**Table S2. Protein sequences of MAPKs used for phylogenetic analysis**

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| **Species** | **MAPK name** | **Gene model number (KEGG)** |
| *Saccharomyces cerevisiae* | Sce-Kss1 | YGR040W |
| Sce-Fus3 | YBL016W |
| Sce-Slt2 | YHR030C |
| Sce-Hog1 | YLR113W |
| Sce-Ime2 | YJL106W |
| *Neurospora crassa* | Ncr-Mak2 | NCU02393 |
| Ncr-Mak1 | NCU09842 |
| Ncr-Os2 | NCU07024 |
| Ncr-Ime2 | NCU01498 |
| *Fusarium oxysporum* | Fox-Fmk1 | FOXG\_08140 |
| Fox-Mpk1 | FOXG\_05092 |
| Fox-Hog1 | FOXG\_06318 |
| Fox-Ime2 | FOXG\_13813 |
| *Magnaporthe oryzae* | Mor-Pmk1 | MGG\_09565 |
| Mor-Mps1 | MGG\_04943 |
| Mor-Osm1 | MGG\_01822 |
| Mor-Ime2 | MGG\_15325 |
| *Cryptococcus neoformans* | Cne-Cpk1 | CNBE0440 |
| Cne-Mpk1 | CNBH0400 |
| Cne-Hog1 | CNBC0610 |
| Cne-Ime2 | CGB\_M3020W |
| *Arthrobotrys oligospora* | Ao-Fus3 | EYR41\_011934 (Yang et al. 2020) |
| Ao-Slt2 | EYR41\_004559 |
| Ao-Hog1 | EYR41\_010451 |
| Ao-Ime2 | EYR41\_009089 |