

Table S1. Taxa associated with ulcerative colitis selected from culturomics and metagenomics results, along with isolated species information.

Selected taxa			Method		Species isolated from UC		
Phylum	Genus	Species	Cultur-omics	Meta-genomics	Species	Iso-lates	Freq
Actino-bacteriota	<i>Bifidobacterium</i>	<i>B. dentium</i>	●	●	<i>B. dentium</i>	48	0.7
	<i>Enterococcus</i>	<i>E. gallinarum</i>	●		<i>E. gallinarum</i>	108	0.9
	<i>Flavonifractor</i>	<i>F. plautii</i>	●		<i>F. plautii</i>	35	0.7
	<i>Peptoniphilus</i>	<i>P. gorbachii</i>	●		<i>P. gorbachii</i>	57	0.5
Firmicutes	<i>Butyricicoccus</i>	<i>B. pullicaecorum</i>		●			
	<i>Clostridioides</i>	<i>C. difficile</i>		●	<i>C. difficile</i>	4	0.1
	<i>Clostridium</i>	<i>C. paraputrificum</i>		●	<i>C. paraputrificum</i>	1	0.1
	<i>Holdemanella</i>	<i>H. biformis</i>		●			
	<i>Kineothrix</i>	<i>Kineothrix spp.</i>		●			
Bacteroi-dota	<i>Bacteroides</i>	<i>B. uniformis</i>		●	<i>B. uniformis</i>	134	0.6
		<i>B. plebeius</i>		●			
Proteobact-eria	<i>Enterobacterales</i> (Order)	<i>Enterobacterales</i> <i>spp.</i>		●	<i>Citrobacter amalonaticus</i>	41	0.1
					<i>Citrobacter braakii</i>	21	0.3
					<i>Citrobacter freundii</i>	26	0.3
					<i>Citrobacter koseri</i>	5	0.1
					<i>Enterobacter asburiae</i>	1	0.1
					<i>Enterobacter cloacae</i>	7	0.2
					<i>Enterobacter tabaci</i>	1	0.1
					<i>Escherichia coli</i>	577	1
					<i>Klebsiella aerogenes</i>	6	0.1
					<i>Klebsiella oxytoca</i>	1	0.1
					<i>Klebsiella pneumoniae</i>	13	0.3
					<i>Klebsiella quasipneumoniae subsp. similipneumoniae</i>	1	0.1
					<i>Klebsiella variicola</i>	12	0.1
					<i>Morganella morganii</i>	69	0.4
					<i>Pantoea agglomerans</i>	1	0.1
					<i>Proteus hauseri</i>	12	0.2
					<i>Proteus mirabilis</i>	624	0.5
					<i>Proteus penneri</i>	24	0.2
					<i>Proteus vulgaris</i>	375	0.4
					<i>Providencia stuartii</i>	16	0.2
					<i>Shigella flexneri</i>	1	0.1

Table S2. Taxa associated with Crohn's disease selected from culturomics and metagenomics results, along with isolated species information.

Selected taxa			Method		Species isolated from CD		
Phylum	Genus	Species	Cultur-omics	Meta-genomics	Species	Isolates	Freq
Actino-bacteriota	Bifidobacterium	B. dentium		●	B. dentium	138	0.5
Firmicutes	Clostridium	C. innocuum		●	C. innocuum	135	0.9
		C. paraputrificum		●	C. paraputrificum	1	0.1
		C. perfringens		●	C. perfringens	8	0.2
		C. ramosum	●		C. ramosum	89	0.7
		Faecalimonas	F. umbilicata		●	F. umbilicata	4
	Megamonas	M. funiformis		●			
	Ruminococcus	R. gnavus	●	●	R. gnavus	18	0.7
	Bacteroi-dota	Odoribacter	O. splanchnicus		●	O. splanchnicus	1
Prevotella		Prevotella spp.		●	P. buccae	11	0.2
					P. buccalis	48	0.2
Proteobact-eria	Enterobacterales (Order)	M. morganii	●		M. morganii	554	0.5
		Klebsiella spp.		●	K. aerogenes	65	0.1
					K. oxytoca	4	0.2
					K. pneumoniae	90	0.7
					K. variicola	9	0.3
					Escherichia-Shigella	●	Escherichia coli
		Escherichia marmotae	1	0.1			
		Citrobacter amalonaticus		25	0.2		
		Citrobacter braakii		3	0.1		
		Citrobacter freundii		7	0.2		
		Citrobacter koseri		42	0.1		
		Enterobacter asburiae	●	6	0.1		
		Enterobacter cloacae		6	0.1		
		Enterobacter tabaci		1	0.1		
		Proteus hauseri		50	0.1		
		Proteus mirabilis		689	0.3		
		Proteus penneri		6	0.2		
	Proteus vulgaris	144		0.2			
Parasutterella	P. excrementihominis		●				

Table S3. Taxa associated with healthy control selected from culturomics and metagenomics results, along with isolated species information.

Selected taxa			Method		Species isolated from HC		
Phylum	Genus	Species	Cultur-omics	Meta-genomics	Species	Isolates	Freq
Actino-bacteriota	Bifidobacterium	<i>B. adolescentis</i>	●		<i>B. adolescentis</i>	327	1.0
		<i>B. bifidum</i>	●		<i>B. bifidum</i>	233	0.6
		<i>B. catenulatum</i>	●		<i>B. catenulatum</i>	49	1.0
		<i>B. longum subsp. suillum</i>	●		<i>B. longum subsp. suillum</i>	19	0.6
		<i>B. pseudocatenulatum</i>	●		<i>B. pseudocatenulatum</i>	366	1.0
		<i>Bifidobacterium spp.</i>		●	<i>B. animalis</i>	4	0.1
					<i>B. dentium</i>	1	0.1
					<i>B. faecale</i>	8	0.4
					<i>Bifidobacterium sp.</i>	2	0.1
					<i>B. longum</i>	482	1.0
	Collinsella	<i>Collinsella spp.</i>		●	<i>C. intestinalis</i>	1	0.1
		<i>C. aerofaciens</i>	●	●	<i>C. aerofaciens</i>	138	1.0
Firmicutes	Bacillus	<i>B. cereus</i>	●		<i>B. cereus</i>	25	0.6
	Blautia	<i>B. faecis</i>		●			
	Clostridium	<i>C. leptum</i>		●	<i>C. leptum</i>		
	Coprococcus	<i>Coprococcus spp.</i>		●	<i>Coprococcus sp. (putative novel)</i>	5	0.1
		<i>C. comes</i>		●	<i>C. comes</i>	2	0.3
	Eubacterium	<i>Eubacterium spp.</i>		●	<i>E. limosum</i>	38	0.4
					<i>E. rectale</i>	11	0.4
					<i>E. tenue</i>	1	0.1
		<i>E. coprostanoligenes</i>		●			
		<i>E. ruminantium</i>		●			
		<i>E. siraeum</i>		●			
	Intestinimonas	<i>I. timonensis</i>		●			
	Latilactobacillus	<i>L. sakei</i>	●		<i>L. sakei</i>	32	0.5
	Ligilactobacillus	<i>L. ruminis</i>		●	<i>L. ruminis</i>	29	0.3
	Massiliomicrobiota	<i>M. timonensis</i>		●	<i>M. timonensis</i>	1	0.1
	Megamonas	<i>M. funiformis</i>		●			
	Roseburia	<i>Roseburia spp.</i>		●	<i>R. intestinalis</i>	1	0.1
	Roseburia	<i>R. inulinivorans</i>		●			
	Roseburia	<i>R. hominis</i>		●			

Bacteroidetes	<i>Ruminococcus</i>	<i>R. bicirculans</i>	●			
		<i>R. callidus</i>	●			
		<i>R. faecis</i>	●			
		<i>R. gauvreauii</i>	●			
	<i>Ruthenibacterium</i>	<i>R. lactatiformans</i>	●	<i>R. lactatiformans</i>	2	0.3
	<i>Alistipes</i>	<i>Alistipes spp.</i>	●	<i>A. onderdonkii</i>	14	0.3
				<i>A. senegalensis</i>	2	0.1
		<i>A. finegoldii</i>	●	<i>A. finegoldii</i>	3	0.1
		<i>A. indistinctus</i>	●			
		<i>A. putredinis</i>	●			
		<i>A. shahii</i>	●	<i>A. shahii</i>	11	0.6
	<i>Bacteroides</i>	<i>B. cellulosilyticus</i>	●	<i>B. cellulosilyticus</i>	14	0.4
		<i>B. coprocola</i>	●	<i>B. coprocola</i>	20	0.5
		<i>B. intestinalis</i>	●	<i>B. intestinalis</i>	17	0.3
		<i>B. plebeius</i>	●	<i>B. plebeius</i>	1	0.1
		<i>B. uniformis</i>	●	<i>B. uniformis</i>	176	0.9
	<i>Butyricimonas</i>	<i>B. paravirosa</i>	●			
	<i>Odoribacter</i>	<i>O. splanchnicus</i>	●	<i>O. splanchnicus</i>	1	0.1
	<i>Parabacteroides</i>	<i>Parabacteroides spp.</i>	●	<i>P. distasonis</i>	137	0.8
				<i>P. johnsonii</i>	1	0.1
		<i>P. goldsteinii</i>	●			
		<i>P. merdae</i>	●	<i>P. merdae</i>	431	0.9
	<i>Paraprevotella</i>	<i>Paraprevotella spp.</i>	●			
		<i>P. clara</i>	●	<i>P. clara</i>	3	0.3
	<i>Prevotella</i>		●	<i>P. bivia</i>	9	0.4
		<i>Prevotella spp.</i>		<i>Prevotella sp.</i> (putative novel)	1	0.1
		<i>P. copri</i>	●			
Proteobacteria	<i>Bilophila</i>	<i>B. wadsworthia</i>	●	<i>B. wadsworthia</i>		
	<i>Campylobacter</i>	<i>C. ureolyticus</i>	●	<i>C. ureolyticus</i>	350	0.6
	<i>Mesosutterella</i>	<i>M. multiformis</i>	●	<i>M. multiformis</i>	14	0.5
	<i>Sutterella</i>	<i>S. wadsworthensis</i>	●	<i>S. wadsworthensis</i>	106	0.8