCGCCTGCAGTAATTGTGCGAAGACAAAGAC
CAAGTGTGACAAGAAGTTTCCGTGCACCAGGTGCGCTCAGAGGAATCTGAAATGCACATTGCGTCCTACAAGGCGGGCATCGAAAGGTGTCCAGCGGGTTGGCGGTC
CTCCTGAGGCTGGGAGCGGGGACTCGAGCGAGAGTGGTAGCAACCGGGATAACCAACAATACATCCGGCAATGTCTCTCAAACACGATAGCCAACCGAAACAAAGC
GATGTGGAAGTCTCTCTGCTCAGATCAACCAGACTTCCCATATTCGGACAGCCAACACCGTCGCAAAGACAATCGCAGTCGCCCTCGGCCCTCATTACAGAAA
CCCTTCCATCTCAACAACCGGTACAGCCACCGACACACATAAATCCCGAGGAGAAGTCGTTGCATCTTCATATGCCGATCTCCGATACGCCACCCCTTTTTCGACCAGTCC
CCTTCAAACGGACTTGCTCAATCATCGTCGCTTTTCGCCACTCCCCACCCGGTGAACGGCATGAATGGATTGTCACCTCCACACCTATGTCAGGATATGACGACT
TCGTGAGAACGGGTACGGGACCAATCCGATAATGAGAGCCCTCAATTATGATGGACCCCTTGAACGGCATGCCCATGGATACAACCTTTGATCCCATGCGGATAGACC
CCGCGTTGATGATGAGCATGAGTATGGACATGAGCATGGGACCACCTCAGGATGGAATCCTTGGCATGATACCAGAAATGTCGCCTGCTCAAACATTTGGACAGCCTG
TCCAGACACCTGCGATGGACGAGTCCTTTTCGACCTGCAAAATGGTAGTTCGGCTTCGATGTTCTACCCATCCAACAGGCACTCTTCGATAGCAGATGCCGGCATA
CTGATCTTGGTGCCATCATCGCGGCTCAAGATGGCTGGACTGTTTTCCGTTGCACTCCTTCTATTGCTTCAAGCTCGTGTCCACGCACAGCGAGACTCAACCTCGAGC

GGTTAGAGCTGAGCCTCAAGAATCACGAGGGCTGGGCTAACTGGTCCCCATCGTGGGATGAATCCGACTTTCAACAAGGCGGGCAAATCGCGGTATCGAAGTTGCAG
GAAGCCACGCGAGACAACTTCTCGCCATCACCCAAAGCTTCTCCACAAGGCTTTGGACATCCACAAGACGGAAGCAGCTCGTCCAGCAGTGGCGAGTCTCCAGG
ATCCACGGCCTCTCACTCCAACCTTCGTTCTTCTCCACCTGCTCGCGTCTTGAGTACTTTCTCAAGTCATACGCCAACTCTTTGAAACGCTATTATCCACCTCCGCCA
GAGGTGTGCTCGATACGAATGAACTAATGCAAACTACAACGACAAAGCATCGAGCTTGCTCATTCTCATGATGATCGCGCAGGGCGCCATGACCATTCCATCCATAG
AGGCCAGGTGGCTAACTGGTGGCTTACCGAAGCCTGCCGATATCGCTCTTGACCTTATTGAGAAGAATCATCATGGCTGGTATCCTATCGTTCTGCGTGCAG
CCCTCCTCTCACTGTCCAGGCGGCGTGGAGTGGCGACAAATGGCAGATGGACATCGCTATGGGCCAGCGTGGCATGTATTCTCCATGTTGCGACATTCCGGTATTC
TCGATGTGCGACCGCCGGCAACGCCTCATATCAACGAAATATTTGACGAGATGCGTTGGAAGGACTGGCTTCAGCAAGAAAGCCGAGTCGGTAAGTGTGAAA
ACTTCGGTACCGTCACGTGAACGCACTTACTAATATTGGCGCAGCCTCATCTACTCTGGGTCATGGTAGACCAAGACTTATCGCTCTTCCACGATACCGCACCACTGT
TCTCAGTAACAGAGTTTGGCGCGCCGATGCCTGATTGCGATCGACTTTGGCAAGCGCAGACCGCCTCAGAGTGGTCTGAGATGTTCAACCAAGTCCATGAGTCTCGA
ACGGGTACTCTTAGTAGGCTCTGGGGCAGACCACCCAGTCTCAGAGATCTGTTCCGTACTTCTAGATGACGAAATCGTCGTACAGGATGATCAGGAGATTTCATC
TGACACCTATGCACCTGCGTCTGCTCTCACCCCTGACAGACTCTGGTCTGCCAGTATTGCCAGCTTCTCAGTGTCTTTCCGATAGCGTCTTACGATCGCGGA
ATCGCGCACTGACAGCAGCGTCGACCGCGTGCCTCGAGGAGGTGCAGGCGTTGCTAGGGCGTTGGTTCGATTGGCGCAACGGTACATGAAGTCCAACCCAGT
GTGTCCGATGATGACAGGCGAACCTTGTCTATGTTCCATCTTATCAGCTTGAACGCTGTGTCCAACCTTTCCAGAGATAGAGCGCCTTGCAGCTCGAGAGGGTGTGGACGG
CTCATACCAGCAGATGCTGTGGATGCACAAGAAGTGTCTGTCCGATGTGCAGGAGGCCATACCCACGCCGGTCAGGTCTTCGACTCATCCGTGAGATGCCAAGAG
GTATCCGGCCGCCATGGTGGGCTGGCGCCGTCTACCGTGCGGGTTTGGTCTTCTGGACTGATTGCTGGCACATGGCGAGTCTTGAGTCCCAACCAACCAAGGATC
GTATCAGCCATCGAACTCCGCGTTCTCTGTGGATCGCCTTCCAGCTGACCATCCTACCATACTGAGGTACATGTCTCGTAGGGAGGGCATACCCACTCTGACCAAGCG
CGACGGTACACAGTCCCTTTGGATAACGGCTTCGCGATCCTGTGCGATTGTGTCGAGTCTTGTATGAGGGTGTGCCACCAAGTTCTCCGATGGCATTGCTAGTAA
ACTCGAGAACTCGCGCAGGATAA

Fig. S1 Gene sequences of 44 Cmr1 homologs in *Alternaria*. The sequences were acquired from the following resources: ^aGenBank, National Center for Biotechnology Information (<http://www.ncbi.nih.gov>); ^bAGD, *Alternaria* Genome Database (<http://alternaria.vbi.vt.edu>); ^cJGI, Joint Genome Institute, US Department of Energy (<http://www.jgi.doe.gov>). NA=not applicable.

>*Alternaria alstroemeriae* (NA)

MVFCTYCGQSFRDEHLERHILHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSESGSNADNQNTSGNVSPNHGQSKQATAQSSPSQIQPSQISDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNT
PPFFDQSPSNGLSHSSSLLSPLTPVTGMNSFVSSTPMMSGYDDFVRTVRDQPENESQPFMMDPWHSMPMDTSYDPMRIDPALMMTMGMDMTGPPQDGILSMIPEMSPA
QTFGQPQVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGQIAVS
KLQEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQRMGYFSLRHSGLDVRPPTTPHMNGNTSTDVWLDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVSGSARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQLTVQCQCQLSCFSDSV
ASRSRNRALTAASTVRLEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLWMLMHKKCLSDVQEATHAGQVLRLIEMP
RGIRPPWWAGAVYRAGLVFVADSLAHNESLSPNHQGTYPSTAFSVDRLSADHPTILRYMSRREGIPTLTNRDGSVPVLDNGFAVLSHCIDVLDDEGVATRFSDGIRSKLEKL
ARG

>*Alternaria alternata* (AIG15468^a)

MVFCTYCGQSFRDEHLERHILHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSESGSNADNQNTSGNVSPNHGQSKQATAQSSPSQIQPSQISDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNT
PPFFDQSPSNGLSHSSSLLSPLTPVTGMNSFVSSTPMMSGYDDFVRTVRDQPENESQPFMMDPWHSMPMDTSYDPMRIDPALMMTMGMDMTGPPQDGILSMIPEMSPA
QTFGQPQVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGQIAVS
KLQEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQRMGYFSLRHSGLDVRPPTTPHMNGNTSTDVWLDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVSGSARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQLTVQCQCQLSCFSDSV
ASRSRNRALTAASTVRLEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLWMLMHKKCLSDVQEATHAGQVLRLIEMP
RGIRPPWWAGAVYRAGLVFVADSLAHNESLSPNHQGTYPSTAFSVDRLSADHPTILRYMSRREGIPTLTNRDGNPVPLDNGFAVLSHCIDVLDDEGVATRFSDGIRSKLEKL
ARG

>*Alternaria angustiovoidea* (NA)

MVFCTYCGQSFRDEHLERHILHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSESGSNADNQNTSGNVSPNHGQSKQATAQSSPSQIQPSQISDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNT
PPFFDQSPSNGLSHSSSLLSPLTPVTGMNSFVSSTPMMSGYDDFVRTVRDQPENESQPFMMDPWHSMPMDTSYDPMRIDPALMMTMGMDMTGPPQDGILSMIPEMSPA
QTFGQPQVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGQIAVS
KLQEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQRMGYFSLRHSGLDVRPPTTPHMNGNTSTDVWLDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVSGSARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQLTVQCQCQLSCFSDSV
ASRSRNRALTAASTVRLEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLWMLMHKKCLSDVQEATHAGQVLRLIEMP
RGIRPPWWAGAVYRAGLVFVADSLAHNESLSPNHQGTYPSTAFSVDRLSADHPTILRYMSRREGIPTLTNRDGSVPVLDNGFAVLSHCIDVLDDEGVATRFSDGIRSKLEKL
ARG

>*Alternaria arborescens* (XP_028511872^a)

MVFCTYCGQSFRDEHLERHILHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSESGSNADNQNTSGNVSPNHGQSKQATAQSSPSQIQPSQISDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNT
PPFFDQSPSNGLSHSSSLLSPLTPVTGMNSFVSSTPMMSGYDDFVRTVRDQPENESQPFMMDPWHSMPMDTSYDPMRIDPALMMTMGMDMTGPPQDGILSMIPEMSPA
QTFGQPQVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGQIAVS
KLQEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQRMGYFSLRHSGLDVRPPTTPHMNGNTSTDVWLDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVSGSARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQLTVQCQCQLSCFSDSV
ASRSRNRALTAASTVRLEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLWMLMHKKCLSDVQEATHAGQVLRLIEMP
RGIRPPWWAGAVYRAGLVFVADSLAHNESLSPNHQGTYPSTAFSVDRLSADHPTILRYMSRREGIPTLTNRDGSVPVLDNGFAVLTHCIDVLDDEGVATRFSDGIRSKLEKL
ARG

>*Alternaria arbusti* (NA)

MVFCTYCGQSFRDEHLERHILHTNVKPFKCTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPEAGSGDSESSESGSNADNHNTSGNVSPNHDSQPKQAVSKSSPAIHQTSHPIDSQPPSQRQSQSPSAPHSRNPSISQSVQPPHTINPEEKSLHLHMPISDTP
PFFDQSPSNGLAQSSSSLSPLPTPTVTGMNGFVTSTPMSGYDDFVRTVRDQSDNESPQFMMDPWNGMPMDTTFDPMRIDPALMMSMSMDMSMGPPQDGILGMIPEMSPAQ
TFGQPVQTPRMDSEFSDLQIGSSASMFYPSNRHSSIADAGIPDLGAIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDFQGGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL T
GGFTEACRISLFDLIEKNIIMAGDPIVLRALLFTVQAAWSGDKWQMDIAMGQRGMYSMLRHSGLDVRPPATPHINGNISTDALWKDWLQQESRSRLIYSWVMVDQDLSLFH
DTAPLFSVTEFGAMPDSDRLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVASRS
RNRALTAASTRVRLIEEVQALLGRWFDLAQRYMKSNPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEATHAGQVLRILIREMPRGIRP
PWWAGAVYRAGLVFWTDSL AHGESLSPNHQGSYQPSNSAFSVDRLPADHPTILRYMSRREGIPTLT KR DGT H VPLDNGFAILSHCIDVLD EG VATRFS DGIRSKLEK LARG

>*Alternaria atra* (NA)

MVFCTYCGQSFRDEHLERHILHTNVKPFKCTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPEAGSGDSESSESGSNADNQNTSGNVSPNHGQPKQATAQSSPSQIQPAQVSDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHINPEEKSLHIHMPISNT
PFFDQSPSNGLAHSSSSLSPLPTPTVTGMNSFVSSTPMSGYDDFVRTVRDQSDNESPQFIMDPWHSMPMDTSFDPMRIDPSLIMTMGMDMTMGPPQDGILGMIPEMSPAQT
FGQPVQTPRMVDESFSDLQIGSSASMFYPSNRHSSIADAGIPDLGAIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGGQIAVSKLH
EATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL T G
GFTACRISLFDLIEKNIIMAGDPIVLRALLFTVQAAWSGDKWQMDIAMGQRGMYSMLRHSGLDVRPPTPHMNGNTSTDV L W K D W L Q Q E S R S R L I Y S W V M V D Q D L S L F
HDTAPLFSVTEFGAMPDSDQLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVASR
SRNRALTAASTRVRLIEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQMMWMHKKCLSDVQEATHAGQVLRILIREMPQGI
RPPWWAGAVYRAGLVFWTDSL AHSES LSPNNHQGT Y Q T S N A A F S V D R L P A D H P T I L R Y M S R R D G I P T L T K R D G N P V P L D N G F A V L S H C I D V L D D G V A T R F S D G I R S K L E K L A
R G

>*Alternaria brassicicola* (NA)

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PFFDHSPSNGLAHSSSSLSPLPTPTVTGMNSFVSSTPMSGYDDFVRTVRDQSDNESPQFMMDPWHSMPMDTSFDSMRIDPTLIMNMGMMDMTMGPPQDGILSMIPEMSPAQT
FGQPVQTPHMADESFDLHMGSSASMYPSNRHSSIADAGIPDLGAIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDGNSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL T
GGFTEACRISLFDLIEKNIIMAGDPIVLRALLFTVQAAWSGDKWQMDIAMGQRGMYSMLRHSGLDVRPPTPHMNGNTSTDV L W K D W L Q Q E S R S R L I Y S W V M V D Q D L S L
FHDTAPLFSVTEFGAMPDSDQLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVAS
RSRNRALTAASTRVRLIEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEATHAGQVLRILIREMPRG
IRPPWWAGAVYRAGLVLWTDSLAHNESLSPNHQGT Y Q Q P S N A A F S V D R L P A D H P T I L R Y M S R R D G T P T L T K R D G T S V P L D N G F A V L S H C I D V L D E G V A T R F S D G I R S K L E K L
A R G

>*Alternaria brassicae* (NA)

MVFCTYCGQSFRDEHLERHILHTNVKPFKCTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSESSESGSNADNQNTSGNVSPNHGQPKQGT AHSSPSHIQPVQVSDSQPPSQRPSQSPSAPHSRNTSISRVPVQPPPHINPEEKSLHIHMPISNTP
PFFDQSPSSGLAHSSSSLSPLPTPTVTGMNSFVSSTPMSGYDDFVRTVRDQPDNESPQFMMDPWHTMPMDTNFDAMRIDPALILNMGMMDMTMGPPQDGILGMIPEMSPAQT
FGQPVQTPRMVDESFSDLHLGSSASVYYSNRHSSIADAGIPDLGAIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDETDQGGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDGNSSSSSGESPGSTASNSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL T
GGFTEACRISLFDLIEKNIIMAGDPIVLRALLFTVQAAWSGDKWQMDIAMGQRGMYSMLRHSGLDVRQPATPHMNGNTSTDV L W K D W L Q Q E S R S R L I Y S W V M V D Q D L S L
FHDTAPLFSVTEFGAMPDSDQLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVAS
RSRNRALTAASTRVRLIEEVQALLGRWFDLAQRYMKANPPCPMMQANLVMFHLISMNAVSNFPEIERLARRESVDGSYQQMLWMHKKCLSDVQEATHAGQVLRILIREMPRG
IRPPWWP GAVYRAGLVFWTESLAHNESLSPNHQGT Y Q Q P S N A A L A V D R L P A D H P T I L R Y M S R R E G I P T L T K R D G T S V S L D N S Y A V L S H C L D L L D E G V A T R F S D G I R S K L D K L A
R G

>*Alternaria burnsii* (XP_038791471⁹)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSSSESGSNADNQNTSGNVSPNHDGQPKQATAQSSPSQIQQPSQISDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNT
PPFFDQSPSNGLSHSSSLLSPLPTPVTGMNSFVSSTPMSGYDDFVRTVRDQPENESQPQFMMDPWHSMPMDTSYDPMRIDPALMMTMGMDMTMGPPQDQILSMIPEMSPA
QTFGQPVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGQIAVS
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ASRSRNRLTAASTVRLEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLMWMHKKCLSDVQEATHAGQVLRILIREMP
RGIRPPWWAGAVYRAGLVFADSLAHNESLSPNHQGTYPQSNATFSDRLSADHPTILRYMSRREGIPTLTRKDGSPVPLDNGFAVLSHCIDVLEGVATRFSDGIRSKLEKL
ARG

>*Alternaria capsici* (NA)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSSSESGSNADNQITSGNVSPNHDGQSKQATAQSSPSQIQQPALMSDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNT
PPFFDQSPSNGLAHSSSLLSPLPTPVTGMNSFVSSTPMSGYDDFVRTVRDQPENESQPQFMMDPWHSMPMDTNFDPMRIDPTLMMTMGMDMTMGPPQDQILSMIPEMSPA
QTFGQPVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWAPSWEDESDFQGGQIAVS
KLQEATRDKLLAITQSFLHKALDIHKDGNSTSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYPTSARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIIAGDPVLRALLFTVQAAWSGDKWQMDIAMQGRGMYFSLMRHSGILDVRPPTTPHMNGNTSTDVWLKDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTASEWSEMFNQVHEFSNGCSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYQQLSCFSDSV
ASRSRNRLTAASTVRLEEVQALLGRWFDLAQRYMKANPACPMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLMRMHKKCLSDVQEATHAGQVLRILIREMP
RGIRPPWWAGAVYRAGLVFWTDSLARNESLSPNHQGAYQQPSNTAFSDRLSADHPTILRYMSRREGIPTLTRKDGNVPLDNGFAILSHCIDVLEGVATRFSDGIRSKLEK
LARG

>*Alternaria carthami* (ACM_PP10841^b)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSSSESGSNADNQITSGNVSPNHDGQSKQATAQSSPSQIQQTALMTDSQPPSQRQSQSPSASHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNT
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TFGQPVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDFQGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDGSSSTSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYPTSARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL
GGFTEACRISLFDLIEKNIIAGDPVLRALLFTVQAAWSGDKWQMDIAMQGRGMYFSLMRHSGILDVRPPTTPHMNGNTSTDVWLKDWLQQESRSRLIYSWVMVDQDL
FHDAPLFSVTEFGAPMPDSDQLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYQQLSCFSDSVAS
RSRNRLTAASTVRLEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLMWMHKKCLSDVQEATHAGQVLRILIRLFWT
DSLARNESLSPNHQGTYPQPSNTAFSDRLSSDHPTILRYMSRREGIPTLTRKDGNVPLDNGFAILSHCIDVLEGVATRFSDGIRSKLEKLARG

>*Alternaria citriarabusti* (NA)

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QTFGQPVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGQIAVS
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LTGGFTEACRISLFDLIEKNIIAGDPVLRALLFTVQAAWSGDKWQMDIAMQGRGMYFSLMRHSGILDVRPPTTPHMNGNTSTDVWLKDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYQQLSCFSDSV
ASRSRNRLTAASTVRLEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLMWMHKKCLSDVQEATHAGQVLRILIREMP
RGIRPPWWAGAVYRAGLVFADSLAHNESLSPNHQGTYPQSNATFSDRLSADHPTILRYMSRREGIPTLTRKDGSPVPLDNGFAVLSHCIDVLEGVATRFSDGIRSKLEKL
ARG

>*Alternaria conjuncta* (NA)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKFPCTRCAQRNLKCTLRPTRRA
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FGQPQVQTPRMDSESFSDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDFQGGQIAVSKLQ
EATRDKLLAITQSFHLKALDIHKDGSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWLTG
GFTEACRISLFDLIEKNIIAGDPVLRALLFTVQAAWSGDKWQMDIAMGQGRMYFSMLRHSGILDVRPPATPHINGNISTDALWKDWLQQESRSRLIYSWVMVDQDLSLFDH
TAPLFSVTEFGAPMPDSDRLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQLTVLCQYCQLLSCFSDSVASRSR
NRALTAASTRVRLEEVAQLLRWFDLAQRYMKSNPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEATHAGQVLRLIEMPRGIRPP
WWAGAVYRAGLVFWTDSLHGESLSPNHQGSYQPSNSAFSVDRLPADHPTILRYMSRREGIPTLTRKRDGAHVPLDNGFAILSHCIDVLDGAVATRFSDGIRSKLEKLARG

>*Alternaria consortialis* (NA)

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GQPQVQTPRMVDESFSDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGQIAVSKLH
EATRDKLLAITQSFHLKALDIHKDGSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARWLTG
GFTEACRISLFDLIEKNIIAGDPVLRALLFTVQAAWSGDKWQMDIAMGQGRMYFSMLRHSGILDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDLSLF
HDTAPLFSVTEFGAPMPDSDQLWQAQTASEWSETFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQLTVLCQYCQLLSCFSDSVASR
SRNRALTAASTRVRLEEVAQLLRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQMMWMHKKCLSDVQEATHAGQVLRLIEMPPQGI
RPPWWAGAVYRAGLVFWTDSLHGESLSPSNHQTGYQTSNAAFSDRLPADHPTILRYMSRRDGIPTLTRKRDGNPVPLDNGFAVLSHCIDVLDGAVATRFSDGIRSKLEKLA
RG

>*Alternaria crassa* (ACM_PP08031^b)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPFKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPIACSNCAKTKTKCDKFPCTRCAQRNLKCTLRPTRRA
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PPFFDQSPSNGLAHSSSLLSPLPTPTVTGMNSFVSSTPMSGYDDFVRTVRDQPENESPQFMMDPWHSMPMDTNFDPMRIDPTLMMTMGMDMTMGPPQDGILSMIPEMSPA
QTFGQPQVQTPRMVDESFSDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWAPSWDESDFQGGQIAVS
KLQEATRDKLLAITQSFHLKALDIHKDGNSTSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIIAGDPVLRALLFTVQAAWSGDKWQMDIAMGQGRMYFSMLRHSGILDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTASEWSEMFNQVHEFSNGCSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQLTVLCQYCQLLSCFSDSV
ASRSRNRALTAASTRVRLEEVAQLLRWFDLAQRYMKANPACPMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQMLRMHKKCLSDVQEATHAGQVLRLIEMPR
RGIRPPWWAGAVYRAGLVFWTDSLARNESLSPNHQGAYQQPSNTAFSVDRLSADHPTILRYMSRREGIPTLTRKRDGNPVPLDNGFAILSHCIDVLDGAVATRFSDGIRSKLEK
LARG

>*Alternaria dauci* (ADC_PP01443^c)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPFKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPIACSNCAKTKTKCDKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSSESGSNADNQITSGNVSPNHDGQSKQATAQSSPSQIQQPALMTDSQPPSQRQSQSPSAPHSRNPSSISHPVQPPPHMNPEEKSLHIHMPISNTP
PFFDQSPSNGLAHSSSLLSPLPTPTVTGMNSFVSSTPMSGYDDFVRTVRDQPENESPQFMMDPWHSMPMDTNFDPMRIDPALMMTMGMDMTMGPPQDGILSMIPEMPPAQ
TFGQPQVQTPRMVDESFSDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWAPSWDESDFQGGQIAVSKL
QEATRDKLLAITQSFHLKALDIHKDGSSSTSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARWLT
GGFTEACRISLFDLIEKNIIAGDPVLRALLFTVQAAWSGDKWQMDIAMGQGRMYFSMLRHSGILDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDLSL
FHDTVPLFSVTEFGAPMPDSDQLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQLTVLCQYCQLLSCFSDSVAS
RSRNRALTAASTRVRLEEVAQLLRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEATHAGQVLRLIEMPRG
IRPPWWAGAVYRAGLVFWTDSLHNESSLSPNHQGTGYQQPSNTAFSVDRLSADHPTILRYMSRREGIPTLTRKRDGNPVPLDNGFAILSHCIDVLDGAVATRFSDGIRSKLEKLA
RG

>*Alternaria destruens* (ADT_PP05662^b)

NADNQNTSGNVSPNHDGQSKQATAQSSPSQIQQPSQISDSQPPSQRQSQSPSAPHSRNPSSISHPVQPPPHMNPEEKSLHIHMPISNTPPFFDQSPSNGLSHSSSLLSPLPTP
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ASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGQIAVSKLQEATRDKLLAITQSFHLKALDIHKD
GSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWLTGGFTEASAWSGDKWQMDIAMGQ

RGMYFSMLRHSGLDVRPPTTPHMGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDLSLFDHTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVG
SGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLSCFSDSVASRSRNRALTAASTRVRL EEVQALLGRWFDLAQRYMKANPVCMMQANLVMF
HLISMNAVSNFPEIERLARREGLVFWADSLAHNESLSPNHQGTYPQSNATFSDRLSADHPTILRYMSRREGIPTLTRDGGSPVPLDNGFAVLSHCIDVLDEGVATRFSDGIRS
KLEKLARG

>*Alternaria ethzedia* (NA)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
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PFFDQSPSNGLAQSSSLLSPLPTPVNGMNGFVTSTPMMSGYDDFVRTVRDQSDNESPQFMMDPWNGMPMDTTFDPMRIDPALMMSMSMDMSMGPPQDGILGMIPEMSPAQ
TFGQPVQTPRMDESFSDLQIGSSASMFYP SNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDFQGGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL T
GGFTEACRISLFDLIEKNIIMAGDPIVLRAALLFTVQAAWSGDKWQMDIAMGQGRGMYFSMLRHSGLDVRPPATPHINGNISTDALWKDWLQQESRSRLIYSWVMVDQDLSLFH
DTAPLFSVTEFGAPMPDSDRLWQAQTASEWSEMFNQVHEFSNGYSSVGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLSCFSDSVASRS
RNRALTAASTRVRL EEVQALLGRWFDLAQRYMKNPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAITHAGQVLR LIREMPRGIRP
PWWAGAVYRAGLVFWTDSL AHGESLSSNHQGSYQPSNSAFSDRLPADHPTILRYMSRREGIPTLTRDGT HVPDLNGFAILSHCIDVLDEGVATRFSDGIRSKLEKLARG

>*Alternaria fragariae* (AFG_PP01606⁵)

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LTGGFTEACRISLFDLIEKNIIMAGDPIVLRAALLFTVQAAWSGDKWQMDIAMGQGRGMYFSMLRHSGLDVRPPTTPHMGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDL
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ASRSRNRALTAASTRVRL EEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAITHAGQVLR LIREMP
RGIRPPWWAGAVYRAGLVFWADSLAHNESLSPNHQGTYPQSNATFSDRLSADHPTILRYMSRREGIPTLTRDGGSPVPLDNGFAVLSHCIDVLDEGVATRFSDGIRSKLEKL
ARG

>*Alternaria gansuensis* (NA)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
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QEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYTNSFERYPTSARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL T
GGFTEACRISLFDLIEKNIILAGDPIVLRAALLFTVQAAWSGDKWQMDIAMGQGRGMYFSMLRHSGLDVRPPTTPHMGNTTSTDALWKDWLQQESRSRLVYSWVMVDQDLSL
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RSRNRALTAASTRVRL EEVQALLGRWFDLAQRYTKANPACPMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAVTHAGQVIRLLREMPR
GIRPPWWAGAVYRVGLVFWTDSL AHNESLSPNHQGTYPQSNAAFSDRLPADHPTILRYMSRREGIPTLTRDGT PVPDLNGFAVLSHCIDVLDEGVATRFSDGIRSKLEKLA
RG

>*Alternaria gaisen* (AGS_PP02526⁵)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
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KLQEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
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SLFDHTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLSCFSDSV
ASRSRNRALTAASTRVRL EEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAITHAGQVLR LIREMP

RGIRPPWWAGAVYRAGLVFWADSLAHNESLSPNHQGTYPQSNFAVSVDRLSADHPTILRYMSRREGIPTLTRDGGSPVPLDNGFAVLSHCIDVLDEGVATRFSDGIRSKLEKL
ARG

>*Alternaria hordeiaustralica* (NA)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNNEEGLPPQGIIPKSAGRTPAIACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
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QEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPYSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWLT
GGFTEACRISLFDLIEKNIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQGRMYFSLRHSGLDVRPPATPHINGNISTDALWKDWLQQESRSLIYSWVMVDQDLSLFH
DTAPLFSVTEFGAPMPDSDRLWQAQTASEWSEMFNQVHEFSNGYSSVSGARGPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVASRS
RNRALTAASTVRLEEVCALLGRWFDLAQRYMKSNPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAITHAGQVLRILIREMPRGIRP
PWWAGAVYRAGLVFWTDSLHGESLSPNHQGSYQPSNSAFSVDRLPADHPTILRYMSRREGIPTLTRDGGTHVPLDNGFAILSHCIDVLDEGVATRFSDGIRSKLEKLARG

>*Alternaria incomplexa* (NA)

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QEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPYSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWLT
GGFTEACRISLFDLIEKNIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQGRMYFSLRHSGLDVRPPATPHINGNISTDALWKDWLQQESRSLIYSWVMVDQDLSLFH
DTAPLFSVTEFGAPMPDSDRLWQAQTASEWSEMFNQVHEFSNGYSSVSGARGPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVASRS
RNRALTAASTVRLEEVCALLGRWFDLAQRYMKSNPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAITHAGQVLRILIREMPRGIRP
PWWAGAVYRAGLVFWTDSLHGESLSPNHQGSYQPSNSAFSVDRLPADHPTILRYMSRREGIPTLTRDGGTHVPLDNGFAILSHCIDVLDEGVATRFSDGIRSKLEKLARG

>*Alternaria infectoria* (KA14920335⁹)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNNEEGLPPQGIIPKSAGRTPAIACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQVRVGGPPEAGSGDSESGSNADNHNTSGNVSPNHDSQPKQAMSKSSPAQINQTAHIPDSQPPSQRQSQSPSAPHSRNPSISQPVQPPTHINPEEKS LHLHMPISDTP
PFFDQSPSNGLAQSSSLLSPLPTPVNGMNGFVTSTPMSGYDDFVRTVRDQSDNESPQFMMDPWNGMPMDTTFDPMRIDPALMMSMSMDMSMGPPQDGILGMIPEMSPAQ
TFGQPVQTPRMDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDFQGGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPYSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWLT
GGFTEACRISLFDLIEKNIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQGRMYFSLRHSGLDVRPPATPHINGNISTDALWKDWLQQESRSLIYSWVMVDQDLSLFH
DTAPLFSVTEFGAPMPDSDRLWQAQTASEWSEMFNQVHEFSNGYSSVSGARGPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVASRS
RNRALTAASTVRLEEVCALLGRWFDLAQRYMKSNPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAITHAGQVLRILIREMPRGIRP
PWWAGAVYRAGLVFWTDSLHGESLSPNHQGSYQPSNSAFSVDRLPADHPTILRYMSRREGIPTLTRDGAHVPLDNGFAILSHCIDVLDEGVATRFSDGIRSKLEKLARG

>*Alternaria limoniasperae* (NA)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNNEEGLPPQGIIPKSAGRTPAIACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQVRVGGPPETGSGDSESGSNADNQNTSGNVSPNHGQSKQATAQSSPSQIQPSQISDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHMNPEEKS LHLHMPISNT
PPFFDQSPSNGLSHSSSLLSPLPTPVNGMNSFVSSTPMSGYDDFVRTVRDQPENESPQFMMDPWHSMPMDTSYDPMRIDPALMMTMGMDMTGPPQDGILSMIPEMSPA
QTFGQPVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGGQIAVS
KLQEATRDKLLAITQSFLHKALDIHKDSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPYSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQGRMYFSLRHSGLDVRPPPTPHMNGNTSTDVLWKDWLQQESRSLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVSGARGPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSV
ASRSRNRALTAASTVRLEEVCALLGRWFDLAQRYMKANPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAITHAGQVLRILIREMP
RGIRPPWWAGAVYRAGLVFWADSLAHNESLSPNHQGTYPQSNFAVSVDRLSADHPTILRYMSRREGIPTLTRDGGSPVPLDNGFAVLSHCIDVLDEGVATRFSDGIRSKLEKL

ARG

>*Alternaria longipes* (NA)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNNEEGLPPQGIIPKSAGRTPIACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQVRVGGPPETGSGDSSSESGSNADNQNTSGNVSPNHDGQSKQATAQSSPSQIQQPSQISDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNT
PPFFDQSPSNGLSHSSSLLSPLPTPVTGMNSFVSSTPMMSGYDDFVRTVRDQPENESQPQFMDPWHSMPMDTSYDPMRIDPALMMTMGMDMTGPPQDQILSMIPEMSPA
QTFGQPVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGQIAVS
KLQEATRDKLAITQSFLHKALDIHKDGSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIIAGDPVILRAALLFTVQAAWSGDKWQMDIAMGQGRMYFSLMRHSGILDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVSGSARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSV
ASRSRNRALTAASTVRLEEVQALLGRWFDLAQRYMKANVCPMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLWMLMHKKCLSDVQEAITHAGQVLRLIREMP
RGIRPPWWAGAVYRAGLVFWADSLAHNESLSPNHQKTYQPSNTAFSVDRLSADHPTILRYMSRREGIPTLTNRDGSVPPLDNGFAILSHCIDVLDGAVTRFSDGIRSKLEKLA
RG

>*Alternaria macrospora* (NA)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNNEEGLPPQGIIPKSAGRTPIACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQVRVGGPPETGSGDSSSESGSNADNQITSGNVSPNHDGQSKQATAQSSPSQIQQPALMSDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNT
PPFFDQSPSNGLAHSSSLLSPLPTPVTGMNSFVSSTPMMSGYDDFVRTVRDQPENESQPQFMDPWHSMPMDTNFDPMRIDPTLMMTMGMDMTGPPQDQILSMIPEMSPA
QTFGQPVQTPRMVDESLDLHIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWAPSWDESDFQGGQIAVS
KLQEATRDKLLAITQSFLHKALDIHKDGNSTSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIIAGDPVILRAALLFTVQAAWSGDKWQMDIAMGQGRMYFSLMRHSGILDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVSGSARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSV
ASRSRNRALTAASTVRLEEVQALLGRWFDLAQRYMKANLVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLWMLMHKKCLSDVQEAITHAGQVLRLIREMP
RGIRPPWWAGAVYRAGLVFWTDSL AHNESLSPNHQGAYQQPSNTAFSVDRLSADHPTILRYMSRREGIPTLTNRDGNVPPLDNGFAILSHCIDVLDGAVTRFSDGIRSKLEKL
ARG

>*Alternaria mali* (AML_PP04777^o)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNNEEGLPPQGIIPKSAGRTPIACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQVRVGGPPETGSGDSSSESGSNADNQNTSGNVSPNHDGQSKQATAQSSPSQIQQPSQISDSQPPSQRQSQSPSAPHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNT
PPFFDQSPSNGLSHSSSLLSPLPTPVTGMNSFVSSTPMMSGYDDFVRTVRDQPENESQPQFMDPWHSMPMDTSYDPMRIDPALMMTMGMDMTGPPQDQILSMIPEMSPA
QTFGQPVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGQIAVS
KLQEATRDKLLAITQSFLHKALDIHKDGSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIIAGDPVILRAALLFTVQAAWSGDKWQMDIAMGQGRMYFSLMRHSGILDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVSGSARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSV
ASRSRNRALTAASTVRLEEVQALLGRWFDLAQRYMKANVCPMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQLWMLMHKKCLSDVQEAITHAGQVLRLIREMP
RGIRPPWWAGAVYRAGLVFWADSLAHNESLSPNHQGTYPQPSNTAFSVDRLSADHPTILRYMSRREGIPTLTNRDGSVPPLDNGFAVLTHCIDVLDGAVTRFSDGIRSKLEKL
ARG

>*Alternaria metachromatica* (KAI4634631^o)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNNEEGLPPQGIIPKSAGRTPIACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQVRVGGPPEAGSGDSSSESGSNADNHNTSGNVSPNHDSQPKQAMSKSSPAQINQTAHIPDSQPPSQRQSQSPSAPHSRNPSISQPVQPPTHINPEEKSLHLHMPISDTP
PPFFDQSPSNGLAQSSSLLSPLPTPVNGMNGFVTSTPMMSGYDDFVRTVRDQSDNESQPQFMDPWNGMPMDTTFDPMRIDPALMMSMSMDMSMGPPQDQILGMIPEMSPAQ
TFGQPVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDFQGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDGSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL
GGFTEACRISLFDLIEKNIIAGDPVILRAALLFTVQAAWSGDKWQMDIAMGQGRMYFSLMRHSGILDVRPPATPHINGNISTDALWKDWLQQESRSRLIYSWVMVDQDL
DTAPLFSVTEFGAPMPDSDRLWQAQTAPEWSEMFNQVHEFSNGYSSVSGSARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVASRS
RNRALTAASTVRLEEVQALLGRWFDLAQRYMKANVCPMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQLWMLMHKKCLSDVQEAITHAGQVLRLIREMPRGIRP
PWWAGAVYRAGLVFWTDSL AHGESLSPNHQGSYQPSNSAFSVDRLPADHPTILRYMSRREGIPTLTNRDGHVPLDNGFAILSHCIDVLDGAVTRFSDGIRSKLEKLARG

>*Alternaria novae-zelandiae* (KAI4692986^o)

MVFCTYCGQSFTRDEHLERHILHTHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNNEEGLPPQGIIPKSAGRTPIACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
SKGVQVRVGGPPEAGSGDSSSESGSNADNHNTSGNVSPNHDSQPKQAMSKSSPAQINQTAHIPDSQPPSQRQSQSPSAPHSRNPSISQPVQPPTHINPEEKSLHLHMPISDTP

PFFDQSPSNGLAQSSSLLSPLPTPVNGMNGFVTSTPMSGYDDFVRTVRDQSDNESPQFMMDPWNGMPPMDTTFDPMRIDPALMMSMSMDMSMGPPQDGILGMIPEMSPAQ
TFGQPVQTPRMDESFSDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDFQGGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDGSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL
GGFTEACRISLFDLIEKNIIMAGDPVILRAALLFTVQAAWSGDKWQMDIAMGQGRGMYFSLMRHSGILDVRPPATPHINGNISTDALWKDWLQQESRSRLIYSWVMVDQDLSL
DTAPLFSVTEFGAPMPDSDRLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVASRS
RNRALTAASSTRVRLIEEVQALLGRWFDLAQRYMKSNPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAITHAGQVLRILIREMPRGIRP
PWWAGAVYRAGLVFWTDSLHAHGESLSPNHQGSYQPSNSAFSVDRLPADHPTILRYMSRREGIPTLTRKDGAVHPLDNGFAILSHCIDVLDGAVATRFSDGIRSKLEKLARG

>*Alternaria panax* (KAG9192434^h)

MVFCTYCGQSFTRDEHLERHILHTNVKPFKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSSESGSNADNQNTSGNVSPSHNGQQKQATAQSSPSQIQPGQVSDSQPPSQRSQSPSAPHSRNPSISHPVPPPHINPEEKSLHIHMPISNT
PFFDQSPSNGLAHSSSLLSPLPTVTGMNSFVSPTPMSGYDDFVRTVRDQSDNESPQFMMDPWHSMPMDTTFDPMRIDPALMMTMGMDMTMGPPQDGILSMIPEMSPA
QTFGQPIQTPRMVDESFSDLQIGSSASVFYSSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDYQGGGQVVS
LHEATRDKLLAITQSFLHKALDIHKDGNSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL
TGGFTEACRISLFDLIEKNIIMAGDPVILRAALLFTVQAAWSGDKWQMDIAMGQGRGMYFSLMRHSGILDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDLS
LFHDTAPLFSVTEFGAPMPDSDQLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVA
PRSRNRALTAASSTRVRLIEEVQALLGRWFNLAQRYMKANPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWIHKKCLSDVQEAITHAGQVIRLIREMPRG
IRPPWWAGAVYRAGLVFWTDSLHNEALSPSHQNTYQQSSNTAFVDRPLPADHPTILRYMSRREGIPTLTRKDGTSVPLDNGFAVLSHCIDVLDGAVATRFSDGIRSKLEKLA
RG

>*Alternaria porri* (APR_PP04911⁵)

MVFCTYCGQSFTRDEHLERHILHTNVKPFKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKFPCTRCAQRNLKCTLRPTRRA
SKGVQRVGGPPETGSGDSSESGSNADNQNTSGNVSPNHGQSKQATAQSSPSQIQQTALMTDSQPPSQRSQSPSASHSRNPSISHPVQPPPHMNPEEKSLHIHMPISNTP
PFFDQSPSNGLAHSSSLLSPLPTVTGMNSFVSSTPMSGYDDFVRTVRDQPENESPQFMMDPWHSMPMDTSFDPMRIDPALMMTMGMDMTMGPPQDGILSMIPEMSPAQ
TFGQPVQTPRMVDESFSDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDFQGGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDGSSTSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARWL
GGFTEACRISLFDLIEKNIIMAGDPVILRAALLFTVQAAWSGDKWQMDIAMGQGRGMYFSLMRHSGILDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDLSL
FHDTAPLFSVTEFGAPMPDSDQLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVAS
RSRNRALTAASSTRVRLIEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAITHAGQVLRILIREMPRG
IRPPWWAGAVYRAGLVFWTDSLHNEALSPNHQGTYYQPSNTAFSVDRLSSDHPTILRYMSRREGIPTLTRKDGPNVPLDNGFAILSHCIDVLDGAVATRFSDGIRSKLEKLA
RG

>*Alternaria postmessia* (NA)

MVFCTYCGQSFTRDEHLERHILHTNVKPFKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKFPCTRCAQRNLKCTLRPTRRA
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PFFDQSPSNGLSHSSSLLSPLPTVTGMNSFVSSTPMSGYDDFVRTVRDQPENESPQFMMDPWHSMPMDTSYDPMRIDPALMMTMGMDMTMGPPQDGILSMIPEMSPA
QTFGQPVQTPRMVDESFSDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWTPSWDESDFQGGGQIAVS
KLQEATRDKLLAITQSFLHKALDIHKDGSSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARW
LTGGFTEACRISLFDLIEKNIIMAGDPVILRAALLFTVQAAWSGDKWQMDIAMGQGRGMYFSLMRHSGILDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDL
SLFHDTAPLFSVTEFGAPMPDSDQLWQAQTAPEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSV
ASRSRNRALTAASSTRVRLIEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEAITHAGQVLRILIREMP
RGIRPPWWAGAVYRAGLVFWADSLAHNESLSPNHQGTYYQPSNTAFSVDRLSADHPTILRYMSRREGIPTLTRKDGSPVPLDNGFAVLSHCIDVLDGAVATRFSDGIRSKLEKL
ARG

>*Alternaria rosae* (XP_046026581³)

MVFCTYCGQSFTRDEHLERHILHTNVKPFKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPACSNCAKTKTKCDKFPCTRCAQRNLKCTLRPTRRA
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PFFDQSPSNGLAQSSSLLSPLPTVTGMNGFVTSTPMSGYDDFVRTVRDQSDNESPQFMMDPWNGMPPMDTTFDPMRIDPALMMSMSMDMSMGPPQDGILGMIPEMSPAQ
TFGQPVQTPRMDESFSDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGWTVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDFQGGGQIAVSKL

QEATRDKLLAITQSFLHKALDIHKDSSSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDTNELMQNYNDKASSLLILMMIAQGAMTIPSIEARWLT
GGFTEACRISLFDLIEKNIIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQGRGMYFSMLRHSGLDVRPPATPHVNGNISTDALWKDWLQQESRSRLIYSWVMVDQDLSLF
HDTAPLFSVTEFGAPMPDSDRLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVASR
SRNRALTASTRVRLEEVQALLGRWFDLAQRYMKSNPVCMMQANLVMFHLISLNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEATHAGQVLRILIREMPRGIR
PPWWAGAVYRAGLVFWTDSLHAGSESLPNHQGSYQPSNSAFSVDRLPSDHPTILRYMSRREGIPTLTNRDGTHTVPLDNGFAILSHCIDVLEGVATRFSDGIRSKLEKLARG
>*Alternaria solani* (ASL_PP00349^b)

MVFCTYCGQSFTRDEHLERHILHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPIACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
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PFFDQSPSNGLAHSSSLLSPLPTPTVTGMNSFVSSTPMSGYDDFVRTVRDQPENESPPQFMMDPWHSMPMDTSFDPMRIDPALMMTMGMDMTMGPPQDGILSMIPEMSPAQ
TFGQPQVQTPRMVDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGTWVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDFQGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDSSSTSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARWLT
GGFTEACRISLFDLIEKNIIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQGRGMYFSMLRHSGLDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDLSL
FHDAPLFSVTEFGAPMPDSDLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVAS
RSNRALTASTRVRLEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEATHAGQVLRILIREMPRG
IRPPWWAGAVYRAGLVFWTDSLHNESSLPNHQGTYYQPSNTAFSVDRLSSDHPTILRYMSRREGIPTLTNRDGNPVPLDNGFAILSHCIDVLEGVATRFSDGIRSKLEKLA
RG
>*Alternaria tagetica* (ATT_PP04326^b)

MVFCTYCGQSFTRDEHLERHILHTNVKPKCFTCHMSFARRDLLQRHYTVHGRNQNNEEGLPPQGIIPKSAGRTPIACSNCAKTKTKCDKKFPCTRCAQRNLKCTLRPTRRA
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PFFDQSPSNGLAHSSSLLSPLPTPTVTGMNSFVSSTPMSGYDDFVRTVRDQSENEPPQFMMDPWHSMPMDTSFDPMRIDPALMMTMGMDMTMGPPQDGILSMIPEMSPAQ
TFGQPQVQTPRMVEESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIIAAQDGTWVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWAPSWDESDFQGGQIAVSKL
QEATRDKLLAITQSFLHKALDIHKDSSSTSSSGESPGSTASHSNFVLLPPARVLEYFLKSYANSFERYYPTSARGVLDANELMQNYNDKASSLLILMMIAQGAMTIPSIEARWLT
GGFTEACRISLFDLIEKNIIMAGDPIVLAALLFTVQAAWSGDKWQMDIAMGQGRGMYFSMLRHSGLDVRPPTTPHMNGNTSTDVLWKDWLQQESRSRLIYSWVMVDQDLSL
FHDAPLFSVTEFGAPMPDSDLWQAQTASEWSEMFNQVHEFSNGYSSVSGSGARPPSLRDLFRYFLDDEIVVQDVQEIHLTPMHLRLLLHPLQTLVCQYCQLLSCFSDSVAS
RSNRALTASTRVRLEEVQALLGRWFDLAQRYMKANPVCMMQANLVMFHLISMNAVSNFPEIERLARREGVDGSYQQMLWMHKKCLSDVQEATHAGQVLRILIREMPRG
IRPPWWAGAVYRAGLVFWTDSLHNESSLPNHQGTYYQPSNTAFSVDRLSADHPTILRYMSRREGIPTLTNRDGNPVPLDNGFAILSHCIDVLEGVATRFSDGIRSKLEKLA
RG
>*Alternaria tangelonis* (NA)

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ARG
>*Alternaria tenuissima* (NA)

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ARG

>*Alternaria tomatophila* (ATM_PP05196^b)

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RG

>*Alternaria triticina* (NA)

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>*Alternaria triticimaculans* (NA)

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>*Alternaria turkisafría* (NA)

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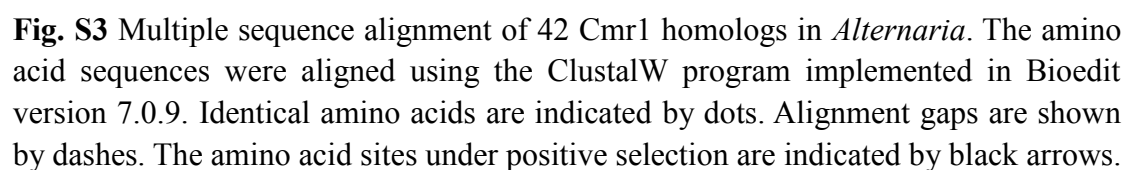
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>*Alternaria viburni* (KA14665059^a)

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 TFGQPVQTPRMDESFDLQIGSSASMFYPSNRHSSIADAGIPDLGAIAAQDGTWVFRCTPSIASSSCPRTARLNLERLELSLKNHEGWANWSPSWDESDQGGQIAVSKL
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 GGFEACRISLFDLIEKNIIMAGDPVLRALLFTVQAAWSGDKWQMDIAMGQRMYSMLRHSGLDVRPPATPHINGNISTDALWKDWLQQESRSLIYSWVMVDQDLSLFH
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Fig. S2 Protein sequences of 44 Cmr1 homologs in *Alternaria*. The sequences were acquired from the following resources: ^aGenBank, National Center for Biotechnology Information (<http://www.ncbi.nih.gov>); ^bAGD, *Alternaria* Genome Database (<http://alternaria.vbi.vt.edu>); ^cJGI, Joint Genome Institute, US Department of Energy (<http://www.jgi.doe.gov>). NA=not applicable.



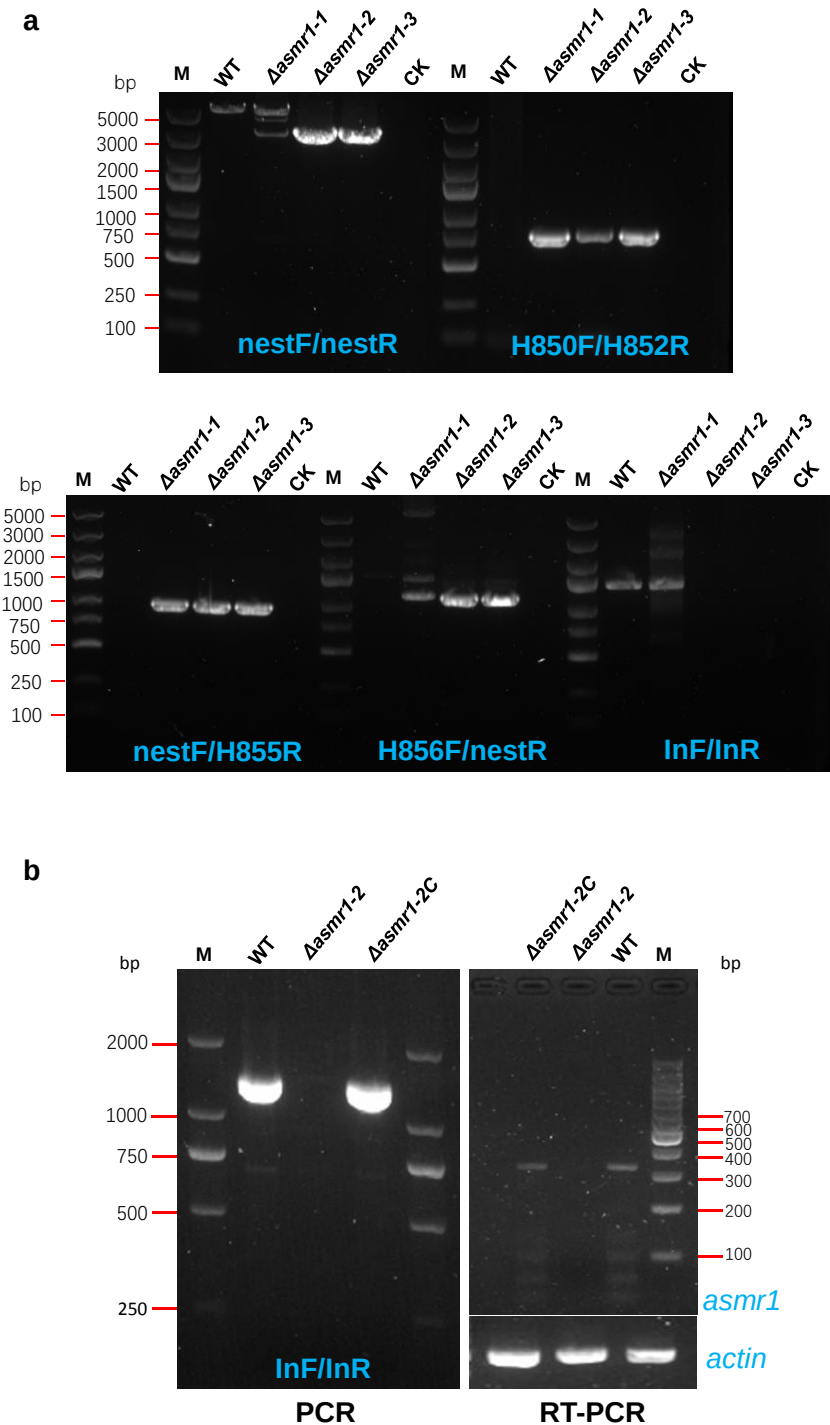


Fig. S4 Verification of *asmr1* deletion and complementation mutants. **a** PCR analysis of *asmr1* deletion mutants with five primer pairs, including Asmr1-nestF/Asmr1-nestR, H850F/H852R, Asmr1-nestF/H855R, H856F/Asmr1-nestR, and Asmr1-InF/Asmr1-InR. **b** PCR analysis of *asmr1* complementation mutant using the primer pair Asmr1-InF/Asmr1-InR. Abbreviations: WT = wild-type *A. solani*, Δ asmr1-1, Δ asmr1-2, Δ asmr1-3 = *asmr1* deletion mutants, Δ asmr1-2C = complementation mutant Δ asmr1-2:*asmr1*, CK = ddH₂O, M = marker.

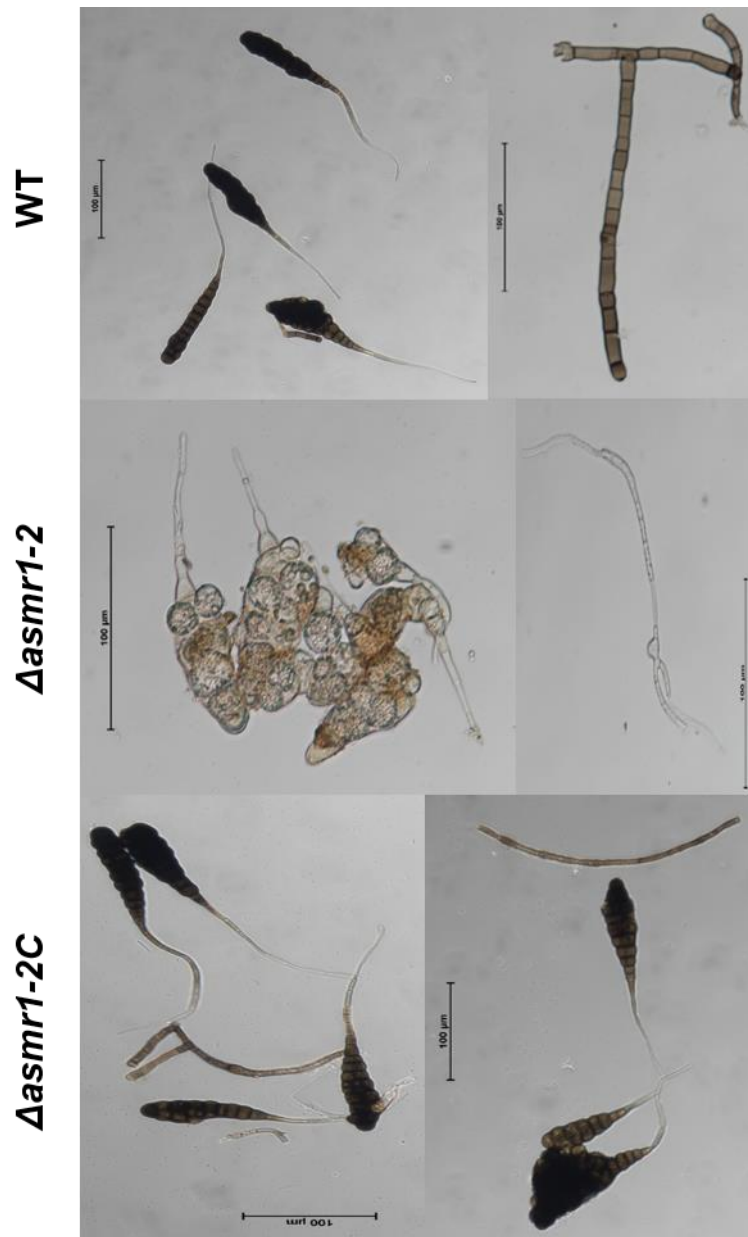


Fig. S5 Effect of *asmr1* deletion on conidial morphology in *A. solani*. Wild-type, *asmr1* deletion and complementation mutants were grown on PCA medium for 5 days at 25°C. Abbreviations: WT = wild-type *A. solani*, $\Delta asmr1-2$ = *asmr1* deletion mutant, $\Delta asmr1-2C$ = complementation mutant $\Delta asmr1-2:asmr1$.

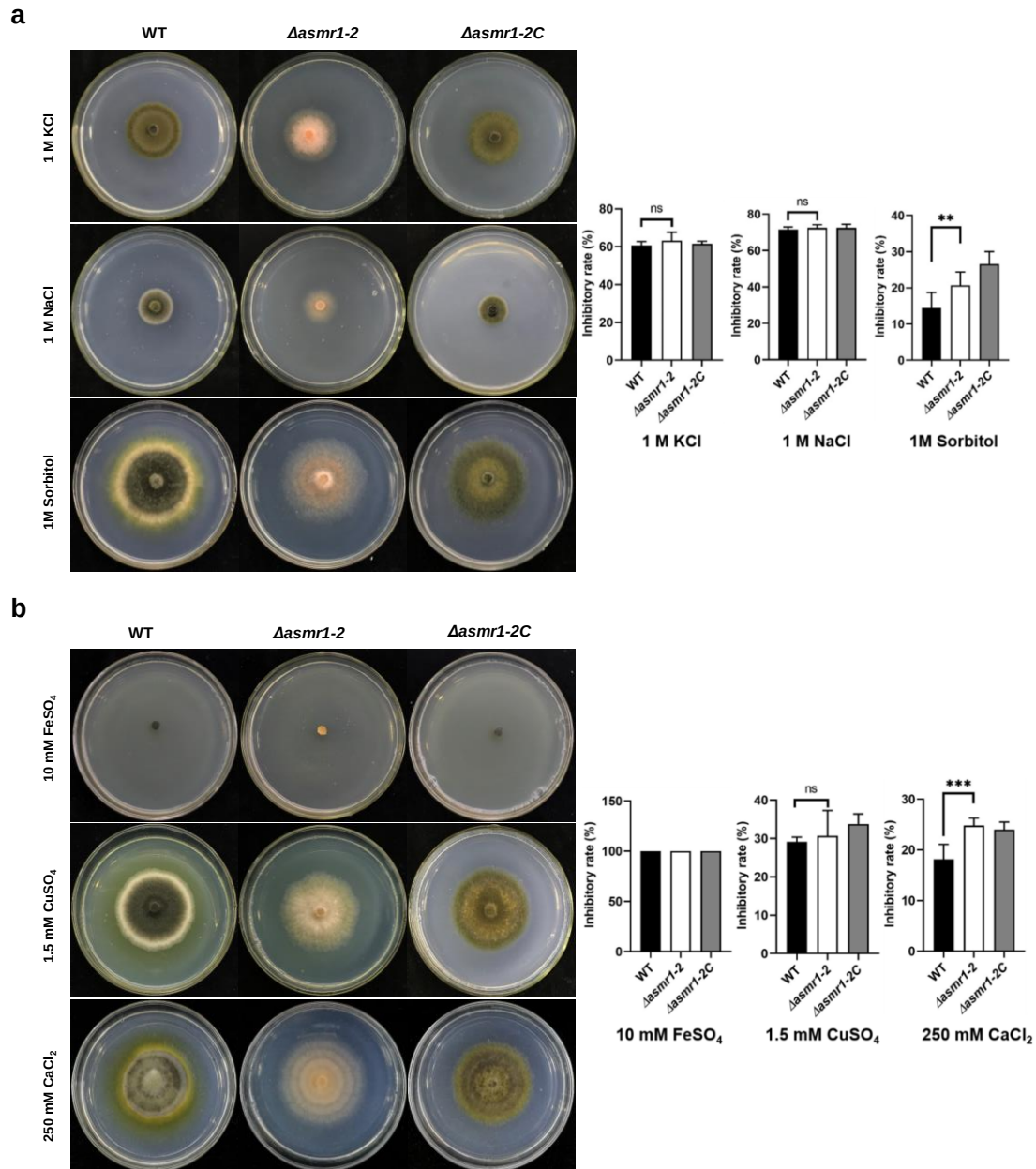


Fig. S6 Effects of *asmr1* deletion on *A. solani* responses to stressors. Comparison of mycelial growth inhibitory rates between mutants and wild-type on PDA medium in the presence of indicated (a) osmotic stressors or (b) metal ions. Values represent mean from three independent experiments with three replicates each. The significant difference in mycelial growth inhibitory rate was determined by one-way analysis of variance (ANOVA). *** $P < 0.001$; ns: not significant (comparison with wild-type). Abbreviations: WT = wild-type *A. solani*, $\Delta asmr1-2$ = *asmr1* deletion mutant, $\Delta asmr1-2C$ = complementation mutant $\Delta asmr1-2:asmr1$.

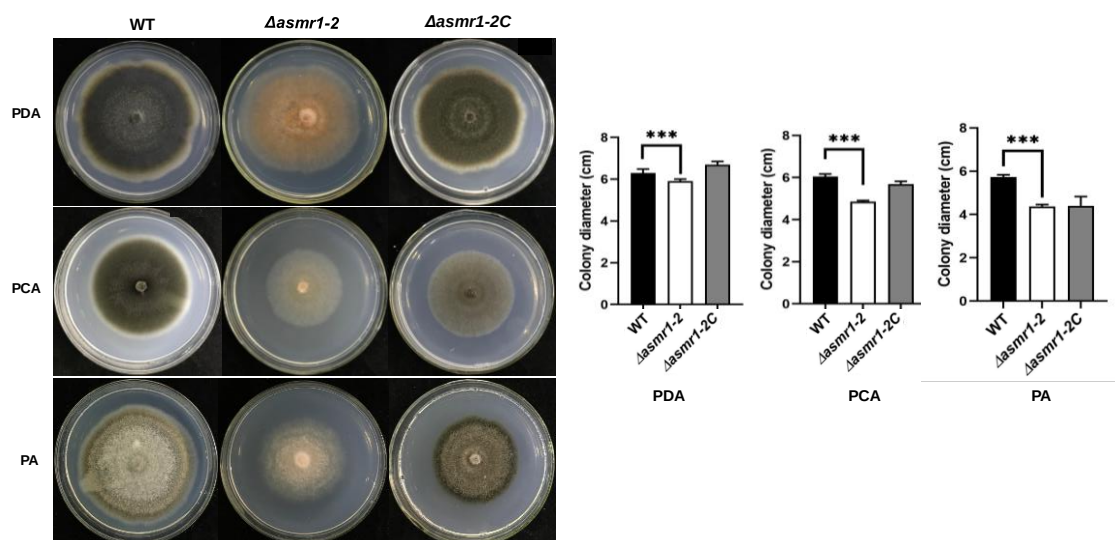


Fig. S7 Effect of *asmr1* deletion on the growth of *A. solani* in different media. Wild-type, *asmr1* deletion and complementation mutant were grown on PDA, PCA, and PA medium for 5 days at 25°C. Values represent mean from three independent experiments with three replicates each. The significant difference in colony diameter was determined by ANOVA. *** $P < 0.001$ (comparison with wild-type). Abbreviations: WT = wild-type *A. solani*, $\Delta asmr1-2$ = *asmr1* deletion mutant, $\Delta asmr1-2C$ = complementation mutant $\Delta asmr1-2:asmr1$.

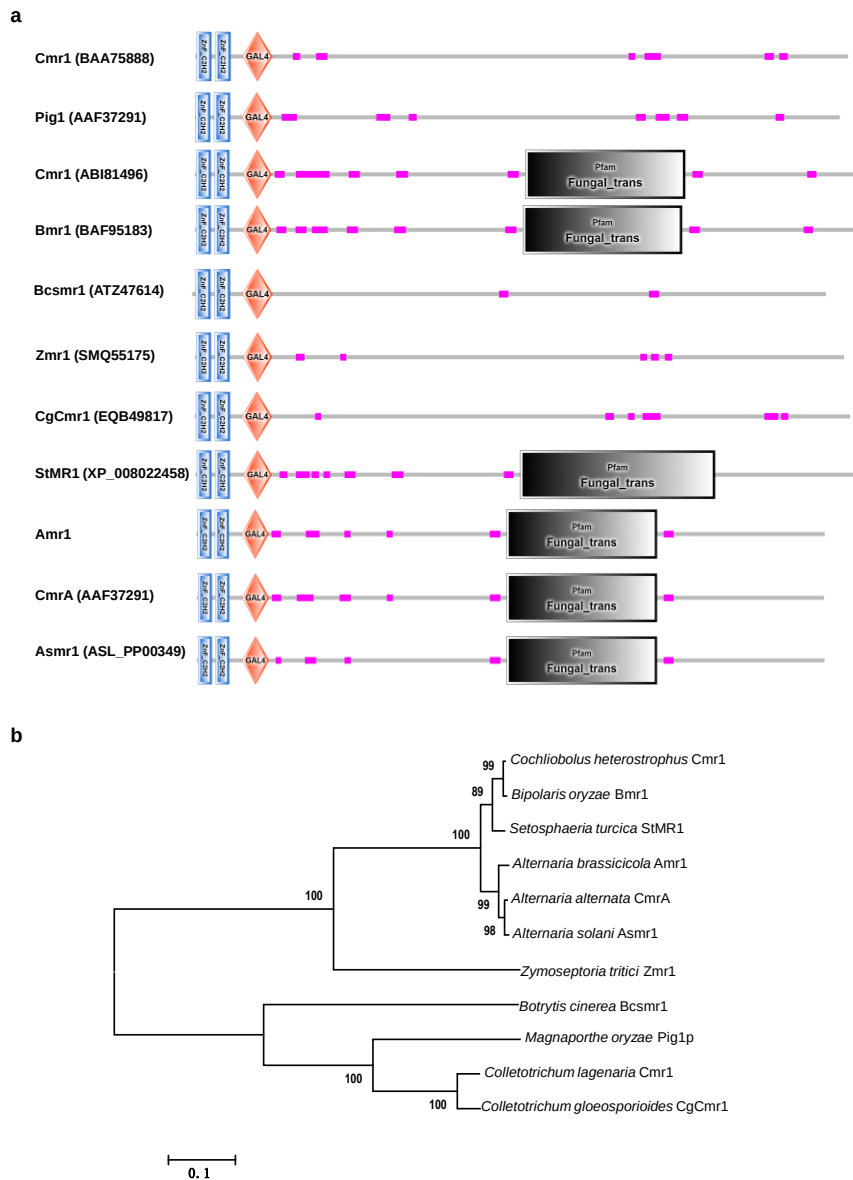


Fig. S8 Structure and phylogeny of 11 fungal Cmr1 homologs. Cmr1 homologs are from *Cochliobolus heterostrophus* (Cmr1), *Magnaporthe grisea* (Pig1), *Colletotrichum lagenarium* (Cmr1), *Bipolaris oryzae* (Bmr1), *Bipolaris cinerea* (Bcsmr1), *Zymoseptoria tritici* (Zmr1), *C. gloeosporioides* (CgCmr1), *Setosphaeria turcica* (StMR1), *Alternaria brassicicola* (Amr1), *A. alternata* (CmrA), and *A. solani* (Asmr1). **a** Graphical representation of motif structure of Cmr1 homologs predicted by SMART server at <http://smart.embl-heidelberg.de>. ZnF_C2H2 in blue box represents the Cys₂His₂ zinc finger motif (SM000355). GAL4 in an orange box indicates the GAL4-like Zn(II)₂Cys₆ binuclear cluster DNA-binding motif (SM00066). Fungal_trans in black box denotes the fungal specific transcription factor motif (PF04082). The pink box represents the low complexity region. **b** The maximum-likelihood (ML) tree generated by MEGA7.0.21 based on the protein sequences of 11 fungal Cmr1 homologs. The scale bar indicates weighted sequence divergence. Bootstrap percentages >70% are given at the nodes.

Supplemental Table S1 Information about 10 *A. solani* isolates

Isolate	Isolated host	Isolated location	Additional information	Source
DX0917	<i>Solanum tuberosum</i>	Dingxi, China	Early blight of potatoes	This study
SH0806	<i>Solanum tuberosum</i>	Suihua, China	Early blight of potatoes	Lianmei Tai ^a
BX0917	<i>Solanum tuberosum</i>	Benxi, China	Early blight of potatoes	This study
JG0805	<i>Solanum tuberosum</i>	Jiagedaqi District, China	Early blight of potatoes	Lianmei Tai ^a
KS0809	<i>Solanum tuberosum</i>	Keshan, China	Early blight of potatoes	Lianmei Tai ^a
DQ0803	<i>Solanum tuberosum</i>	Daqing, China	Early blight of potatoes	Lianmei Tai ^a
BJPO2207	<i>Solanum tuberosum</i>	Beijing, China	Early blight of potatoes	This study
BJTO2207	<i>Solanum lycopersicum</i>	Beijing, China	Early blight of tomatoes	This study
JSTO2207	<i>Solanum lycopersicum</i>	Jiansu, China	Early blight of tomatoes	This study
SDTO2207	<i>Solanum lycopersicum</i>	Shandong, China	Early blight of tomatoes	This study

^aHeilongjiang Bayi Agricultural University, China

Supplemental Table S2 Primer sequences used in this study

Primer	Sequence (5'-3')
Asmr1F	ATGGTCTTCTGCACATATTG
Asmr1R	TCAACCACGCGCAAGTTTCTC
Asmr1-BD-EcoRIF	TGGCCATGGAGGCCGAATTCATGGTCTTCTGCACATATTG
Asmr1-BD-SalIR	TGCGGCCGCTGCAGGTCGACTCAACCACGCGCAAGTTTCTC
Asmr1-IN1-firstR	AAGCACTTGAAGGGCTTGACATTTGTGTGAGTCAGGATATGTCGTTTCGAG
Asmr1-IN1-secondF	ACACAAATGTCAAGCCCTTCAAGTG
Asmr1-IN2-firstR	GACGGTGTAAATGTCTTTGCAAAAGATCTCGTCGGGCAAAGCTCATATG
Asmr1-IN2-secondF	AGATCTTTTGCAAAGACATTACAC
Asmr1-IN3-firstR	GTCCACCATGACCCAAGAGTAGATGAGGCGGCTGCGGCTTTCTTGCTG
Asmr1-IN3-secondF	CCTCATCTACTCTTGGGTCATGGTG
Asmr1-722F	ACTTTCGCCTCTTCCCACTC
Asmr1-1790F	GGCATCAAGCTTGCTCATTC
Asmr1-2838F	TGTGGATGCACAAGAAGTGC
Asmr1realF	TGTGGACAGTCGTTCAACCAG
Asmr1realR	GGACGGTGTAAATGTCTTTGC
Asmr1RTF	TGTGGACAGTCGTTCAACCAG
Asmr1RTR	CTTTCGATGCTCGACGTGTA
AsActin1realF	GTATCATGATCGGTATGGGACAG
AsActin1realR	CCAGATCTTCTCCATGTCGTCC
AsActin1RTF	CAATGGTTCGGGTATGTGCAAG
AsActin1RTR	GAAGAGCGAAACCCTCGTGAGT
AsEF1arealF	TGGGTCTCGACAAGTTGAA
AsEF1arealR	GATGAGAATAGCGCAGTCAGC
AspksArealF	ACAACCGTACCGATTCTCG
AspksArealR	AGCTTGCCTAGAGTGACACC
AsaygArealF	AAGACTCCGGCGAAGCAT
AsaygArealR	TCTTTTACTATCGGCTCGAAATC
AsaygBrealF	GGACAAGTGCCAGGATGAAT
AsaygBrealR	ATCCTCAATCGGCATACACC
Asbrm1realF	GAAGAACGAATTGAAGCCTACG
Asbrm1realR	CTCAGTGTGCGTGCGATG
Asbrm2realF	CGCTGTCTACTCTGGCTCAA
Asbrm2realR	CGTGGTACATGTCGGTCTTG
Asbrm3realF	ACCCTGATGGCAAACCATT
Asbrm3realR	ATCCACCAGAGATGGTCAGG
AslccArealF	CGCTCACCTATTCTCTCC
AslccArealR	GCTCGAGGAACTGGACACTAA
AslccBrealF	CGACCCACACTACAGGATGT
AslccBrealR	GCAGTGTTGTTGGTGGTGTCT
AslccCrealF	GGAGCGATGGTTACAGCATT
AslccCrealR	GAAGTGCCACTGCCATCTG
AslccDrealF	TCTTTGGAGGCATCATCATC
AslccDrealR	AGAGGTCTCGGCGGAGTG
AslccErealF	CGCCTAATGGCGGATACTAC
AslccErealR	CTCTTCGTGCTTTGGTCCAT
AslccFrealF	ACACGATAGAGCCTGGGAGA
AslccFrealR	GAAGTCGGCGTTGGTATTG
AslccGrealF	GGACACGGCGAGTGTAGAAG
AslccGrealR	CGCAAACATCATCATCAAGC
Asmr1-5F	CTGATCCGACGTGTGTGC
Asmr1-5R	CAAAATAGGCATTGATGTGTTGACCTCCACAACAGTGGTTGAGCGAGA
Asmr1-3F	CTCGTCCGAGGGCAAAGGAATAGAGTAGGTTTCTCCATCCGCATTGTC
Asmr1-3R	GACGTGCCTCGATACTGCTT
Asmr1-nestF	TCACTCTCAGCACGAACCTC
Asmr1-nestR	GCCCTCGTGTCTCTCATAT
Asmr1-CF	ACTCACTATAGGGCGAATTGGGTACTCAAATTGGTTGGTACTCGGTTGGCGTAGAG
Asmr1-CR	CACCACCCCGGTGAACAGCTCCTCGCCTTGCTCACACCACGCGCAAGTTTCTC
ID-R	GTCAGCTTGCCGTAGGTGGCA
HphCR	GCACCAAGCAGCAGATGATA
HphCF	ACTGTGCGGGCGTACACAAAT
H850F	TTCCTCCCTTTATTTTCAGATTCAA
H852R	ATGTTGGCGACCTCGTATTGG
H855R	GCTGATCTGACCAGTTGC
H856F	GTCGATGCGACGCAATCGT
hph1349F	GGAGGTCAACACATCAATGCCTATT
hph1349R	CTACTCTATTCCCTTTGCCCT
Asmr1-InF	GCAAATAGCCGTGTCGAAAT
Asmr1-InR	CTTGTGCATCCACAGCATCT

Supplemental Table S3 List of information about 44 *Alternaria* spp.

Species name	<i>Alternaria</i> section	Strain/Isolate	Isolated host	Isolated location	Additional information	Source ^a
<i>Alternaria alstroemeriae</i>	NA	CBS 118809	SpX12/RR9 Inside cage Flight	USA	NA	GenBank
<i>Alternaria alternata</i>	<i>Alternata</i>	ATCC 66891; EGS 34-016; CBS 916.96; BMP 0269	<i>Arachis hypogaea</i>	India	Leaf spot, rots of plants	JGI
<i>Alternaria angustiovoidea</i>	<i>Alternata</i>	FKII-L2-CM-DRAB1	Cleanroom at space-craft assembly facility	Pasadena, CA, USA	NA	GenBank
<i>Alternaria arborescens</i>	<i>Alternata</i>	FERA675	<i>Malus domestica</i>	NA	NA	GenBank
<i>Alternaria arbusti</i>	<i>Infectoriae</i>	BMP 1465	<i>Pyrus pyrifolia</i>	CA, USA	NA	GenBank
<i>Alternaria atra</i>	<i>Ulocladioides</i>	CS162	<i>Solanum chilense</i>	Chile	Leaf	GenBank
<i>Alternaria brassicicola</i>	<i>Brassicicola</i>	ATCC 96836; EGS 42-002; CBS 118699; BMP1950	<i>Brassica oleracea</i>	USA	Blackspot of brassica	GenBank
<i>Alternaria brassicae</i>	NA	J3	<i>Brassica juncea</i>	India	NA	GenBank
<i>Alternaria burnsii</i>	<i>Alternata</i>	CBS 107.38	<i>Cuminum cyminum</i>	Maharashtra, India	NA	GenBank
<i>Alternaria capsici</i>	<i>Porri</i>	ATCC MYA-998; EGS 45-075; BMP 0180	<i>Capsicum annuum</i>	Australia	Leaf spot of solanaceae (pepper)	JGI
<i>Alternaria carthami</i>	<i>Porri</i>	BMP 1963; CBS 635.80	<i>Carthamus tinctorius</i>	Perugia, Italy	Leaf spot and blight of safflower	JGI
<i>Alternaria citriarbusti</i>	<i>Alternata</i>	EGS 46-140; BMP 2343; SH-MIL-8 s	Citrus	NA	Brown/black spot of citrus	JGI
<i>Alternaria conjuncta</i>	<i>Infectoriae</i>	BMP 0040	<i>Pastinaca sativa</i>	Switzerland	NA	GenBank
<i>Alternaria consortialis</i>	<i>Ulocladioides</i>	JCM1940	Goat dung	Hisper Valley, Karakorum	NA	GenBank
<i>Alternaria crassa</i>	<i>Porri</i>	BM P0172; ACR1	Solanaceae	NA	Leaf spot of solanaceae	JGI
<i>Alternaria dauci</i>	<i>Porri</i>	ATCC 36613; BMP 0167	Carrot	USA	Leaf blight of carrots	JGI
<i>Alternaria destruens</i>	<i>Alternata</i>	ATCC 204363; EGS 46-069; BMP 0317	<i>Cuscuta gronovii</i>	Rochester, MA, USA	Infecting and suppressing dodder (weed)	AGD
<i>Alternaria ethzedia</i>	<i>Infectoriae</i>	BMP 0044	<i>Brassica napus</i>	Switzerland	NA	GenBank
<i>Alternaria fragariae</i>	NA	BMP 3062; NAF-8	<i>Fragaria x ananassa</i>	NA	Black spot disease of strawberry	JGI
<i>Alternaria gansuensis</i>	<i>Undifilum</i>	LYZ1412	<i>Astragalus adsurgens</i> Pall.	Loess Plateau, China	Swainsonine-producing fungi	GenBank
<i>Alternaria gaisen</i>	<i>Alternata</i>	CBS 632.93; EGS 90-0512; BMP 2338	<i>Pyrus pyrifolia</i> cv. Nijiseiki	Tottori, Japan	Black spot, ring spot disease of pear	JGI
<i>Alternaria hordeiaustralica</i>	<i>Infectoriae</i>	BMP 2776	<i>Hordeum vulgare</i>	Australia	NA	GenBank
<i>Alternaria incomplexa</i>	<i>Infectoriae</i>	BMP 0042	NA	Idaho, USA	NA	GenBank
<i>Alternaria infectoria</i>	<i>Infectoriae</i>	BMP 0036	<i>Triticum</i> sp.	United Kingdom	NA	GenBank
<i>Alternaria limoniasperae</i>	<i>Alternata</i>	EGS 44-159; BMP 2335	Citrus	NA	Leaf spot of citrus	JGI
<i>Alternaria longipes</i>	<i>Alternata</i>	CBS 540.94; EGS 30-033; BMP 0313	<i>Nicotiana tabacum</i>	North Carolina, USA	Tobacco Brown spot/Black/brown leaf spot of tobacco	JGI
<i>Alternaria macrospora</i>	<i>Porri</i>	BMP 1949; CH3	<i>Gossypium hirsutum</i>	NA	Leaf spot of cotton	JGI
<i>Alternaria mali</i>	<i>Alternaria</i>	BMP 3063; M-71	<i>Malus domestica</i>	NA	Leaf ring spot of apple	JGI
<i>Alternaria metachromatica</i>	<i>Infectoriae</i>	BMP 0045	<i>Triticum aestivum</i>	Australia	NA	GenBank
<i>Alternaria novae-zelandiae</i>	<i>Infectoriae</i>	BMP 2774	<i>Daucus carota</i>	New Zealand	NA	GenBank
<i>Alternaria panax</i>	<i>Panax</i>	BNCC115425	<i>Panax quinquefolium</i>	Beijing, China	American ginseng black spot	GenBank
<i>Alternaria porri</i>	<i>Porri</i>	BMP 0178; Z6B	<i>Allium cepa</i>	NA	Purple blotch, leaf blight and bulb rot of Allium (onion)	JGI
<i>Alternaria postmessia</i>	<i>Alternata</i>	BMP 2775	<i>Citrus x tangelo</i>	Florida, USA	NA	GenBank
<i>Alternaria rosae</i>	<i>Pseudoalternaria</i>	MPI-PUGE-AT-0040	<i>Arabidopsis thaliana</i>	Pulheim, Germany	<i>Arabidopsis thaliana</i> root mycobiota	GenBank
<i>Alternaria solani</i>	<i>Porri</i>	BMP 0185	<i>Solanum tuberosum/Solanum lycopersicum</i>	NA	Early blight of potatoes and tomatoes	AGD
<i>Alternaria tagetica</i>	<i>Porri</i>	EGS 44-044; BMP 0179	<i>Tagetes lemmonii</i>	NA	Leaf spot of marigold	AGD
<i>Alternaria tangelonis</i>	<i>Alternata</i>	EGS 45-080; BMP 2327; BC2-RLR-1 s	Citrus	NA	Leaf spot of citrus	JGI
<i>Alternaria tenuissima</i>	<i>Alternata</i>	ATCC 96828; EGS 34-015; CBS 918.96; BMP 0304	<i>Dianthus</i> sp.	UK	Leaf spot of plants	JGI
<i>Alternaria tomatophila</i>	<i>Porri</i>	BMP 2032; CBS 109156	<i>Lycopersicon esculentum</i>	Indiana, USA	Leaf spot of tomato	JGI
<i>Alternaria trititina</i>	<i>Infectoriae</i>	CBS 763.84	<i>Triticum aestivum</i>	New Delhi, India	NA	GenBank
<i>Alternaria triticumaculans</i>	<i>Infectoriae</i>	BMP 0046	<i>Triticum aestivum</i>	Argentina	NA	GenBank
<i>Alternaria turkisafria</i>	<i>Alternata</i>	BMP 3436; SH-MIL-20s	Citrus	USA	Leaf spot of citrus	AGD
<i>Alternaria ventricosa</i>	<i>Infectoriae</i>	BMP 2768	<i>Pyrus x bretschneideri</i>	China	NA	GenBank
<i>Alternaria viburni</i>	<i>Infectoriae</i>	BMP 2772	<i>Viburnum</i> sp.	Netherlands	NA	GenBank

^aGenBank, National Center for Biotechnology Information (<http://www.ncbi.nih.gov>); JGI, Joint Genome Institute, US Department of Energy (<http://www.jgi.doe.gov>); AGD, *Alternaria* Genome Database (<http://alternaria.vbi.vt.edu>). NA=not applicable

Supplemental Table S4 Information about 44 Cmr1 homologs in the genus *Alternaria*

Species name	Gene accession	Gene sequence length	Intron location	Protein accession	Protein sequence length
<i>Alternaria alstroemeriae</i>	NA	3273	71-170; 226-309; 2161-2216	NA	1010
<i>Alternaria alternata</i>	KJ939356 ^a	3273	71-170; 226-309; 2161-2216	AIG15468 ^a	1010
<i>Alternaria angustiovoidea</i>	NA	3273	71-170; 226-309; 2161-2216	NA	1010
<i>Alternaria arborescens</i>	XM_028649146 ^a	3273	71-170; 226-309; 2161-2216	XP_028511872 ^a	1010
<i>Alternaria arbusti</i>	NA	3263	71-169; 225-301; 2150-2206	NA	1009
<i>Alternaria atra</i>	NA	3267	71-169; 225-300; 2152-2207	NA	1011
<i>Alternaria brassicicola</i>	NA	3282	71-170; 226-311; 2163-2222	NA	1011
<i>Alternaria brassicae</i>	NA	3254	71-146; 202-287; 2139-2194	NA	1011
<i>Alternaria burnsii</i>	XM_038925615 ^a	3273	71-170; 226-309; 2161-2216	XP_038791471 ^a	1010
<i>Alternaria capsici</i>	NA	3277	71-170; 226-310; 2162-2217	NA	1011
<i>Alternaria carthami</i>	ACM_PT10841 ^b	3283	71-170; 226-310; 2162-2217	ACM_PP10841 ^b	992
<i>Alternaria citriarabusti</i>	NA	3273	71-170; 226-309; 2161-2216	NA	1010
<i>Alternaria conjuncta</i>	NA	3263	71-169; 225-301; 2150-2206	NA	1009
<i>Alternaria consortialis</i>	NA	3267	71-169; 225-300; 2152-2207	NA	1011
<i>Alternaria crassa</i>	ACM_PT08031 ^b	3277	71-170; 226-310; 2162-2217	ACM_PP08031 ^b	1011
<i>Alternaria dauci</i>	ADC_PT01443 ^c	3277	71-170; 226-310; 2162-2217	ADC_PP01443 ^c	1011
<i>Alternaria destruens</i>	ADT_PT05662 ^b	3344	71-170; 226-309; 2204-2259	ADT_PP05662 ^b	790
<i>Alternaria ethzedia</i>	NA	3263	71-169; 225-301; 2150-2206	NA	1009
<i>Alternaria fragariae</i>	AFG_PT01606 ^c	3273	71-170; 226-309; 2161-2216	AFG_PP01606 ^c	1010
<i>Alternaria gansuensis</i>	NA	3277	71-170; 226-310; 2162-2217	NA	1009
<i>Alternaria gaisen</i>	AGS_PT02526 ^c	3273	71-170; 226-309; 2161-2216	AGS_PP02526 ^c	1010
<i>Alternaria hordeiaustralica</i>	NA	3263	71-169; 225-301; 2150-2206	NA	1009
<i>Alternaria incomplexa</i>	NA	3263	71-169; 225-301; 2150-2206	NA	1009
<i>Alternaria infectoria</i>	J4E92_008460 ^a	3263	71-169; 225-301; 2150-2206	KAI4920335 ^a	1009
<i>Alternaria limoniasperae</i>	NA	3273	71-170; 226-309; 2161-2216	NA	1010
<i>Alternaria longipes</i>	NA	3273	71-170; 226-309; 2161-2216	NA	1010
<i>Alternaria macrospora</i>	NA	3277	71-170; 226-310; 2162-2217	NA	1011
<i>Alternaria mali</i>	AML_PT04777 ^c	3273	71-170; 226-309; 2161-2216	AML_PP04777 ^c	1010
<i>Alternaria metachromatica</i>	J4E83_001950 ^a	3263	71-169; 225-301; 2150-2206	KAI4634631 ^a	1009
<i>Alternaria novae-zelandiae</i>	J4E88_001357 ^a	3263	71-169; 225-301; 2150-2206	KAI4692986 ^a	1009
<i>Alternaria panax</i>	G6011_11168 ^a	3282	71-170; 226-311; 2163-2222	KAG9192434 ^a	1011
<i>Alternaria porri</i>	APR_PT04911 ^c	3277	71-170; 226-310; 2162-2217	APR_PP04911 ^c	1011
<i>Alternaria postmessia</i>	NA	3273	71-170; 226-309; 2161-2216	NA	1010
<i>Alternaria rosae</i>	XM_046164914 ^a	3271	71-168; 224-309; 2158-2214	XP_046026581 ^a	1009
<i>Alternaria solani</i>	ASL_PT00349 ^b	3277	71-170; 226-310; 2162-2217	ASL_PP00349 ^b	1011
<i>Alternaria tagetica</i>	ATT_PT04326 ^b	3277	71-170; 226-310; 2162-2217	ATT_PP04326 ^b	1011
<i>Alternaria tangelonis</i>	NA	3273	71-170; 226-309; 2161-2216	NA	1010
<i>Alternaria tenuissima</i>	NA	3273	71-170; 226-309; 2161-2216	NA	1010
<i>Alternaria tomatophila</i>	ATM_PT05196 ^b	3277	71-170; 226-310; 2162-2217	ATM_PP05196 ^b	1011
<i>Alternaria triticina</i>	NA	3263	71-169; 225-301; 2150-2206	NA	1009
<i>Alternaria triticumaculans</i>	NA	3263	71-169; 225-301; 2150-2206	NA	1009
<i>Alternaria turkisafria</i>	NA	3273	71-170; 226-309; 2161-2216	NA	1010
<i>Alternaria ventricosa</i>	NA	3263	71-169; 225-301; 2150-2206	NA	1009
<i>Alternaria viburni</i>	J4E79_003358 ^a	3263	71-169; 225-301; 2150-2206	KAI4665059 ^a	1009

^aGenBank, National Center for Biotechnology Information (<http://www.ncbi.nih.gov>)

^bAGD, *Alternaria* Genome Database (<http://alternaria.vbi.vt.edu>)

^cJGI, Joint Genome Institute, US Department of Energy (<http://www.jgi.doe.gov>)

NA=not applicable