

1 **Table S5. Major metabolic pathways and structures deduced from the putative partial genome of WG-2.**

Gene ID	Protein/ Function	Contig	Length (bp)	G+C %	Read depth	Phylophythia	Homolog Lachnospiraceae
<b>Glycolysis</b>							
2013446292	glucose-6-phosphate isomerase 6-phosphofructokinase fructose-bisphosphate aldolase	C9199	10584	44	6.4	Lachnospiraceae sp.	yes**
2013446902	glyceraldehyde-3-phosphate dehydrogenase	C9451	2012	45	3.9	Lachnospiraceae sp. <sup>¶</sup>	yes*
2013445377	alpha-phosphoglucomutase	C8762	12789	45	5.1	Lachnospiraceae sp.	yes**
2013446916	phosphoglycerate mutase	C9454	7622	45	5	Lachnospiraceae sp.	yes**
2013446905	phosphoglycerate kinase	C9452	3835	43	4	Lachnospiraceae sp.	yes**
2013444759	Enolase	C8508	2175	40	2.5	Lachnospiraceae sp. <sup>¶</sup>	yes
2013451643	pyruvate kinase	C11466	3955	45	2.1	Lachnospiraceae sp.	yes**
2013447455	Glucokinase	C9679	2759	48	2.6	Lachnospiraceae sp.	yes**
<b>Pentose phosphate pathway</b>							
2013433023	Transketolase	C3456	9947	44	4.4	Lachnospiraceae sp.	yes
2013433024	Transaldolase	C3456	9947	44	4.4	Lachnospiraceae sp.	yes
2013442088	ribulose-5-phosphate 3-epimerase	C7421	4643	44	5.3	Lachnospiraceae sp.	yes**
2013436018	ribulose-5-phosphate 3-epimerase	C4735	17773	41	3.6	Lachnospiraceae sp.	yes
2013436017	ribose 5-phosphate isomerase	C4735	17773	41	3.6	Lachnospiraceae sp.	yes
<b>Butyrate production</b>							
2013442903	formate acetyltransferase	C7757	8070	44	11.9	Lachnospiraceae sp.	yes
2013448717	acetyl-CoA acetyltransferases	C10214	1379	41	2	Bacteria	yes
2013448754	3-hydroxyacyl-CoA dehydrogenase	C10230	4405	44	2.3	Lachnospiraceae sp.	yes*
2013431260	Enoyl-CoA hydratase	C2757	1682	42	5	Lachnospiraceae sp. <sup>¶</sup>	yes**
2021679635	butyryl-CoA dehydrogenase	Sc00013	30412	43	na	Lachnospiraceae sp.	linked to rrs
2013433813	phosphate butyryltransferase	C3772	5746	41	3.9	Lachnospiraceae sp.	
2013433811	butyrate kinase	C3772	5746	41	3.9	Lachnospiraceae sp.	
<b>Carbohydrate metabolism</b>							
2013439905	xylose isomerase	C6448	6165	46	4.6	Lachnospiraceae sp.	no
2013438746	xylulokinase	C5940	7656	46	8.6	Lachnospiraceae sp.	yes**
2013435301	galactokinase	C4425	6787	44	5.9	Lachnospiraceae sp.	yes

2013437796	galactose-1-phosphate uridylyltransferase, family 2	C5483	14338	45	7.8	Lachnospiraceae sp. <sup>T</sup>	yes*
<b>Polysaccharide degradation (Glycosyl Hydrolases)</b>							
2013445168	Endoglucanase (GH5)	C8682	9198	43	3.7	Lachnospiraceae sp.	yes
2013447234	Endoglucanase (GH5)	C9601	9592	35	6.3	Lachnospiraceae	yes
2013444844	Endoglucanase (GH5)	C8546	4602	43	3.8	Lachnospiraceae sp.	yes
2013448228	cellobiose phosphorylase (GH94) + CBM_X	C10018	6263	45	5.5	Lachnospiraceae sp.	yes
2013443497	chitobiose phosphorylase (GH94) + CBM_X	C7999	4352	46	5	Lachnospiraceae sp.	yes
2013443501	chitobiose phosphorylase (GH94)	C8001	7562	46	4	Lachnospiraceae sp.	yes
2013449834	Cellobiose phosphorylase (Glyco_transf_36)	C10691	14051	43	4.3	Lachnospiraceae sp.	yes**
2013446476	Glycosyl hydrolases family 43 (GH43) + CBM_6	C9278	11504	43	5	Lachnospiraceae sp.	yes
2013443244	Glycosyl hydrolases family 43 (GH43)	C7901	16905	42	6.4	Lachnospiraceae sp.	yes
2013440091	Glycosyl hydrolases family 43 (GH43)	C6520	6815	42	3.7	Lachnospiraceae sp.	yes
2013427252	Glycosyl hydrolases family 43 (GH43) + CBM_6	C1059	7331	46	3.8	Lachnospiraceae sp.	yes
2013453133	Glycosyl hydrolases family 43 (GH43)	C12152	2769	44	3.9	Lachnospiraceae sp.	yes*
2013444633	xylanase/chitin deacetylase (CE4)	C8455	11957	43	3.8	Lachnospiraceae sp.	yes*
2013443248	(Pectin) acetyl esterase (CE12)	C7901	16905	42	6.4	Lachnospiraceae sp.	yes
2013443249	Bacterial alpha-L-rhamnosidase (GH78)	C7901	16905	42	6.4	Lachnospiraceae sp.	yes
2013453492	Bacterial alpha-L-rhamnosidase (GH78)	C12307	11190	42	4.4	Lachnospiraceae sp.	yes
2013453493	Bacterial alpha-L-rhamnosidase (GH78)	C12307	11190	42	4.4	Lachnospiraceae sp.	yes
2013427250	Bacterial alpha-L-rhamnosidase (GH78)	C1059	7331	46	3.8	Lachnospiraceae sp.	yes
2013448646	Bacterial alpha-L-rhamnosidase (GH78)	C10192	9511	41	4.4	Lachnospiraceae sp.	yes
2013448647	(Pectin) acetyl esterase (CE12)	C10192	9511	41	4.4	Lachnospiraceae sp.	yes
2013451239	Bacterial alpha-L-rhamnosidase (GH78)	C11302	2042	44	3	Lachnospiraceae sp.	yes
2013446051	Bacterial alpha-L-rhamnosidase (GH78)	C9081	4530	45	5	Lachnospiraceae sp.	yes
2013446052	Bacterial alpha-L-rhamnosidase (GH78)	C9081	4530	45	5	Lachnospiraceae sp.	yes
2013451241	Bacterial alpha-L-rhamnosidase (GH78)	C11303	2150	44	2.9	Lachnospiraceae sp.	yes
2013442720	Bacterial alpha-L-rhamnosidase (GH78)	C7686	2202	43	2.5	Lachnospiraceae sp.	yes
2013444105	Bacterial alpha-L-rhamnosidase (GH78)	C8237	2956	43	3.5	Lachnospiraceae sp.	yes
2013444107	Tannase and feruloyl esterase	C8237	2956	43	3.5	Lachnospiraceae sp.	yes*
2013451515	Bacterial alpha-L-rhamnosidase (GH78)	C11414	7027	39	3.8	Lachnospiraceae sp.	yes
2013440816	Bacterial alpha-L-rhamnosidase (GH78)	C6868	6113	45	5.5	Lachnospiraceae sp.	yes
2013439199	Bacterial alpha-L-rhamnosidase (GH78)	C6159	4764	42	5.5	Lachnospiraceae sp.	yes*

2013435994	Bacterial alpha-L-rhamnosidase (GH78)	C4724	3321	41	3.8	Lachnospiraceae sp.	yes
2013448874	Bacterial alpha-L-rhamnosidase (GH78)	C10273	8069	41	6.9	Lachnospiraceae sp.	yes
2013448862	Trehalose and maltose hydrolases (GH65)	C10271	6939	42	4	Lachnospiraceae sp.	no
2013448864	Trehalose and maltose hydrolases (GH65)	C10271	6939	42	4	Lachnospiraceae sp.	no
2013448865	Trehalose and maltose hydrolases (GH65)	C10271	6939	42	4	Lachnospiraceae sp.	no
2013434324?	Beta-glucanase (GH16) + CBM4	C3993	5683	42	4.1	Lachnospiraceae	yes
2013449837	Beta-glucosidase-related glycosidases (GH3)	C10691	14051	43	4.3	Lachnospiraceae sp.	yes
2013451858	Beta-glucosidase-related glycosidases (GH3)	C11554	10983	46	5.1	Lachnospiraceae sp.	yes**
2013451861	Beta-glucosidase-related glycosidases (GH3)	C11554	10983	46	5.1	Lachnospiraceae sp.	yes
2013427243	Beta-glucosidase-related glycosidases (GH3)	C1057	7475	46	2.9	Lachnospiraceae sp.	yes**
2013426449	Beta-glucosidase-related glycosidases (GH3)	C739	1599	44	2.8	Lachnospiraceae sp.	yes*
2013446160	Beta-glucosidase-related glycosidases (GH3)	C9129	3275	45	4.1	Lachnospiraceae sp.	yes*
2013435570	Beta-glucosidase-related glycosidases (GH3)	C4538	5301	43	4.1	Lachnospiraceae sp.	yes
2013451777	Beta-glucosidase-related glycosidases (GH3)	C11521	2063	46	3.6	Lachnospiraceae sp.	yes
2013439498	Beta-glucosidase-related glycosidases (GH3)	C6287	1837	44	4.6	Lachnospiraceae sp.	yes*
2013443020	Beta-glucosidase-related glycosidases (GH3)	C7808	5116	42	2.6	Lachnospiraceae sp.	yes*
2013436012	Beta-glucosidase-related glycosidases (GH3)	C4734	2905	43	2.7	Lachnospiraceae sp.	yes
2013439903	Beta-glucosidase-related glycosidases (GH3)	C6448	6165	46	4.6	Lachnospiraceae sp.	yes**
2013435663	Beta-glucosidase-related glycosidases (GH3)	C4583	6675	43	4.8	Lachnospiraceae sp.	yes*
2013442974	Beta-glucosidase-related glycosidases (GH3)	C7786	14884	44	5.5	Lachnospiraceae sp.	yes
2013426780	Beta-glucosidase-related glycosidases (GH3)	C882	15829	43	5.8	Lachnospiraceae sp.	yes
2013452678	Beta-glucosidase-related glycosidases (GH3)	C11961	11562	43	4.5	Lachnospiraceae sp.	yes**
2013451992	Beta-glucosidase-related glycosidases (GH3)	C11624	9288	42	4.6	Lachnospiraceae sp.	yes
2013439912	Beta-galactosidase/beta-glucuronidase (GH2)	C6450	7097	43	3.3	Lachnospiraceae sp.	yes
2013440092	Beta-galactosidase/beta-glucuronidase (GH2)	C6520	6815	42	3.7	Lachnospiraceae sp.	yes
2013427242	Beta-galactosidase/beta-glucuronidase (GH2)	C1057	7475	46	2.9	Lachnospiraceae sp.	no
2013451356	Beta-galactosidase/beta-glucuronidase (GH2)	C11359	3789	40	2.8	Lachnospiraceae sp.	yes*
2013430044	Beta-galactosidase/beta-glucuronidase (GH2)	C2209	5941	43	4.3	Lachnospiraceae sp.	yes*
2013444111	Beta-galactosidase/beta-glucuronidase (GH2)	C8238	7061	45	6.8	Lachnospiraceae sp.	yes
2013437620	Beta-galactosidase/beta-glucuronidase (GH2)	C5398	6314	42	4.3	Lachnospiraceae sp.	yes*
2013444646	Beta-galactosidase/beta-glucuronidase (GH2)	C8460	4660	40	3.2	Lachnospiraceae sp.	yes
2013451698	Beta-galactosidase/beta-glucuronidase (GH2)	C11492	5954	46	4.5	Lachnospiraceae sp.	yes*
2013444120	Beta-galactosidase/beta-glucuronidase (GH2)	C8240	4843	47	3	Lachnospiraceae sp.	yes*

2013428853	Beta-galactosidase/beta-glucuronidase (GH2)	C1699	6187	45	3.4	Lachnospiraceae sp.	yes
2013451857	Glycosyl hydrolases family 32 N terminal (GH32)	C11554	10983	46	5.1	Lachnospiraceae sp.	yes
2013445378	Predicted glycosylase (GH43?)	C8762	12789	45	5.1	Lachnospiraceae sp.	yes**
2013445379	Predicted glycosylase (GH43?)	C8762	12789	45	5.1	Lachnospiraceae sp.	yes*
2013445380	N-acyl-D-glucosamine 2-epimerase (GH88)	C8762	12789	45	5.1	Lachnospiraceae sp.	yes*
2013445381	carbohydrate ABC transporter membrane protein	C8762	12789	45	5.1	Lachnospiraceae sp.	yes**
2013445382	carbohydrate ABC transporter membrane protein	C8762	12789	45	5.1	Lachnospiraceae sp.	yes**
2013445383	carbohydrate-binding protein	C8762	12789	45	5.1	Lachnospiraceae sp.	yes*
2013439373	Glycosyl Hydrolase Family 88 (GH88)	C6233	14253	42	5.5	Lachnospiraceae sp.	yes
2013439374	Acetyl xylan esterase (AXE1)	C6233	14253	42	5.5	Lachnospiraceae sp.	yes
2013439377	Glycosyl Hydrolase Family 88 (GH88)	C6233	14253	42	5.5	Lachnospiraceae sp.	yes
2013445373	Alpha-galactosidase (GH27)	C8762	12789	45	5.1	Lachnospiraceae sp.	yes*
2013435299	Alpha-galactosidase (GH27)	C4425	6787	44	5.9	Lachnospiraceae sp.	yes
2013435568	Alpha-glucosidase (GH31)	C4537	4646	42	4.5	Lachnospiraceae sp.	yes
2013445373	Alpha-galactosidase (GH36)	C8762	12789	45	5.1	Lachnospiraceae sp.	yes*
2013454015	Beta-galactosidase (GH42)	C12570	5426	43	4.6	Lachnospiraceae sp.	yes
2013426776	Beta-galactosidase (GH42)	C882	15829	43	5.8	Lachnospiraceae sp.	yes
2013454012	Beta-galactosidase (GH42)	C12569	3391	44	4.2	Lachnospiraceae sp.	yes
2013435574	Beta-galactosidase (GH42)	C4539	2451	45	2.9	Lachnospiraceae sp.	yes**
2013426777	Beta-galactosidase (Glyco_hydro_42M)	C882	15829	43	5.8	Lachnospiraceae sp.	yes**
2013438121	Beta-glucosidase/ Beta-galactosidase (GH1)	C5644	3964	43	3.3	Lachnospiraceae sp.	yes
2013438120	Beta-glucosidase/ Beta-galactosidase (GH1)	C5644	3964	43	3.3	Lachnospiraceae sp.	yes
2013442256	Beta-glucosidase/ Beta-galactosidase (GH1)	C7479	3998	41	2.1	Lachnospiraceae sp.	yes
2013443412	Beta-glucosidase/ Beta-galactosidase (GH1)	C7962	4332	45	3.7	Lachnospiraceae sp.	yes
2013453485	Beta-glucosidase/ Beta-galactosidase (GH1)	C12307	11190	42	4.4	Lachnospiraceae sp.	yes
2013451695	Beta-glucosidase/ Beta-galactosidase (GH1)	C11491	4831	45	2.9	Lachnospiraceae sp.	yes*
2013444110	Beta-glucosidase/ Beta-galactosidase (GH1)	C8238	7061	45	6.8	Lachnospiraceae sp.	yes*
2013445359	Beta-glucosidase/ Beta-galactosidase (GH1)	C8756	4597	45	4.5	Lachnospiraceae sp.	yes
2013451364	Beta-glucosidase/ Beta-galactosidase (GH1)	C11361	5672	43	4.8	Lachnospiraceae sp.	yes*
2013436022	Beta-glucosidase/ Beta-galactosidase (GH1)	C4735	17773	41	3.6	Lachnospiraceae sp.	yes
2013432555	Beta-glucosidase/ Beta-galactosidase (GH1)	C3270	12382	43	5.4	Lachnospiraceae sp.	yes
2013445318	Beta-glucosidase/ Beta-galactosidase (GH1)	C8733	1839	44	2.8	Lachnospiraceae sp.	yes
2013443935	Alpha-amylase (GH13)	C8199	9924	43	4.3	Lachnospiraceae sp.	no

2013443962	Alpha-amylase (GH13)	C8208	5838	45	6.9	Lachnospiraceae sp.	no
2013439493	Alpha-amylase (GH13) + CBM34	C6285	3156	44	3.9	Lachnospiraceae sp.	yes
2013434949	Alpha-amylase (GH13)	C4274	5705	42	3.1	Lachnospiraceae sp.	yes
2013452210	Alpha-amylase (GH13)	C11732	2671	47	4.7	Lachnospiraceae sp.	no
2013443938	Alpha-amylase (GH13)	C8199	9924	43	4.3	Lachnospiraceae sp.	no
2013434952	Alpha-amylase (GH13)	C4274	5705	42	3.1	Lachnospiraceae sp.	yes**
2013443326	Alpha-amylase (GH13) + CBM48	C7928	10039	45	4.3	Lachnospiraceae sp.	yes*
2021679642	Alpha-amylase (GH13)	Sc00013	30412	43	na	Lachnospiraceae sp.	yes*
2021679644	Alpha-amylase (GH13)	Sc00013	30412	43	na	Lachnospiraceae sp.	yes**
2013439915	4-alpha-glucanotransferase (GH77)	C6450	7097	43	3.3	Lachnospiraceae sp.	yes
2013426634	4-alpha-glucanotransferase (GH77)	C827	3191	43	2.3	Lachnospiraceae sp.	yes*
2013427663	4-alpha-glucanotransferase (GH77)	C1227	3392	41	2.4	Lachnospiraceae sp.	yes*
2013445360	Glycosyl Hydrolase Family 106 (GH106)	C8756	4597	45	4.5	Lachnospiraceae sp.	yes
2013451692	F5/8 type C domain (CBM32)	C11491	4831	45	2.9	Lachnospiraceae sp.	yes*
2013436031	N-acetylglucosamine 6-phosphate deacetylase (CE9)	C4735	17773	41	3.6	Lachnospiraceae sp.	yes
<b>Oxidative phosphorylation</b>							
2013439450	proton translocating ATP synthase, F1 alpha subunit	C6263	6739	45	7.5	Lachnospiraceae sp.	yes
2013439449	ATP synthase, F1 gamma subunit	C6263	6739	45	7.5	Lachnospiraceae sp.	yes
2013439448	ATP synthase F1 subcomplex beta subunit	C6263	6739	45	7.5	Lachnospiraceae sp.	yes
2013439447	ATP synthase, F1 epsilon subunit	C6263	6739	45	7.5	Lachnospiraceae sp.	yes
2013444296	Archaeal/vacuolar-type H+-ATPase subunit I	C8319	9408	46	5	Lachnospiraceae sp.	yes
2013444297	H(+) -transporting ATP synthase, vacuolar type, subunit D	C8319	9408	46	5	Lachnospiraceae sp.	yes
2013444298	Archaeal/vacuolar-type H+-ATPase subunit B	C8319	9408	46	5	Lachnospiraceae sp.	yes
2013444299	Archaeal/vacuolar-type H+-ATPase subunit A	C8319	9408	46	5	Lachnospiraceae sp.	yes
2013444300	Archaeal/vacuolar-type H+-ATPase subunit A	C8319	9408	46	5	Lachnospiraceae sp.	yes
2013444303	Archaeal/vacuolar-type H+-ATPase subunit E	C8319	9408	46	5	Lachnospiraceae sp.	yes
2013432559	NADH:flavin oxidoreductases	C3270	12382	43	5.4	Lachnospiraceae sp.	yes*
2013451524	NADH:flavin oxidoreductases	C11415	11810	41	5.4	Lachnospiraceae sp. <sup>¶</sup>	yes
2013451526	Succinate dehydrogenase/fumarate reductase, flavoprotein subunit	C11415	11810	41	5.4	Lachnospiraceae sp. <sup>¶</sup>	no

<u>Transport</u>							
2013445381	carbohydrate ABC transporter membrane protein	C8762	12789	45	5.1	Lachnospiraceae sp.	yes**
2013445382	carbohydrate ABC transporter membrane protein	C8762	12789	45	5.1	Lachnospiraceae sp.	yes**
2013445383	carbohydrate-binding protein	C8762	12789	45	5.1	Lachnospiraceae sp.	yes**
2013447231	ABC-type sugar transport system, periplasmic component	C9601	9592	35	6.3	Lachnospiraceae	yes
2013447232	carbohydrate ABC transporter membrane protein	C9601	9592	35	6.3	Lachnospiraceae	yes
2013447233	ABC-type polysaccharide transport system, permease component	C9601	9592	35	6.3	Lachnospiraceae	yes
2013445167	Sugar transporter	C8682	9198	43	3.7	Lachnospiraceae sp.	yes
2013448231	carbohydrate ABC transporter membrane protein	C10018	6263	45	5.5	Lachnospiraceae sp.	yes
2013448232	carbohydrate ABC transporter membrane protein	C10018	6263	45	5.5	Lachnospiraceae sp.	yes
2013448233	carbohydrate ABC transporter membrane protein	C10018	6263	45	5.5	Lachnospiraceae sp.	yes
2013444889	cobalt ABC transporter	C8568	5022	44	2.5	Lachnospiraceae sp.	yes
2013444890	cobalt ABC transporter	C8568	5022	44	2.5	Lachnospiraceae sp.	yes
2013432529	cobalt ABC transporter	C3265	11764	45	5.4	Lachnospiraceae sp.	yes
2013432530	cobalt ABC transporter	C3265	11764	45	5.4	Lachnospiraceae sp.	yes
2013432536	ABC-type sugar transport system	C3265	11764	45	5.4	Lachnospiraceae sp.	yes
2013432537	ABC-type sugar transport system	C3265	11764	45	5.4	Lachnospiraceae sp.	yes
2013443386	sulfate ABC transporter, ATP-binding protein	C7956	6242	43	4.5	Lachnospiraceae sp.	yes**
2013443387	sulfate ABC transporter, permease component	C7956	6242	43	4.5	Lachnospiraceae sp.	yes
2013443388	sulfate ABC transporter, permease component	C7956	6242	43	4.5	Lachnospiraceae sp.	yes
2013443389	sulfate ABC transporter, permease protein CysT	C7956	6242	43	4.5	Lachnospiraceae sp.	yes**
2013443390	sulfate/thiosulfate-binding protein	C7956	6242	43	4.5	Lachnospiraceae sp.	yes**
2013448538	amino acid-binding protein	C10144	4280	45	4.2	Lachnospiraceae sp.	yes
2013448539	ABC-type polar amino acid transport system, ATPase component	C10144	4280	45	4.2	Lachnospiraceae sp.	yes*
2013448540	ABC transporter, permease protein, 3-TM region, His/Glu/Gln/Arg/opine family	C10144	4280	45	4.2	Lachnospiraceae sp.	yes
2013448541	ABC transporter, permease protein	C10144	4280	45	4.2	Lachnospiraceae sp.	yes
2013452885	monosaccharide-binding protein	C12040	5528	43	3.4	Lachnospiraceae sp.	yes**
2013452886	monosaccharide ABC transporter protein	C12040	5528	43	3.4	Lachnospiraceae sp.	yes**
2013452887	monosaccharide ABC transporter protein	C12040	5528	43	3.4	Lachnospiraceae sp.	yes**

2013452888	monosaccharide ABC transporter ATP-binding protein	C12040	5528	43	3.4	Lachnospiraceae sp.	yes
<b>Protein export: sec dependent pathway</b>							
2013433181	protein translocase subunit secD	C3525	2783	42	3.2	Lachnospiraceae sp.	yes*
2013445160	protein translocase subunit secA	C8681	1920	42	1.8	Lachnospiraceae sp. <sup>¶</sup>	yes*
<b>Sulfur metabolism</b>							
2013443023	sulfate adenylyltransferase subunit 1	C7809	12588	46	6.3	Lachnospiraceae sp.	yes
2013443024	sulfate adenylyltransferase subunit 2	C7809	12588	46	6.3	Lachnospiraceae sp.	yes
2013443025	4Fe-4S binding domain.	C7809	12588	46	6.3	Lachnospiraceae sp.	yes**
2013443026	adenosine phosphosulphate reductase, alpha subunit / adenylylsulfate reductase	C7809	12588	46	6.3	Lachnospiraceae sp.	yes
2013443027	SirA-like protein	C7809	12588	46	6.3	Lachnospiraceae sp.	yes
2013443028	Dissimilatory sulfite reductase	C7809	12588	46	6.3	Lachnospiraceae sp.	yes*

1 \* indicates best match; \*\* indicates best match is *Roseburia intestinalis* (Lachnospiraceae), the closest relative with an available genome sequence (based on  
 2 *rrs* comparisons); <sup>¶</sup> contig is linked to an uncultured Lachnospiraceae bacterium scaffold, based on Phylophythia analysis.

3

4

5

6

7

8

9

10

11

12