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Supplementary Material for

Microsatellite analysis of genetic diversity among clinical and nonclinical *Saccharomyces cerevisiae* isolates suggests heterozygote advantage in clinical environments

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8 Table S1

Isolate	Culture collection #	Geographic origin	Environmental origin	Sporulation proficiency	% Viable spores	Likely ploidy	HO genotype
FY3		California	Lab	0	NA	Haploid ⁸	ho ⁸
YJM128 ^{9,10}	CBS 7833	Kansas	Clinical	1	41	Diploid	HO/HO
YJM180	NCYC 431	ND	Distillery	1	98	NA ⁷	HO/HO
YJM214	CBS 1782	ND	Other	1	16	Diploid	ND
YJM215	CBS 2807	Slovenia	Wine	1	29	Diploid	ND
YJM218	CBS 2910	ND	Other (faeces)	1	94	Diploid	ND
YJM220	CBS 4411	ND	Other (pig rectum)	1	65	NA ⁷	ND
YJM264	UCDFST 08-119	ND	Commercial	0	NA	Diploid	ND
YJM273	CBS 7835	ND	Clinical	1	89	Diploid	ND
YJM332	UCDFST 09-116	ND	Other (natural fermentation)	0	NA	Diploid	ND
YJM335	ATCC 36025	ND	Distillery	1	NA	NA ⁷	ND
YJM336	ATCC 36026	France	Wine	0	NA	Diploid	ND
YJM434	UCDFST 08-121	ND	Clinical	1	47	Diploid	ND
YJM436	UCDFST 08-123	ND	Clinical	1	6	Diploid	ND
YJM437	UCDFST 08-124	ND	Clinical	1	21	Diploid	ND
YJM440	UCDFST 08-127	California	Clinical	1	80	Diploid	ND
YJM454	CBS 7834, UCDFST 09-122	ND	Clinical	1	71	NA ⁷	ND
YJM455	UCDFST 08-128	California	Clinical	1	22	Diploid	ND
YJM465	UCDFST 08-130	California	Clinical	0	NA	Triploid	ND
YJM525	UCDFST 08-134	California	Clinical	0	NA	Diploid	ND
YJM677	UCDFST 08-144	Texas	Clinical	1	66	Diploid	ND
YJM789 ^{11,12}	UCDFST 09-124	Kansas	Clinical	0	NA	Haploid ⁸	ho ⁸
YJM945	UCDFST 08-152	Italy	Clinical	1	12	Triploid	ND
YJM946	UCDFST 08-153	Italy	Clinical	1	0	Diploid	ND
YJM947 ¹	UCDFST 08-154	Italy	Clinical	1	53	Diploid	ND
YJM948 ²	UCDFST 08-155	Italy	Clinical	1	75	Diploid	ND
YJM949	UCDFST 08-156	Italy	Clinical	0	NA	Diploid	ND
YJM950	UCDFST 08-157	Italy	Clinical	0	NA	Tetraploid	ND
YJM951	UCDFST 08-158	Italy	Clinical	1	21	Tetraploid	ND
YJM952	UCDFST 08-159	Italy	Clinical	1	2	Tetraploid	ND
YJM953	UCDFST 08-160	Italy	Clinical	1	45	Tetraploid	ND
YJM954 ²	UCDFST 08-161	Italy	Clinical	1	77	Diploid	ND
YJM955 ¹	UCDFST 08-162	Italy	Clinical	1	74	Diploid	ND
YJM956	UCDFST 08-163	Italy	Clinical	1	67	Diploid	ND
YJM957	UCDFST 08-164	Italy	Clinical	1	57	Diploid	ND
YJM958	UCDFST 08-165	Italy	Commercial	1	64	Tetraploid	ND
YJM959	UCDFST 08-166	Italy	Commercial	1	63	Tetraploid	ND
YJM960	UCDFST 08-167	Italy	Commercial	1	64	Tetraploid	ND
YJM961	UCDFST 08-168	Italy	Commercial	0	NA	Triploid	ND
YJM962	UCDFST 08-169	Italy	Clinical	1	57	Tetraploid	ND
YJM963	UCDFST 08-170	Italy	Clinical	1	66	Diploid	ND
YJM964 ²	UCDFST 08-171	Italy	Clinical	1	69	Diploid	ND
YJM965 ²	UCDFST 08-172	Italy	Clinical	1	60	Diploid	ND
YJM966	UCDFST 08-173	Italy	Clinical	1	10	Triploid	ND
YJM967 ²	UCDFST 08-174	Italy	Clinical	1	65	Diploid	ND
YJM1004 ^{3,17}	UCDFST 08-175	S.E. Asia	Fruit (var. <i>boulardii</i>)	0	NA	Diploid	ND
YJM1005 ¹⁷	UCDFST 08-176	S.E. Asia	Fruit (var. <i>boulardii</i>)	0	NA	Diploid	ND
YJM1006 ^{3,17}	UCDFST 08-177	S.E. Asia	Fruit (var. <i>boulardii</i>)	0	NA	Diploid	ND
YJM1064	NRRL Y-455	ND	Clinical	1	3	Diploid	ND
YJM1065	NRRL Y-466	ND	Clinical	1	1	Diploid	ND

YJM1066	NRRL Y-468	ND	Clinical	1	0	Diploid	ND
YJM1067	NRRL Y-469	ND	Clinical	1	0	Diploid	ND
YJM1068	NRRL Y-492	ND	Clinical	1	0	Diploid	ND
YJM1069	NRRL Y-502	ND	Clinical	1	96	Diploid	ND
YJM1070	NRRL Y-960	Washington DC	Clinical	0	NA	Diploid	ND
YJM1071	NRRL Y-961	Washington DC	Clinical	1	51	Diploid	ho/ho
YJM1072	NRRL YB-4343	ND	Clinical	1	6	Diploid	ND
YJM1073	NRRL Y-10988	North Carolina	Clinical	1	41	Diploid	HO/ho
YJM1074	NRRL YB-4342	North Carolina	Clinical	1	5	Diploid	ND
YJM1075	NRRL YB-4348	Portugal	Clinical	1	97	Diploid	HO/HO
YJM1076	ATCC 204722	ND	Lab	1	90	NA ⁷	HO/HO
YJM1094	UCDFST 08-178	UK	Clinical	1	2	Triploid	ND
YJM1095	UCDFST 08-179	UK	Clinical	1	5	Diploid	ND
YJM1096	UCDFST 08-180	UK	Clinical	1	4	Diploid	ND
YJM1097	UCDFST 08-181	UK	Clinical	1	2	Diploid	ND
YJM1098	UCDFST 08-182	UK	Clinical	1	88	Diploid	ho/ho
YJM1099	UCDFST 08-183	UK	Clinical	1	8	Triploid	ND
YJM1100	UCDFST 08-184	UK	Clinical	1	52	Diploid	ND
YJM1101	UCDFST 08-185	Michigan	Clinical	1	96	Diploid	ho/ho
YJM1102	UCDFST 08-186	Michigan	Clinical	1	44	Diploid	ND
YJM1103	UCDFST 08-187	Michigan	Clinical	1	68	Tetraploid	ND
YJM1104	UCDFST 08-188	Michigan	Clinical	1	83	Diploid	ND
YJM1105	UCDFST 08-189	Michigan	Clinical	1	94	NA ⁷	HO/HO
YJM1106	UCDFST 08-190	Michigan	Clinical	1	0	Tetraploid	ND
YJM1107	UCDFST 08-191	Michigan	Clinical	1	42	Diploid	ND
YJM1108	UCDFST 08-192	Michigan	Clinical	1	44	Diploid	ND
YJM1109	UCDFST 08-193	Michigan	Clinical	1	34	Tetraploid	ND
YJM1110	UCDFST 08-194	Michigan	Clinical	1	39	Tetraploid	ND
YJM1111	UCDFST 08-195	Michigan	Clinical	1	49	Diploid	ND
YJM1112	UCDFST 08-196	Michigan	Clinical	1	91	Diploid	ND
YJM1113	UCDFST 08-197	Michigan	Clinical	1	28	Tetraploid	ND
YJM1114	UCDFST 08-198	Michigan	Clinical	1	33	Triploid	ND
YJM1115	UCDFST 08-199	Michigan	Clinical	1	41	Diploid	ND
YJM1116	UCDFST 08-200	Michigan	Clinical	1	86	Diploid	ND
YJM1117	UCDFST 08-201	Michigan	Clinical	1	35	Diploid	ND
YJM1118	UCDFST 08-202	Michigan	Clinical	1	40	Tetraploid	ND
YJM1119	UCDFST 08-203	Michigan	Clinical	1	75	Diploid	ND
YJM1120	UCDFST 08-204	Michigan	Clinical	1	66	Tetraploid	ND
YJM1121	UCDFST 08-205	Michigan	Clinical	1	79	Diploid	ND
YJM1122	UCDFST 08-206	Michigan	Clinical	0	NA	Diploid	ND
YJM1123	CBS 679	Ohio	Distillery	1	95	NA ⁷	HO/HO
YJM1124	MMRL 124, UCDFST 09-125	North Carolina	Clinical	1	11	Diploid	ND
YJM1125	MMRL 125, UCDFST 09-126	North Carolina	Clinical	1	70	Diploid	ND
YJM1126	CBS 1171	Netherlands	Brewery	0	NA	Tetraploid	ND
YJM1135	UCDFST 08-207	UK	Clinical	1	19	Diploid	ND
YJM1138	MMRL 2183, UCDFST 09-128	Tanzania	Clinical	1	0	Triploid	ND
YJM1139	MMRL 2195, UCDFST 09-129	Tanzania	Clinical	1	0	Triploid	ND
YJM1140	MMRL 2416, UCDFST 09-130	Tanzania	Clinical	1	0	Triploid	ND
YJM1141	MMRL 2297, UCDFST 09-131	Tanzania	Clinical	1	0	Diploid	ND
YJM1142	MMRL 2218, UCDFST 09-132	Tanzania	Clinical	1	0	Triploid	ND
YJM1143	MMRL 2236, UCDFST 09-133	Tanzania	Clinical	1	0	Diploid	ND

YJM1144	MMRL 2237, UCDFST 09-134	Tanzania	Clinical	1	0	Triploid	ND
YJM1145	MMRL 2244, UCDFST 09-135	Tanzania	Clinical	1	0	Triploid	ND
YJM1146	MMRL 2248, UCDFST 09-136	Tanzania	Clinical	1	0	Triploid	ND
YJM1178	MMRL 2497, UCDFST 09-137	North Carolina	Clinical	1	13	Diploid	ND
YJM1213	NRRL Y-35	Illinois	Fruit	1	98	NA ⁷	HO/HO
YJM1214	NRRL Y-1526	ND	Other	1	13	Diploid	ND
YJM1215	NRRL Y-1532	Indonesia	Fruit	1	98	Diploid	HO/HO
YJM1216	NRRL Y-1536	Switzerland	Wine	1	46	Diploid	ND
YJM1217	NRRL Y-1544	Japan	Other	1	25	Diploid	ND
YJM1218	NRRL Y-1545	Italy	Other	1	1	Triploid	ND
YJM1219 ⁴	NRRL Y-1546	West-Africa	Other (cheese)	1	91	NA ⁷	HO/HO
YJM1220	NRRL Y-1547	Italy	Other	1	21	Diploid	ND
YJM1222	NRRL Y-2230	Netherlands	Other	1	42	Diploid	ND
YJM1223	NRRL Y-6673	ND	Other (sugarcane)	1	75	Diploid	ND
YJM1224	NRRL Y-6679	Spain	Fruit	1	91	NA ⁷	HO/HO
YJM1259	UCDFST 09-138	North Carolina	Clinical	1	15	Diploid	ND
YJM1273 ¹³	YPS396	Pennsylvania	Other (oak tree)	1	NA	Diploid	HO/HO
YJM1283 ¹⁴	UCDFST 04-210 (EM93)	California	Fruit	1	NA	Diploid	ho/ho
YJM1284 ¹⁵	M1-2	Italy	Wine	1	55	Diploid	HO/HO
YJM1285 ^{5,15}	M28s2	Italy	Wine	1	92	NA ⁷	HO/HO
YJM1286 ^{5,15}	M28f2	Italy	Wine	1	98	NA ⁷	HO/HO
YJM1287	ATCC 42800 (Σ1278b)	ND	Lab	0	NA	Haploid ⁸	ho ⁸
YJM1289	UCDFST 09-139	Minnesota	Clinical	1	84	Diploid	ho/ho
YJM1292 ¹⁶	Bb32(3)	California	Wine	1	100	NA ⁷	HO/HO
YJM1314	NRRL Y-789	ND	Other (grain)	1	0	Diploid	ND
YJM1315	NRRL Y-963	Maryland	Fruit	1	100	NA ⁷	HO/HO
YJM1316	NRRL Y-964	California	Fruit	1	96	NA ⁷	HO/HO
YJM1317	NRRL Y-965	California	Fruit	1	94	NA ⁷	HO/HO
YJM1318	NRRL Y-999	Maryland	Other	1	0	Triploid	ND
YJM1319	NRRL Y-6680	Russia	Wine	1	0	Diploid	ND
YJM1320	NRRL Y-11846	Spain	Fruit	1	0	Diploid	ND
YJM1321	NRRL Y-12629	Spain	Wine	0	NA	NA ⁷	ND
YJM1322 ⁴	NRRL Y-12633	Ivory Coast	Wine	0	NA	NA ⁷	ND
YJM1323	NRRL Y-12637	South Africa	Wine	1	96	NA ⁷	HO/HO
YJM1324	NRRL Y-12638	South Africa	Other (soil)	1	99	NA ⁷	HO/HO
YJM1325	NRRL Y-12657	Spain	Fruit	0	NA	Diploid	ND
YJM1344	NRRL Y-234	Illinois	Other	1	93	NA ⁷	HO/HO
YJM1345	NRRL Y-389	ND	Other (mushrooms)	1	0	Tetraploid	ND
YJM1346	NRRL Y-390	ND	Other (mushrooms)	1	0	Triploid	ND
YJM1347	NRRL Y-393	ND	Other (kefyr)	1	0	Triploid	ND
YJM1348	NRRL Y-641	ND	Brewery	1	0	Diploid	ND
YJM1349	NRRL Y-747	ND	Brewery	1	98	NA ⁷	HO/HO
YJM1350	NRRL Y-767	ND	Fruit	1	2	Diploid	ND
YJM1351	NRRL Y-1347	ND	Other (molasses)	NA	NA	Triploid	ND
YJM1352	NRRL Y-1438	Italy	Wine	0	NA	Triploid	ND
YJM1353	NRRL Y-1649	New Jersey	Other (wood hydrolyzate)	1	0	Triploid	ND
YJM1354	NRRL Y-2189	California	Other (<i>Drosophila</i>)	1	0	Triploid	ND
YJM1357	NRRL YB-247	Trinidad	Distillery	1	42	Diploid	ND
YJM1358	NRRL Y-2190	California	Other (<i>Drosophila</i>)	1	0	Triploid	ND
YJM1359 ⁶	NRRL Y-5511	Phillipines	Fruit	1	80	NA ⁷	HO/HO
YJM1360	NRRL Y-5997	Indonesia	Other (ragi)	1	45	Diploid	ND
YJM1361	NRRL Y-6431	Ohio	Other (sewage)	1	0	Diploid	ND

YJM1362	NRRL Y-7662	Mexico	Other (pozol)	1	0	Diploid	ND
YJM1363	NRRL Y-11857	Maryland	Other (sugar refinery)	1	82	Diploid	ND
YJM1364	NRRL Y-11866	Taiwan	Other (koji)	1	40	Diploid	ND
YJM1365	NRRL Y-11878	Jamaica	Other (sugarcane)	1	48	Diploid	HO/HO
YJM1366	NRRL Y-12758	Japan	Wine	1	100	Diploid	ND
YJM1367	NRRL Y-12769	Malaya	Other (tapioca)	1	50	Diploid	ND
YJM1368	NRRL Y-17447	Thailand	Other (sewage)	1	25	Diploid	ND
YJM1392	NRRL YB-399	ND	Fruit	1	73	Tetraploid	ND
YJM1393	NRRL YB-908	ND	Other (wild cherry tree)	1	100	NA ⁷	HO/HO
YJM1394	NRRL YB-4081	Phillipines	Fruit	1	100	NA ⁷	HO/HO
YJM1395	NRRL YB-4082	Phillipines	Fruit	1	96	NA ⁷	HO/HO
YJM1396	NRRL YB-4449	ND	Other (grape vine)	1	96	NA ⁷	HO/HO
YJM1397 ⁶	NRRL Y-7568	Phillipines	Fruit	1	96	NA ⁷	HO/HO
YJM1398	NRRL Y-1537	ND	Fruit	1	73	Diploid	ND
YJM1404	NRRL Y-129	ND	Fruit	0	NA	NA ⁷	ND
YJM1405	NRRL Y-162	ND	Wine	0	NA	Diploid	ND
YJM1406	NRRL Y-266	France	Wine	1	98	NA ⁷	HO/HO

9 Overview of 170 clinical and nonclinical *Saccharomyces cerevisiae* isolates that were genotyped at
10 12 microsatellite loci and at the *HO* locus; ^{1,2,3,4,5,6}, indicates isolates with identical multilocus
11 genotypes; ⁷, ploidy could not be predicted due to monoallelic profiles at all 12 microsatellite loci; ⁸,
12 known haploid strain; NA, not applicable; ND, not determined.

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37 biotherapeutic agent. Microbial Ecology in Health and Disease 6: 157-171.

38

39 To obtain these isolates, please direct requests to the appropriate culture collections or to the
40 researchers that originally isolated them:

41 CBS – Centraalbureau der Schimmelcultures (<http://www.cbs.knaw.nl/>)

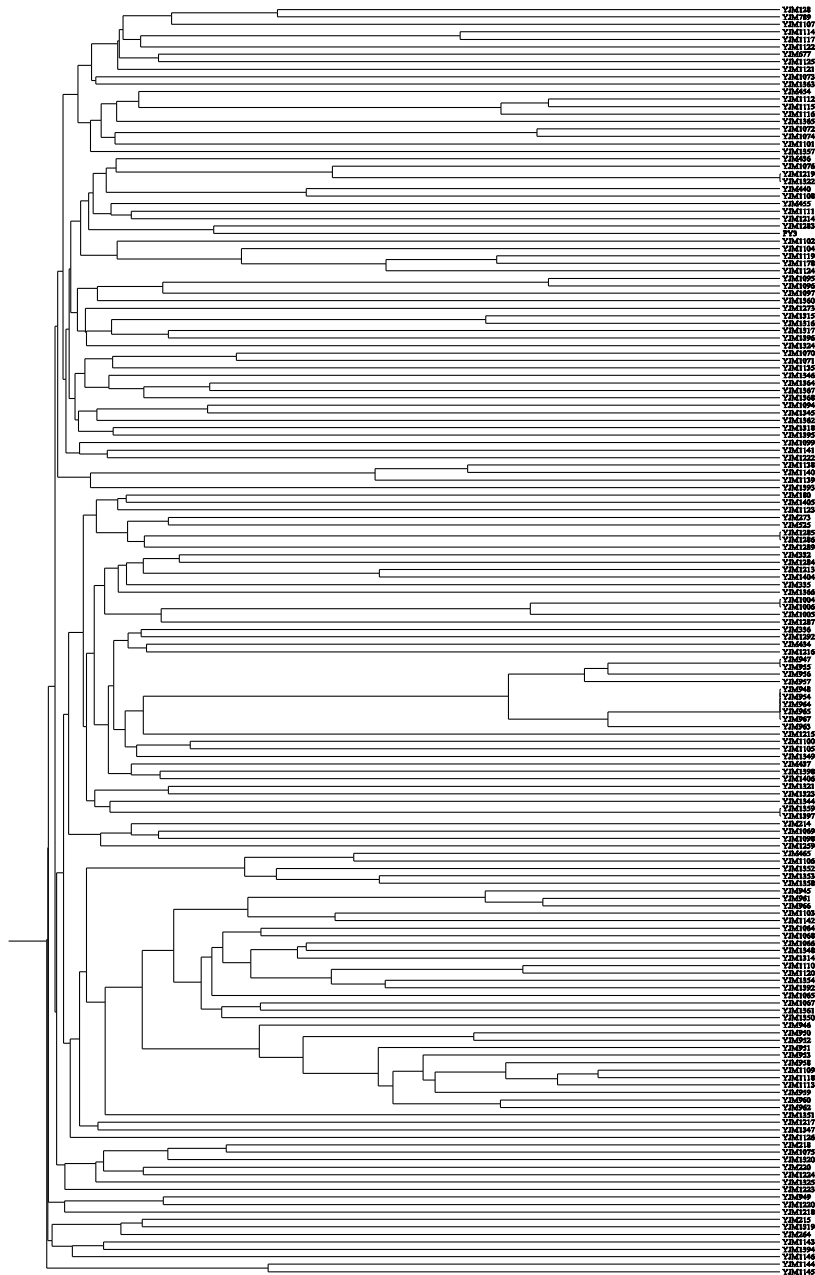
42 NCYC – The National Collection of Yeast Cultures (<http://www.ncyc.co.uk/>)

43 UCDFST – Phaff Yeast Culture Collection (<http://www.phaffcollection.org/>)

44 ATCC – American Type Culture Collection (<http://www.atcc.org/>)

45 NRRL – ARS Culture Collection (<http://nrnl.ncaur.usda.gov/>)

46 Figure S1



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48 UPGMA tree showing the clustering of 170 *Saccharomyces cerevisiae* isolates of various
49 geographical origins and isolated from different substrates. The tree was constructed using the
50 pairwise Jaccard coefficients between the isolates, based on the genotypes at 12 microsatellite loci.