Table S1: Strains used in this study and phenotypes from Fig 1A

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| **Strain** | **Niche** | **Final OD600 in YPD + 2% Butanol, as in Fig 1A** | **Population by PCA (Sardi et al. 2018 *PLoS Genetics)*** |
| YJM269 | Other Fermentation | 0.27 | 1 |
| YJM1341 | Wine | 0.31 | 1 |
| YJM1244 | Fruit | 0.32 | 1 |
| YJM1242 | Fruit | 0.32 | 1 |
| YS2 | Bakery | 0.33 | 1 |
| SB | Natural Isolate | 0.36 | 1 |
| YJM270 | Wine | 0.38 | 1 |
| T73 | Wine fermentation | 0.4 | 1 |
| YJM1332 | Wine | 0.4 | 1 |
| YJM248 | Feces | 0.4 | 1 |
| YJM1336 | Wine | 0.4 | 1 |
| CBS7960 | Industrial fermentation (sugar cane) | 0.42 | 1 |
| YJM1252 | Alpechin | 0.46 | 1 |
| YJM1250 | Sugar cane | 0.46 | 1 |
| YJM984 | Clinical | 0.55 | 1 |
| YJM244 | Clinical | 0.56 | 1 |
| NCYC361 | Wine | 0.57 | 1 |
| YJM987 | Clinical | 0.6 | 1 |
| DBVPG1788 | Natural Isolate | 0.61 | 1 |
| WE372 | Wine fermentation | 0.62 | 1 |
| YJM1415 | Wine | 0.63 | 1 |
| YJM993 | Clinical | 0.68 | 1 |
| YJM996 | Clinical | 0.68 | 1 |
| YJM1477 | Blatz beer | 0.71 | 1 |
| YJM981 | Clinical | 0.71 | 1 |
| YJM1526 | Clinical (throat) | 0.72 | 1 |
| YJM1129 | Other Fermentation | 0.75 | 1 |
| YJM1356 | Cider | 0.77 | 1 |
| YJM975 | Clinical | 0.82 | 1 |
| YJM990 | Clinical | 0.82 | 1 |
| DBVPG1373 | Natural Isolate | 0.84 | 1 |
| YJM978 | Clinical | 0.84 | 1 |
| YJM1078 | Clinical | 0.84 | 1 |
| YJM972 | Clinical | 0.88 | 1 |
| BC187 | Other Fermentation | 0.93 | 1 |
| DBVPG6765 | Natural Isolate | 0.95 | 1 |
| YJM453 | Clinical | 0.96 | 1 |
| YJM1574 | Wine | 0.99 | 1 |
| YJM969 | Clinical | 0.99 | 1 |
| YJM189 | Distillery | 1.01 | 1 |
| DBVPG1106 | Natural Isolate | 1.01 | 1 |
| YJM1417 | ND | 1.03 | 1 |
| L1528 | Wine fermentation | 0.88 | 1 |
| K10 | Sake | 0.28 | 2 |
| YJM1592 | Sewage | 0.29 | 2 |
| K1 | Sake | 0.32 | 2 |
| K9 | Sake | 0.36 | 2 |
| EthanolRed | Industrial | 0.39 | 2 |
| YJM1388 | Fermented tapioca | 0.5 | 2 |
| YJM1460 | Palm Wine | 0.6 | 2 |
| UC5 | Sake | 0.73 | 2 |
| YJM1389 | Sewage | 1.03 | 2 |
| YPS1009 | Oak | 0.57 | 3 |
| YJM1573 | Fermented food | 0.74 | 3 |
| YJM1434 | Oak | 0.88 | 3 |
| YPS1000 | Oak | 0.9 | 3 |
| YJM1273 | Oak tree | 0.94 | 3 |
| YPS128 | Natural Isolate | 0.96 | 3 |
| YPS606 | Natural Isolate | 1.03 | 3 |
| YPS163 | Oak | 1.05 | 3 |
| YJM1447 | Bertam Palm | 0.68 | 4 |
| UWOPS05\_227\_2 | Bertam Palm | 0.71 | 4 |
| UWOPS03\_461\_4 | Nectar of Bertam Palm | 0.79 | 4 |
| UWOPS05\_217\_3 | Nectar of Bertam Palm | 0.88 | 4 |
| YJM1418 | Oak tree | 1.13 | 4 |
| NCYC110 | Other Fermentation | 0.28 | 5 |
| YJM1439 | Ginger beer | 0.29 | 5 |
| NCYC3290 | Bili Wine | 0.31 | 5 |
| YJM1248 | Wine | 0.58 | 5 |
| DBVPG6044 | Other Fermentation | 0.81 | 5 |
| PW5 | Other Fermentation | 0.6 | 6 |
| SK1 | Lab | 0.81 | 6 |
| YJM195 | Palm wine | 1.06 | 6 |
| Y55 | Lab | 0.43 | 7 |
| YJM627 | Clinical | 0.74 | 7 |
| W303 | Lab | 0.27 | 8 |
| NCY3455 | Clinical isolate | 0.28 | 8 |
| Y2189 | Natural Isolate | 0.28 | 8 |
| YJM271 | Brewery | 0.3 | 8 |
| YJM1383 | Coconut | 0.3 | 8 |
| YJM1387 | Wine | 0.3 | 8 |
| YJM1433 | Wine | 0.31 | 8 |
| YB4082 | Natural Isolate | 0.31 | 8 |
| Y389 | Natural Isolate | 0.32 | 8 |
| YJM1307 | Clinical | 0.32 | 8 |
| YJM308 | Clinical | 0.34 | 8 |
| YJM1419 | Bagasse | 0.35 | 8 |
| YJM1355 | Molasses | 0.35 | 8 |
| YJM1478 | Kefir | 0.37 | 8 |
| 378604X | Clinical | 0.37 | 8 |
| YJM470 | Clinical | 0.38 | 8 |
| YJM1615 | Clinical | 0.38 | 8 |
| YJM1326 | Clinical | 0.38 | 8 |
| CLIB382 | Other Fermentation | 0.39 | 8 |
| YJM326 | Clinical | 0.39 | 8 |
| PE2 | Industrial fermentation  | 0.4 | 8 |
| YB908 | Natural Isolate | 0.4 | 8 |
| YJM1083 | Clinical | 0.41 | 8 |
| YB210 | Natural Isolate | 0.41 | 8 |
| YJM451 | Clinical | 0.41 | 8 |
| Y7568 | Natural Isolate | 0.41 | 8 |
| CLIB324 | Bakery | 0.42 | 8 |
| YJM1311 | Clinical | 0.42 | 8 |
| Y6 | Natural Isolate | 0.42 | 8 |
| YJM682 | Clinical | 0.43 | 8 |
| YJM683 | Clinical | 0.47 | 8 |
| YJM428 | Clinical | 0.47 | 8 |
| Y2209 | Natural Isolate | 0.47 | 8 |
| Y1 | Natural Isolate | 0.47 | 8 |
| YJM1199 | Clinical | 0.5 | 8 |
| YJM454 | Clinical | 0.51 | 8 |
| YJM1527 | Prune | 0.51 | 8 |
| YJM440 | Clinical | 0.53 | 8 |
| YJM689 | Clinical | 0.55 | 8 |
| YJM1386 | Sugar cane | 0.55 | 8 |
| Y3 | Other Fermentation | 0.55 | 8 |
| YJM1479 | Coconut tuba | 0.57 | 8 |
| YJM1399 | Wild cherry tree gum | 0.58 | 8 |
| YJM1385 | Sugar refinery | 0.59 | 8 |
| YJM1381 | Rum fermentation | 0.6 | 8 |
| YJM1304 | Clinical | 0.62 | 8 |
| IL01 | Soil | 0.64 | 8 |
| YJM555 | Clinical | 0.64 | 8 |
| YJM421 | Clinical | 0.65 | 8 |
| YJM554 | Clinical | 0.65 | 8 |
| YJM681 | Clinical | 0.65 | 8 |
| YJM653 | Clinical | 0.66 | 8 |
| YJM693 | Clinical | 0.66 | 8 |
| YJM1202 | Clinical | 0.67 | 8 |
| DCM16 | Natural Isolate | 0.68 | 8 |
| YJM320 | Clinical | 0.68 | 8 |
| YJM1208 | Clinical | 0.7 | 8 |
| YJM1444 | Cladode | 0.71 | 8 |
| YS9 | Bakery | 0.72 | 8 |
| YJM1190 | Clinical | 0.72 | 8 |
| YJM450 | Clinical | 0.73 | 8 |
| YJM1401 | Papaya | 0.73 | 8 |
| YJM541 | Clinical | 0.74 | 8 |
| YJM1463 | White Tecc | 0.75 | 8 |
| 273614N | Clinical | 0.75 | 8 |
| YJM1133 | Clinical | 0.77 | 8 |
| YJM1402 | Grape vine | 0.79 | 8 |
| YJM339 | Clinical | 0.8 | 8 |
| YJM1549 | Fermenting fruit juice | 0.81 | 8 |
| I14 | Vineyard | 0.81 | 8 |
| YB4081 | Natural Isolate | 0.82 | 8 |
| YJM1450 | Clinical | 0.83 | 8 |
| Y2 | Other Fermentation | 0.85 | 8 |
| DBVPG1853 | Unknown | 0.85 | 8 |
| NC02 | Oak Exudate | 0.87 | 8 |
| YJM1400 | Guava | 0.87 | 8 |
| FL100 | Lab | 0.88 | 8 |
| YJM1338 | Sour fig | 0.89 | 8 |
| DCM6 | Natural Isolate | 0.91 | 8 |
| YJM193 | Distillery | 0.92 | 8 |
| YS4 | Bakery | 0.93 | 8 |
| YJM456 | Clinical | 0.98 | 8 |
| UWOPS87\_2421 | Cladode of Opuntia megacantha | 0.99 | 8 |
| YJM1342 | Soil | 1.07 | 8 |
| YJM1443 | Fruit | 1.09 | 8 |
| UWOPS83\_787\_3 | Fruit of Opuntia stricta | 1.11 | 8 |
| YIIc17\_E5 | Wine fermentation | 0.29 | #N/A |
| DBVPG6040 | Other Fermentation | 0.54 | #N/A |
| L\_1374 | Wine fermentation | 0.94 | #N/A |
| T7 | Wine fermentation | 0.94 | #N/A |
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| **Population ID** | **Strain Niche** |  |  |
| 1 | Wine |  |  |
| 2 | Asian |  |  |
| 3 | North American |  |  |
| 4 | Malaysian |  |  |
| 5 | West African  |  |  |
| 6 | West African subgroup  |  |  |
| 7 | West African subgroup  |  |  |
| 8 | Mosaic  |  |  |