

**Additional File 1: Fungal genomes used in this work.**

<b>Genome</b>	<b>NCBI's Accession Number</b>
<b>Genomes from <i>Metarhizium</i> species</b>	
<i>Metarhizium anisopliae</i> E6	PRJNA245858
<i>Metarhizium robertsii</i> ARSEF23	PRJNA38717
<i>Metarhizium acridum</i> CQMa102	PRJNA38715
<i>Metarhizium majus</i> ARSEF297	PRJNA184757
<i>Metarhizium guizhouense</i> ARSEF977	PRJNA184755
<i>Metarhizium brunneum</i> ARSEF3297	PRJNA184756
<i>Metarhizium album</i> ARSEF1941	PRJNA72731
<b>Unannotated genomes</b>	
<i>Epichloë festucae</i> F11	PRJNA51625
<i>Epichloë baconii</i> ATCC 200745	PRJNA221976
<i>Balansia obtecta</i> B249	PRJNA221345
<i>Epichloë sylvatica</i> GR10156	PRJNA275112
<i>Neotyphodium gansuense</i> E7080	PRJNA67299
<i>Pochonia chlamydosporia</i> 123	PRJNA68669
<i>Periglandula ipomoeae</i> IasaF13	PRJNA67303
<i>Aciculosporium take</i> MAFF-241224	PRJNA67241
<i>Hypocrella siamensis</i> MTCC 10142	PRJNA242986
<i>Atkinsonella hypoxylon</i> B4728	PRJNA221544
<i>Claviceps fusiformis</i> PRL 1980	PRJNA67243
<b>Genomes used for OrthoMCL clustering</b>	
<i>Metarhizium anisopliae</i> E6	PRJNA245858
<i>Metarhizium robertsii</i> ARSEF23	PRJNA38717
<i>Metarhizium acridum</i> CQMa102	PRJNA38715
<i>Metarhizium majus</i> ARSEF297	PRJNA184757
<i>Metarhizium guizhouense</i> ARSEF977	PRJNA184755
<i>Metarhizium brunneum</i> ARSEF3297	PRJNA184756
<i>Metarhizium album</i> ARSEF1941	PRJNA72731
<i>Metarhizium anisopliae</i> E6	PRJNA245858
<i>Acremonium chrysogenum</i> ATCC 11550	PRJNA248608
<i>Aspergillus fumigatus</i> Af293	PRJNA131
<i>Aspergillus nomius</i> NRRL 13137	PRJNA246595
<i>Coccidioides posadasii</i> str. <i>Silveira</i>	PRJNA17787
<i>Leptosphaeria maculans</i> JN3	PRJNA171003
<i>Penicillium digitatum</i> PHI26	PRJNA157541
<i>Scedosporium apiospermum</i> IHEM 14462	PRJNA244532
<i>Talaromyces marneffeii</i> PM1	PRJNA251717
<i>Talaromyces stipitatus</i> ATCC 10500	PRJNA19557

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<i>Thielavia terrestris</i> NRRL 8126	PRJNA32847
<i>Tolytlocadium ophioglossoides</i> CBS 100239	PRJNA91059
<i>Trichophyton soudanense</i> CBS 452.61	PRJNA186831
<i>Arthroderma benhamiae</i> CBS 112371	PRJNA30573
<i>Aspergillus clavatus</i> NRRL 1	PRJNA15664
<i>Aspergillus fischeri</i> NRRL 181	PRJNA15672
<i>Aspergillus niger</i> CBS 513.88	PRJNA19275
<i>Arthroderma otae</i> CBS 113480	PRJNA30939
<i>Aspergillus udagawae</i>	PRJDB3949
<i>Coccidioides immitis</i> RS	PRJNA12883
<i>Coccidioides posadasii</i> RMSCC 3488	PRJNA17783
<i>Colletotrichum sublineola</i>	PRJNA262370
<i>Microsporum gypseum</i> CBS 118893	PRJNA20599
<i>Madurella mycetomatis</i>	PRJNA267680
<i>Neofusicoccum parvum</i> UCRNP2	PRJNA187491
<i>Oidiodendron maius</i> Zn	PRJNA74727
<i>Pseudogymnoascus sp.</i> VKM F-3557	PRJNA216963
<i>Pyrenophora teres f. teres</i> 0-1	PRJNA50389
<i>Talaromyces cellulolyticus</i>	PRJDB3250
<i>Torrubiella hemipterigena</i>	PRJEB7402
<i>Trichophyton interdigitale</i> H6	PRJNA186827
<i>Talaromyces islandicus</i>	PRJEB8788
<i>Trichophyton rubrum</i> CBS 118892	PRJNA38221
<i>Trichophyton verrucosum</i> HKI 0517	PRJNA39693

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