

Sma 3 : LVTMDARIDPARAFGIE-----LGDAHVIRNAG---ASTKDALRSIISQQLLATEAIVKHTGCG
Ncr 3 : LVTMDARIDPARAFGIE-----LGDAHVIRNAG---ASSKDALRSIISQQLLATEAIVKHTGCG
Pan 3 : LVTMDARIDPARAFGIE-----LGDAHVIRNAG---ASAVDALRSIISQQLLGTNEIVLVKHTGCG
Cal 3 : LVTMDARIDPARAFGID-----LGDAHVIRNAG---ASAVDGLRSIISQQLLGTKEIVLVKHTGCG
Mar 3 : LVTMDARIDPAAAFGID-----LGDAHVIRNAG---ASARDGLRSIISQQLLGTREIVLVKHTGCG
Bfu 3 : AVTMDARIDPAAAFGIA-----LGDAHVIRNAG---GSARDALRSIISQQLLGTNEIVLVKHTGCG
Pno 3 : AVTMDARIDPTAAFGIP-----LGAHVIRNAG---ASARDAFRSIISQQLLGTTEIVLVKHTGCG
Cim 3 : LVTMDARIDPAAAFGID-----LGDAHVIRNAG---ANSRDALRSIISQQLLNTKEIVLVKHTGCG
Pbr 3 : LVTMDARIDPSSAFGIS-----LGDAHVIRNAG---ASARDGLRSIISQQLLGTREIVLVKHTGCG
Tat 3a : FVTMDARLDPAKFLGLE-----EGHAHVIRNAG---GRAEALRSIISQQLLGTREIVLVKHTGCG
Tre 3a : FVTMDARLDPAKFLGLE-----EGHAHVIRNAG---GRAEALRSIISQQLLGTREIVLVKHTGCG
Tvi 3a : FVTMDARLDPAKFLGLE-----EGHAHVIRNAG---GRAEALRSIISQQLLGTREIVLVKHTGCG
Fox 3a : AVTMDARLDPAQVLGLE-----LGAHVIRNAG---GRAADALRSIISQQLLGTREIVLVKHTGCG
Fve 3a : AVTMDARLDPAQVLGLE-----LGAHVIRNAG---GRAADALRSIISQQLLGTREIVLVKHTGCG
Far 3a : AVTMDARLDPAQVLGLE-----LGAHVIRNAG---GRAADALRSIISQQLLGTREIVLVKHTGCG
Cal 3 : AVTMDARIDPAAASLGLT-----EGDAHVIRNAG---GRASDALRSIISQQLLGTREIVLVKHTGCG
Pst 3 : AVTMDARIDPAKALGLS-----EGDAHVIRNAG---GRASDALRSIISQQLLGTREIVLVKHTGCG
Ate 3 : AVTMDARLDVARALGLE-----EGDAHVIRNAG---GRVTDALRSIISQQLLGTREIVLVKHTGCG
Fqr 3b : AVTMDARLDVEKVLGLD-----IGDAHVIRNAG---GRAEALRSIISQQLLGTREIVLVKHTGCG
Nfi 3 : AVTMDARIDVFSALGLT-----EGDAHVIRNAG---GRAEALRSIISQQLLGTREIVLVKHTGCG
Afu 3 : AVTMDARIDVFSALGLT-----EGDAHVIRNAG---GRAEALRSIISQQLLGTREIVLVKHTGCG
Tvi 3b : VLTMDARLDPAKAYGFD-----LGEVTTIRNAG---ASGRDAARSALLTTHVLGAEIVLVKHTGCG
Tat 3b : VLTMDARLDPAKAYGFE-----LGEVTTIRNAG---ASGLDAARSALLTTHVLGAEIVLVKHTGCG
Tvi 3c : ILSGSSEPLNPNYQIFGVD-----S---TIKGVMTIRNAG---GRAMDAIRSISQQLLGTREIVLVKHTGCG
Tre 3c : ILSGSSEPLNPNYQIFGID-----S---SLOGISMIRNAG---GRAMDAIRSISQQLLGTREIVLVKHTGCG
Tat 3d : ILSGSSEPLNPNYQIFGID-----P---SIRGVMTIRNAG---GRAMDAIRSISQQLLGTREIVLVKHTGCG
Tat 3c : VVSGSSEPLNPNYQILGID-----E---TLK-ATMIRNAG---GRAFDAIRTSISQQLLGTREIVLVKHTGCG
Fox 3b : --GAVDPRCSVDKFIIDN-----LGVPNGEMVMVSNAG---GNIRFAVRDLLDARFVDEIVLVKHTGCG
Fve 3b : --GAVDPRCSVDKFIIDN-----LGVPNGEMVMVSNAG---GNIRFAVRDLLDARFVDEIVLVKHTGCG
Tre 3b : LAGVDPKCSVDKFIIDN-----LRVPNGEMVMVSNAG---GHIRHVRDLLDARFVDEIVLVKHTGCG
Sma 1 : LWHGSSESCPETTILGMO-----PGDVFVHRNIANIVSPTDINTTAVTEYAVAHKLVKHLVLCGHSACG
Ncr 1 : LWHGSSESCPETTILGMO-----PGDVFVHRNIANIVSPTDINTTAVTEYAVAHKLVKHLVLCGHSACG
Cal 1 : LWHGSSESCPETTILGLQ-----PGDVFVHRNIANIVSATDINTTAVTEYAVAHKLVKHLVLCGHSACG
Mar 1 : LWHGSSESCPETTILGLQ-----PGDVFVHRNIANIVSATDINTTAVTEYAVAHKLVKHLVLCGHSACG
Pan 1 : LWHGSSESCPETTILGLQ-----PGDVFVHRNIANIVSATDINTTAVTEYAVAHKLVKHLVLCGHSACG
Ssc 1 : LWHGSSESCVPETTIVLGLQ-----PGDVFVHRNIANIVSPTDINTTAVTEYAVAHKLVKHLVLCGHSACG
Bfu 1 : LWHGSSESCVPETTIVLGLQ-----PGDVFVHRNIANIVSPTDINTTAVTEYAVAHKLVKHLVLCGHSACG
Aor 1 : LWHGSSESCPETTIVLGLK-----PGDVFVHRNIANILHAGDLSSAVTEYAVRHLRVNHLVLCGHSACG
Afl 1 : LWHGSSESCPETTIVLGLK-----PGDVFVHRNIANILHAGDLSSAVTEYAVRHLRVNHLVLCGHSACG
Ate 1 : LWHGSSESCPETTIVLGLK-----PGDVFVHRNIANILHAGDLSSAVTEYAVRHLRVNHLVLCGHSACG
Nfi 1 : LWHGSSESCPETTILGLL-----PGDVFTHRNIANIVHPADLSSGAVTEYAVRHLRVKHLVLCGHSACG
Afu 1 : LWHGSSESCPETTILGLL-----PGDVFTHRNIANIVHPADLSSGAVTEYAVRHLRVKHLVLCGHSACG
Acl 1 : LWHGSSESCPETTILGLL-----PGDVFTHRNIANIVHPADLSSGAVTEYAVRHLRVKHLVLCGHSACG
And 1 : LWHGSSESCPETTILGLK-----PGDVFTHRNIANILQPSDLSSTAVTEYAVRHLRVKHLVLCGHSACG
Cim 1 : LWHGSSESCPETTIVLGLQ-----PGDVFTHRNIANIVQYNDLSSASVTEYAVRHLRVKHLVLCGHSACG
Pbr 1 : LWHGSSESCPETTILGLQ-----PGDVFTHRNIANIVQYNDLSSASVTEYAVRHLRVKHLVLCGHSACG
Pno 1 : LWHGSSESCVPETTIVCHCK-----PGDIFVHRNIANIVHANDLNSASVTEYAVAHKLVKHLVLCGHSACG
Cal : LWHGSSESCAGDQ-CLATL-----PGEIFVHRNIANIVNANDISSQGVTEYAVDVLKVKHLVLCGHSACG
Pst : LWHGSSESCAGES-CLATL-----PGEIFVHRNIANIVNANDISSQGVTEYAVDVLKVKHLVLCGHSACG
Dha : LWHGSSESCAGES-CLATL-----PGEIFVHRNIANIVNANDISSQGVTEYAVDVLKVKHLVLCGHSACG
Pqu : LWHGSSESCAGES-CLATL-----PGEIFVHRNIANIVNANDISSQGVTEYAVDVLKVKHLVLCGHSACG
Lel : LWHGSSESCAGDG-CLATL-----PGEIFVHRNIANIVNANDISSQGVTEYAVDVLKVKHLVLCGHSACG
Yli : LWHGSSESCAGEG-CLDIL-----PGEIFVHRNIANILPDSDFSSLSVTEYAVQVLKVKHLVLCGHSACG
Spo : LWHGSSESCVPETTILNLL-----PGEIFVHRNIANIVPRSDINALAVTEYAVDVLKVKHLVLCGHSACG
Sma 2 : LWHGSSESCIPAEQITGLQ-----PGDAFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Ncr 2 : LWHGSSESCIPAEQITGLQ-----PGDAFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Pan 2 : LWHGSSESCIPAEQITGLE-----PGDAFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Cal 2 : LWHGSSESCIPAEQITGLE-----PGDAFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Mar 2 : LWHGSSESCIPAEQITGLE-----PGDAFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Fox 2 : LWHGSSESCIPAEQITGLE-----PGDAFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Fve 2 : LWHGSSESCIPAEQITGLE-----PGDAFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Fqr 2 : LWHGSSESCIPAEQITGLE-----PGDAFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Afu 2 : LYHGSSESCVPANEIMGLE-----AGEVFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Nfi 2 : LYHGSSESCVPANEIMGLE-----AGEVFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Acl 2 : LYHGSSESCVPANEIMGLE-----AGEVFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
And 2 : LYHGSSESCVPANEIMGLE-----AGEVFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Pbr 2 : LWHGSSESCIPAEQITGLE-----PGDAFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Pno 2 : LWHGSSESCIPAEQITGLE-----PGDAFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Tvi 2 : LWHGSSESCIPAEQITGLE-----AGEAFVHRNIANLVISTDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Tre 2 : LWHGSSESCIPAEQITGLE-----AGEAFVHRNIANLVISTDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Tat 2 : LWHGSSESCIPAEQITGLE-----AGEAFVHRNIANLVISTDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Cne1 : LWHGSSESCVPETTIVGCG-----PGDIFVHRNIANLVSPQDSSLSVTEYAVRHLRVKHLVLCGHSACG
Cne2 : LWHGSSESCVPETTIVGCG-----PGDIFVHRNIANLVSPQDSSLSVTEYAVRHLRVKHLVLCGHSACG
Lbi : LWHGSSESCVPESVITAAK-----PGDIFVHRNIANLVHDSNVLSVTEYAVRHLRVKHLVLCGHSACG
Cci : LWHGSSESCVPDSIVTGSK-----PGEIFVHRNIANLVKDDYNALSVTEYAVRHLRVKHLVLCGHSACG
Uma : LWHGSSESCVPETTICDAE-----PGDFFVHRNIANLVFRLDDTAANALTEYAVRHLRVKHLVLCGHSACG
Mal : LWHGSSESCVPESVVCNAR-----PGEIFVHRNIANLVHDSNVLSVTEYAVRHLRVKHLVLCGHSACG
Kla : LWHGSSESCYNEN-VVGVL-----PGEIFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Sce : LWHGSSESCYNEN-CLGVL-----PGEIFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Cal : LWHGSSESCYNEN-CLGVL-----PGEIFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Vpo : LWHGSSESCYNEN-CLGVL-----PGEIFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Ago : LWHGSSESCYNEN-CLGVL-----PGEIFVHRNIANLVNCDLNVMSVTEYAVRHLRVKHLVLCGHSACG
Sma4 : TKGTFFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Ncr 4 : TEGTFFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Pan 4 : PEGAEFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Cal 4 : PDGAEFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Mar 4 : PA-TEFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Far 4a : TEGTFFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Fqr 4b : PDGAEFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Tvi 4 : PFGAEFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Tre 4 : PYGAEFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Tat 4 : PFGAEFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Aor 4 : ADGKLENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Ate 4a : ADYAKFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Ate 4b : TNGTFFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Pno 4 : --EVEFENLGTTEIVIAK---GGSMTLGEK---QYTLQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA
Pbr 4 : NLNTTVEILEGTTMVGNS-----EFLKQGFHFLPSEHLDNGTIRAMEMHVVQWOTENQEL---AVIGTYIDVA

Supplementary Figure S1

Multiple sequence alignment of the zinc-coordinating regions from α - and β -class CAs of fungi. Protein sequences CAs from filamentous ascomycetes, hemiascomycetous yeasts and basidiomycetes are aligned to maximized similarities. The alignment was used to generate the phylogenetic tree given in Figure 2. Accession numbers and abbreviations are given in Table 1.