

**Table S1. Strains and genomes used in this study and relevant information pertaining to them.**

Strain	Other designations	Original species designation (correspondent type strain)	Substrate	Geographic location	Clime Zone (wild feral pop.)	Phylogeny	Clade	Heterozygosity <sup>1</sup>	Regions <sup>2</sup>			AQY1 <sup>3</sup>	AQY2 <sup>3</sup>	RTM1 <sup>4</sup>	BIO1 Bid6 <sup>4</sup>	STA1 <sup>4</sup>	MEL <sup>1</sup>	GENOME DATA	REFERENCE				
									A	B	C												
CBS 1176		<i>Saccharomyces cerevisiae</i> var. <i>orsali</i>	Wine	Switzerland		WINE - Main	1	3522	15/15		NF	A88 1del	NF	11bp del	x	x	x	x	ERPO14555	Peter et al. 2018			
CBS 1194		<i>Saccharomyces ellipsoides</i> var. <i>thermophilus</i>	Wine	Unknown		WINE - Main	1	1597			NF	A88 1del	NF	11bp del	x	x	x	x	ERPO14555	Peter et al. 2018			
CBS 1479		<i>Saccharomyces ellipsoides</i> var. <i>montbensis</i>	Wine	Unknown		WINE - Main	1	1083			NF	A88 1del	NF	11bp del	x	x	x	x	ERPO14555	Peter et al. 2018			
CBS 1192		<i>Saccharomyces ellipsoides</i> var. <i>alpinus</i>	Wine	Unknown		WINE - Main	1	1183	15/15	18/19	NF	A88 1del	NF	11bp del	x	x	x	x	ERPO14555	Peter et al. 2018			
CBS 423	PYCC 2607	<i>Saccharomyces chodatii</i>	Wine	Switzerland		WINE - Main	1	4813	15/15	18/19	NF	A88 1del	NF	11bp del	x	x	x	x	ERPO14555	Peter et al. 2018			
CBS 436	PYCC 8195	<i>Saccharomyces yedo</i>	Sake moto	Japan		WINE - Main	1	n.d.	5/5	18/19	NF	A88 1del	NF	11bp del	x	x	x	x	PRJEB36095	This study			
CBS 457		<i>Saccharomyces ellipsoides</i> var. <i>umbra</i>	Grape must	Italy		WINE - Main	1	5501		18/19	NF	A88 1del	NF	11bp del	x	x	x	x	ERPO14555	Peter et al. 2018			
CBS 459		<i>Saccharomyces italicus</i>	Grape must	Italy		WINE - Main	1	1095			NF	A88 1del	NF	11bp del	x	x	x	x	ERPO14555	Peter et al. 2018			
PYCC 6728	CBS 1489	<i>Saccharomyces pulmonalis</i>	Sputum of tuberculosis patient	Pavia, Italy		WINE - Main	1	1873		18/19	NF	A88 1del	NF	11bp del	x	x	x	x	PRJEB36095	This study			
CBS 439		<i>Saccharomyces elongatus</i>	Silvener grapes	Germany		WINE - Main	1	1758	15/15		NF	A88 1del	NF	11bp del	x	x	x	x	ERPO14555	Peter et al. 2018			
PYCC 4653	CBS 1395; NRRL Y-1529	<i>Saccharomyces ellipsoides</i>	Unknown	Unknown		WINE - Main	1	1988			NF	A88 1del	NF	11bp del	x	x	x	x	PRJEB36095	This study			
PR			Pasteur Red	Unknown		WINE - Main	1	1715			NF	A88 1del	NF	11bp del	x	x	x	x	PRJEB19382	Almeida et al. 2017			
CBS 4507		<i>Saccharomyces multisporus</i>	Brewer's yeast, English top yeast	Unknown		WINE - Main	1	2995		17/19	NF	A88 1del	NF	11bp del	x	x	x	x	ERPO14555	Peter et al. 2018			
PYCC 6727	CBS 1227	<i>Saccharomyces annulatus</i>	Human skin infection	France		WINE - Main	1	1415	15/15	18/19	NF	A88 1del	NF	11bp del	x	x	x	x	PRJEB36095	This study			
EXF 619			Wine must	Cuber, Slovenia		WINE - Main	1	2053		17/19	NF	A88 1del	NF	11bp del	✓	x	x	x	PRJEB7601	Almeida et al. 2015			
ZP 641			Spontaneous red wine fermentation	Castelo de Vide, Portugal		WINE - Main	1	1484			NF	A88 1del	NF	11bp del	x	x	x	x	PRJEB7601	Almeida et al. 2015			
Lalvin BM45	AWRI 1486		Commercial yeast (white wine)	Italy		WINE - Main	1	1280	5/5	2/19	NF	A88 1del	NF	11bp del	x	x	x	x	PRJEB19382	Almeida et al. 2017			
Lalvin CY-3079	AWRI 2078		Commercial yeast (red wine)	Unknown		WINE - Main	1	1974	5/5	4/19	NF	A88 1del	NF	11bp del	x	x	x	x	PRJEB19382	Almeida et al. 2017			
PYCC 8156	CBS 1460	<i>Saccharomyces marchalianus</i>	Fermenting fruit	Indonesia		WINE - Main	1	1855			NF	A88 1del	NF	11bp del	x	x	x	x	PRJEB36095	This study			
YJM 1415	NRRL Y-288		Wine	France		WINE - Main	1	1256	5/5	19/19	NF	A88 1del	NF	11bp del	x	x	x	x	PRJNA189914	Strope et al. 2015			
AWRI 1631	N 96		Wine	Australia		WINE - Main	1	n.d.		8/19	NF	A88 1del	NF	11bp del	x	x	x	x	PRJNA30553	Borneman et al. 2008			
AWRI 796	Active Dry Wine Yeast		Commercial wine yeast	South Africa		WINE - Main	1	n.d.		DUP	F	NF	A88 1del	NF	11bp del	x	x	x	✓	NF	EUR	PRJNA48559	Borneman et al. 2011
CBS 8635		<i>Saccharomyces cereanus</i>	Grape must	South Africa		WINE - Main	1	1552			NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
YJS 8679	ULG84F8800	<i>Saccharomyces boulardii</i>	Lychee (reference strain Biocodex)	Vietnam		WINE - Main	1	3918	5/5		NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
YJS 5881	parental		Peranetrol capsule	Brussels, Belgium		WINE - Main	1	3848	5/5		NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
YJS 5880	ultra lev. 1127		UltraLevure packet	Paris, France		WINE - Main	1	3956	5/5		NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
VL3	B6, AWRI 1688		Commercial wine yeast	Laffort		WINE - Main	1	n.d.	5/5	8/19	NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	PRJNA48565	Borneman et al. 2011	
A-14			Wine conserved in amphora	Georgia		WINE - Main	1	9361	5/5	2/19	NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
A-16			Wine conserved in amphora	Georgia		WINE - Main	1	12369	5/5	2/19	NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
A-19			Wine conserved in amphora	Georgia		WINE - Main	1	13819	5/5	2/19	NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
D-4			Wine conserved in amphora	Georgia		WINE - Main	1	14899	5/5	2/19	NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
CBS 5112		<i>Saccharomyces onubensis</i>	Grape must	Spain		WINE - Main	1	1284			NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
PYCC 2613	CBS 2909; NRRL YB-6041	<i>Saccharomyces italicus</i> var. <i>multisporus</i>	Faeces of man	Portugal		OLIVES	2	6783			NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	PRJEB30431	Pontes et al. 2019	
CBS 7002	PYCC 8023	<i>Saccharomyces hispanicus</i>	Alpechin	Seville, Spain		OLIVES	2	2471			NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	PRJEB30431	Pontes et al. 2019	
PYCC 6730	VKM Y-1231	<i>Saccharomyces olivaceus</i>	Olives	Spain		OLIVES	2	2965	5/5		NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	PRJEB30431	Pontes et al. 2019	
PYCC 6732	VKM Y-1234	<i>Saccharomyces olivaginosus</i>	Alpechin	Spain		OLIVES	2	1866			NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	PRJEB30431	Pontes et al. 2019	
PYCC 6731	VKM Y-1232	<i>Saccharomyces norbensis</i>	Alpechin	Spain		OLIVES	2	1393	4/5		NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	PRJEB30431	Pontes et al. 2019	
PYCC 6733	VKM Y-1235	<i>Saccharomyces hispanicus</i>	Alpechin	Spain		OLIVES	2	5258			NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	PRJEB30431	Pontes et al. 2019	
Lalvin O423			Commercial wine yeast	Portugal		WINE - PDM	3	n.d.	15/15	17/19	19/19	NF	A88 1del	F	x	x	x	✓	F	EUR	PRJNA48561	Borneman et al. 2011	
PYCC 4074			Commercial wine yeast (Fermichamp)	Portugal		WINE - PDM	3	2263	15/15	5/5		NF	A88 1del	F	x	x	x	✓	F	EUR	PRJEB19382	Almeida et al. 2017	
EC 1118	Prise de Mousse		Industrial strain isolated from Champagne	France		WINE - PDM	3	n.d.	15/15	5/5	19/19	NF	A88 1del	NF	11bp del	x	x	x	✓	F	EUR	PRJEA37863	Novo et al. 2009
PYCC 6722	CBS 5155; VKM Y-515	<i>Saccharomyces probsoberus</i>	Wine	South Armenia		WINE - PDM	3	2121			NF	A88 1del	F	x	x	x	✓	F	EUR	PRJEB19382	Almeida et al. 2017		
PYCC 6729			Jerez-wine	Armenia		WINE - PDM	3	2901			NF	A88 1del	F	x	x	x	✓	F	EUR	PRJEB19382	Almeida et al. 2017		
S-18			Wine conserved in amphora	Georgia		WINE - PDM	3	4034	5/5		NF	A88 1del	F	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018		
B-24			Wine conserved in amphora	Georgia		WINE - PDM	3	5115	5/5	19/19	NF	A88 1del	F	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018		
CBS 2247		<i>Saccharomyces egypticus</i>	Wine	South Africa		WINE - PDM	3	1547			NF	A88 1del	F	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018		
CBS 4054		<i>Saccharomyces aceti</i>	Wine	Spain		WINE - PDM	3	1712			NF	A88 1del	F	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018		
CBS 5835		<i>Saccharomyces hispanica</i>	Wine	Spain		WINE - PDM	3	3825			NF	A88 1del	F	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018		
CBS 6006		<i>Saccharomyces gaditensis</i>	Wine	Spain		WINE - PDM	3	3867	5/5	19/19	NF	A88 1del	F	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018		
CBS 6007		<i>Saccharomyces cordubensis</i>	Wine	Spain		WINE - PDM	3	1520			NF	A88 1del	F	x	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018		
PYCC 6726			Jerez-wine	Spain		WINE - PDM	3	4939			NF	A88 1del	F	x	x	x	✓	F	EUR	PRJEB19382	Almeida et al. 2017		
CLIB 1082			Cider brewery, dry cider	Upper Normandy, France		CACHAÇA - BIOETHANOL	4	22616	15/15	5/5	NF	A88 1del	V121M	F	✓	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
UFMG-CM-Y030	CAY1007		Cachaça (commercial strain)	Minas Gerais, Brazil		CACHAÇA - BIOETHANOL	4	31074	5/5		NF	A88 1del	NF	G75del	x	x	x	✓	F	SA	PRJEB24932	Barbosa et al. 2018	
UFMG-CM-Y630	SC3		Cachaça	Santa Catarina, Brazil		CACHAÇA - BIOETHANOL	4	3570	5/5		F	NF	NF	11bp del	✓	x	x	✓	F	EUR	PRJEB24932	Barbosa et al. 2018	
CBS 7959			Factory producing ethanol (sugar cane syrup)	Sao Paulo, Brazil		CACHAÇA - BIOETHANOL	4	2365	5/5		NF	A88 1del	NF	11bp del	✓	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
UFMG-CM-Y633	T09		Cachaça	Tocantins, Brazil		CACHAÇA - BIOETHANOL	4	6833			NF	A88 1del	F	✓	x	x	✓	F	EUR	PRJEB24932	Barbosa et al. 2018		
UFMG-CM-Y634	TOC 1301		Cachaça	Tocantins, Brazil		CACHAÇA - BIOETHANOL	4	21251	5/5		NF	A88 1del	NF	11bp del	✓	x	x	✓	F	EUR	PRJEB24932	Barbosa et al. 2018	
BG-1			Bioethanol-producing strain from sugar cane	Brazil		CACHAÇA - BIOETHANOL	4	n.d.	4/5		NF	A88 1del	NF	20bp ins	x	x	x	✓	F	EUR	PRJNA352845	Coutoune 2017	
M.9.1			Cachaça	Brazil		CACHAÇA - BIOETHANOL	4	26964	5/5		NF	A88 1del	V121M	NF	11bp del	✓	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018
M1.1			Cachaça	Brazil		CACHAÇA - BIOETHANOL	4	23740	5/5		NF	A88 1del	NF	11bp del	✓	x	x	✓	F	EUR	ERPO14555	Peter et al. 2018	
BE063			Beer	England		BEER																	



COJ2.4			Fermented rice	Shaoying, Zhejiang		CHN FERMENTATION	12	540			NF	V121M	A522nd	NF	G259d		x	✓	x	x			PRJNA396809	Duan et al. 2018		
HQ1.1			Huangjiu (rice wine) starter with fermented monascus	Gutan, Fujian		CHN FERMENTATION	12	3753			NF	V121M	A863del	NF	G259d		x	✓	x	x	F	AS I	PRJNA396809	Duan et al. 2018		
GZLJ3.19			Fermented sorghum grain	Changshun, Guizhou		CHN FERMENTATION	12	3807			NF	V121M	A822nd	NF	G259d		x	✓	x	x			PRJNA396809	Duan et al. 2018		
HLJ25			Fermented sorghum grain	Qiqihar, Heilongjiang		CHN FERMENTATION	12	5146			NF	V121M	A822nd	F	G259d		x	✓	x	x	F	AS I	PRJNA396809	Duan et al. 2018		
JB3			Fermenting dough	Chengcheng, Shanxi		CHN FERMENTATION	12	3302			NF	V121M		NF	G259d		x	✓	x	x	F	AS I	PRJNA396809	Duan et al. 2018		
JT49.1			Dry fermented dough	Zhouzhi, Shanxi		CHN FERMENTATION	12	7371			NF	V121M	A822nd	NF	G259d		x	✓	x	x			PRJNA396809	Duan et al. 2018		
LJQ13.C7			Fermenting dough	Yanan, Shanxi		CHN FERMENTATION	12	3044			NF	V121M		NF	G259d		x	✓	x	x			PRJNA396809	Duan et al. 2018		
CBS 1544	PYCC 4654	<i>Saccharomyces kudriavzevii</i>	Fermenting fruit juice	Netherlands				5165	5%	19/19	NF	A881del		NF	11bp del		x	✓	x	x			PRJEB36095	This study		
MTF 2546			Cocoa bean fermentation	West Africa		COCOA	13	14517			5%	NF	A881del		G259d		x	✓	x	x			ERPD14555	Peter et al. 2018		
MTF 2548			Cocoa bean fermentation	West Africa		COCOA	13	23290		5%	NF	A881del		F	G259d		x	✓	x	x			ERPD14555	Peter et al. 2018		
MTF 2551			Cocoa bean fermentation	West Africa		COCOA	13	21583		5%	NF	A881del		F	G259d		x	✓	x	x			ERPD14555	Peter et al. 2018		
BJ10			Bark of <i>Ulmus</i> sp., secondary forest	Wuling Mountain, Beijing		TEMP	CHN VIII	14	2086		3%	NF	A891del		G259d		x	✓	x	x			PRJNA396809	Duan et al. 2018		
BJ2			Apple, orchard	Shunyi, Beijing		TEMP	CHN VIII	14	2647		5%			F	G259d		x	✓	x	x			PRJNA396809	Duan et al. 2018		
CBS 1598			Sake moto	Nakazawa, Japan			SAKE	15	3517			NF	V121M		NF	G259d		✓	✓	x	x		ERS1108639	Goncalves et al. 2016		
CBS 435	PYCC 8194	<i>Saccharomyces kluyveri</i>	Sake moto	Nakazawa, Japan			SAKE	15	4906			NF	V121M		NF	G259d		✓	✓	x	x		ERS1108637	Goncalves et al. 2016		
UC 5	UCD612		Sake sake	Kurashi, Japan			SAKE	15	n.d.			NF	V121M		NF	G259d		x	✓	x	x		PRJNA60197	Justin Fay, Washington University		
Kyokai-no-7	K7		Japanese sake brewer	Japan			SAKE	15	n.d.			NF	V121M	A822nd	NF	G259d		x	TRIP	x	x			AKAO45827	Akao et al. 2011	
CBS 1508	PYCC 5182	<i>Saccharomyces carlsbergensis</i> var. <i>mandschuricus</i>	Starter for sorghum brandy	Unknown			SAKE	15	1898			NF	V121M	A822nd	NF	G259d		✓	✓	x	x	F	AS I	ERPD14555	Peter et al. 2018	
CBS 440		<i>Saccharomyces fermentosus</i>	Molasses	Taiwan			SAKE	15	2410		5%	NF	A891del		NF	G259d		✓	✓	x	x		ERPD14555	Peter et al. 2018		
Y12	NRRL Y-12663, CBS 400		Fermentation (palm wine)	Ivory Coast			SAKE	15	15534			NF	V121M		NF	G259d		✓	✓	x	x		SGRP2	Bergstrom, A. et al. 2014		
CLIB 1414			Rice wine	Laos			SAKE	15	11848			NF	V121M	A822nd	NF	G259d		✓	x	x	x		ERPD14555	Peter et al. 2018		
MTJZ1			Fermented sorghum grain	Renhui, Guizhou, China			SAKE	15	2515			NF	V121M		NF	G259d		✓	✓	x	x	F	AS I	PRJNA396809	Duan et al. 2018	
YJSH1			Bioethanol-producing strain	China			SAKE	15	3084			NF	V121M		NF	G259d		x	✓	x	x	F	AS I	PRJNA72403	Zheng, et al. 2012	
NRRL Y-12844			Budod (rice-based starter)	Philippines			SAKE	15	10363			NF	V121M		NF	G259d		✓	✓	x	x		ERS1108645	Goncalves et al. 2016		
NRRL Y-7327	PYCC 8032		Tibetan beer starter	H. Douglas, University of Washington, Seattle, Washington			SAKE	15	31305			NF	V121M	G262nd	NF	G259d		✓	✓	x	x		PRJEB36095	This study		
NRRL Y-6297	PYCC 8030		Coconut tuba (palm wine)	Hipollo, NIST, Manila, Philippines		TROP	PHILIPPINES	16	3044			NF	V121M		NF	G259d		✓	✓	x	x		PRJEB36095	This study		
YJM 1479	NRRL Y-6297		Coconut tuba (palm wine)	Philippines		TROP	PHILIPPINES	16	3264			NF	V121M		NF	G259d		✓	✓	x	x		PRJNA189929	Strope et al. 2015		
NRRL YB-0083			Coconut sap	Philippines		TROP	PHILIPPINES	16	n.d.			NF	V121M		NF	G259d		✓	✓	x	x		PRJEB36095	This study		
YJM 1400	NRRL YB-0081		Guaava (fruit)	Philippines		TROP	PHILIPPINES	16	2960			NF	V121M		NF	G259d		✓	✓	x	x		PRJNA189911	Strope et al. 2015		
CBS 1576			Exudate of <i>Arenaria</i> sp. (palm tree)	Celebes, Sulawesi, Indonesia		TROP	PHILIPPINES	16	2576			NF	V121M		F	G259d		✓	✓	x	x		ERPD14555	Peter et al. 2018		
NRRL Y-5508	PYCC 8029		Coconut pod	Arguelles, Manila, Philippines		TROP	PHILIPPINES	16	19036			NF	V121M		F	G259d		✓	✓	x	x		PRJEB36095	This study		
DJ66			Palm wine	Yoboki, Djibouti		TROP	PHILIPPINES	16	19012			NF	T178 del	A822nd	F	G259d		DUP	✓	✓	x	x	NF	AF II	ERPD14555	Peter et al. 2018
SBBM-30-2D			Phloem sap of <i>Caryota urens</i> (Toddy palm)	Sri Lanka		TROP	PHILIPPINES	16	3172			NF	V121M		F	G259d		✓	✓	x	x	F	AS I	ERPD14555	Peter et al. 2018	
CBS 2992			Palm wine	Pakistan		TROP	PHILIPPINES	16	2405			NF	V121M	A822nd	NF	G259d		✓	✓	x	x		PRJEB36095	This study		
CBS 3000			Palm wine	Pakistan		TROP	PHILIPPINES	16	2325			NF	V121M		NF	G259d		✓	✓	x	x		PRJEB36095	This study		
SDO 3e1			Oak	North Carolina, USA		TROP	NA & JP - CHL VIIII - FER	17	3693			F	F		F	G259d		x	✓	x	x		PRJEB7601	Almeida et al. 2015		
YPS 1009			Oak exudate	New Jersey, USA		TEMP	NA & JP - CHL VIIII - FER	17	2650			F	F		F	G259d		x	✓	x	x		PRJNA60223	Justin Fay, Washington University		
YPS 163			<i>Quercus rubra</i>	Pennsylvania, USA		TEMP	NA & JP - CHL VIIII - FER	17	2873			F	F		F	G259d		x	✓	x	x		PRJNA28813	Doniger et al. 2008		
ZP 651			<i>Quercus acutissima</i>	Chiba Prefecture, Japan		TEMP	NA & JP - CHL VIIII - FER	17	3623			F	F		F	G259d		x	✓	x	x		PRJEB7601	Almeida et al. 2015		
Y. 03-30-1-1-1, (1)			<i>Chaetodes pectinatis</i> (male) - <i>Corydalidae</i>	Louisiana, USA		TEMP	NA & JP - CHL VIIII - FER	17	2762			F	F		F	G259d		x	✓	x	x		ERPD14555	Peter et al. 2018		
ZP 652			<i>Quercus acutissima</i>	Chiba Prefecture, Japan		TEMP	NA & JP - CHL VIIII - FER	17	3699			F	F		F	G259d		x	✓	x	x		PRJEB7601	Almeida et al. 2015		
ZP 779			<i>Quercus acutissima</i>	Hirusen highland, Okayama Prefecture, Japan		TEMP	NA & JP - CHL VIIII - FER	17	3509			F	F		F	G259d		x	✓	x	x		PRJEB7601	Almeida et al. 2015		
ZP 781			<i>Quercus serrata</i>	Hirusen highland, Okayama Prefecture, Japan		TEMP	NA & JP - CHL VIIII - FER	17	3333		3%	F	F		F	G259d		x	✓	x	x		PRJEB7601	Almeida et al. 2015		
BJ28			Bark of <i>Castanea</i> sp., secondary forest	Wuling Mountain, Beijing		TEMP	NA & JP - CHL VIIII - FER	17	8648		3%	F	F		F	G259d		x	✓	x	x		PRJNA396809	Duan et al. 2018		
FJ12			Peach from a market	Wuyi Mountain, Fujian		TEMP	NA & JP - CHL VIIII - FER	17	3074			F	F		F	G259d		x	✓	x	x		PRJNA396809	Duan et al. 2018		
HL2			Bark of <i>Quercus mongolica</i> , secondary forest	Jingbo lake, Heilongjiang		TEMP	NA & JP - CHL VIIII - FER	17	2803			F	F		F	G259d		x	✓	x	x		PRJNA396809	Duan et al. 2018		
N163.01-5A			Exudate of <i>Quercus mongolica</i>	Botanical garden, Blagoveshchensk, Russia		TEMP	NA & JP - CHL VIIII - FER	17	3049			F	F		F	G259d		x	✓	x	x		ERPD14555	Peter et al. 2018		
N3.00-7A			Grape berries of wild <i>Vitis amurensis</i>	Botanical garden, Blagoveshchensk, Russia		TEMP	NA & JP - CHL VIIII - FER	17	2432			F	F		F	G259d		x	✓	x	x		ERPD14555	Peter et al. 2018		
N159.01-2B			Exudate of <i>Quercus mongolica</i>	Botanical garden, Blagoveshchensk, Russia		TEMP	NA & JP - CHL VIIII - FER	17	2863			F	F		F	G259d		x	✓	x	x		ERPD14555	Peter et al. 2018		
SD1			Persimmon, planted tree	Anqiu, Shandong		TEMP	CHN VI / CHN VII	18	2095			F	F		F	G259d		x	✓	x	x		PRJNA396809	Duan et al. 2018		
SX10			Persimmon, planted tree	Qinling Mountain, Shaanxi		TEMP	CHN VI / CHN VII	18	2509			F	F		F	G259d		x	✓	x	x		PRJNA396809	Duan et al. 2018		
XJ1			Soil, orchard	Xinjiang		TEMP	CHN VI / CHN VII	18	2880			F	F		F	G259d		x	✓	x	x		PRJNA396809	Duan et al. 2018		
CBS 403	PYCC 4571	<i>Saccharomyces lindneri</i>	Ginger beer from <i>Zingiber officinale</i>	West Africa			WEST AFRICA	19	2031			NF	A881del		F	G259d		✓	✓	x	x	NF	AF II	PRJEB36095	Peter et al. 2018	
YJM 1439	NCYC 110		Ginger beer from <i>Zingiber officinale</i>	West Africa			WEST AFRICA	19	2129			F	F		F	G259d		✓	✓	x	x	NF	AF II	PRJEB36095	Peter et al. 2018	
PYCC8489	NRRL Y-12633, CBS 400	<i>Saccharomyces chevalieri</i>	Palm wine from <i>Elaeis guineensis</i>	Ivory Coast			WEST AFRICA	19	3572			NF	A881del		F	G259d		✓	✓	x	x	NF	AF II	PRJEB36095	This study	
YJM 1248	NRRL Y-1546		Bill wine from <i>Ostebeckia grandiflora</i>	West Africa			WEST AFRICA	19	2600			NF	A881del		F	G259d		✓	✓	x	x	NF	AF II	PRJNA189888	Strope et al. 2015	
PW5			Raghaia palm wine	Abia, Abia state, Nigeria			WEST AFRICA	19	1175			NF	A881del		F	G259d		✓	✓	x	x	NF	AF II	PRJNA60181	Justin Fay, Washington University	
YJM 195	NCYC 762		Palm wine	Nigeria			WEST AFRICA	19	2977			NF	A881del		F	G259d		✓	✓	x	x		PRJNA189849	Strope et al. 2015		
CBS 7903	NCYC 761		Palm wine	Nigeria			WEST AFRICA	19	2737			NF	A881del		F</											

BJ14		Forest soil, secondary forest	Wuling Mountain, Beijing	TEMP	CHN IV	24	2922			F		F		x	x	x	x		PRJNA396809	Duan et al. 2018	
BJ6		Persimmon	Changping, Beijing, China	TEMP	CHN IV	24	3068			F		F		x	x	x	x		ERP014555	Peter et al. 2018	
HN2		Rotten wood, primeval forest	Diaolu Mountain, Hainan province, China	TROP	CHN I	25	3283			F		F		x	✓	x	✓	F	AS I	PRJNA396809	Duan et al. 2018
HN6		Rotten wood, primeval forest	Wuzhi Mountain, Hainan province, China	TROP	CHN I	25	2780			F		F		x	✓	x	x		ERP014555	Peter et al. 2018	
JXXY16.1		Bark, primeval forest	Xiangyuan, Shanongia, Hubei province, China	TEMP	CHN IX	26	1234			F		F		x	✓	x	x		PRJNA396809	Duan et al. 2018	
XXY30L.2		Bark, primeval forest	Xiangyuan, Shanongia, Hubei province, China	TEMP	CHN IX	26	3191			F		F		x	✓	x	x		PRJNA396809	Duan et al. 2018	
XXY30L.4		Bark, primeval forest	Xiangyuan, Shanongia, Hubei province, China	TEMP	CHN IX	26	992			F		F		x	✓	x	x		PRJNA396809	Duan et al. 2018	
SX3		Bark from <i>Carya</i> sp.	Qinling Mountain, Shaanxi province, China	TEMP	CHN II	27	2833			F		F		x	x	x	x		ERP014555	Peter et al. 2018	
SX1		Persimmon, planted tree	Qinling Mountain, Shaanxi province, China	TEMP	CHN II	27	2509			F		F		x	x	x	x		ERP014555	Peter et al. 2018	
SX8		Bark of <i>Quercus fabri</i> , primeval forest	Qinling Mountain, Shaanxi province, China	TEMP	CHN II	27	2602			F		F		x	x	x	x		PRJNA396809	Duan et al. 2018	

<sup>1</sup> Count of heterozygous sites across the genome. Values higher than 20,000 are highlighted.  
<sup>2</sup> Three genomic regions horizontally transferred from non-*Saccharomyces* yeasts (Novo et al. 2009) that encompass genes potentially relevant for the winemaking process.  
<sup>3</sup> Aquaporins (encoded by *AOY1* and *AOY2*) are membrane water channels that facilitate the transport of water in and out of the cell. Their inactivation is viewed as a consequence of domestication.  
<sup>4</sup> Subtelomeric gene associated with the locus of sucrose utilization that provides resistance to inhibitory compounds present in molasses.  
<sup>5</sup> These genes encode enzymes involved in the synthesis of biotin and were originally found in strains used in saline fermentation.  
<sup>6</sup> Chimeric gene that gives rise to an extra-cellular glucosylase that allows the conversion of soluble starch and dextrans into fermentable sugars.  
<sup>7</sup> Polymorphic genes that encode an α-galactosidase that hydrolyses melibiose.

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TROP -Tropical  
TEMP -Temperate  
CHN - China  
FER - Far East Russia  
FG - French Guiana  
MA - Mexican agave fermentation  
MO - Mediterranean oak  
NA & JP - North America and Japan  
PDM - Prise de mousse  
WB - Wild Brazil

F Functional  
NF Not Functional  
x Absent  
✓ Present

✓ *S. cerevisiae*  
✓ *S. paradoxus*  
Unknown

AOY1 INACTIVATIONS

- A811del** adenine deletion at position 881
- V121M** valine to methionine at aminoacid 121
- A822ns** adenine insertion at position 822
- 321 G-A Stop** guanine to adenine at position 321 leads to a premature stop codon
- T435del** thymine deletion at position 498
- T239 del** thymine deletion at position 239
- T230 del** thymine deletion at position 230
- 88 C>T Stop** cytosine to thymine at position 88 leads to a premature stop codon
- A863del** adenine deletion at position 863
- C829ns** cytosine insertion at position 625
- 1178 del** thymine deletion at position 178
- 102bp del** deletion of the first 106 bp

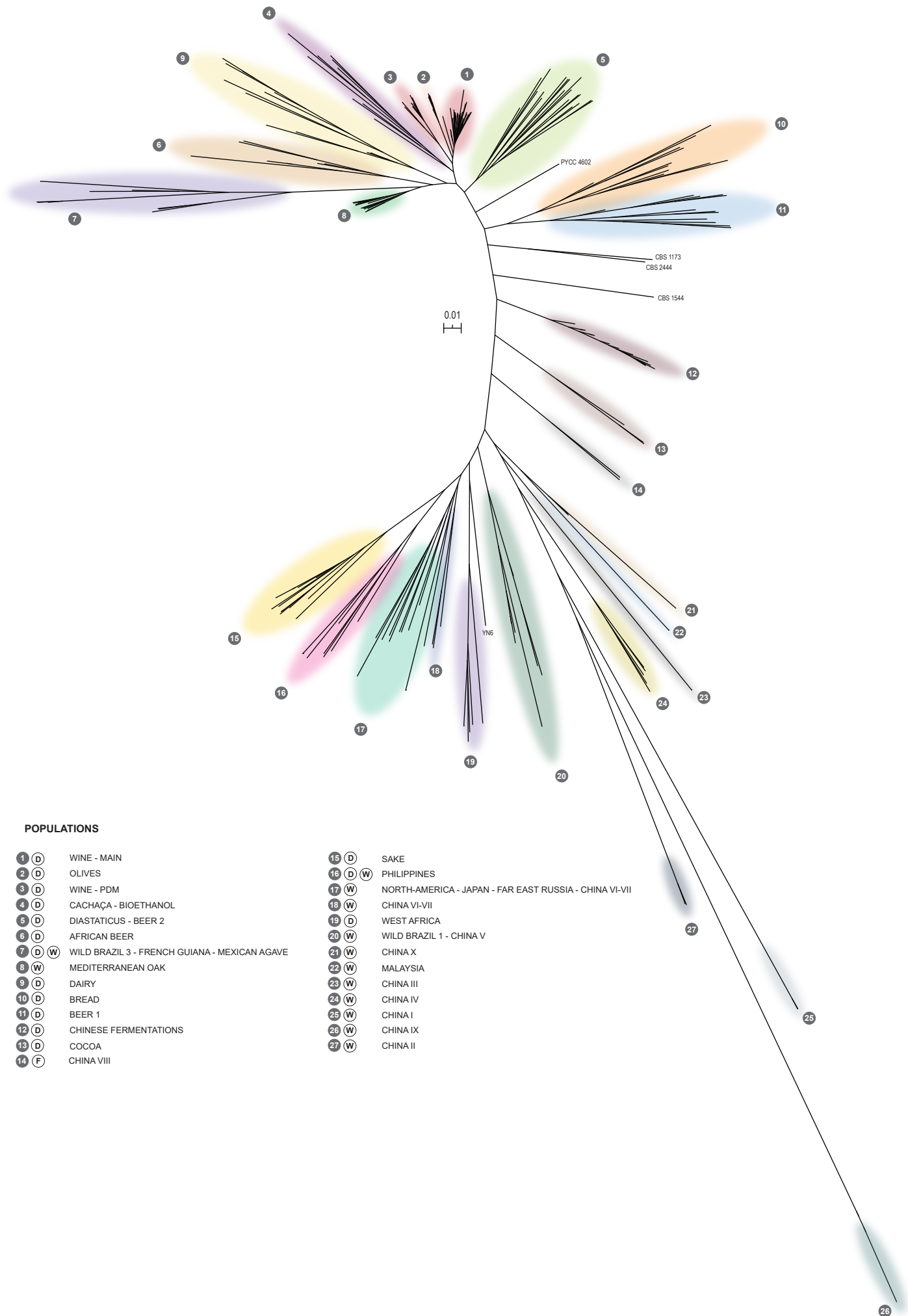
AOY2 INACTIVATIONS

- 11bp del** 11 bp deletion
- T629del** guanine deletion at position 25
- 20bp ins** 20 bp insertion
- 786 G-A stop** guanine to adenine at position 786 leads to a premature stop codon
- 424 C>T Stop** cytosine to thymine at position 424 leads to a premature stop codon
- GT158ns** guanine and thymine insertion at position 158
- G107 del** guanine deletion at position 107
- 135 T>A Stop** thymine to adenine at position 165 leads to a premature stop codon
- 792del** premature stop codon at position 792
- G528del** guanine deletion at position 528

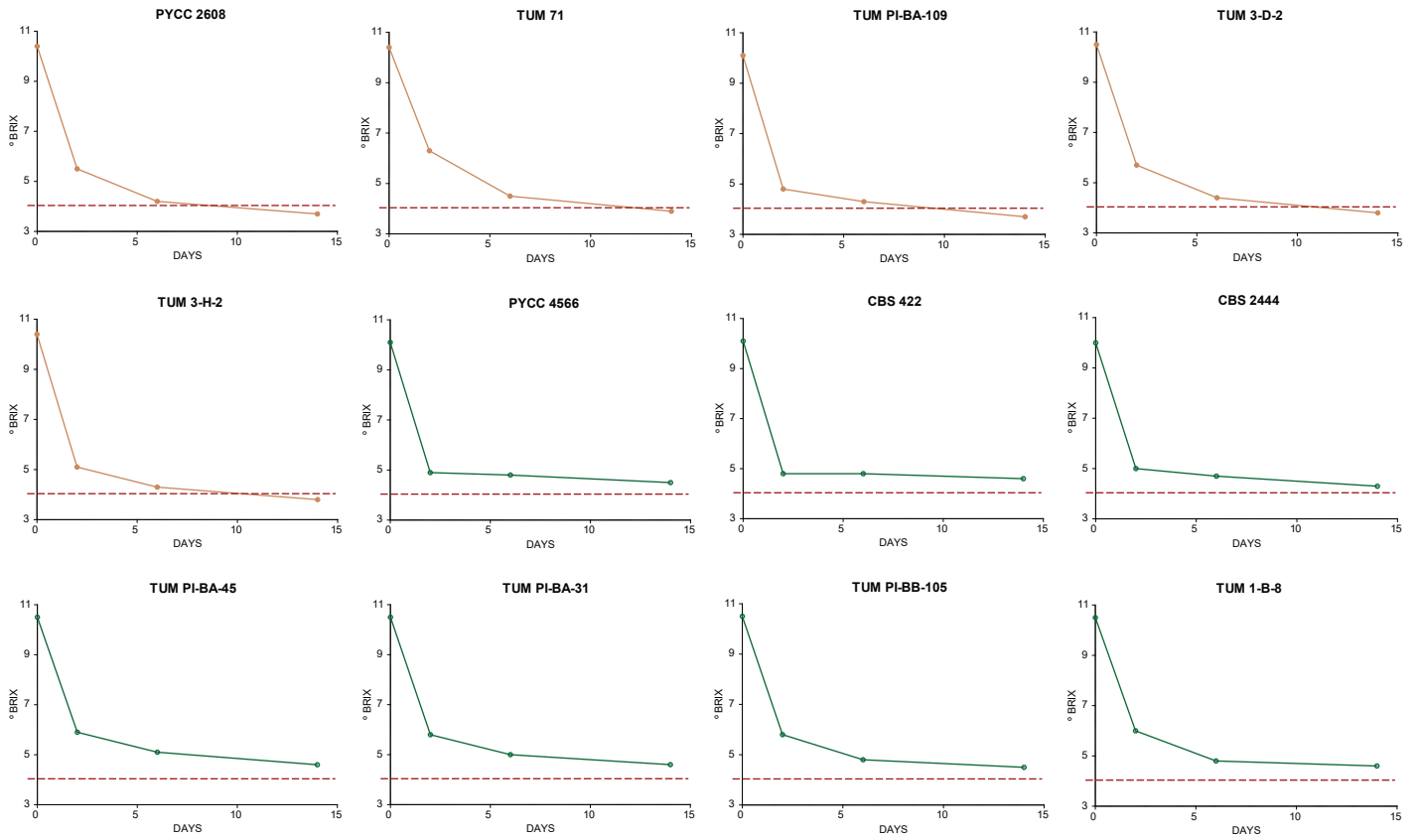
AS I - ASIAN I  
AS II - ASIAN II  
NA - NORTH AMERICAN  
P - RECOMBINANT ASHAA  
EUR - EUROPEAN  
AF I - AFRICAN I  
AF II - AFRICAN II  
SA - SOUTH AMERICAN

Table S2. Presence (+) or absence (-) of the *MEL* gene in the genomes of *S. paradoxus* from different populations.

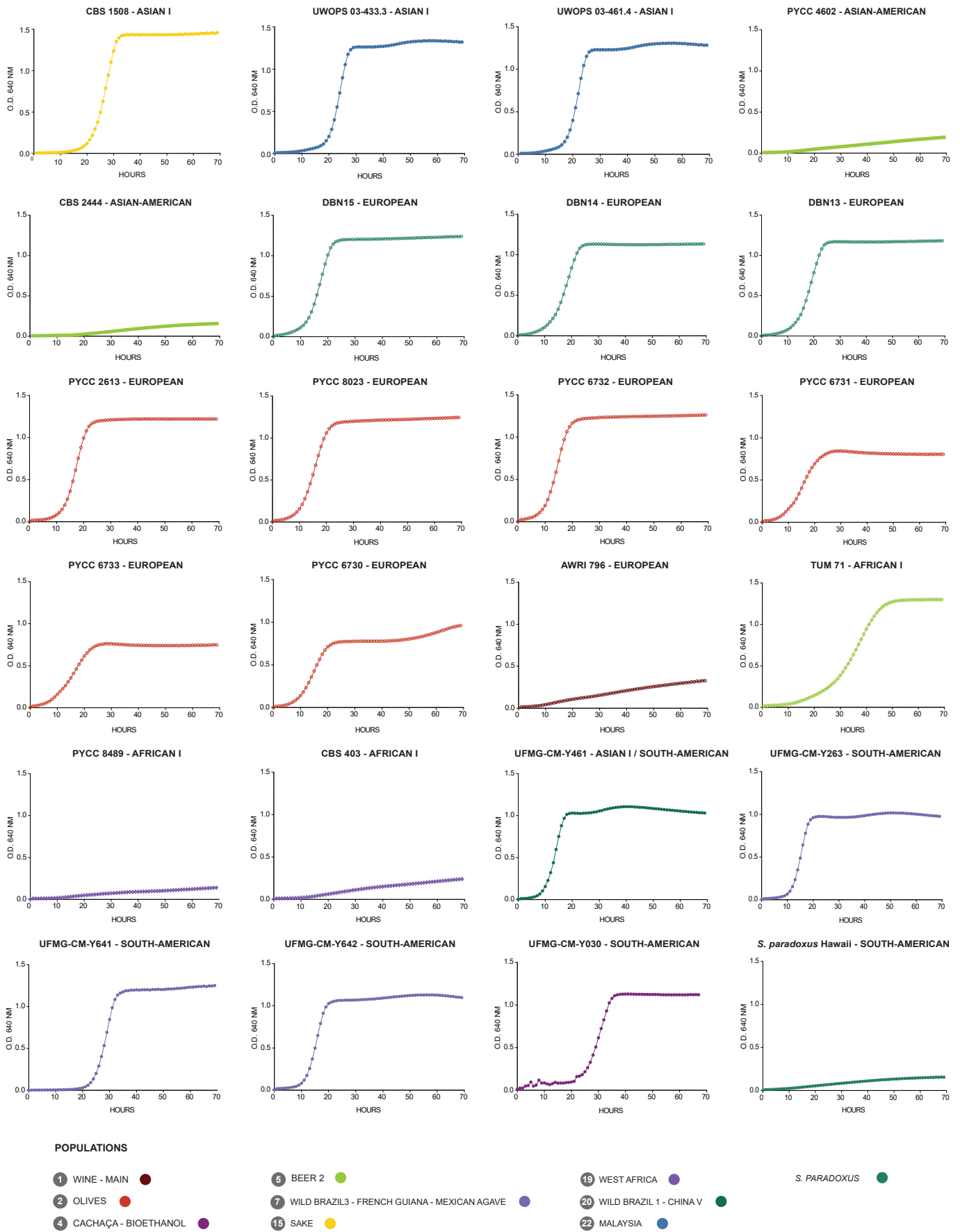
STRAIN	ORIGIN	POPULATION	MEL
DBN13	Greece	EUROPEAN	+
DBN14	Greece	EUROPEAN	+
DBN15	Greece	EUROPEAN	+
TAX15c	Greece	EUROPEAN	-
DBN10	Greece	EUROPEAN	-
TAX3d	Greece	EUROPEAN	-
TAX2	Greece	EUROPEAN	-
PAR10c	Greece	EUROPEAN	-
TAX1a	Greece	EUROPEAN	-
ZP 1157	Portugal	EUROPEAN	-
ZP 1023	Portugal	EUROPEAN	-
ZP600	Portugal	EUROPEAN	-
CET10308	Spain	EUROPEAN	-
ZP 1167	Spain	EUROPEAN	-
ZP 1233	Spain	EUROPEAN	-
MB13a	France	EUROPEAN	-
MB11d	France	EUROPEAN	-
MB15	France	EUROPEAN	-
MB4	France	EUROPEAN	-
Chr116	France	EUROPEAN	-
DBVPG 4650	Italy	EUROPEAN	-
CRO2d	UK	EUROPEAN	-
OAK11c	UK	EUROPEAN	-
CRO12d	UK	EUROPEAN	-
Q59	UK	EUROPEAN	-
Q89	UK	EUROPEAN	-
DBF01	UK	EUROPEAN	-
CBS 406	Netherlands	EUROPEAN	-
ZP 614	Germany	EUROPEAN	-
ZP 665	Germany	EUROPEAN	-
EM11	Germany	EUROPEAN	-
EM13	Germany	EUROPEAN	-
EM55	Germany	EUROPEAN	-
EM213	Germany	EUROPEAN	-
NBRC 102004	Finland	EUROPEAN	-
ALKO2639	Finland	EUROPEAN	-
NBRC 102003	Lithuania	EUROPEAN	-
CBS 5829	Denmark	EUROPEAN	-
CBS 432	Unknown	EUROPEAN	-
EXF 6618	Slovenia	EUROPEAN	-
EXF 6641	Slovenia	EUROPEAN	-
EXF 6729	Slovenia	EUROPEAN	-
EXF 6635	Slovenia	EUROPEAN	-
INMIV11	Ukraine	EUROPEAN	-
INMIV544	Ukraine	EUROPEAN	-
ZP 703	USA	NORTH AMERICAN	-
YPS 125	USA	NORTH AMERICAN	-
YPS 138	USA	NORTH AMERICAN	-
YPS 644	USA	NORTH AMERICAN	-
UCD-FST 61-248	USA	NORTH AMERICAN	+
UCD 51-137	USA	NORTH AMERICAN	-
UCD-72-129	USA	NORTH AMERICAN	-
UWOPS 1979-129	Canada	NORTH AMERICAN	-
UWOPS 1979-527	Canada	NORTH AMERICAN	-
UFRJ 50816	Brazil	NORTH AMERICAN	-
NRLLY2047	USA	NORTH AMERICAN	-
UWOPS 91-917-1	Hawaii	HAWAIIAN	+
CBS 8440	Russia	FAR EAST	-
CBS 8443	Russia	FAR EAST	-
KPN 3829	Siberia	FAR EAST	-
IFO 1804	Japan	FAR EAST	-
UCD-67-570W	Japan	FAR EAST	-
N16	Russia	FAR EAST	-
N43	Russia	FAR EAST	-
N44	Russia	FAR EAST	-
N12	Azerbaijan	FAR EAST	-
ZP 811			-
ZP 751			-
ZP 838			-
DBH58			-



**Figure S1.** Unrooted phylogeny *S. cerevisiae* genomes representing the known diversity of the species. The phylogeny was inferred from 247 sequences and 983.701 SNPs using the TVM+F+G4 model of sequence evolution and the maximum likelihood method as implemented in IQ-TREE. Branch lengths correspond to the expected number of substitutions per site. The 27 clades detected are numbered in gray circles.



**Figure S2.** °Brix measurements during growth in beer wort for 15 days at 25 °C. Strains able to attenuate the initial 11°Brix of the medium to 4°Brix or lower were considered as diastase positive.



**Figure S3.** Growth curves on 1% (w/v) melibiose medium supplemented with yeast nitrogen base and incubated at 25 °C for three days.