

Supplementary Table S1. The genes number of fatty acid metabolism in the 19 strains of Mortierellaceae

| Species                          | HK | GAPDH | FAS | Delta5 | Delta6 | Delta9 | Delta12 | ELO2 | ELOVL | ME | ACL | AMPD | ACC |
|----------------------------------|----|-------|-----|--------|--------|--------|---------|------|-------|----|-----|------|-----|
| <i>A. wolfii</i> NRRL 6351       | 4  | 1     | 1   | 1      | 1      | 1      | 1       | 1    | 1     | 3  | 2   | 1    | 1   |
| <i>D. globulifera</i> REB-010B   | 6  | 1     | 2   | 1      | 1      | 2      | 1       | 1    | 2     | 4  | 2   | 2    | 1   |
| <i>M. alpina</i> AD072           | 4  | 1     | 1   | 1      | 1      | 2      | 1       | 1    | 2     | 4  | 2   | 1    | 1   |
| <i>M. alpina</i> AD071           | 4  | 1     | 2   | 1      | 1      | 3      | 1       | 1    | 2     | 4  | 2   | 1    | 1   |
| <i>M. alpina</i> ATCC 32222      | 4  | 2     | 1   | 1      | 1      | 2      | 1       | 1    | 2     | 4  | 2   | 1    | 2   |
| <i>M. alpina</i> B6842           | 4  | 2     | 1   | 2      | 1      | 3      | 1       | 1    | 2     | 4  | 2   | 1    | 1   |
| <i>M. alpina</i> CCTCC M-207067  | 4  | 2     | 1   | 1      | 1      | 2      | 1       | 1    | 2     | 4  | 2   | 1    | 1   |
| <i>M. alpina</i> CGMCC 20262     | 4  | 2     | 1   | 2      | 1      | 2      | 1       | 1    | 2     | 4  | 2   | 1    | 1   |
| <i>M. alpina</i> CK1249          | 4  | 1     | 1   | 1      | 1      | 1      | 1       | 1    | 2     | 5  | 2   | 1    | 2   |
| <i>M. alpina</i> GBA31           | 4  | 1     | 1   | 2      | 1      | 3      | 1       | 2    | 2     | 3  | 2   | 1    | 1   |
| <i>M. alpina</i> LL118           | 4  | 2     | 1   | 1      | 0      | 2      | 1       | 1    | 2     | 4  | 2   | 1    | 1   |
| <i>M. alpina</i> NRRL 66262      | 4  | 2     | 1   | 2      | 1      | 3      | 1       | 1    | 2     | 4  | 2   | 1    | 1   |
| <i>M. amoeboides</i> CBS 889.72  | 5  | 2     | 1   | 1      | 1      | 2      | 1       | 1    | 2     | 4  | 2   | 1    | 2   |
| <i>M. antarctica</i> KOD 1030    | 5  | 1     | 2   | 1      | 1      | 1      | 1       | 2    | 1     | 5  | 1   | 1    | 1   |
| <i>M. elongata</i> AG-77         | 5  | 2     | 1   | 1      | 1      | 4      | 1       | 1    | 1     | 4  | 2   | 2    | 1   |
| <i>M. epicladia</i> AD058        | 4  | 2     | 1   | 1      | 1      | 1      | 1       | 2    | 1     | 5  | 2   | 1    | 2   |
| <i>M. gamsii</i> NVP60           | 5  | 1     | 1   | 0      | 1      | 4      | 1       | 1    | 1     | 5  | 2   | 2    | 1   |
| <i>M. schmuckeri</i> CGMCC 20261 | 3  | 2     | 1   | 1      | 1      | 4      | 1       | 1    | 1     | 4  | 2   | 2    | 1   |
| <i>M. verticillata</i> NRRL 6337 | 4  | 2     | 1   | 1      | 1      | 4      | 1       | 2    | 2     | 6  | 2   | 1    | 1   |

Note: ACC: Acetyl-CoA carboxylase; ACL: ATP citrate (pro-S)-lyase; AMPD: AMP deaminase; Delta5: Delta-5 desaturase; Delta6: Delta-6 desaturase; Delta9: Delta-9 desaturase; Delta12: Delta-12 desaturase; ELO2: Fatty acid elongase 2; ELOVL: Elongation of very long chain fatty acids protein; FAS: Fatty acid synthase; GAPDH: Glyceraldehyde 3-phosphate dehydrogenase; HK: Hexokinase; ME: Malate dehydrogenase.