Table S1. Detailed taxa abundance changes in patients with major depressive disorder relative to healthy controls

Phylum	**Class**	**Order**	**Family**	**Genus**
Acidobacteria	Acidobacteria	Acidobacteriales	*Acidobacteriaceae*	*Chloracidobacterium* ↓Rong 2019
Actinobacteria ↑Chen 2018a, Chen 2018b, Zheng 2016, Chung 2019 ↓Chen 2021	Actinobacteria	Actinomycetales ↔Zhang 2021	*Actinomycetaceae* ↑Chen 2018b, Zheng 2016, Chen 2020 (M-MDD) ↔Zhang 2021	*Actinomyces* ↑Chen 2020 (M-MDD) ↓Chen 2021 ↔Zhang 2021
				Arcanobacterium ↑Rong 2019
				Mobiluncus ↑Chen 2021, Rong 2019
			Nocardiaceae ↑Chen 2018b	*Nocardia* ↑Rong 2019
			Streptomycetaceae ↑Chen 2018b	
		Bifidonbacteriales	*Bifidobacteriaceae* ↑Chen 2018b, Chung 2019, Rong 2019, Lai 2021	*Bifidobacterium* ↑Chung 2019, Yang 2020, Rong 2019, Lai 2021 ↓Aizawa 2016, Liu 2016, Chen 2021
				Gardnerella ↑Rong 2019
		Corynebacteriales	*Tsukamurellaceae*	*Tsukamurella* ↑Rhee 2020
		Frankiales	*Frankiaceae*	*Frankia* ↓Rong 2019
		Micrococcales	*Micrococcineae* ↑Rong 2019	*Micrococcaceae* ↑Lai 2021

				Rothia ↑Rong 2019, Lai 2021
			Promicromonosporaceae	*Xylanimonas* ↑Rong 2019
		Mycobacteriales	*Corynebacteriaceae* ↑Chen 2021	*Uncultured* ↑Rhee 2020
		Streptosporangiales	*Thermomonosporaceae*	*Thermomonospora* ↓Rong 2019
	Coriobacteriia	Coriobacteriales ↑Zheng 2016 ↓Chen 2021	*Atopobiaceae* ↑Lai 2021	*Atopobium* ↑Rong 2019, Lai 2021
				Olsenella ↑Rong 2019, Lai 2021
			Coriobacteriaceae ↑Zheng 2016, Chen 2020 (M-MDD), Rong 2019	*Collinsella* ↔Bai 2021
				Coriobacterium ↑Rong 2019, Lai 2021
			Unclassified ↓Chen 2021	
		Eggerthellales	*Eggerthellaceae* ↑Lai 2021	*Adlercreutzia* ↑Chung 2019 ↓Yang 2020
				Eggerthella ↑Kelly 2016, Chung 2019, Chen 2020 (M-MDD), Rong 2019, Zhang 2021, Lai 2021
				Slackia ↑Rong 2019, Lai 2021

Bacteroidetes ↑Liu 2016, Chen 2021 ↓Chen 2018a, Chen 2018b, Lin 2017, Zheng 2016, Chung 2019, Dong 2021	Bacteroidia ↑Liu 2020, Chen 2021	Bacteroidales ↑Liu 2020, Chen 2021	*Bacteroidaceae* ↑Chen 2020 (M-MDD), Zhang 2021 ↓Lai 2021	*Bacteroides* ↑Liu 2016, Liu 2020, Yang 2020, Zhang 2021, Zheng 2020 ↓Chen 2020 (M-MDD), Lai 2021
			Barnesiellaceae ↓Liu 2020	*Barnesiella* ↑Chen 2021 ↓Liu 2016, Liu 2020
			Muribaculaceae	*Uncultured bacterium* ↓Liu 2020
			Odoribacteraceae	*Butyricimonas* ↓Liu 2016
				Butyricicoccus ↓Chen 2021
				Odoribacter ↓Liu 2016
			Porphyromonadaceae ↑Chung 2019, Zhang 2021 ↔Chen 2018b	*Porphyromonas* ↓Rong 2019
				Parabacteroides ↑Chung 2019, Yang 2020, Chen 2021, Zhang 2021 ↓Liu 2016 ↔Bai 2021
			Prevotellaceae ↑Chen 2021, Chen 2020 (M-MDD) ↓Chen 2018b, Chung 2019, Zhang 2021	*Alloprevotella* ↑Zhang 2021 ↓Zheng 2021

				Paraprevotella ↑Kelly 2016, Liu 2016, Zhang 2021
				Prevotella ↑Lin 2017, Rong 2019, Rhee 2020 ↓Chung 2019, Zhang 2021
			Rikenellaceae ↑Zheng 2021, Zhang 2021 ↓Zheng 2016 ↔Chen 2018b	*Alistipes* ↑Chen 2021, Rhee 2020, Zheng 2021, Zhang 2021, Caso 2021 ↓Zheng 2016, Liu 2016
			Tannerellaceae ↑Chen 2021	
			Unclassified/Uncultured ↑Yang 2020, Rhee 2020	
	Cytophagia	Cytophagales	*Cytophagaceae* ↓Lai 2021	
	Flavobacteriia	Flavobacteriales	*Flavobacteriaceae* ↓Lai 2021	
	Sphingobacteria	Sphingobacteriales or Chitinophagales	*Chitinophagaceae* ↓Chen 2018a, Chen 2018b, Rong 2019	
			Marniabilaceae ↓Chen 2018a, Chen 2018b	
			Saprospiraceae	*Saprospira* ↓Rong 2019
			Sphingobacteriaceae ↓Lai 2021	*Sphingobacterium* ↓Lai 2021
Chlorobi ↓Rong 2019	Chlorobia	Chlorobiales	*Chlorobiaceae*	*Chlorobium*

				Chloroherpeton ↓Rong 2019
Chlamydiae	Chlamydiae	Chlamydiales	*Chlamydiaceae*	*Chlamydophila* ↑Rong 2019
Firmicutes ↑Chen 2018b, Lin 2017, Chung 2019, Dong 2021 ↓Liu 2020, Yang 2020, Chen 2021	Bacilli ↓Yang 2020	Bacillales	*Bacillaceae*	*Bacillus* ↑Rong 2019
			Unclassified	*Gemella* ↑Huang 2018
		Lactobacillales	*Aerococcaceae*	*Aerococcus* ↑Chen 2021
			Enterococcaceae ↑Lai 2021	*Enterococcus* ↑Liu 2020, Rong 2019, Lai 2021 ↓Yang 2020
			Lactobacillaceae ↑Zheng 2016, Lai 2021	*Lactobacillus* ↑Rong 2019, Lai 2021 ↓Aizawa 2016 ↔Bai 2021
				Weissella ↓Zhang 2021
			Streptococcaceae ↑Zheng 2016, Chung 2019, Chen 2020 (M-MDD), Rong 2019	*Streptococcus* ↑Lin 2017, Chung 2019, Chen 2020 (M-MDD), Rong 2019, Lai 2021
				Lactococcus ↑Rong 2019

	Clostridia ↓Liu 2020, Chen 2021	Clostridiales ↑Zheng 2016 ↓Liu 2020, Chen 2021	*Christensenallecae* ↓Liu 2020	*Christensenallecae R7 group* ↑Dong 2021 ↓Liu 2020, Zheng 2020
			Clostridiaceae ↑Chen 2018b, Chen2018a ↓Huang 2018, Chen 2020 (Y-MDD), Zhang 2021	*Anaerotruncus* ↑Chen 2021, Zhang 2021
				Clostridium ↑Chen 2021, Rong 2019 ↓Liu 2016, Yang 2020
				Clostridium sensu stricto ↓Chen 2020 (Y-MDD)
				Clostridium IV ↑Zheng 2016 ↓Liu 2016
				Clostridium innocuum group ↔Bai 2021
				ClostridiumXIVa ↓Zheng 2016
				Clostridium XIX
				Clostridium XI ↑Lin 2017, Chung 2019 ↓Liu 2016, Chen 2020 (Y-MDD)
				Clostridium XVIII ↑Chen 2020 (M-MDD) ↓Chen 2020 (Y-MDD)
				Hungatella ↑Chen 2021, Zhang 2021

		Clostridiales vadin BB60 group	*Uncultured organism* ↓Liu 2020
		Heliobacteriaceae ↑Rong 2019, Lai 2021	*Heliobacterium* ↑Rong 2019, Lai 2021
		Peptococcaceae ↑Lai 2021	*Desulfosporosinus* ↑Rong 2019
			Desulfitobacterium ↑Rong 2019, Lai 2021
		Unclassified	*Clostridiales bacterium S5-A14a* ↑Chen 2021
	Eubacteriales	*Eubacteriaceae* ↑Zheng 2016, Chen 2020 (M-MDD)	*Anaerovorax* ↓Chen 2020 (M-MDD)
			Eubacterium ↑Chen 2020 (M-MDD), Rong 2019 ↓Liu 2020, Yang 2020, Chen 2021
			Eubacterium hallii ↓Chen 2021
			Eubacterium ventriosum ↓Liu 2020, Yang 2020 ↔Bai 2021
		Intestinimonas	*Intestinimonas* ↑Zhang 2021
		Lachnospiraceae ↑Chen 2018a, Chen 2018b, Zheng 2016, Chung 2019, Chen 2020 (M-MDD) ↓Huang 2018, Chen 2021, Zheng 2021 ↔Bai 2021	*Agathobacter* ↓Chen 2021

		Anaerostipes ↑Zheng 2016, Chen 2020 (M-MDD) ↓Yang 2020, Chen 2021, Zheng 2021, Caso 2021
		Coprococcus ↓Huang 2018, Liu 2016, Zheng 2016, Yang 2020, Chen 2021, Chen 2020 (M-MDD)
		Dorea ↓Huang 2018, Yang 2020, Chen 2021
		Eisenbergiella ↑Chen 2021 ↔Zhang 2021
		Fusicatenibacter ↑Dong 2021 ↓Liu 2020, Chen 2021
		GCA-900066575 ↔Bai 2021
		Lachnoclostridium ↑Chen 2021, Lai 2021 ↔Bai 2021
		Lachnospira ↔Bai 2021
		Lachnospiracea group ↓Liu 2016, Chen 2021 ↔Bai 2021
		Roseburia ↑Chen 2020 (M-MDD) ↓Zheng 2016, Liu 2016, Chen 2021

		Sellimonas ↑Liu 2020
		Tyzzerella ↑Zhang 2021 ↓Liu 2020, Chen 2021
		Unclassified ↔Bai 2021
	Peptoniphilaceae	*Finegoldia* ↑Chen 2021
	Peptostreptococcaceae ↑Chung 2019 ↓Chen 2020 (Y-MDD), Zhang 2021	*Peptostreptococcus* ↑Huang 2018
	Oscillospiraceae ↑Lai 2021 ↓Chen 2018b	*Fastidiosipila* ↑Chen 2021
		Filifactor ↑Rong 2019
		Oscillibacter ↑Rong 2019, Lai 2021 ↓Liu 2016, Yang 2020, Chen 2020 (M-MDD)
		Ruminiclostridium ↓Chen 2021
	Ruminococcaceae ↑Chen 2018b, Zheng 2016, Rong 2019, Rhee 2020 ↓Huang 2018, Liu 2020, Chen 2021, Chen 2020 (Y-MDD)	*Acetivibrio* ↓Liu 2016
		Anaerofilum ↑Kelly 2016

	CAG-352 ↓Liu 2020
	CAG-56 ↓Chen 2021 ↔Bai 2021
	Eubacterium coprostanoligenes group ↓Liu 2020
	Faecalibacterium ↑Rhee 2020 ↓Zheng 2016, Huang 2018, Liu 2016, Liu 2020, Yang 2020, Chen 2021, Chen 2020 (M-MDD), Dong 2021
	Flavonifractor ↑Liu 2020, Chen 2021, Zhang 2021
	Ruminococcus ↑Chung 2019 ↓Liu 2016, Liu 2020, Yang 2020, Chen 2021
	Ruminococcus 2 ↓Zheng 2020
	Ruminococcus gnavus ↑Zheng 2020
	Ruminococcus torques ↑Zheng 2020
	Subdoligranulum ↓Liu 2020, Yang 2020, Chen 2021
	Uncultured ↑Chen 2021

			Unclassified ↑Zheng 2016, Chen 2021	*Blautia* ↑Zheng 2016, Chung 2019 ↓Huang 2018, Yang 2020, Chen 2021
				Parvimonas ↑Huang 2018, Zheng 2016
		Thermoanaerobacterales	*Thermoanaerobacteriaceae*	*Gelria* ↑Kelly 2016
		Unclassified ↑Chen 2021		
	Erysipelotrichia	Eerysipelotrichales	*Erysipelotrichaceae or Erysipelotrichaceae incertae sedis* ↑Chen 2018b, Zheng 2016 ↓Chen 2021	*Bulleidia* ↑Huang 2018
				Coprobacillus ↑Chen 2021
				Faecalitalea ↑Zhang 2021 ↔Bai 2021
				Holdemania ↑Kelly 2016, Chung 2019, Zhang 2021 ↔Bai 2021
				Turicibacter ↑Kelly 2016, Chen 2021
	Negativicutes	Acidaminococcales	*Acidaminococcaceae* ↑Lai 2021 ↓Zheng 2016, Chen 2020 (M-MDD)	*Acidaminococcus* ↑Rong 2019, Lai 2021
				Phascolarctobacterium ↑Yang 2020

				↓Zheng 2016, Chen 2020 (M-MDD)
		Selenomonadales ↑Rong 2019	*Selenomonadaceae*	*Megamonas* ↓Zheng 2016, Liu 2016, Chung 2019
				Mitsuokella ↓Liu 2016
				Selenomonas ↑Rong 2019
		Veillonellales	*Veillonellaceae* ↑Rong 2019, Lai 2021 ↓Zheng 2016	*Anaeroglobus* ↑Chen 2021
				Dialister ↑Rhee 2020 ↓Kelly 2016, Caso 2021
				Megasphaera ↑Rong 2019, Lai 2021
				Veillonella ↑Yang 2020, Chen 2020 (M-MDD)
	Mollicutes	Acholeplasmatales	*Acholeplasmataceae*	*Phytoplasma*
	Not assigned to family			*Colidextribacter* ↔Bai 2021
Fusobacteria ↑Chen 2021	Fusobacteriia ↑Chen 2021	Fusobacteriales ↑Chen 2021	*Fusobacteriaceae* ↑Chen 2021	*Fusobacterium* ↑Zheng 2020 ↓Liu 2016
			Leptotrichiaceae ↓Rong 2019	*Sebaldella* ↑Rong 2019

Proteobacteria ↑Chen 2021, Dong 2021 ↓Chen 2018b, Chung 2019	Alphaproteobacteria	Hyphomicrobiales	*Rhizobiaceae*	*Agrobacterium* ↓Rong 2019
			Methylobacteriaceae	*Methylobacterium* ↓Rong 2019
		Rhizobiales	*Hyphomicrobiaceae*	*Gemmiger* ↓Liu 2016
		Rhodospirillales ↓Liu 2020	*Rhodospirillaceae*	*Rhodospirillum* ↑Rong 2019
			Uncultured ↓Liu 2020	
	Betaproteobacteria ↑Chen 2021	Burkholderiales ↑Chen 2021	*Alcaligenaceae* ↓Chung 2019	*Alcaligenes* ↓Chen 2021
			Burkholderiaceae ↑Chen 2021	*Burkholderia* ↑Rong 2019 ↓Chen 2021
			Comamonadaceae	*Acidovorax* ↓Rhee 2020
				Comamonas ↓Liu 2016
			Oxalobacteraceae	*Oxalobacter* ↑Huang 2018
			Sutterellaceae ↓Chen 2018b, Chen 2018a, Zheng 2016, Chen 2020 (M-MDD)	*Parasutterella*
				Sutterella ↑Dong 2021 ↓Liu 2016, Chung 2019, Chen 2020 (M-MDD)

	Deltaproteobacteria	Bdellovibrionales	*Bdellovibrionaceae*	*Vampirovibrio* ↓Liu 2016
		Desulfovibrionales	*Desulfovibrionaceae* ↑Rong 2019	*Bilophila* ↑Caso 2021
				Desulfovibrio ↑Rong 2019 ↓Liu 2020
				Lawsonia ↑Rong 2019
		Syntrophobacterales	*Desulfobaccaceae*	*Desulfobacca* ↓Rong 2019
	Epsilonproteobacteria	Campylobacterales	*Campylobacteraceae* ↑Chen 2021	*Campylobacter* ↑Chen 2021, Rong 2019
			Helicobacteraceae	*Helicobacter* ↓Rong 2019
	Gammaproteobacteria ↑Liu 2020, Chen 2021	Aeromondales ↓Zheng 2021	*Succinivibrionaceae* ↓Zheng 2021	*Succinivibrio* ↓Zheng 2021
		Alteromondales ↓Rong 2019	*Alteromonadaceae*	*Marinobacter* ↓Rong 2019
			Pseudoalteromonadaceae	*Pseudoalteromonas* ↓Rong 2019
		Enterobacterales ↑Chen 2021	*Enterobacteriaceae* ↑Chen 2021, Rong 2019 ↓Chen 2018b	*Citrobacter* ↓Yang 2020, Zheng 2020
				Cronobacter ↑Rong 2019
				Enterobacter ↑Rong 2019

			Escherichia/Shigella ↑Chen 2021, Rong 2019, Rhee 2020, Zhang 2021 ↓Liu 2016
			Klebsiella ↑Lin 2017, Chen 2021, Rong 2019 ↓Yang 2020 ↔Bai 2021
			Raoultella ↑Chen 2021
			Salmonella ↑Rong 2019
			Unclassified ↑Chen 2021
		Morganellaceae	*Morganella* ↑Chen 2021
		Yersiniaceae	*Yersinia* ↑Rong 2019
	Legionellales	*Coxiellaceae*	*Coxiella* ↑Rong 2019
	Pasteurellales ↓Zhang 2021	*Pasteurellaceae* ↓Rong 2019, Zhang 2021	*Aggregatibacter* ↓Rong 2019
			Haemophilus ↑Liu 2016 ↓Rong 2019, Zhang 2021
			Rodentibacter ↑Chen 2021
	Pseudomonadales ↑Chen 2021	*Moraxellaceae*	*Moraxella* ↓Chen 2021

			Pseudomonadaceae	*Pseudomonas* ↑Huang 2018, Rong 2019 ↓Rhee 2020
		Purple sulfur bacteria	*Chromatiaceae*	*Thiocystis* ↓Rong 2019
		Vibrionales	*Vibrionaceae*	*Vibrio* ↑Rong 2019
Spirochaetes	Spirochaetia	Xanthomonadales	*Xanthomonadaceae*	*Stenotrophomonas* ↑Rong 2019
		Spirochaetales	*Spirochaetaceae*	*Spirochaete* ↑Rong 2019
				Treponema ↑Rong 2019
Verrucomicrobia	Verrucomicrobiae		*Sphaerochaetaceae*	*Sphaerochaeta* ↑Rong 2019, Lai 2021
Uncultured		Verrucomicrobiales	*Akkermansiaceae*	*Akkermansia* ↑Rong 2019
				Candidatus_Saccharimonas ↓Chen 2021
				Candidatus_Soleaferrea ↔Bai 2021

Note. ↑, increased abundance in patients with major depressive disorder (MDD) relative to healthy controls (HC); ↓, decreased abundance in patients with MDD relative to HC, ↔, unspecified change in abundance in patients with MDD relative to HC; M-MDD, middle-aged MDD subgroup; Y-MDD, young MDD subgroup.