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A Eukaryote without Catalase-Containing Microbodies

Schliebs, Wolfgang; Würtz, Christian; Kunau, Wolf-Hubert; Veenhuis, Marten; Rottensteiner, Hanspeter; Wuertz, Christian

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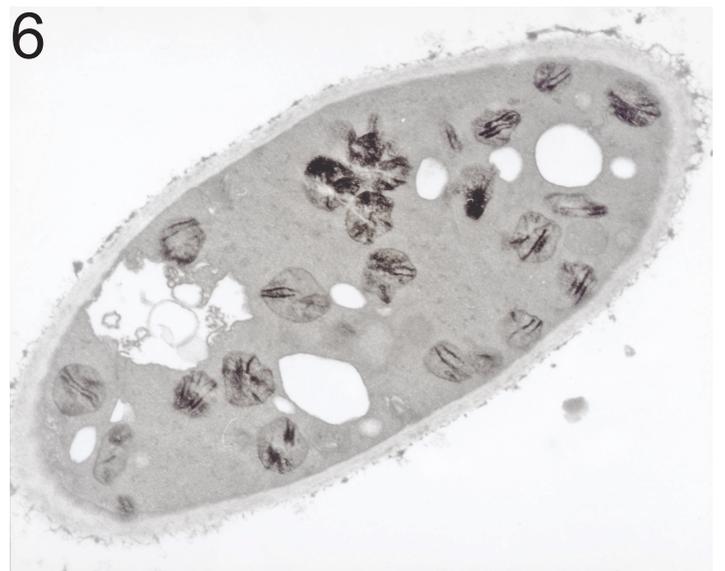
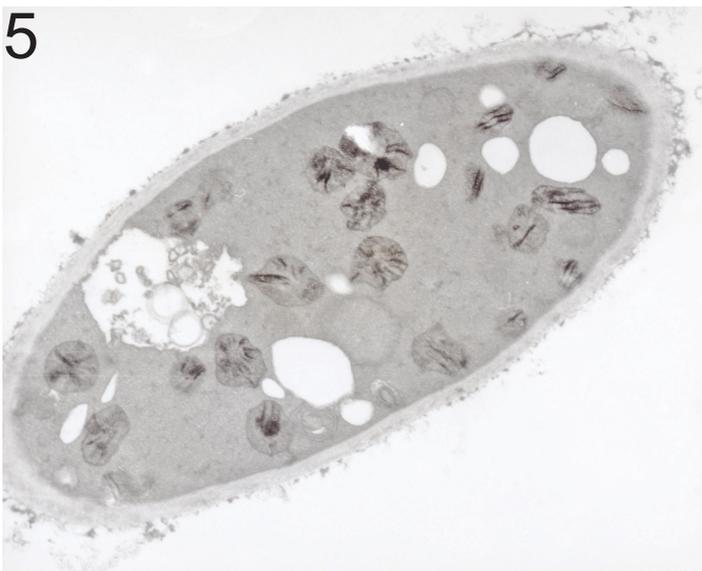
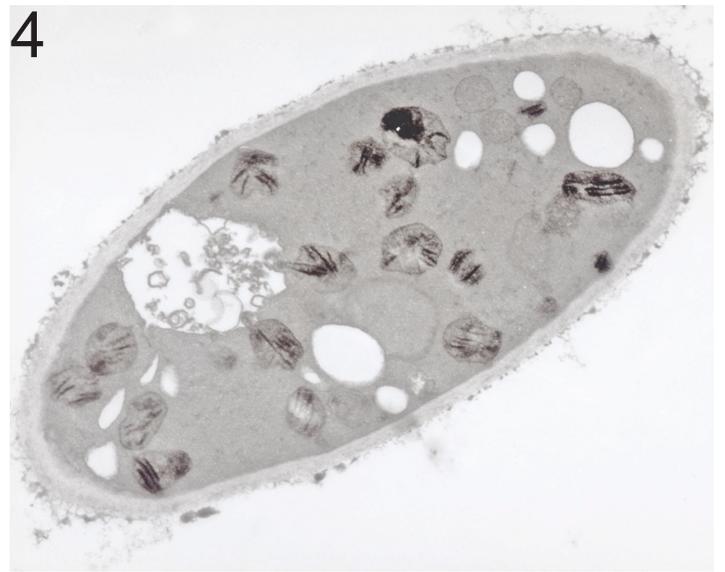
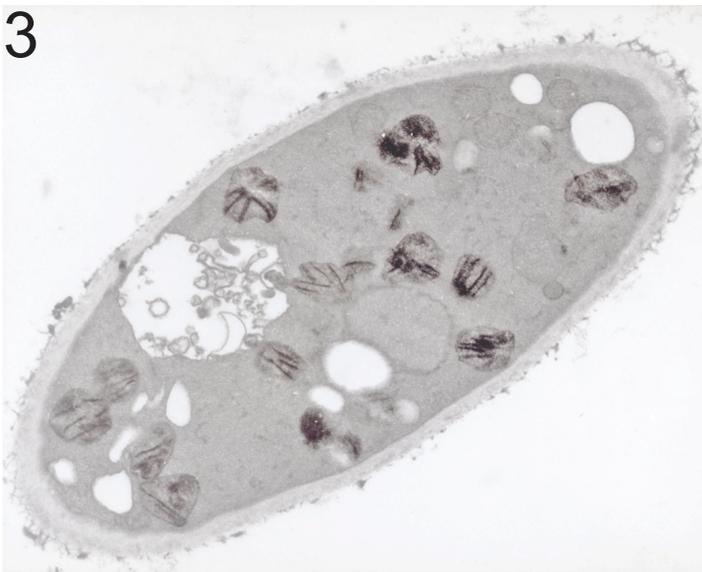
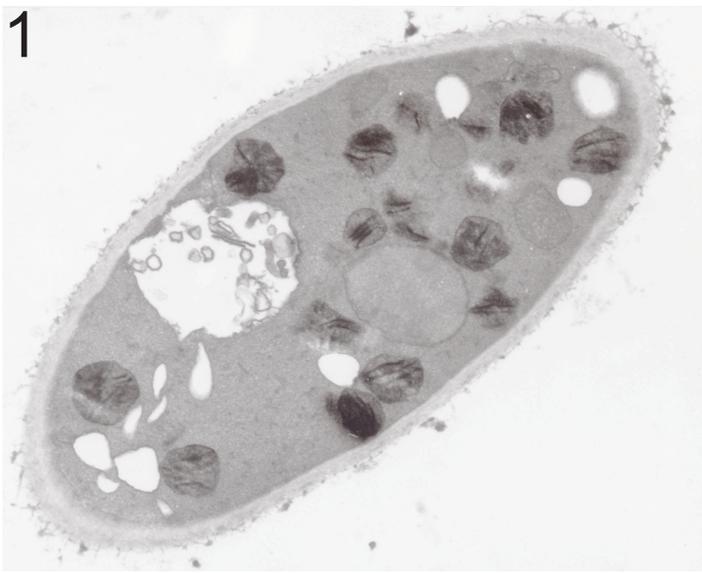
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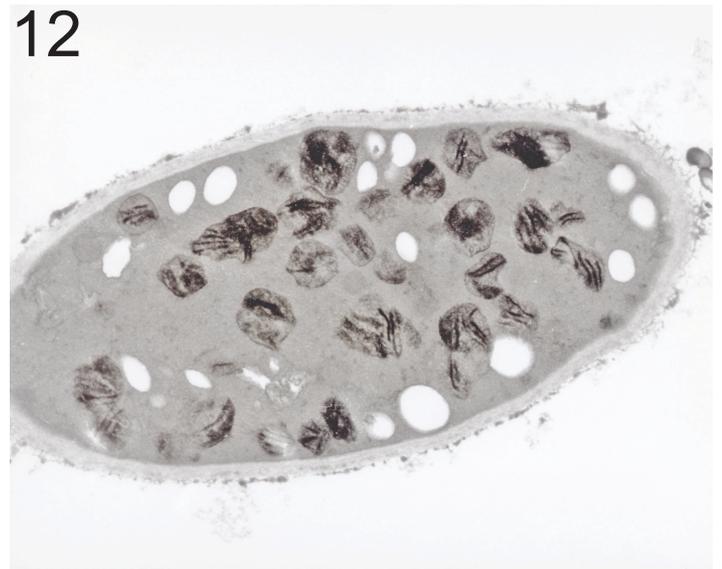
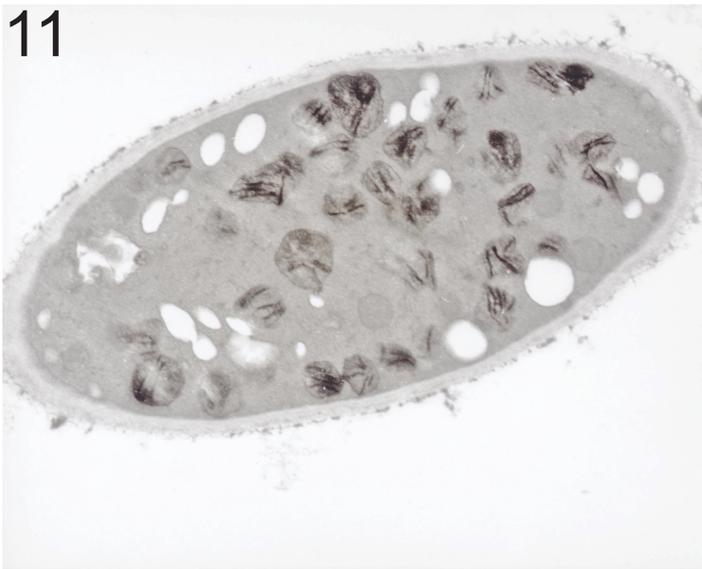
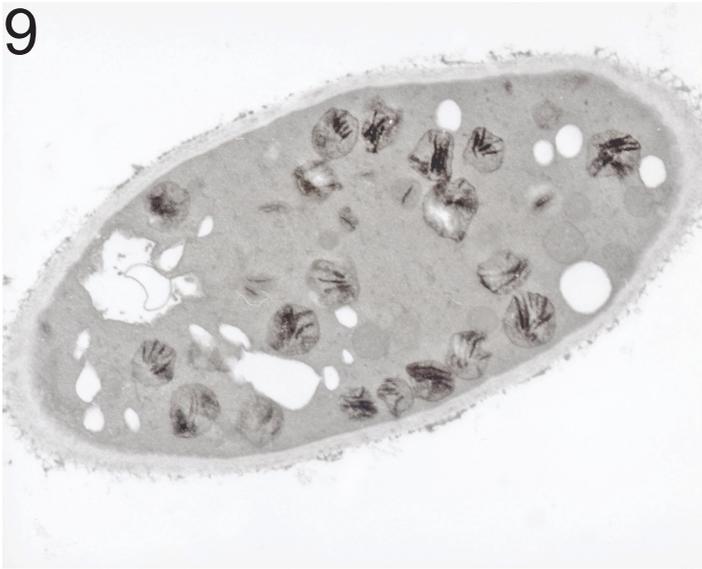
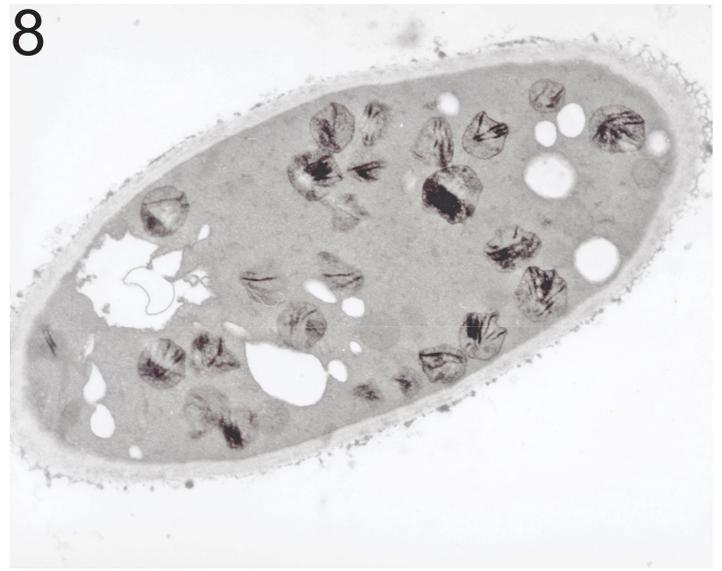
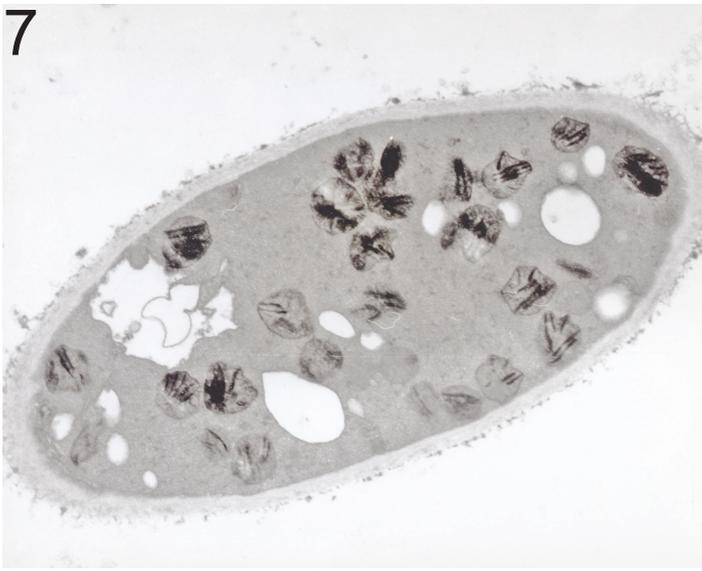
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SupFig. 1 - A



SupFig. 1 - B

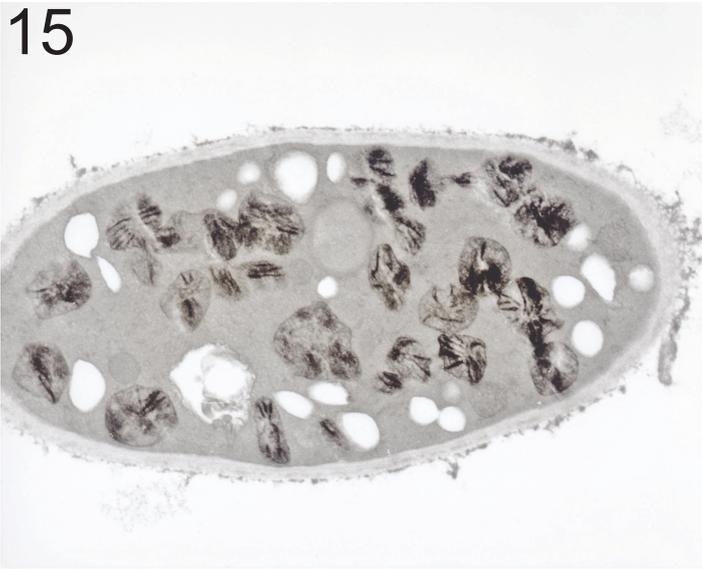
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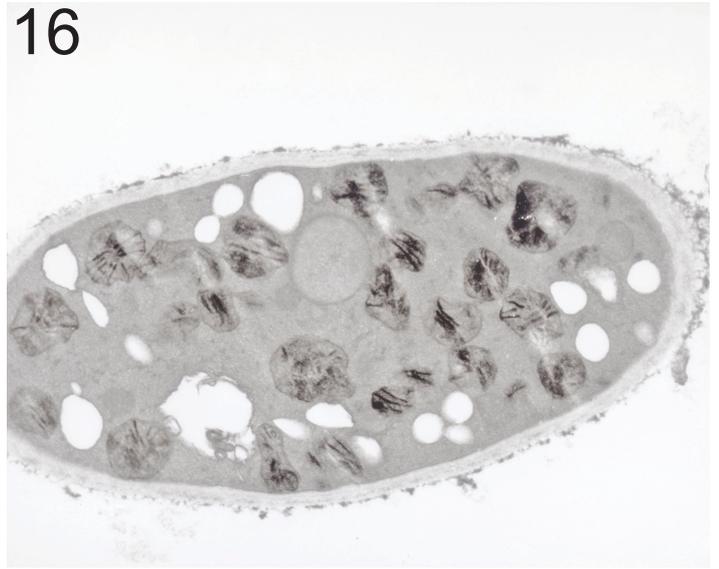
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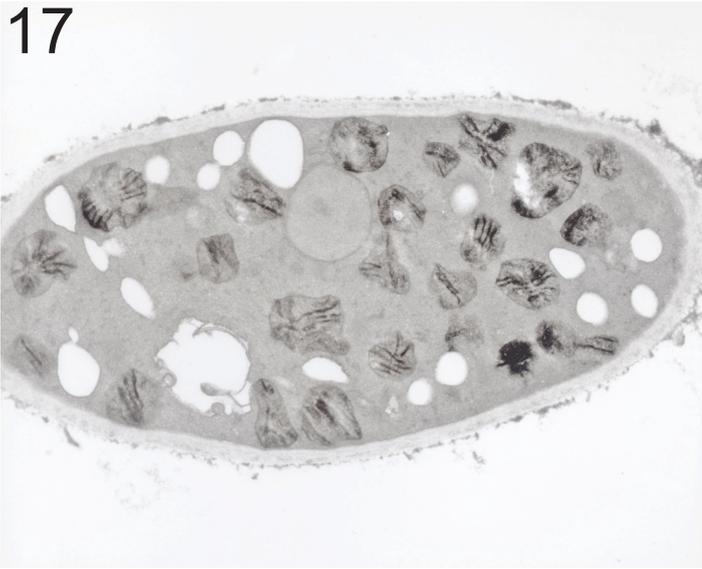
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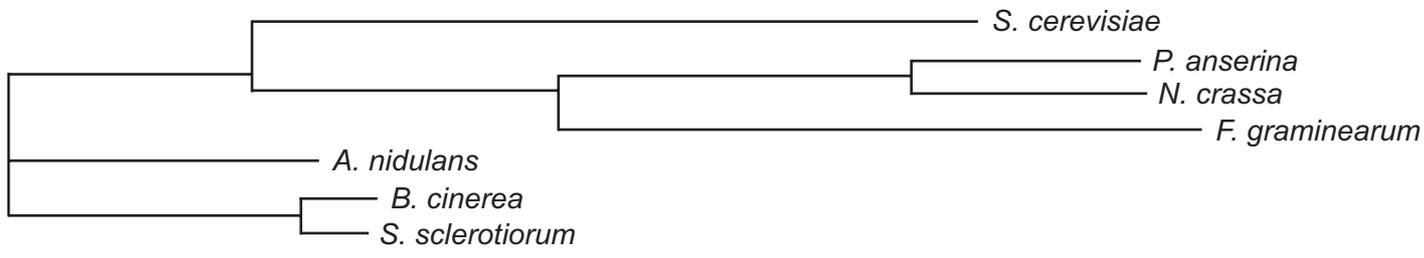
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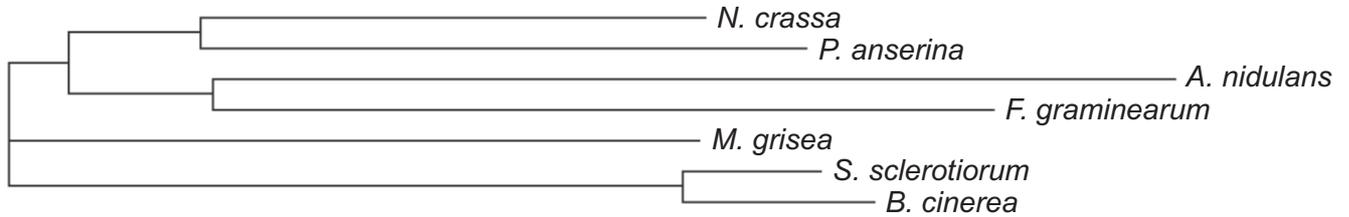
SupFig. 1 - C



	1	
<i>B. cinerea</i>	--MVADDKPASTFK--YNEAPVYTTSNCGPVRHPEEFQVRG---TNGP--LLLQDFHLIDL	52
<i>S. sclerotiorum</i>	--MVADEKPASTR--YDEAPVYTTSNCGPVRHPEEFQVRG---TNGP--LLLQDFHLIDL	52
<i>A. nidulans</i>	---MGQNDQKTYR--YNESPVYTTSNCGPVMDPQASQVRG---PNGP--LLLQDFNLIDL	51
<i>S. cerevisiae</i>	MSKLGQEKNEVNSDVREDRVVTTNSTGNPINEPVTQVRIG---EHGP--LLLQDYNLIDS	55
<i>P. anserina</i>	-----MAPCKDDAPIVTLAEGRPVHDP--TAATVLRGKPKGGQLSLSDTQLIET	49
<i>N. crassa</i>	-----MS--SNDAPVYTLAEGRPVQDPSAATVLMGSKPRGGALSLLADTQLIET	47
<i>F. graminearum</i>	-----MTSSAKLGENPISTLANGQP--TENPGSTQQIRYQSQNGG--LVVLSDTQTIEI	50
	1 2 3	
<i>B. cinerea</i>	LAHFDREIRIPERVVHAKGAGAYGEFEVTHDISDITTDMLSQVGKKTPLVSRFSTVGGEK	112
<i>S. sclerotiorum</i>	LAHFDREIRIPERVVHAKGAGAYGEFEVTHDISDITTDMLSKVGKKTPLVTRFSTVGGEK	112
<i>A. nidulans</i>	LAHFDREIRIPERVVHAKGAGAYGEFEVTHDISDITVIDMLKGVGKKTKTFRFSTVGGEK	111
<i>S. cerevisiae</i>	LAHFNRENIPQRNPHAHGSGAFGYFEVTHDITDICSAMFSGIKRTKCLTRFSTVGGDK	115
<i>P. anserina</i>	LAHFDREIRIPERVVHAKAAGAWGEFECTDVSDFTSAAFLSKVGGKTKVLRARISTVAGEK	109
<i>N. crassa</i>	LAHFDREIRIPERVVHAKAAGAWGEFECTDVSDFTSVDFLNVGKKTQVLRARISTVAGEK	107
<i>F. graminearum</i>	LAHFDREIRIPERVVHAKAAGATGEFEVLELSDITDANFLSEKGGKTPMLMRISTVGGEK	110
	Important for catalytic mechanism	
	3 4 5	
<i>B. cinerea</i>	GS PDSARDPRGF SVK FYTEEGNWDVYNNTPVFFLRDP TKFPLFIHTQKRNPQTNLKDAT	172
<i>S. sclerotiorum</i>	GS PDSARDPRGF SVK FYTEEGNWDVYNNTPVFFLRDP TKFPLFIHTQKRNPQTNLKDAT	172
<i>A. nidulans</i>	GS PDSARDPRGFACKFYTEEGNWDVYNNTPVFFLRDP SKFPMFIHTQKRNPQTNLKDAT	171
<i>S. cerevisiae</i>	GSADTVRDPGRGFATK FYTEEGNLDWYNNTPVFFLRDP SKFPMFIHTQKRNPQTNLRDAD	175
<i>P. anserina</i>	GS SDTTRDIRGFALKMFTEEGNWDVFGNDLPVFFLRDPV KFP SLNRSHKRHPQTNVPDST	169
<i>N. crassa</i>	GSADTVRDIRGFVAVKFFTEEGNWDVFGNDLPVFFLRDPV KFP SLNRSHKRHPQTNVPDST	167
<i>F. graminearum</i>	GSADTVRDIRGWS TKLYTEEGIQDFVFNLDPVFFLRDPV KFP SMNRSHKRHPQTNVPDST	170
<i>B. cinerea</i>	MFWDYLSL--HHEAVHQVMHLFSDRGT PYSYRHMNGYSGHTHKWTK--PDGTFNYVQVHLK	229
<i>S. sclerotiorum</i>	MFWDYLSL--HHEAVHQVMHLFSDRGT PYSYRHMNGYSGHTHKWTK--PDGTFNYVQVHLK	229
<i>A. nidulans</i>	MFWDYLSL--HHEAVHQVMHLFSDRGT PYSYRHMNGYSGHTYKWKI--PDGTFNYVQLHLK	228
<i>S. cerevisiae</i>	MFWDFLTPENQVAIHQVMILFSDRGT PANYRSMHNGYSGHTYKWSN--KNGDWHYVQVHLK	234
<i>P. anserina</i>	MFWD FHNN--NQEGVHCLMQLFGGRGIPASLRNNGFNGHTFKFGKPEDSTFKYVKIHLK	227
<i>N. crassa</i>	MFWD FHNN--NQEGVHCLMQLFGGRGIPASLRNVNAFNGHTYKFGKPEDSTFKYVKIHLK	225
<i>F. graminearum</i>	MFWDYHVN--NPEGIHALMHLFGGRGIPASLRHISGFGVHTYTLNK--ADGSYVYVQVHLK	227
<i>B. cinerea</i>	TDQGSKTFNNEEAGKMASENPDWHTQDLFD AIEKGDYPSWSVVFQVLSPEQAEKFRWNIF	289
<i>S. sclerotiorum</i>	TDQGSKTFNNEEAGKMASENPDWHTQDLFD AIEKGDYPSWSVYVQVLSPEQAEKFRWNIF	289
<i>A. nidulans</i>	TDQGNKTFDAEATRLAENPDWHTQDLFNAIARGEYPSWTCYVQTLSPQAEKFRWNIF	288
<i>S. cerevisiae</i>	TDQGIKNLTIEEATKIAGSNPDYCCQDLFEAIQNGNYSWTVYIQTMTERDAKLLPFSVF	294
<i>P. anserina</i>	PDAGIKNLESDEALRLAGEE PDYHFKDLYNAIEKGDYPSWVMYFQIGPSADPMLQARMF	287
<i>N. crassa</i>	PDAGIKNLESDEALRLAGEE PDYHFKDLYNAIEKGDYPTWMTYFQIMDKDAETRYRNI	285
<i>F. graminearum</i>	PEGGIETMDSETAARLAGTDPDYHVKDLFNAIEKGDYPSWIVYQVMRPEEVMAAPIDIF	287
	6 7	
<i>B. cinerea</i>	DLTKVWPQAEVPLRPF GKMTLNKNVENYFAIEQVAFSPSHLVP GVEPSADPVLQARLFS	349
<i>S. sclerotiorum</i>	DLTKVWPQAEVPLRPF GKMTLNKNVENYFAIEQVAFSPSHLVP GVEPSADPVLQARLFS	349
<i>A. nidulans</i>	DLTKVWPQSEVPLRRFGRTLNKNPENYFAEVEQAAFSPSHLVP GVEPSADPVLQARLFS	348
<i>S. cerevisiae</i>	DLTKVWPQGFPLRRVGVKIVLNENPLNFFAQVEQAFA PSTTVPYQEA SADPVLQARLFS	354
<i>P. anserina</i>	DITRIWPQKDYPLRPIGRLLNKNPNHFDIEQAFAFSPSTMVPGIGPSADPMLQARMF	347
<i>N. crassa</i>	DITQTWSHRDYPLRPIGKLR LNKNPENHFDIEQAFAFSPSTMVPGIGPSADPMLQARMF	345
<i>F. graminearum</i>	DCTYTWPHKEYPLRRVGMQLTKKNPNYFDIEQAACFSPSNMVP GIGPSADPVLQARME	347
	7	
<i>B. cinerea</i>	YPDTHRHRLG--VNYQQIPVNAPLR--AFNPFHRDGMAMVNGNYGANPNYPSSYRKLTKQP	406
<i>S. sclerotiorum</i>	YPDTHRHRLG--VNYQQIPVNAPLR--AFNPFQRDGMAMVNGNYGANPNYPSSYRKLTKHP	406
<i>A. nidulans</i>	YPDTHRHRLGTSNYQSI PVNCP LR--AFNPFHRDGMAMVNGNIGANPNYPSTFRPLQYKP	406
<i>S. cerevisiae</i>	YADAHRYRLG--PNFHQIPVNCYASKFFNPAIRDGPMNVNGNFGEPT YLANDKSYTYIQ	413
<i>P. anserina</i>	YPDAAARYRVG--PNYQQLPCNR--AQY--VYSPYQRDGP MRV DGN YGGD PDYVRSSFRSLRLG	404
<i>N. crassa</i>	YPDAAARYRVG--PNYQQLPCNR--ALH--VYSPYQRDGP MRV DGN YGGD PDYVRSSFRPMRFG	402
<i>F. graminearum</i>	YPDAAHRYRVG--PNYQQLPNNRPNRQ--VYAPCVRDGPGTMNGNYGGD PDYVFSQLRPV---	402
	Protoheme-binding	
<i>B. cinerea</i>	--VKATNDHEQWGAALSFLSEVGP E--DYVQAKGLWDV LGRQEGQDNF INNVAGHLAA	462
<i>S. sclerotiorum</i>	--VKATNDHEQWGAALSFLSEVGP E--DYVQAKGLWDV LGRQEGQDNF INNVAGHLAA	462
<i>A. nidulans</i>	--VKASQEHKQWAGSVVTEQLPVTDE--DFVQANGLWV LGRQEGQDNF INNVAGHLAA	462
<i>S. cerevisiae</i>	QDRPIQQHQEVWNGPAI PYHWATSPGDVDFVQARNLYRV LGRQEGQDNF INNVAGHLAA	473
<i>P. anserina</i>	---PADIAHDEWVAGVQVTFSEVTE DL--DFEQPRDLWKI FKSNGEDKV--FAKNVAHVAGK	458
<i>N. crassa</i>	---PPDVAHDEWAGVQVTFSEVTE DL--DFEQPRDLWKI FKETGEDKR--FAKNVAHVAGK	456
<i>F. graminearum</i>	-----SARELWKIICGEDKGRQFNNIAPT IKD	431
<i>B. cinerea</i>	AKEDTRKR TYDMFSRVDPTLGAKIEEATEKLAPAPGSKAAGSAQ SRL-----	509
<i>S. sclerotiorum</i>	AKEDTRKR TYDMFGKVDLNLGSKIEEATEKLAPAPNSKAAGAAQ SRL-----	509
<i>A. nidulans</i>	AHPRVRQATYGMFRRVNADLGKRIEKATEKKATE-----AFARL-----	501
<i>S. cerevisiae</i>	ACPQIQQRVYDMFARVDKGLSEAIKKVAEAKHASELS-----SNSKF-----	515
<i>P. anserina</i>	ALPQVQKATIEFNRVDREVEGEIQKALDELDSKGGAGIEHSSAPCS-----KEKK---	509
<i>N. crassa</i>	ALPEVQKKTIEFNSKVDQEVGEAIQRELDLELEKKGAGIEHDKAPVKGKGMCRCKDSKDE	516
<i>F. graminearum</i>	LPVKLQ----DYLSGVDPEIKTILT AHMN-----	456

PTS1 motif

SupFig. 2



<i>N. crassa</i>	MARLSAARYGKDNVRVYKVHKDEK	TGQQSVTEMTVCCLLEGE	IDTSY	TQADNSVIVATDSI	61
<i>P. anserina</i>	MARLAAARYGKDNVRVYKVHKDEAT	GTQSVTEMTVCCLLEGQ	IETSY	TEADNSVIVATDSI	61
<i>S. sclerotiorum</i>	MSSISSARYGKDNVRVYKVERDEQ	TGTQTVTEMTVCVLLGAI	DVSY	TKADNSVIVATDSM	61
<i>B. cinerea</i>	MASIASARYGKDNVRVYKVDREQ	TGTQTVTEMTVCVLLGAI	DVSY	TKADNSVIVATDSM	61
<i>M. grisea</i>	MPSLAARYGKDNVRVYKVHRNAET	GQQSVTEMTVCCLLEGE	IDAS	FTKADNSVIVATDSI	61
<i>F. graminearum</i>	MPVSAARYGKDNVRVCKVDRDSS	TGVQTVTEMTVCCLLEGE	IETSY	TQADNSVIVATDSI	61
<i>A. nidulans</i>	MSTVAAARYGKDNVRVYKVHKDPK	TGVQTVTEMTVCVLLLEGE	IDTSY	TKADNSVIVATDSI	61

<i>N. crassa</i>	KNTIYIKAKEHPVNPPELYASILGQH	FLDKYAHISA	AHIDVTVHRWTRMVIDG	QPHPHSFL	122
<i>P. anserina</i>	KNTIYIKAKEHPVNPPELYAAHLGQH	FLDKYPHINA	ANIKVIVHRWTRINIDG	KPHPHSFL	122
<i>S. sclerotiorum</i>	KNTVYIKAKEHPVTPPELFASILGTH	FIETYPHLTA	ANIKIITHRWTRMTIDG	KPHPHSFL	122
<i>B. cinerea</i>	KNTVYIKAKEHSTPPELFASILGTH	FIETYPHLTA	ASIKIVTHRWTRMTIDG	KPHPHSFL	122
<i>M. grisea</i>	KNTIYIKARETPVNPPELYASILGQH	FDTYPHIHTA	HVDVIVHRWTRMTIDG	QPHPHSFF	122
<i>F. graminearum</i>	KNTIYITAKENPVNPPELYASILGSH	FIETYPHLTA	ANIKIITHRWTRMTIDG	KPHPHSFF	122
<i>A. nidulans</i>	KNTIFILAKQNPVTPPELFASILGTH	FIETYPHLTA	ANIKIITHRWTRMTIDG	KPHPHSFF	122

<i>N. crassa</i>	RDGQETRNVEATVTRDG-ITIKSGIV	LQVLKSTGSAFHGFVRDE	FTTLKETWDRILSTDV	182
<i>P. anserina</i>	RDGNETRNVEARVSRAGIELKSAIQGL	SVLKSTGSAFHGFVRDE	YTTLETWDRILSTDV	183
<i>S. sclerotiorum</i>	RDGNETRNVEAVIKRKGIDIRSGIVGL	LVLKSTGSAFHGFVRDE	YTTLETWDRILSTDV	183
<i>B. cinerea</i>	RDGSETRNVDAVIKRGKIDIRSGIVGL	LVLKSTGSAFHGFVRDE	YTTLETWDRILSTDV	183
<i>M. grisea</i>	RDGQETRTVGAVVRRGSLALRSGIAGL	SVLKSTGSAFHGFVRDE	FTTLETWDRILSTDV	183
<i>F. graminearum</i>	KDGETRNVEVRVSRQEGIEIKSSLVGL	TVLKSTGSAFHGFVRDE	YTTLETWDRIFSTDV	183
<i>A. nidulans</i>	RDSEETRNVDVTEGVDIGIKSSINKL	TVLKSTGSAFHGFVRDE	YTTLETWDRILSTDV	183

<i>N. crassa</i>	DAGWTWKKCANLAAVQDGVFERF	DAWEAARNITLKTFAEDES	ASVQNTMYKMCQE	ILLDAVP	243
<i>P. anserina</i>	DATWNNKTFATVADVEKGVFERF	DQAFEAARNITLKTFAEDES	ASVQNTMYKMCCE	ILEKAA	244
<i>S. sclerotiorum</i>	DCGWAWKTFAGLDAVKEAIPKFDK	AFDDARNITMKTFAEENS	PSVQNTMYKMCNS	ILETVP	244
<i>B. cinerea</i>	DCGWSWKTFAGLDAVKEAIPKFDK	AFDDARNITMKTFAEENS	PSVQNTMYKMCNS	ILEAVP	244
<i>M. grisea</i>	DCGWSKSFDDLDAVKAIVPKFDQ	AWEDARSITMKTFAEDD	SASVQATMYKMCQE	ILEAAP	244
<i>F. graminearum</i>	DATWKKKFDSDVDAVKQFAPKFD	TVREARNITLKTFAEDAS	ASVQATMYKMSDL	ILESVP	244
<i>A. nidulans</i>	EATWAWKRFSGLDEVGRNVPKF	DETWEAARNITLKTFAEES	SASVQATMYKMGQE	ILLAYQP	244

<i>N. crassa</i>	ETEKTNYSL	PNKH	YFEVDLS	SWHKG	LQNTGKDAEV	YAPQSGPNGLIKCEV	SR-----	295
<i>P. anserina</i>	EVEVVGYSL	PNKH	YFEIDL	SWHKG	YKNTGKDAEV	YAPQSGPNGLIKCEV	TR-----	296
<i>S. sclerotiorum</i>	EVEAVDYSL	PNKH	YFEVDLS	SWHKG	LKNTGKDAEV	YAPQSGPNGLINVT	TRSPAS	PKL 302
<i>B. cinerea</i>	EVETVDYSL	PNKH	YFEVDLS	SWHKG	LKNTGKDAEV	YAPQSGPNGLINVT	TRTPVT	PKL 302
<i>M. grisea</i>	EVEKTDYSL	PNKH	YFEVDLS	SWHKG	LANTGKDAEV	YVYAPQSGPNGLIKCEV	SR-----	295
<i>F. graminearum</i>	EVATVTYSL	PNKH	YFEIDL	SWHKG	IKNTGKDAEV	YAPQSGPNGLIKCEV	SRDLS	QSKL 302
<i>A. nidulans</i>	LLETVEYSL	PNKH	YFEIDL	SWHKG	LKNTGKDAEV	FVPQTNPNGLIKCTVGR	KSKAKL-	301

PTS1 motif

SupFig. 3