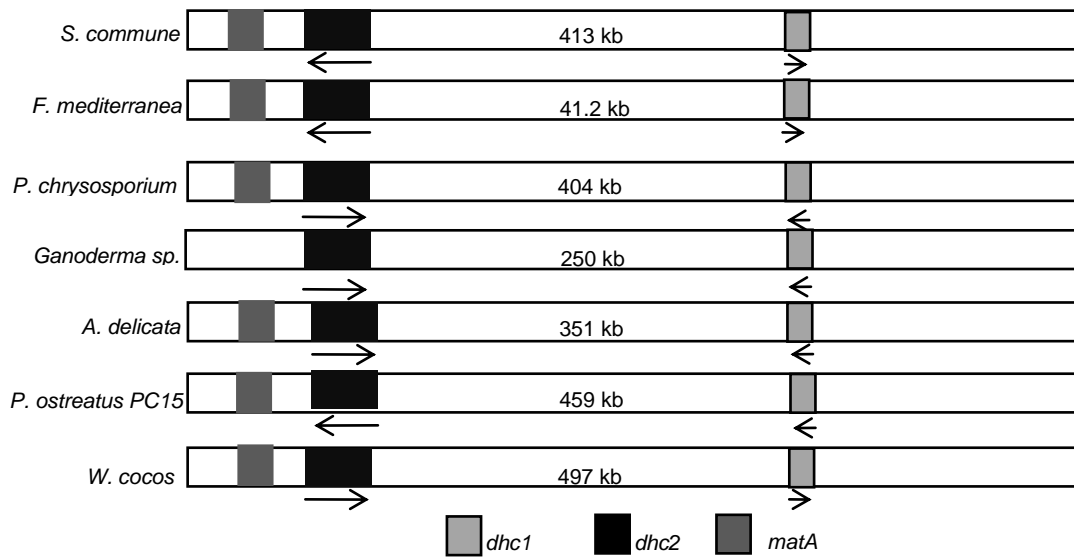


# S1 File

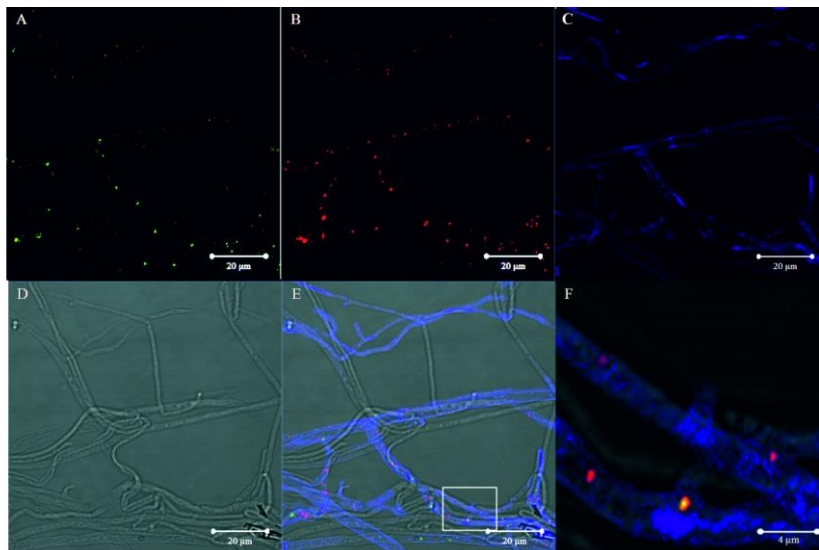
**Supplementary Table A. Data sources for phylogenetic analyses**, accessed December 2011. Representatives of Agaricomycotina are indicated as classes; for Wallemiomycetes, no subphylum is assigned.

species	phylum	subphylum/class	database	accession number(s)
<i>Agaricus bisporus</i> var <i>bisporus</i> H97	Basidiomycota	Agaricomycetes	JGI	188324 214780
<i>Agaricus bisporus</i> var <i>burnetti</i> JB137-S8	Basidiomycota	Agaricomycetes	JGI	80770 50984
<i>Ashbya gossypii</i>	Ascomycota	Saccharomycotina	NCBI	NP983660
<i>Aspergillus fumigatus</i>	Ascomycota	Pezizomycotina	NCBI	XP753470
<i>Aspergillus nidulans</i>	Ascomycota	Pezizomycotina	NCBI	XP657722
<i>Auricularia delicata</i> SS-5 v 1.0	Basidiomycota	Agaricomycetes	JGI	78165 179093
<i>Bjerkandera adusta</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	164640 210459
<i>Botryobasidium botryosum</i> _v 1.0	Basidiomycota	Agaricomycetes	JGI	26434 26427
<i>Candida albicans</i>	Ascomycota	Saccharomycotina	NCBI	XP723061
<i>Coniophora puteana</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	114255 133816
<i>Coprinopsis cinereus</i> Okayama 7#130	Basidiomycota	Agaricomycetes	JGI	11129 3276
<i>Cryptococcus bacillosporus</i>	Basidiomycota	Tremellomycetes	Broad Institute	CNBF3870
<i>Cryptococcus gatti</i> WM276	Basidiomycota	Tremellomycetes	NCBI	XP003194894
<i>Cryptococcus neoformans</i> var <i>neoformans</i> JEC21	Basidiomycota	Tremellomycetes	NCBI	XP571532
<i>Dacryopinax</i> sp. DJM 731 SSP-1 v 1.0	Basidiomycota	Dacryomycetes	JGI	67652 116759
<i>Dichomitus squalens</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	172670 182524
<i>Fomitiporia mediterranea</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	106792 121816
<i>Fomitopsis pinicola</i> SS1 v 1.0	Basidiomycota	Agaricomycetes	JGI	140971 150781
<i>Ganoderma</i> sp 10597 SS1 v 1.0	Basidiomycota	Agaricomycetes	JGI	113078 140853
<i>Gloeophyllum trabeum</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	69644 135602
<i>Gymnopus luxurians</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	961840 234850
<i>Heterobasidion annosum</i> v 2.0	Basidiomycota	Agaricomycetes	JGI	157884 167275
<i>Homo sapiens</i>	Mammalia	Hominidae	NCBI	NP001267
<i>Hypholoma sublateralitium</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	42741 509615
<i>Jaapia argyllacea</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	140422 37924
<i>Laccaria bicolor</i> v 2.0	Basidiomycota	Agaricomycetes	JGI	385191 300914
<i>Magnaporthe oryzae</i> 70 50	Ascomycota	Pezizomycotina	NCBI	EDK04833
<i>Malassezia globosa</i>	Basidiomycota	Ustilaginomycotina	JGI	1036 1033
<i>Melampsora laricis populina</i> v 1.0	Basidiomycota	Pucciniomycotina	JGI	46877
<i>Moniliophthora perniciosa</i>	Basidiomycota	Agaricomycetes		(personal communication J. Mondego, Brazil)
<i>Mucor circinelloides</i>	Mucoromycota	Mucoromycotina	JGI	90435
<i>Mus musculus</i>	Mammalia	Rodentia	NCBI	NP084514
<i>Nectria haematococca</i>	Ascomycota	Pezizomycotina	NCBI	EEU40393
<i>Neurospora crassa</i>	Ascomycota	Pezizomycotina	NCBI	XP962616
<i>Paxillus involutus</i> ATCC	Basidiomycota	Agaricomycetes	JGI	169564

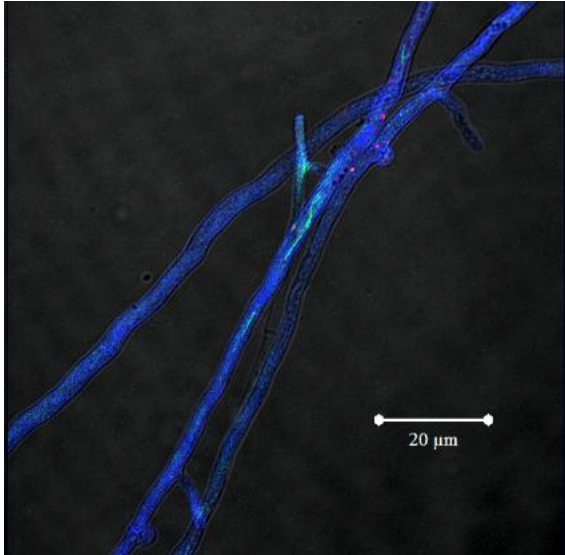
200175				5609
<i>Phanerochaete carnosae</i> HHB-10118-Sp v 1.0	Basidiomycota	Agaricomycetes	JGI	256688 168059
<i>Phanerochaete chrysosporium</i> v. 2.0	Basidiomycota	Agaricomycetes	JGI	7743 7621
<i>Phlebia brevispora</i> HHB-7030 SS6 v 1.0	Basidiomycota	Agaricomycetes	JGI	77449 138126
<i>Phlebiopsis gigantea</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	34940 29508
<i>Pichia pastoris</i> GS115	Ascomycota	Saccharomycotina	NCBI	XP002491674
<i>Piriformospora indica</i>	Basidiomycota	Agaricomycetes	MIPS	PIIN_08066 PIIN_03421
<i>Pleurotus ostreatus</i> PC9 v 1.0	Basidiomycota	Agaricomycetes	JGI	90323 85298
<i>Pleurotus ostreatus</i> PC15 v 2.0	Basidiomycota	Agaricomycetes	JGI	1074656 49217
<i>Puccinia graminis</i> f sp <i>tritici</i> CRL 75 36 700 3	Basidiomycota	Pucciniomycotina	NCBI	XP0033294
<i>Punctularia strigosozonata</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	109520 139986
<i>Rhizopus oryzae</i> RA 99 880	Mucoromycota	Mucoromycotina	Broad Institute	RO3G06230
<i>Rhodotorula glutinis</i>	Basidiomycota	Pucciniomycotina	NCBI	EGU12573
<i>Rhodotorula graminis</i> strain WP1 v 1.0	Basidiomycota	Pucciniomycotina	JGI	34525
<i>Saccharomyces cerevisiae</i>	Ascomycota	Saccharomycotina	NCBI	EDN59957
<i>Schizophyllum commune</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	65157 65089
<i>Schizosaccharomyces pombe</i> 972h	Ascomycota	Taphrinomycotina	NCBI	XP001713108
<i>Serpula lacrymans</i> S7 3 v 2.0	Basidiomycota	Agaricomycetes	JGI	97057 158538
<i>Serpula lacrymans</i> S7 9 v 1.0	Basidiomycota	Agaricomycetes	JGI	358531 445906
<i>Sporisorium reilianum</i>	Basidiomycota	Ustilaginomycotina	MIPS	sr13295 sr15257
<i>Sporobolomyces roseus</i> v 1.0	Basidiomycota	Pucciniomycotina	JGI	21679
<i>Stereum hirsutum</i> FP- 91666 SS1 v 1.0	Basidiomycota	Agaricomycetes	JGI	143406 151431
<i>Trametes versicolor</i> v 1.0	Basidiomycota	Agaricomycetes	JGI	111059
<i>Tremella mesenterica</i> Fries v 1.0	Basidiomycota	Tremellomycetes	JGI	62339
<i>Tuber melanosporum</i>	Ascomycota	Pezizomycotina	INRA	GSTUMT00000794001
<i>Ustilago maydis</i>	Basidiomycota	Ustilaginomycotina	NCBI	AAK91759 AAK91760
<i>Wallemia sebi</i> v 1.0	Basidiomycota	Wallemiomycetes	JGI	59093 67017
<i>Wolfiporia cocos</i> MD-104 SS10 v 1.0	Basidiomycota	Agaricomycetes	JGI	93003 159953



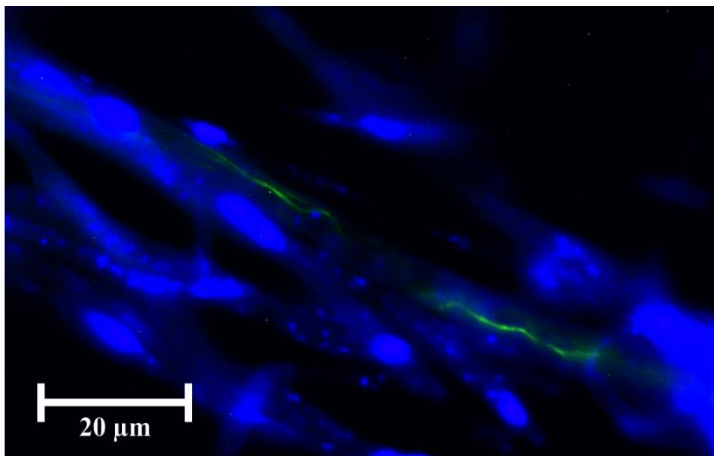
**Supplementary Fig. A. Conservation of genomic localization for *dhc1* and *dhc2* with respect to linkage to the mating type A locus in hymenomycetes.** *S. commune* as well as *Fomitiporia mediterranea*, *Phanerochaete chrysosporium*, *Ganoderma lucidum*, *Auricularia delicata*, *Pleurotus ostreatus* and *Wolfiporia cocos* are shown, data were retrieved from genome sequences in public databases.



**Supplementary Fig. B. Immunofluorescence co-localization.** Dhc1 (A, FITC labeled in green) and Dhc2 (B, Rhodamin labeled in red), combined with nuclear stain (C, DAPI stain in blue) and micrograph (D), superimposed picture (E) and enlarged view indicated in E (F).



**Supplementary Fig. C. Dhc1 aggregation to be independent from microtubules in accordance with a storage independent from Dhc2. Microtubule (in green), Dhc1 (in red) and DNA staining (in blue).**



**Supplementary Fig. D. No obvious alterations of the microtubular cytoskeleton is visible. Microtubule (in green) and DNA staining (in blue) in a  $\Delta dhc2$  mutant.**