Supplementary Information

A phylo-functional core of gut microbiota in healthy young Chinese cohorts across lifestyles, geography and ethnicities

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This supplementary document includes:

Supplementary Materials and Methods

For each fecal sample, genomic DNA was extracted within 24 hours after arriving at the laboratory. Bead-beating extraction and phenol-chloroform purification were used to extract DNA (Dethlefsen and Relman 2011). The quality of extracted DNA was assessed by 0.8% agarose gel electrophoresis and the ratio of optical density (OD) at 260/280 was measured by spectrophotometry. All DNA samples were stored at -20 ℃ until further processing.

The V5-V6 region of 16S rRNA genes was amplified by PCR for bar-coded pyrosequencing. A set of 7-nucleotide barcodes was added to the universal forward primer U789F (5′-TAGATACCCSSGTAGTCC-3′) and reverse primer U1068R (5′-CTGACGRCRGCCATGC-3′), which targeted *Bacteria* and *Archaea* (Lee et al 2011). PCR amplification was performed with 50 ng template DNA (NanoDrop) in 50 μL reactions containing 5 μL 10 × PCR buffer (TaKaRa, Japan), 2 μL deoxynucleoside triphosphate (5 mmol/L), 0.5 μL Taq polymerase (5 U/μL; TaKaRa, Japan), and 1 μL of each primer (10 μmol/L). PCR reactions were performed on a PCR system (94 ℃ for 5 min; 30 cycles of 94 ℃ for 45 s, 55 ℃ for 40 s, and 72 ℃ for 1 min; and a final extension of 72 ℃ for 7 min) (Dethlefsen and Relman 2011). Quantification of the PCR products was performed using the Agilent DNA 1000 kit and Agilent 2100 Bioanalyzer (Agilent Technologies, Palo Alto, California) according to the manufacturer's instructions.

Raw pyrosequencing reads were considered as bad-quality sequences according to the following criteria and were excluded from the subsequent analyses: The length of the raw read was shorter than 110 nt or the length of the variable region was shorter than 100 nt; the read sequence lacked a perfect BLAST match to the barcode or a fuzzy match to at least one end of the 16S rRNA gene primers; the proportion of bases with a low-quality score (<20) was larger than 7% in the raw read.

The extracted high-quality sequences were first aligned using PyNAST (Caporaso et al 2010) and then clustered into 1,318,505 unique representative sequences under 100% sequence identity using UCLUST (Edgar 2010). The unique sequence set was further classified into 97,313 operational taxonomic units (OTUs) under the threshold of 97% identity. After being identified as chimera by ChimeraSlayer (Haas et al 2011), 27,792 OTUs were discarded. To minimize the number of spurious OTUs generated from sequencing error, we removed a total of 32,603 OTUs that occurred only once and twice across all samples. As a result, 36,918 OTUs representing 4,406,917 sequences in total were included for subsequent analysis. A *de novo* phylogenetic tree was constructed using the OTU representative set in FastTree (Price et al 2009). The taxonomy of each 97% OTU representative sequence was first assigned using the Ribosomal Database Project (RDP) Classifier (Cole et al 2007) with a minimum bootstrap threshold of 80%. Considering the relatively short length of the V5-V6 region of 16S rRNA genes, the sequences that could not be assigned by RDP Classifier at each taxonomic level were further searched using BLASTN against the reference database downloaded from the NCBI archaeal and bacterial 16S Ribosomal RNA RefSeq Targeted Loci Project. The query sequence would be assigned to the corresponding taxonomic group that the reference sequence belonged to only if the sequence identity of the query to the reference sequence was higher than the defined threshold at the specific taxonomic rank (95%, 92%, 91%, 85%, and 75% for genus, family, order, class, and phylum, respectively).

The number of the observed OTUs and Shannon diversity indices were used to estimate the alpha diversity in each sample. Euclidean metric as well as the UniFrac metrics (Lozupone and Knight 2005, Lozupone et al 2007) were used in principal coordinates analysis (PCoA) and Unweighted Pair Group Method with Arithmetic Mean (UPGMA) clustering.

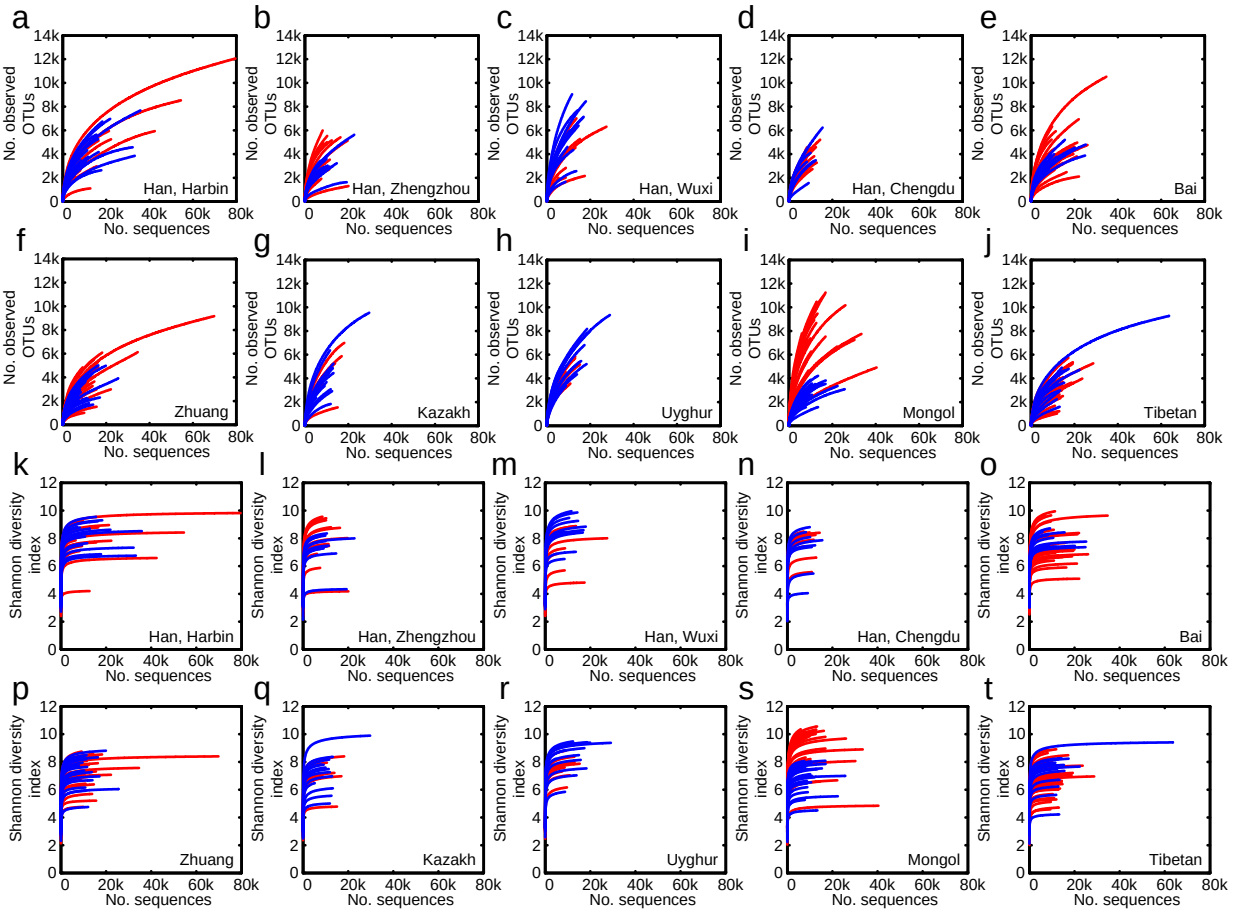
Supplementary Discussion

Compared with the strong lifestyle-associated differentiation in gut microbiota structure in the Mongol ethnic group, such effect appeared variable across geography for the Han individuals. In China, the rural development, modernization, and urbanization occurring in various locations were generally not synchronous due to the economic inequalities between different areas, with the more prosperous region tending to make greater efforts to improve the quality of life of their rural populations. As a result, the gap between rural and urban cohorts in these areas may have become smaller. In this study, the lifestyle-associated differentiation in gut microbiota structure of the Han people was much more significant in the cohorts living in Harbin and Zhengzhou, than those in Wuxi and Chengdu. According to the latest local statistical yearbooks released in the four provinces (i.e., Heilongjiang, Henan, Jiangsu, and Sichuan) in 2012, the gross domestic product (GDP) values for Harbin, Zhengzhou, Wuxi, and Chengdu were 4242.2, 4979.9, 6880.2, and 6950.6 ($\times 10^8$ Chinese Yuan), respectively (Heilongjiang and Heilongjiang 2012, Henan and Henan 2012, Jiangsu and Jiangsu 2012, Sichuan and Sichuan 2012). As a measure for the economic status, the higher GDP value may indicate a better local economic status. Therefore, these data may suggest the potential association between the local economic status and the degree of lifestyle-associated segregation of gut microbiota structure in the Han ethnic group across geography.

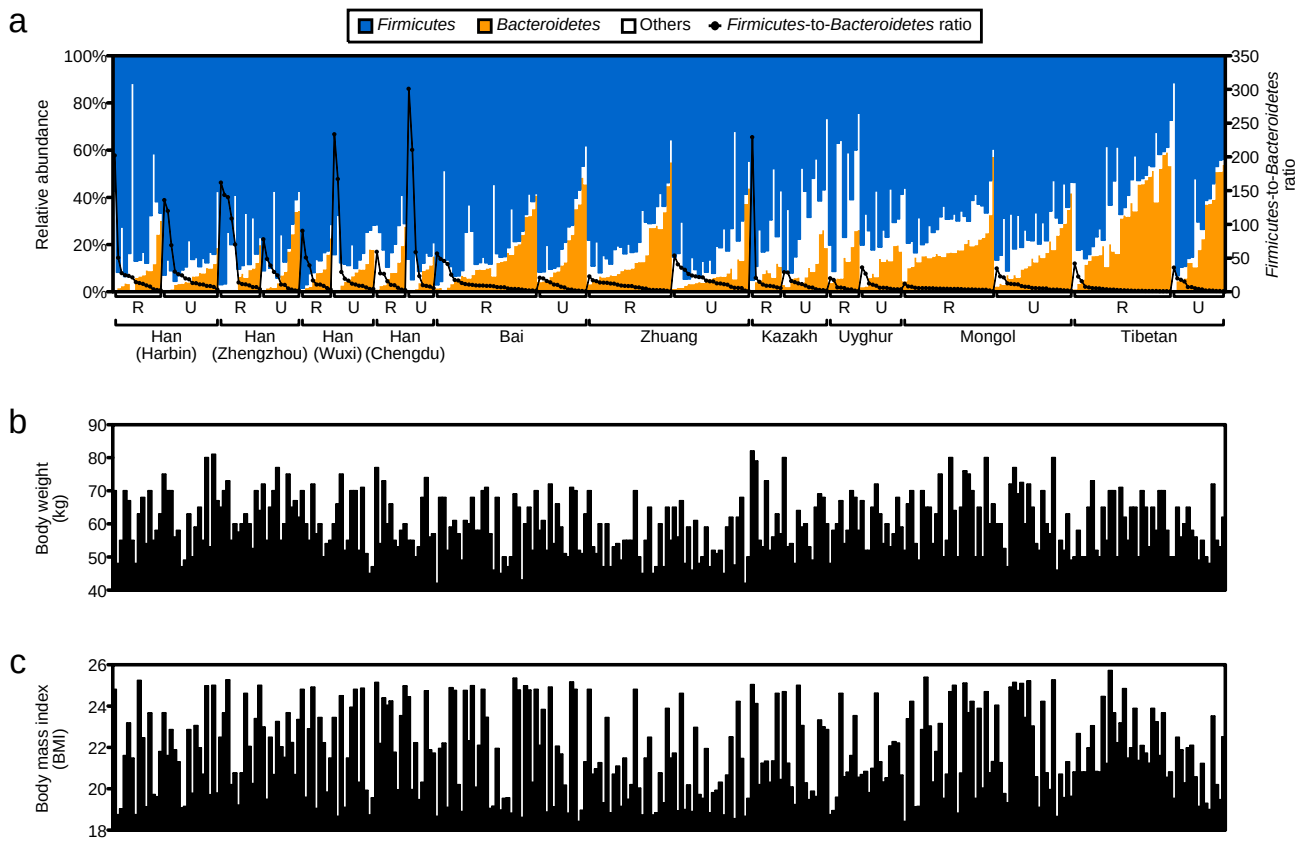
Phascolarctobacterium, the most predominant but also the most variable genus in this study, showed poor associations with other prevalent or core phylotypes, but significantly co-occurred with one lineage from *Klebsiella* (Supplementary Figure S8). It was reported that *Phascolarctobacterium* can grow as satellite colonies around colonies of succinate-producing *Escherichia coli* cells (Dot et al 1993), which belongs to the same *Enterobacteriaceae* family like *Klebsiella*. It appeared to be capable of utilizing only succinate as the carbon substrate to produce propionate (Dot et al 1993) and may adapt to the intestinal environment by specializing in the fermentation of the succinate

generated by other bacterial species, such as the succinate-producing bacterium *Paraprevotella xylaniphila* (Watanabe et al 2012). Therefore, the growth of *Phascolarctobacterium* in this study was assumed to be supported by other co-predominant succinate-producing symbionts such as *Bacteroides* and *Prevotella*, which were able to produce succinate (Shah and Collins 1989, Shah and Collins 1990). In this study, *Phascolarctobacterium* had a weak positive correlation with *Bacteroides* (rho = 0.144), although it was not significant after controlling for the false discovery rate (FDR) in this study (Figure 5, unadjusted $P = 0.011$ and FDR = 4.2%). Biochemical experiments and ecological studies are needed to further characterize the interaction between *Phascolarctobacterium* and other gut bacteria.

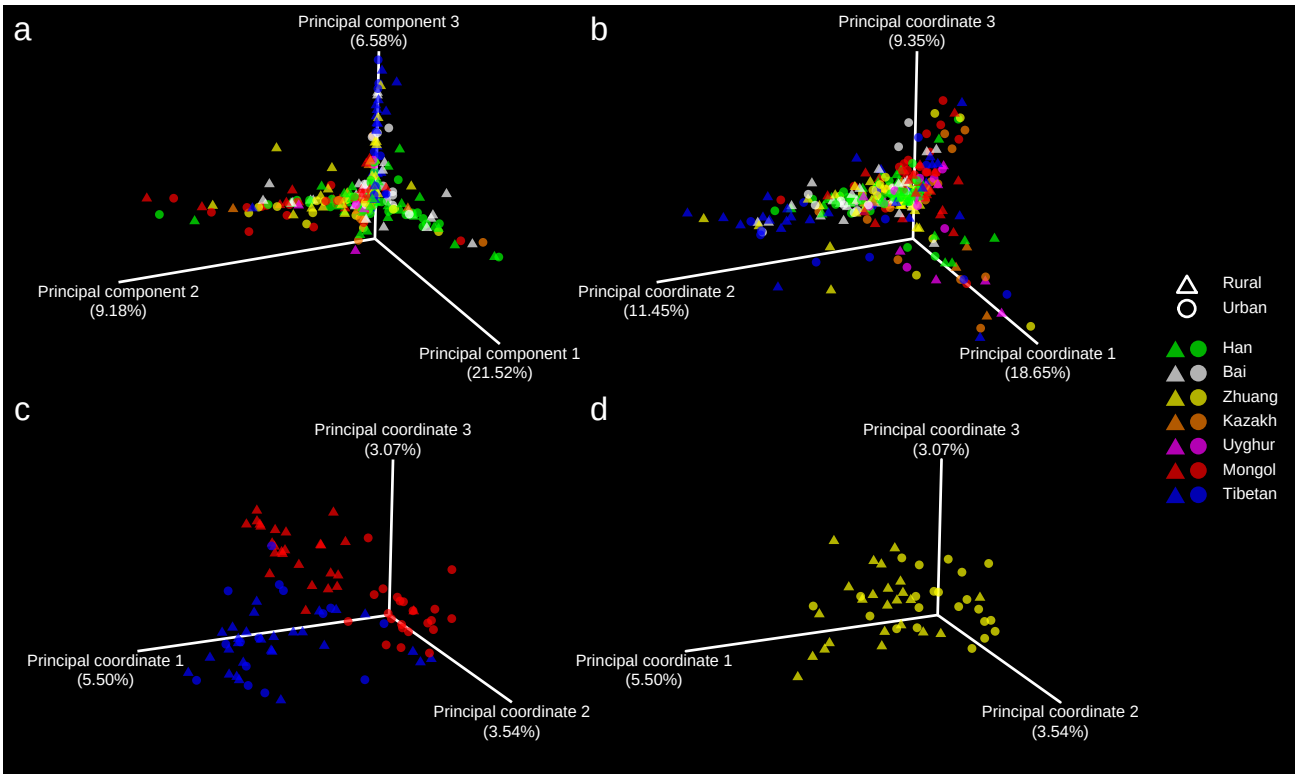
Supplementary Figures



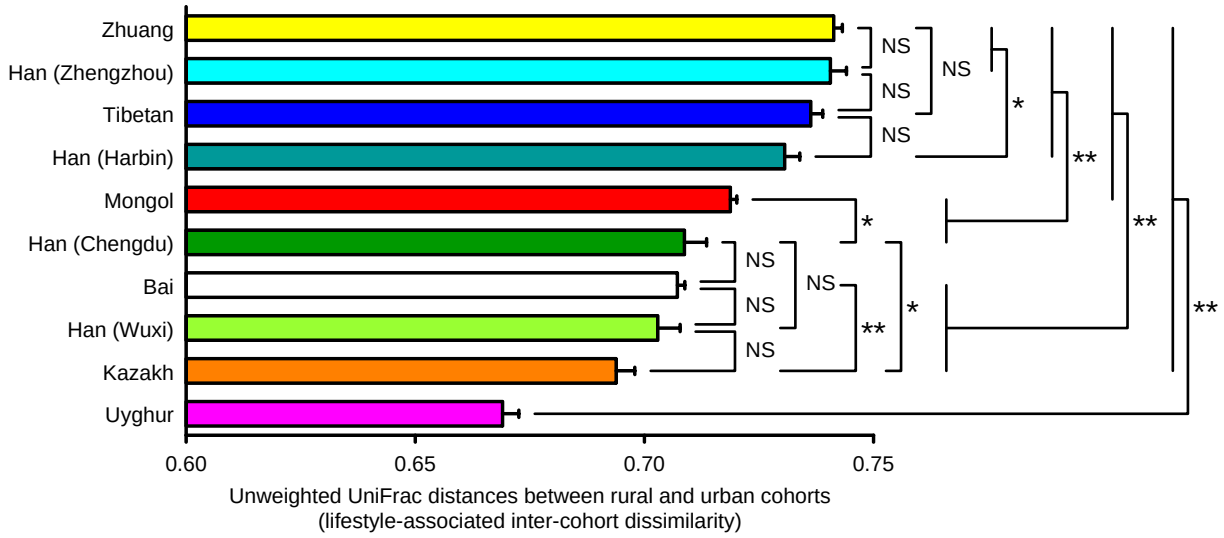
Supplementary Figure S1 OTU-level rarefaction (observed richness) (**a-j**) and Shannon diversity index (**k-t**) curves of gut microbiota of the Chinese cohorts. Red and blue curves represent rural and urban individuals, respectively.



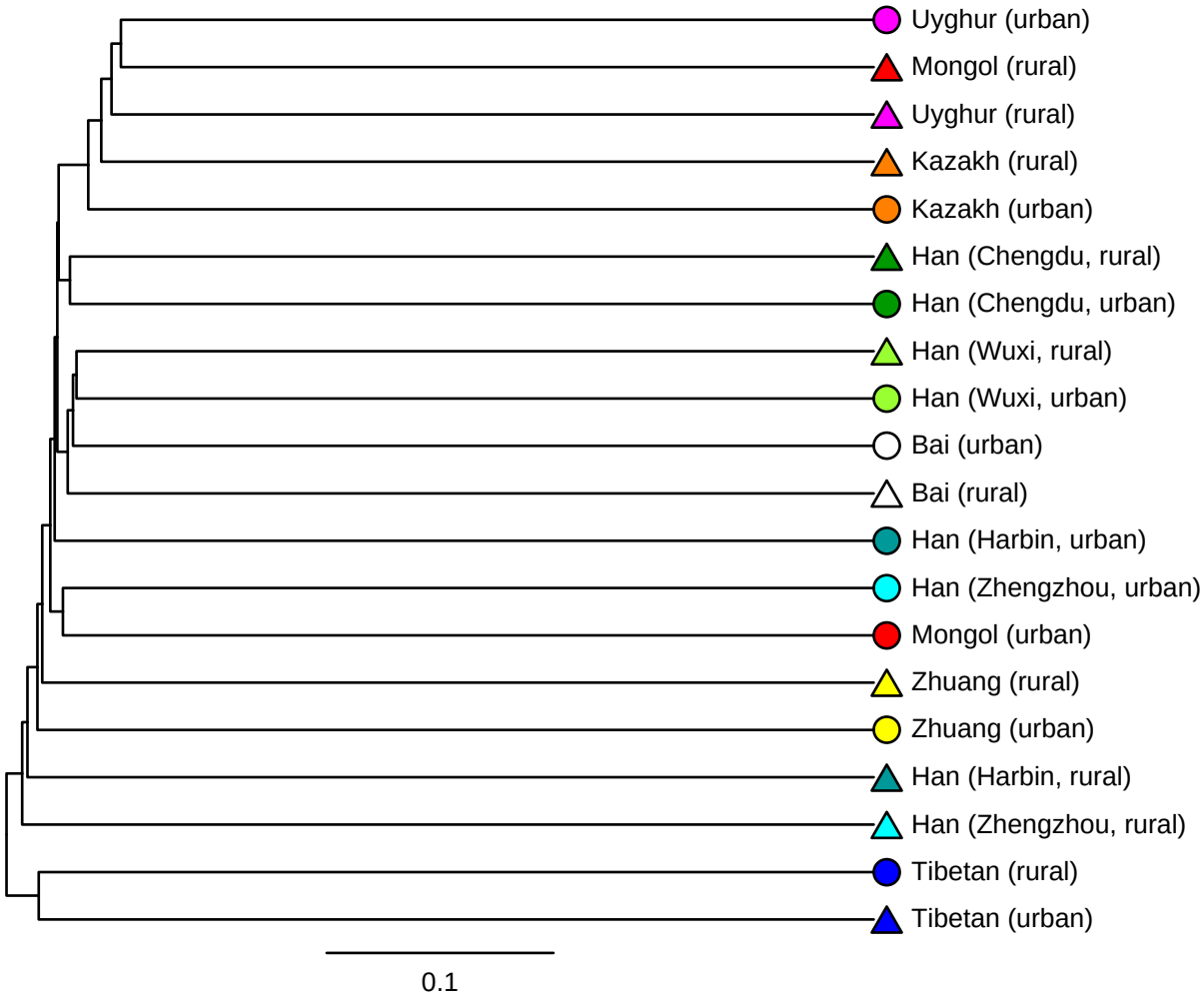
Supplementary Figure S2 Variations of (**a**) relative abundance of *Firmicutes* and *Bacteroidetes*, (**b**) body weight, and (**c**) body mass index (BMI) across the 314 investigated individuals. Individuals in each cohort are arranged according to the *Firmicutes*-to-*Bacteroidetes* ratio. R, rural cohorts; U, urban cohorts.



Supplementary Figure S3 Large structural variation of gut microbiota of the 314 individuals included in this study. (**a**) PCA. (**b**) Weighted UniFrac PCoA. (**c**) Unweighted UniFrac PCoA, which shows structural segregation between the Mongol and Tibetan ethnic groups, as well as between the rural and urban Mongol cohorts. (**d**) Unweighted UniFrac PCoA, which shows structural segregation between the rural and urban Zhuang cohorts. All the 36,918 OTUs are used for PCA and PCoA in (**a-d**).



Supplementary Figure S4 The lifestyle-associated dissimilarity of gut microbiota structure between the rural and urban cohorts with identical ethnicities and geographical locations. Mean ± S.E.M. values are plotted. *P* values represent the proportion of permuted differences greater than real differences (Student's *t*-test with 1,000 Monte Carlo simulations). NS, not significant; $P > 0.05$, $*P < 0.05$, and $**P < 0.005$.



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136 **Supplementary Figure S5** UPGMA hierarchical clustering tree based on the average unweighted

137 UniFrac distances among the cohorts.

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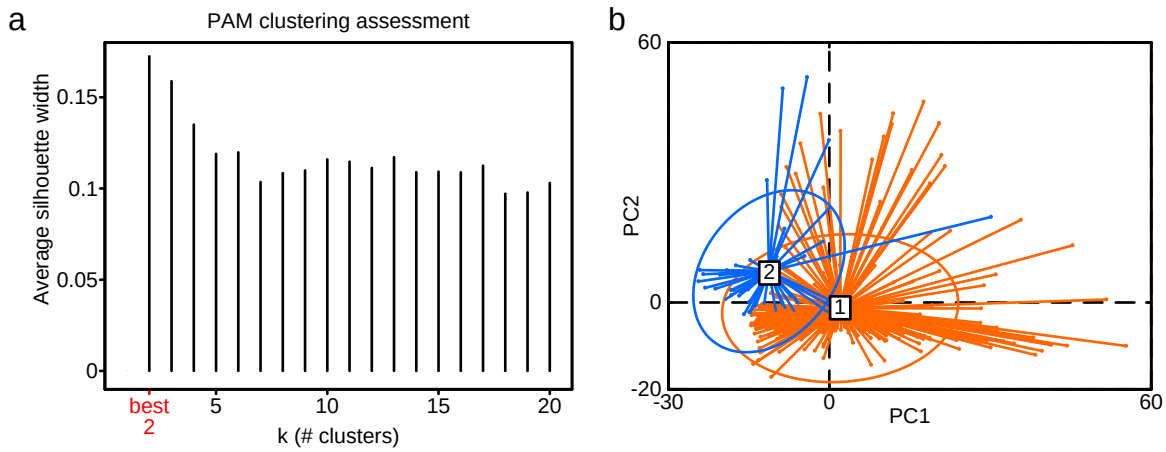

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141 **Supplementary Figure S6** Enterotype analysis. (**a**) PAM clustering validation using the average
142 silhouette width reveals that although gut microbiota composition of the 314 Chinese individuals are
143 most naturally separated into two clusters, the average silhouette width was poorly supported. (**b**)
144 Between-class analysis, which visualizes results from PCA and clustering, reveals two overlapping
145 clusters. The colored ellipses cover 67% of the samples belonging to the corresponding cluster.

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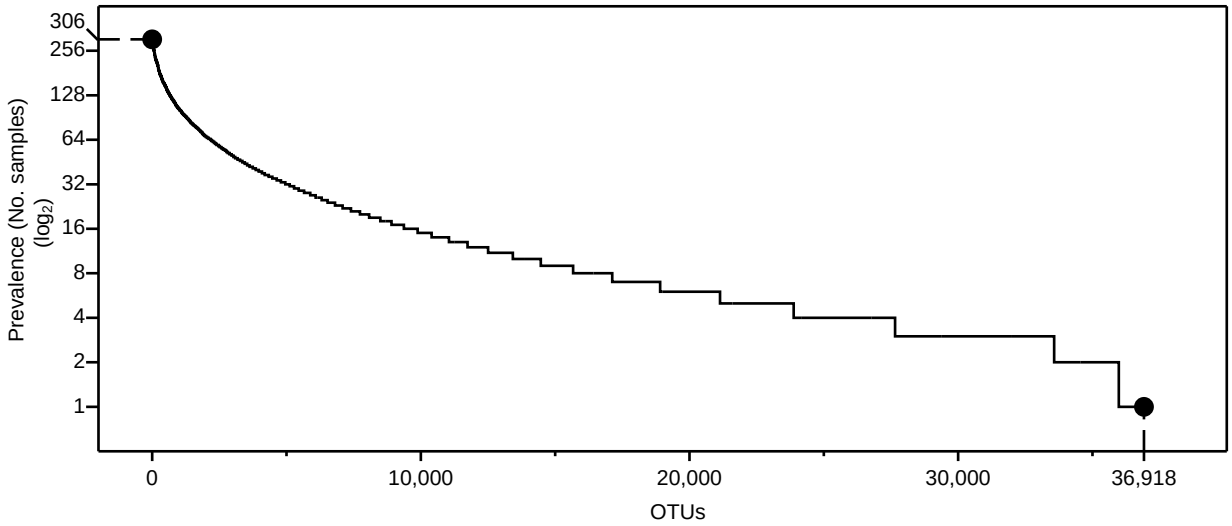
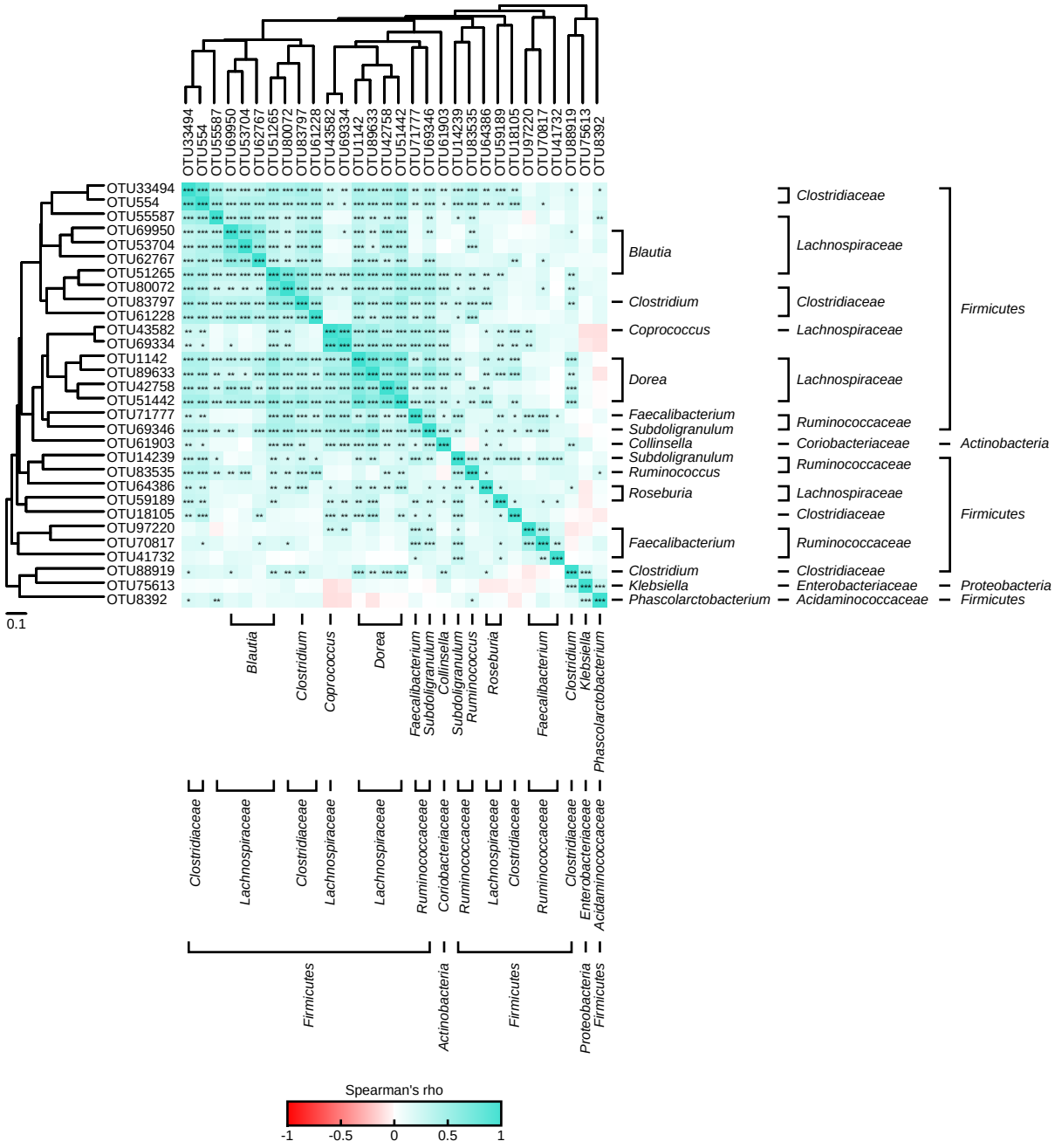
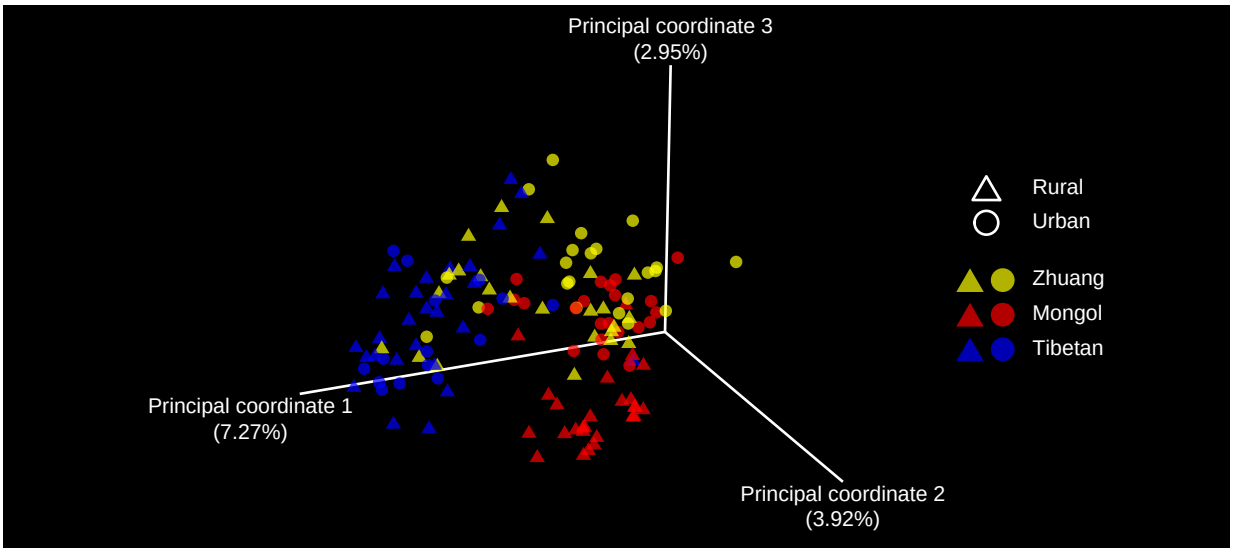


Supplementary Figure S7 Distribution of OTUs as a function of their prevalence in the 314 individuals. OTUs are ranked from the most-prevalent (present in 306 out of 314 individuals) to the least-prevalent (present in only one individual) OTU.



Supplementary Figure S8 Co-occurrence patterns among the thirty most-prevalent OTUs across the 314 samples. The correlations were controlled for multiple testing and only those with FDRs <1% were retained. The significant correlations were subsequently converted to correlation distance matrices and the OTUs were clustered using the UPGMA hierarchical clustering method. *FDR <0.01, **FDR <0.001, and ***FDR $<10^{-5}$.



Supplementary Figure S9 Unweighted UniFrac PCoA of the cohorts from the Mongol, Tibetan, and Zhuang ethnic groups using the 10,937 OTUs assigned to the nine core genera.

Supplementary Tables

Supplementary Table S1 The 20 cohorts included in this study.

	Sampling site				Individual ratio (n/n)	
Ethnic group	Province	Urban	Rural	Sample size (n)	Female/Male	Urban/Rural
Han	Heilongjiang	Daoli/Daowai/Songbei/Nangang District of Harbin	Mulan/Tonghe County of Harbin	30	13/17	16/14
	Henan	Jinshui/Zhongyuan District of Zhengzhou	Dengfeng County of Zhengzhou	23	9/14	11/12
	Jiangsu	Beitang/Chongan District of Wuxi	Binghu District of Wuxi	21	13/8	12/9
	Sichuan	Wuhou District of Chengdu	Dayi/Pujiang County of Chengdu	17	12/5	8/9
Bai	Yunnan	Panlong District/Xishan District of Kunming and Eryuan County of Dali	Eryuan/Jianchuan County of Dali	43	19/24	14/29
Kazakh	Xinjiang	Shuimogou/Tianshan District of Urumqi	Yining/Tacheng County of Yili	22	13/9	13/9
Mongol	Inner Mongolia	Saihan District of Hohhot	Bordered Yellow/Bordered White Banner of Xilinguole	48	25/23	22/26
Tibetan	Tibetan	Chengguan District of Lhasa	Nagqu County of Nagqu	43	21/22	15/28
Uygur	Xinjiang	Shuimogou/Tianshan District of Urumqi	Altay County of Altay	21	10/11	12/9
Zhuang	Guangxi	Xingning/Xixiangtang District of Nanning	Lingyun County of Baise	46	22/24	22/24
Total				314	157/157	145/169

Supplementary Table S2 Sample information and 16S rRNA gene V5-V6 region pyrosequencing statistics.

Sample ID	Ethnicity	Lifestyle	Sex	Sampling site	Age (y)	Body height (m)	Body weight (kg)	BMI	Pyrosequencing Run	No. Extracted Sequences	No. Non-chimera Sequences	No. OTUs	No. OTUs occurred only once or twice in all samples	No. Phyla	No. Classes	No. Orders	No. Families	No. Genera
FYN10	Bai	Rural	Female	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	35	1.68	70	24.8	8	6635	6130	1196	26	7	11	13	31	70
FYN14	Bai	Rural	Female	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	33	1.54	59	24.88	8	15680	14896	1579	39	11	16	17	33	78
FYN15	Bai	Rural	Female	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	31	1.55	60	24.97	9	18638	16464	1276	51	7	14	16	33	65
FYN16	Bai	Rural	Female	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	34	1.62	65	24.77	9	17866	15952	2050	81	9	15	19	39	88
FYN17	Bai	Rural	Female	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	34	1.64	60	22.31	9	12291	10680	1606	54	11	16	21	42	78
FYN22	Bai	Rural	Female	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	32	1.57	61	24.75	10	24900	22386	3811	316	11	18	17	35	73
FYN23	Bai	Rural	Female	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	24	1.57	61	24.75	10	12345	9775	2807	196	10	17	21	41	86
FYN18	Bai	Rural	Male	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	35	1.68	70	24.8	9	7922	7071	1012	29	7	12	11	27	56
FYN21	Bai	Rural	Male	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	33	1.65	68	24.98	9	45186	35574	6759	807	11	19	24	47	106
FYN24	Bai	Rural	Male	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	32	1.76	68	21.95	10	12293	10033	3178	288	12	19	24	46	89
FYN3	Bai	Rural	Male	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	25	1.54	45	18.97	7	18863	16457	2162	99	7	13	16	35	71
FYN38	Bai	Rural	Male	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	18	1.55	47	19.56	12	22961	21244	1864	65	8	12	15	33	74
FYN7	Bai	Rural	Male	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	33	1.65	69	25.34	7	15224	13536	1795	85	8	16	20	38	70
FYN8	Bai	Rural	Male	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	33	1.62	65	24.77	8	11869	11014	1279	32	9	14	15	27	51
FYN26	Bai	Rural	Female	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	26	1.61	49	18.9	10	21450	19741	2202	126	10	14	18	35	77
FYN28	Bai	Rural	Female	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	34	1.6	50	19.53	10	7862	6531	2274	153	9	15	15	33	70
FYN29	Bai	Rural	Female	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	35	1.52	43	18.61	11	12953	11037	2479	174	7	16	15	32	68
FYN31	Bai	Rural	Female	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	19	1.6	52	20.31	11	24642	21492	2824	106	12	17	24	48	96
FYN32	Bai	Rural	Female	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	31	1.5	42	18.67	11	22663	22141	1171	20	6	12	13	28	54
FYN34	Bai	Rural	Female	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	31	1.62	58	22.1	11	7078	6169	1470	67	8	13	17	35	68
FYN37	Bai	Rural	Female	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	33	1.63	50	18.82	12	22023	19074	2167	67	10	15	18	41	83
FYN5	Bai	Rural	Female	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	34	1.55	46	19.15	7	14660	11678	1849	105	7	13	18	40	80
FYN25	Bai	Rural	Male	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	34	1.73	57	19.05	10	14084	11715	3391	235	11	17	19	42	87
FYN27	Bai	Rural	Male	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	32	1.7	58	20.07	10	8873	7279	2475	166	9	17	17	36	69
FYN30	Bai	Rural	Male	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	35	1.75	68	22.2	11	32894	26285	2804	206	11	15	19	41	94
FYN33	Bai	Rural	Male	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	32	1.68	57	20.2	11	6801	6254	1183	22	8	11	12	26	47
FYN35	Bai	Rural	Male	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	31	1.76	68	21.95	11	21612	20139	2509	109	9	14	18	36	82
FYN40	Bai	Rural	Male	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	34	1.65	52	19.1	12	13812	12856	1657	30	9	12	14	31	54
FYN43	Bai	Rural	Male	Jianchuan County, Dali Bai Autonomous Prefecture, Yunnan Province	18	1.74	71	23.45	12	7574	6645	1539	47	7	13	13	29	60
FYN1	Bai	Urban	Male	Eryuan County, Dali Bai Autonomous Prefecture, Yunnan Province	31	1.7	72	24.91	7	9966	8549	1811	73	9	15	20	34	73
FYN4	Bai	Urban	Female	Panlong District, Kunming, Yunnan Province	30	1.62	58	22.1	7	11968	10749	1887	66	8	13	16	30	66
FYN9	Bai	Urban	Female	Panlong District, Kunming, Yunnan Province	30	1.6	61	23.83	8	12855	12037	1749	29	10	16	17	38	87
FYN36	Bai	Urban	Male	Panlong District, Kunming, Yunnan Province	26	1.65	59	21.67	12	10086	8923	1545	82	10	16	18	38	81
FYN39	Bai	Urban	Male	Panlong District, Kunming, Yunnan Province	23	1.63	50	18.82	12	28355	25341	2471	96	10	15	23	47	89
FYN41	Bai	Urban	Male	Panlong District, Kunming, Yunnan Province	21	1.66	52	18.87	12	18248	15730	2410	67	11	17	25	47	104
FYN42	Bai	Urban	Male	Panlong District, Kunming, Yunnan Province	24	1.68	52	18.42	12	11407	10409	1573	63	9	14	18	35	63
FYN6	Bai	Urban	Male	Panlong District, Kunming, Yunnan Province	32	1.68	71	25.16	7	10209	8459	1620	78	7	13	19	33	63
FYN11	Bai	Urban	Female	Xishan District, Kunming, Yunnan Province	22	1.59	51	20.17	8	6906	5935	1475	26	9	14	16	35	67
FYN2	Bai	Urban	Female	Xishan District, Kunming, Yunnan Province	22	1.64	51	18.96	7	6788	6122	1141	51	6	12	13	28	58
FYN12	Bai	Urban	Male	Xishan District, Kunming, Yunnan Province	22	1.68	54	19.13	8	10496	9412	2233	138	5	12	14	30	63
FYN13	Bai	Urban	Male	Xishan District, Kunming, Yunnan Province	22	1.72	63	21.3	8	24001	20395	2405	115	11	17	23	51	105
FYN19	Bai	Urban	Male	Xishan District, Kunming, Yunnan Province	32	1.68	70	24.8	9	28163	25050	2204	78	9	15	22	41	84
FYN20	Bai	Urban	Male	Xishan District, Kunming, Yunnan Province	22	1.73	66	22.05	9	8718	7959	1397	35	7	12	11	26	61
FJS2	Han	Rural	Female	Binghu District, Wuxi, Jiangsu Province	30	1.5	50	22.22	7	15603	13324	2516	93	11	16	19	38	77
FJS3	Han	Rural	Female	Binghu District, Wuxi, Jiangsu Province	30	1.65	54	19.83	7	30019	27749	3416	160	8	14	19	38	83
FJS5	Han	Rural	Female	Binghu District, Wuxi, Jiangsu Province	27	1.55	55	22.89	8	17488	15497	2691	97	9	16	24	47	96
FJS6	Han	Rural	Female	Binghu District, Wuxi, Jiangsu Province	24	1.6	55	21.48	8	15973	13974	3177	165	8	14	20	42	92
FJS9	Han	Rural	Female	Binghu District, Wuxi, Jiangsu Province	30	1.6	60	23.44	8	9646	8271	2020	98	6	14	18	43	83
FJS1	Han	Rural	Male	Binghu District, Wuxi, Jiangsu Province	33	1.7	72	24.91	7	9354	8854	1140	48	8	12	17	31	58
FJS12	Han	Rural	Male	Binghu District, Wuxi, Jiangsu Province	27	1.73	57	19.05	9	6623	5447	958	36	8	11	13	23	41

FJS4	Han	Rural	Male	Binghu District, Wuxi, Jiangsu Province	28	1.68	70	24.8	7	17995	17568	1154	48	7	11	15	31	59
FJS7	Han	Rural	Male	Binghu District, Wuxi, Jiangsu Province	29	1.75	60	19.59	8	9475	8892	1432	58	8	10	13	29	57
FSC10	Han	Rural	Female	Dayi County, Chengdu, Sichuan Province	25	1.63	53	19.95	2	13028	10984	1239	43	7	15	22	38	74
FSC9	Han	Rural	Female	Dayi County, Chengdu, Sichuan Province	31	1.59	55	21.76	2	16097	14601	2491	110	11	18	24	46	89
FHN13	Han	Rural	Female	Dengfeng County, Zhengzhou, Henan Province	30	1.61	52.5	20.25	3	12592	11419	1545	80	8	13	13	29	61
FHN2	Han	Rural	Female	Dengfeng County, Zhengzhou, Henan Province	21	1.65	55	20.2	1	12509	11606	1763	51	8	12	14	29	59
FHN6	Han	Rural	Female	Dengfeng County, Zhengzhou, Henan Province	31	1.6	64	25	2	19865	16617	3016	182	8	13	15	30	66
FHN7	Han	Rural	Female	Dengfeng County, Zhengzhou, Henan Province	33	1.6	63	24.61	2	15614	12687	2996	263	9	17	23	48	103
FHN9	Han	Rural	Female	Dengfeng County, Zhengzhou, Henan Province	23	1.65	60	22.04	2	12762	10653	2976	242	10	14	14	33	74
FHN1	Han	Rural	Male	Dengfeng County, Zhengzhou, Henan Province	22	1.7	73	25.26	1	22024	19836	2644	85	8	13	17	37	82
FHN10	Han	Rural	Male	Dengfeng County, Zhengzhou, Henan Province	26	1.73	57.5	19.21	2	12135	10473	2766	193	10	15	21	44	84
FHN11	Han	Rural	Male	Dengfeng County, Zhengzhou, Henan Province	35	1.73	70	23.39	3	10432	8467	2665	173	9	16	20	42	86
FHN3	Han	Rural	Male	Dengfeng County, Zhengzhou, Henan Province	23	1.7	60	20.76	1	7000	6339	1000	38	10	15	21	41	72
FHN4	Han	Rural	Male	Dengfeng County, Zhengzhou, Henan Province	22	1.7	65	22.49	1	8026	7715	879	37	6	11	11	26	51
FHN5	Han	Rural	Male	Dengfeng County, Zhengzhou, Henan Province	33	1.72	70	23.66	1	20391	20174	633	10	7	13	15	26	60
FHN8	Han	Rural	Male	Dengfeng County, Zhengzhou, Henan Province	28	1.7	60	20.76	2	10708	8933	2737	222	8	17	19	40	76
FDB2	Han	Rural	Female	Mulan County, Harbin, Heilongjiang Province	32	1.58	63	25.24	1	66538	55015	5573	395	9	16	22	48	110
FDB4	Han	Rural	Female	Mulan County, Harbin, Heilongjiang Province	32	1.6	48	18.75	1	9745	8335	1562	86	7	11	17	34	77
FDB6	Han	Rural	Female	Mulan County, Harbin, Heilongjiang Province	25	1.67	55	19.72	2	53053	42642	3238	176	9	18	24	48	106
FDB1	Han	Rural	Male	Mulan County, Harbin, Heilongjiang Province	33	1.68	54	19.13	1	24678	22431	2857	112	9	15	17	35	72
FDB3	Han	Rural	Male	Mulan County, Harbin, Heilongjiang Province	32	1.7	63	21.8	1	11729	9999	2426	120	9	13	15	34	73
FDB5	Han	Rural	Male	Mulan County, Harbin, Heilongjiang Province	27	1.7	55	19.03	1	7932	6631	1308	43	8	13	20	37	76
FDB7	Han	Rural	Male	Mulan County, Harbin, Heilongjiang Province	27	1.72	70	23.66	2	19797	16740	3012	191	9	14	18	40	86
FDB9	Han	Rural	Male	Mulan County, Harbin, Heilongjiang Province	31	1.8	70	21.6	2	10607	9484	1629	50	8	13	18	38	73
FSC18	Han	Rural	Female	Pujiang County, Chengdu, Sichuan Province	32	1.57	58	23.53	2	9981	8545	1927	161	9	16	17	41	88
FSC19	Han	Rural	Female	Pujiang County, Chengdu, Sichuan Province	30	1.56	54	22.19	2	11082	10072	2168	154	9	13	16	38	83
FSC3	Han	Rural	Female	Pujiang County, Chengdu, Sichuan Province	27	1.58	60	24.03	1	14373	12621	2219	50	9	16	18	41	77
FSC4	Han	Rural	Female	Pujiang County, Chengdu, Sichuan Province	29	1.55	60	24.97	1	8801	8119	1471	44	8	11	12	27	61
FSC5	Han	Rural	Female	Pujiang County, Chengdu, Sichuan Province	32	1.65	66	24.24	1	9138	7378	1624	52	9	14	18	34	62
FSC1	Han	Rural	Male	Pujiang County, Chengdu, Sichuan Province	31	1.75	77	25.14	1	19345	12910	1596	65	7	13	19	38	71
FSC20	Han	Rural	Male	Pujiang County, Chengdu, Sichuan Province	30	1.73	73	24.39	3	13250	11850	1927	101	8	13	13	33	67
FDB10	Han	Rural	Female	Tonghe County, Harbin, Heilongjiang Province	27	1.6	55	21.48	2	15099	12831	631	54	9	14	23	47	81
FDB12	Han	Rural	Female	Tonghe County, Harbin, Heilongjiang Province	33	1.72	58	19.61	3	19105	15973	1858	195	7	14	17	34	70
FDB13	Han	Rural	Female	Tonghe County, Harbin, Heilongjiang Province	32	1.6	48	18.75	3	9525	8249	1482	66	8	13	17	28	56
FDB11	Han	Rural	Male	Tonghe County, Harbin, Heilongjiang Province	32	1.74	68	22.46	3	96710	80605	8637	913	12	20	28	55	131
FDB14	Han	Rural	Male	Tonghe County, Harbin, Heilongjiang Province	35	1.68	70	24.8	3	8990	6039	1149	51	8	11	19	37	81
FDB15	Han	Rural	Male	Tonghe County, Harbin, Heilongjiang Province	21	1.7	67	23.18	3	26534	21685	3659	326	9	14	19	43	100
FJS13	Han	Urban	Female	Beitang District, Wuxi, Jiangsu Province	30	1.6	60	23.44	9	10244	8671	941	46	7	11	17	31	62
FJS16	Han	Urban	Female	Chongan District, Wuxi, Jiangsu Province	29	1.55	45	18.73	10	13046	10956	2962	160	12	18	28	54	108
FJS18	Han	Urban	Female	Chongan District, Wuxi, Jiangsu Province	30	1.6	55	21.48	10	20517	18257	3761	231	10	16	20	46	97
FJS20	Han	Urban	Female	Chongan District, Wuxi, Jiangsu Province	26	1.55	47	19.56	11	17498	14614	4039	257	11	16	24	49	114
FJS21	Han	Urban	Female	Chongan District, Wuxi, Jiangsu Province	24	1.65	52	19.1	11	13699	12311	2314	71	10	16	22	42	79
FJS22	Han	Urban	Female	Chongan District, Wuxi, Jiangsu Province	26	1.6	52	20.31	11	10756	9693	2092	99	7	14	17	38	75
FJS23	Han	Urban	Female	Chongan District, Wuxi, Jiangsu Province	23	1.88	66	18.67	11	16338	13743	1465	78	9	15	22	39	80
FJS24	Han	Urban	Female	Chongan District, Wuxi, Jiangsu Province	23	1.6	51	19.92	12	15034	12050	4014	327	11	16	21	46	111
FJS14	Han	Urban	Male	Chongan District, Wuxi, Jiangsu Province	23	1.68	70	24.8	9	9749	8367	2167	123	8	14	15	35	72
FJS15	Han	Urban	Male	Chongan District, Wuxi, Jiangsu Province	30	1.75	75	24.49	9	16975	14755	3167	126	7	13	16	36	72
FJS17	Han	Urban	Male	Chongan District, Wuxi, Jiangsu Province	28	1.71	70	23.94	10	19025	16979	3339	175	8	14	17	40	94
FJS19	Han	Urban	Male	Chongan District, Wuxi, Jiangsu Province	30	1.69	71	24.86	10	19379	17264	3457	197	7	15	21	43	99
FDB29	Han	Urban	Female	Daoli District, Harbin, Heilongjiang Province	21	1.6	59	23.05	5	44292	36148	4450	269	8	16	22	44	104
FDB28	Han	Urban	Male	Daoli District, Harbin, Heilongjiang Province	29	1.79	80	24.97	5	35769	33360	2320	123	9	13	18	35	67
FDB30	Han	Urban	Male	Daoli District, Harbin, Heilongjiang Province	33	1.8	70	21.6	5	21176	16591	3115	200	10	14	22	41	81
FDB31	Han	Urban	Male	Daoli District, Harbin, Heilongjiang Province	29	1.8	81	25	6	18964	17922	1606	82	8	14	16	38	68

FDB34	Han	Urban	Female	Daowai District, Harbin, Heilongjiang Province	32	1.59	50	19.78	6	12711	11777	1781	42	6	11	13	31	69
FDB37	Han	Urban	Female	Daowai District, Harbin, Heilongjiang Province	28	1.57	47	19.07	6	15014	12963	2512	118	5	12	10	28	63
FDB35	Han	Urban	Male	Daowai District, Harbin, Heilongjiang Province	33	1.75	70	22.86	6	24955	22140	3639	166	12	17	17	41	86
FDB38	Han	Urban	Male	Daowai District, Harbin, Heilongjiang Province	28	1.66	63	22.86	6	13174	11486	2188	119	9	15	17	33	75
FDB8	Han	Urban	Male	Daowai District, Harbin, Heilongjiang Province	31	1.72	65	21.97	2	18194	15746	3325	174	9	15	17	37	76
FHN21	Han	Urban	Female	Jinshui District, Zhengzhou, Henan Province	23	1.63	62	23.34	4	14247	11501	1547	41	7	13	13	30	55
FHN22	Han	Urban	Female	Jinshui District, Zhengzhou, Henan Province	24	1.68	55	19.49	4	27145	23022	2998	153	9	15	22	47	100
FHN16	Han	Urban	Male	Jinshui District, Zhengzhou, Henan Province	22	1.84	70	20.68	3	12550	10133	1708	51	9	15	18	37	79
FHN17	Han	Urban	Male	Jinshui District, Zhengzhou, Henan Province	22	1.82	77	23.25	3	11107	10050	1834	45	6	10	15	33	61
FHN20	Han	Urban	Male	Jinshui District, Zhengzhou, Henan Province	23	1.77	72	22.98	4	9600	8656	1274	26	6	9	11	27	54
FHN23	Han	Urban	Male	Jinshui District, Zhengzhou, Henan Province	23	1.78	75	23.67	5	15708	14772	1605	42	5	11	15	27	53
FHN24	Han	Urban	Male	Jinshui District, Zhengzhou, Henan Province	22	1.8	67	20.68	5	12119	10642	1520	46	6	11	13	28	58
FHN25	Han	Urban	Male	Jinshui District, Zhengzhou, Henan Province	24	1.71	65	22.23	5	8256	7277	1616	55	8	13	11	25	53
FDB17	Han	Urban	Female	Nangang District, Harbin, Heilongjiang Province	24	1.65	58	21.3	4	10081	8610	1863	107	4	13	13	31	66
FDB25	Han	Urban	Female	Nangang District, Harbin, Heilongjiang Province	26	1.6	56	21.88	4	17835	16770	2088	79	5	12	11	27	52
FDB26	Han	Urban	Female	Nangang District, Harbin, Heilongjiang Province	25	1.6	49	19.14	5	11381	9498	1674	51	7	14	17	37	85
FDB27	Han	Urban	Female	Nangang District, Harbin, Heilongjiang Province	32	1.64	53	19.71	5	8779	7415	1907	138	5	12	14	35	79
FDB19	Han	Urban	Male	Nangang District, Harbin, Heilongjiang Province	33	1.78	75	23.67	4	34425	32399	2855	158	10	17	23	44	87
FDB23	Han	Urban	Male	Nangang District, Harbin, Heilongjiang Province	25	1.63	55	20.7	4	22676	18533	3598	212	5	12	19	39	84
FDB24	Han	Urban	Male	Songbei District, Harbin, Heilongjiang Province	25	1.84	67	19.79	4	13058	10889	1803	78	7	12	19	37	74
FSC21	Han	Urban	Female	Wuhou District, Chengdu, Sichuan Province	27	1.5	50	22.22	3	11135	8427	1761	48	7	11	19	40	70
FSC26	Han	Urban	Female	Wuhou District, Chengdu, Sichuan Province	28	1.62	57	21.72	3	11928	10288	2098	110	11	16	20	39	84
FSC29	Han	Urban	Female	Wuhou District, Chengdu, Sichuan Province	30	1.6	56	21.88	3	11976	10970	1501	32	10	19	25	45	89
FSC30	Han	Urban	Female	Wuhou District, Chengdu, Sichuan Province	24	1.65	53	19.47	4	12632	11692	1500	49	11	16	19	37	79
FSC31	Han	Urban	Female	Wuhou District, Chengdu, Sichuan Province	30	1.5	55	24.44	4	9580	9219	626	25	11	14	14	31	61
FSC27	Han	Urban	Male	Wuhou District, Chengdu, Sichuan Province	32	1.73	74	24.73	3	18527	15740	2831	176	7	14	18	38	81
FSC6	Han	Urban	Male	Wuhou District, Chengdu, Sichuan Province	19	1.66	55	19.96	1	14198	12471	1651	59	6	11	14	30	60
FSC8	Han	Urban	Male	Wuhou District, Chengdu, Sichuan Province	19	1.83	68	20.31	2	11353	10183	2176	90	7	14	12	29	58
FHN15	Han	Urban	Female	Zhongyuan District, Zhengzhou, Henan Province	22	1.67	60	21.51	3	9965	9228	1472	33	8	15	15	35	65
FHN19	Han	Urban	Female	Zhongyuan District, Zhengzhou, Henan Province	24	1.58	55	22.03	4	13513	10726	1923	54	7	13	19	38	76
FHN18	Han	Urban	Male	Zhongyuan District, Zhengzhou, Henan Province	22	1.7	65	22.49	4	20204	19404	885	19	7	12	13	29	53
FXJ35	Kazakh	Rural	Female	Tacheng County, Yili Prefecture, Xinjiang Uygur Autonomous Region	26	1.58	53	21.23	11	8877	7845	1476	41	10	15	17	37	74
FXJ36	Kazakh	Rural	Female	Tacheng County, Yili Prefecture, Xinjiang Uygur Autonomous Region	28	1.62	56	21.34	11	19373	17185	2631	148	8	14	19	42	95
FXJ39	Kazakh	Rural	Male	Tacheng County, Yili Prefecture, Xinjiang Uygur Autonomous Region	23	1.81	82	25.03	11	15634	15206	876	57	7	11	13	26	54
FXJ46	Kazakh	Rural	Male	Tacheng County, Yili Prefecture, Xinjiang Uygur Autonomous Region	21	1.81	79	24.11	12	12075	10669	1962	46	8	13	21	39	89
FXJ48	Kazakh	Rural	Male	Tacheng County, Yili Prefecture, Xinjiang Uygur Autonomous Region	21	1.85	73	21.33	12	15917	13989	2430	76	9	14	15	37	79
FXJ49	Kazakh	Rural	Male	Tacheng County, Yili Prefecture, Xinjiang Uygur Autonomous Region	23	1.6	63	24.61	12	10135	8755	1526	55	8	14	13	30	76
FXJ27	Kazakh	Rural	Female	Yining County, Yili Prefecture, Xinjiang Uygur Autonomous Region	22	1.67	57	20.44	10	21349	18478	3399	219	10	17	22	50	105
FXJ28	Kazakh	Rural	Female	Yining County, Yili Prefecture, Xinjiang Uygur Autonomous Region	20	1.6	52	20.31	10	10211	8887	1641	83	10	14	16	34	69
FXJ32	Kazakh	Rural	Female	Yining County, Yili Prefecture, Xinjiang Uygur Autonomous Region	21	1.65	55	20.2	10	7205	5744	1338	25	9	14	18	38	68
FXJ51	Kazakh	Urban	Female	Shuimogou District, Urumqi, Xinjiang Uygur Autonomous Region	34	1.65	53	19.47	12	15388	13329	2443	106	9	15	20	38	82
FXJ50	Kazakh	Urban	Male	Shuimogou District, Urumqi, Xinjiang Uygur Autonomous Region	24	1.72	60	20.28	12	13059	11521	2014	86	6	14	17	38	86
FXJ56	Kazakh	Urban	Male	Shuimogou District, Urumqi, Xinjiang Uygur Autonomous Region	26	1.72	69	23.32	12	13961	12075	1527	72	8	13	14	32	67
FXJ26	Kazakh	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	23	1.6	64	25	9	14585	13036	2004	95	8	15	20	43	88
FXJ29	Kazakh	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	24	1.58	48	19.23	10	9324	8059	1578	61	7	13	17	34	69
FXJ30	Kazakh	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	25	1.57	49	19.88	10	11505	10166	1806	90	8	13	17	40	74
FXJ33	Kazakh	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	20	1.62	60	22.86	10	9057	5274	1029	32	9	13	16	32	62
FXJ34	Kazakh	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	21	1.58	53	21.23	10	10439	9280	1631	86	9	13	16	36	75
FXJ37	Kazakh	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	23	1.64	54	20.08	11	12266	11988	901	23	7	11	10	27	55
FXJ38	Kazakh	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	18	1.6	59	23.05	11	14794	13384	1969	86	8	13	16	38	80
FXJ40	Kazakh	Urban	Male	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	24	1.72	68	22.99	11	39679	30401	5894	645	12	16	25	50	114
FXJ45	Kazakh	Urban	Male	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	20	1.8	80	24.69	11	14040	12756	1316	62	10	16	21	45	79
FXJ47	Kazakh	Urban	Male	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	21	1.82	65	19.62	12	13174	11763	2685	151	10	16	18	42	96

FXM23	Mongol	Rural	Female	Bordered White Banner, Xilinguole, Inner Mongolia Autonomous Region	30	1.63	50	18.82	6	17719	13628	4765	381	11	17	23	48	116
FXM26	Mongol	Rural	Female	Bordered White Banner, Xilinguole, Inner Mongolia Autonomous Region	29	1.63	55	20.7	6	21512	16903	5584	621	10	18	24	48	117
FXM27	Mongol	Rural	Female	Bordered White Banner, Xilinguole, Inner Mongolia Autonomous Region	30	1.68	52	18.42	13	12606	10615	2733	224	8	13	14	39	83
FXM28	Mongol	Rural	Female	Bordered White Banner, Xilinguole, Inner Mongolia Autonomous Region	26	1.63	54	20.32	13	10209	8294	2353	155	9	16	16	39	86
FXM22	Mongol	Rural	Male	Bordered White Banner, Xilinguole, Inner Mongolia Autonomous Region	33	1.8	80	24.69	6	13116	10560	3728	266	10	18	21	44	109
FXM24	Mongol	Rural	Male	Bordered White Banner, Xilinguole, Inner Mongolia Autonomous Region	32	1.8	75	23.15	6	31837	26544	5671	453	12	17	24	50	113
FXM25	Mongol	Rural	Male	Bordered White Banner, Xilinguole, Inner Mongolia Autonomous Region	30	1.7	60	20.76	6	22298	17458	5270	527	13	18	23	50	116
FXM29	Mongol	Rural	Male	Bordered White Banner, Xilinguole, Inner Mongolia Autonomous Region	28	1.74	76	25.1	13	8360	6348	3064	298	9	16	19	40	94
FXM12	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	32	1.6	49	19.14	5	38075	33880	4605	367	10	19	24	48	112
FXM13	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	30	1.68	54	19.13	5	42016	40474	2290	53	10	14	14	32	71
FXM14	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	32	1.65	65	23.88	5	16858	13119	4262	405	9	14	19	44	107
FXM16	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	24	1.6	64	25	5	15378	12134	4207	332	11	16	20	45	107
FXM18	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	34	1.68	65	23.03	6	9285	7394	2873	226	9	16	19	38	91
FXM2	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	32	1.6	50	19.53	5	21686	17385	3829	401	10	16	20	47	112
FXM20	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	29	1.6	50	19.53	6	10666	8400	3327	244	9	17	21	46	109
FXM21	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	24	1.7	63	21.8	6	13169	10157	3434	236	8	14	18	38	98
FXM4	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	31	1.58	50	20.03	5	9575	7749	3037	220	10	15	20	43	103
FXM6	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	28	1.6	65	25.39	5	8506	7384	1677	68	10	13	16	38	77
FXM8	Mongol	Rural	Female	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	35	1.7	70	24.22	5	35281	30553	4047	286	10	16	22	46	95
FXM1	Mongol	Rural	Male	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	32	1.76	66	21.31	4	15818	14592	1700	121	8	13	14	35	79
FXM11	Mongol	Rural	Male	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	35	1.75	70	22.86	5	24573	22454	3173	188	9	16	19	40	93
FXM15	Mongol	Rural	Male	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	26	1.77	65	20.75	5	11268	8802	3367	202	12	18	21	43	96
FXM17	Mongol	Rural	Male	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	34	1.7	70	24.22	6	16952	13412	4833	499	11	16	22	41	104
FXM19	Mongol	Rural	Male	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	29	1.78	75	23.67	6	10939	8776	3148	212	9	14	18	42	98
FXM3	Mongol	Rural	Male	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	29	1.68	66	23.38	5	11537	10375	2286	111	8	13	13	37	81
FXM5	Mongol	Rural	Male	Bordered Yellow Banner, Xilinguole, Inner Mongolia Autonomous Region	33	1.8	80	24.69	5	10348	9195	2016	93	9	14	18	37	75
FHS10	Mongol	Urban	Female	Saihan District, Hohhot, Inner Mongolia Autonomous Region	19	1.58	60	24.03	2	12255	10874	1606	42	8	14	17	37	74
FHS16	Mongol	Urban	Female	Saihan District, Hohhot, Inner Mongolia Autonomous Region	22	1.58	49	19.63	4	11545	10680	1249	29	8	14	16	32	70
FHS17	Mongol	Urban	Female	Saihan District, Hohhot, Inner Mongolia Autonomous Region	21	1.63	52	19.57	4	8924	7666	1363	37	8	16	17	32	72
FHS22	Mongol	Urban	Female	Saihan District, Hohhot, Inner Mongolia Autonomous Region	31	1.6	60	23.44	4	13359	12185	1539	35	9	15	17	36	76
FHS3	Mongol	Urban	Female	Saihan District, Hohhot, Inner Mongolia Autonomous Region	27	1.65	52	19.1	1	15411	13559	2182	104	9	15	15	37	77
FHS5	Mongol	Urban	Female	Saihan District, Hohhot, Inner Mongolia Autonomous Region	32	1.62	54	20.58	1	12247	10988	1690	43	9	16	20	37	67
FHS6	Mongol	Urban	Female	Saihan District, Hohhot, Inner Mongolia Autonomous Region	34	1.63	52.5	19.76	2	11301	10294	1813	144	8	13	15	31	68
FHS7	Mongol	Urban	Female	Saihan District, Hohhot, Inner Mongolia Autonomous Region	21	1.57	46	18.66	2	9911	8822	1274	50	6	14	16	33	67
FHS8	Mongol	Urban	Female	Saihan District, Hohhot, Inner Mongolia Autonomous Region	21	1.56	47	19.31	2	23367	22507	1703	53	8	13	13	30	53
FHS9	Mongol	Urban	Female	Saihan District, Hohhot, Inner Mongolia Autonomous Region	20	1.63	55	20.7	2	14396	13463	743	12	10	14	16	31	59
FHS1	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	32	1.67	69	24.74	1	11914	9617	1349	21	9	15	17	35	66
FHS11	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	32	1.69	72	25.21	3	9774	9047	1209	39	7	14	14	30	64
FHS12	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	21	1.72	63	21.3	3	16907	15499	1743	30	7	12	15	33	56
FHS13	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	21	1.7	60	20.76	3	9792	8973	1124	13	7	14	15	33	56
FHS14	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	22	1.68	60	21.26	3	8258	7831	754	19	9	15	15	33	55
FHS15	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	33	1.78	80	25.25	3	10962	9244	1062	64	9	18	17	39	77
FHS18	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	34	1.68	65	23.03	4	18687	16995	2049	41	8	15	15	33	60
FHS19	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	20	1.69	57	19.96	4	27315	25835	1632	27	10	17	22	41	81
FHS2	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	30	1.75	77	25.14	1	9931	9161	1224	12	8	14	17	32	64
FHS20	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	32	1.7	72	24.91	4	11986	10724	1745	58	10	15	19	34	69
FHS21	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	30	1.7	70	24.22	4	8715	8047	1190	35	6	11	12	29	54
FHS4	Mongol	Urban	Male	Saihan District, Hohhot, Inner Mongolia Autonomous Region	35	1.7	72.5	25.09	1	19198	17202	2167	93	6	12	13	29	70
FXZ11	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	23	1.55	50	20.81	2	14108	13340	1309	131	6	12	15	35	68
FXZ12	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	20	1.55	50	20.81	2	15433	14644	1725	219	8	14	16	31	74
FXZ13	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	20	1.58	52	20.83	2	19753	17550	3179	315	7	17	20	45	90
FXZ14	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	27	1.55	50	20.81	2	13892	12172	689	109	7	12	17	31	47
FXZ15	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	27	1.55	50	20.81	2	9451	8359	1970	151	8	13	16	41	76

FXZ16	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	24	1.55	50	20.81	3	9042	8017	2110	185	8	15	16	33	66
FXZ17	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	20	1.53	50	21.36	3	14297	13165	788	55	4	7	6	18	30
FXZ18	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	19	1.58	53	21.23	3	21876	19477	2530	242	8	13	16	40	85
FXZ19	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	25	1.5	50	22.22	3	10462	9461	625	70	5	11	9	19	32
FXZ33	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	25	1.6	58	22.66	5	21077	19577	2764	196	6	14	18	37	79
FXZ34	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	25	1.61	55	21.22	6	15529	14528	1660	149	8	14	20	36	79
FXZ5	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	28	1.58	58	23.23	1	20812	18885	1903	132	6	12	15	33	71
FXZ9	Tibetan	Rural	Female	Nagqu County, Nagqu, Tibetan Autonomous Region	22	1.6	55	21.48	1	10220	8544	1659	102	7	15	15	35	75
FXZ1	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	28	1.58	62	24.84	1	16573	14755	1840	78	6	12	15	38	73
FXZ10	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	23	1.72	70	23.66	1	11383	11030	799	15	4	9	10	21	37
FXZ21	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	23	1.65	65	23.88	3	16430	15286	2377	284	9	11	19	41	76
FXZ22	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	23	1.63	65	24.46	4	11938	11156	1580	61	5	12	11	29	64
FXZ23	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	23	1.8	70	21.6	4	14877	13737	1979	175	6	10	15	33	67
FXZ24	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	24	1.78	70	22.09	4	32002	29028	2888	214	7	15	14	36	70
FXZ25	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	24	1.78	73	23.04	4	25014	23773	2055	79	7	12	14	33	77
FXZ26	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	29	1.72	70	23.66	4	13976	12481	1800	142	7	15	14	30	70
FXZ27	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	26	1.65	70	25.71	5	11316	10373	2023	203	7	15	16	33	73
FXZ3	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	24	1.72	65	21.97	1	7688	7105	1036	48	6	9	11	24	49
FXZ30	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	22	1.73	65	21.72	5	15942	14816	1361	93	5	10	12	27	62
FXZ31	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	23	1.72	65	21.97	5	13845	12066	2393	89	7	11	12	32	72
FXZ32	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	23	1.75	71	23.18	5	14332	13682	1153	35	6	12	12	26	45
FXZ35	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	28	1.65	65	23.88	6	10204	9546	920	32	6	13	12	27	49
FXZ36	Tibetan	Rural	Male	Nagqu County, Nagqu, Tibetan Autonomous Region	20	1.68	58	20.55	6	11308	10550	959	55	4	10	9	24	44
FXZ37	Tibetan	Urban	Female	Chengguan District, Lhasa, Tibetan Autonomous Region	35	1.62	58	22.1	6	75083	64200	6376	507	7	14	20	49	112
FXZ44	Tibetan	Urban	Female	Chengguan District, Lhasa, Tibetan Autonomous Region	30	1.65	56	20.57	6	17338	15930	2534	320	10	16	18	43	92
FXZ45	Tibetan	Urban	Female	Chengguan District, Lhasa, Tibetan Autonomous Region	29	1.66	62	22.5	6	12771	11980	1015	27	6	11	9	25	48
FXZ47	Tibetan	Urban	Female	Chengguan District, Lhasa, Tibetan Autonomous Region	26	1.6	49	19.14	6	13798	11878	2354	284	10	14	16	34	75
FXZ48	Tibetan	Urban	Female	Chengguan District, Lhasa, Tibetan Autonomous Region	22	1.6	56	21.88	13	19779	17658	2557	174	7	13	15	37	78
FXZ49	Tibetan	Urban	Female	Chengguan District, Lhasa, Tibetan Autonomous Region	22	1.61	55	21.22	13	16623	14422	2324	122	7	12	14	34	65
FXZ50	Tibetan	Urban	Female	Chengguan District, Lhasa, Tibetan Autonomous Region	24	1.61	50	19.29	13	12673	11394	1710	58	8	12	12	26	51
FXZ52	Tibetan	Urban	Female	Chengguan District, Lhasa, Tibetan Autonomous Region	23	1.65	53	19.47	13	13916	12903	1257	56	6	13	16	29	61
FXZ40	Tibetan	Urban	Male	Chengguan District, Lhasa, Tibetan Autonomous Region	21	1.7	65	22.49	6	12167	11000	1966	71	7	14	16	32	74
FXZ41	Tibetan	Urban	Male	Chengguan District, Lhasa, Tibetan Autonomous Region	22	1.72	65	21.97	6	11518	10348	2008	77	6	13	15	35	66
FXZ46	Tibetan	Urban	Male	Chengguan District, Lhasa, Tibetan Autonomous Region	24	1.75	72	23.51	6	13363	12533	1883	149	8	10	12	25	54
FXZ51	Tibetan	Urban	Male	Chengguan District, Lhasa, Tibetan Autonomous Region	25	1.72	60	20.28	13	17134	15490	2078	92	7	13	14	35	73
FXZ53	Tibetan	Urban	Male	Chengguan District, Lhasa, Tibetan Autonomous Region	26	1.6	50	19.53	13	14439	13496	913	183	6	13	20	40	76
FXZ54	Tibetan	Urban	Male	Chengguan District, Lhasa, Tibetan Autonomous Region	21	1.59	48	18.99	13	24633	22518	2575	113	9	14	18	37	76
FXZ56	Tibetan	Urban	Male	Chengguan District, Lhasa, Tibetan Autonomous Region	35	1.65	55	20.2	13	14653	13622	1688	149	7	12	11	29	54
FXJ13	Uyghur	Rural	Female	Altay County, Altay, Xinjiang Uygur Autonomous Region	22	1.62	54	20.58	8	14838	13132	2629	80	11	17	20	46	97
FXJ14	Uyghur	Rural	Female	Altay County, Altay, Xinjiang Uygur Autonomous Region	20	1.68	58	20.55	8	12208	11100	1716	93	10	15	18	39	84
FXJ19	Uyghur	Rural	Female	Altay County, Altay, Xinjiang Uygur Autonomous Region	22	1.6	48	18.75	9	8500	7547	1551	93	9	16	17	34	75
FXJ20	Uyghur	Rural	Female	Altay County, Altay, Xinjiang Uygur Autonomous Region	22	1.67	58	20.8	9	14974	13277	2570	152	10	16	22	44	97
FXJ21	Uyghur	Rural	Female	Altay County, Altay, Xinjiang Uygur Autonomous Region	22	1.65	67	24.61	9	9959	8933	1919	190	7	13	16	33	78
FXJ10	Uyghur	Rural	Male	Altay County, Altay, Xinjiang Uygur Autonomous Region	22	1.8	70	21.6	8	11042	9432	2071	60	9	15	17	40	94
FXJ3	Uyghur	Rural	Male	Altay County, Altay, Xinjiang Uygur Autonomous Region	23	1.7	68	23.53	7	17312	15479	2500	140	8	15	17	43	93
FXJ4	Uyghur	Rural	Male	Altay County, Altay, Xinjiang Uygur Autonomous Region	21	1.75	58	18.94	7	8677	7743	1496	60	7	13	14	35	70
FXJ7	Uyghur	Rural	Male	Altay County, Altay, Xinjiang Uygur Autonomous Region	23	1.75	60	19.59	7	12964	9806	1613	58	10	16	19	36	83
FXJ5	Uyghur	Urban	Male	Shuimogou District, Urumqi, Xinjiang Uygur Autonomous Region	23	1.75	68	22.2	7	18080	15195	2660	116	10	16	19	41	90
FXJ52	Uyghur	Urban	Male	Shuimogou District, Urumqi, Xinjiang Uygur Autonomous Region	26	1.76	65	20.98	12	15092	12586	3151	137	9	14	19	41	99
FXJ16	Uyghur	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	20	1.62	52	19.81	8	15997	14113	2066	165	9	13	16	37	89
FXJ17	Uyghur	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	22	1.6	57	22.27	8	23013	20186	3878	205	12	17	22	46	112
FXJ18	Uyghur	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	21	1.63	54	20.32	9	22075	18930	3997	238	12	16	21	48	112
FXJ23	Uyghur	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	22	1.55	53	22.06	9	12750	9337	2535	229	10	16	20	45	104

FXJ24	Uyghur	Urban	Female	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	20	1.58	52	20.83	9	18105	15926	2587	104	10	15	19	43	88
FXJ11	Uyghur	Urban	Male	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	24	1.71	72	24.62	8	12228	8886	1301	36	9	13	18	35	73
FXJ2	Uyghur	Urban	Male	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	23	1.8	67	20.68	7	5992	4928	1278	53	7	12	16	32	59
FXJ6	Uyghur	Urban	Male	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	22	1.72	63	21.3	7	21801	18440	2551	99	12	17	18	37	85
FXJ8	Uyghur	Urban	Male	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	25	1.71	60	20.52	7	33773	29451	4873	281	11	19	24	54	128
FXJ9	Uyghur	Urban	Male	Tianshan District, Urumqi, Xinjiang Uygur Autonomous Region	26	1.69	59	20.66	8	20817	17617	3280	129	11	16	24	47	111
FGX19	Zhuang	Rural	Female	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	30	1.6	60	23.44	9	17005	14651	2817	159	9	14	15	36	80
FGX22	Zhuang	Rural	Female	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	28	1.58	50	20.03	10	16428	14351	2297	74	8	14	13	31	65
FGX23	Zhuang	Rural	Female	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	25	1.6	54	21.09	10	44324	34879	3324	238	6	13	19	41	88
FGX24	Zhuang	Rural	Female	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	30	1.55	45	18.73	10	19004	15645	1678	101	7	12	17	38	73
FGX25	Zhuang	Rural	Female	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	30	1.58	47	18.83	10	12108	10105	733	96	6	10	9	21	41
FGX31	Zhuang	Rural	Female	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	28	1.56	47	19.31	11	18471	16449	2698	150	9	15	16	43	88
FGX33	Zhuang	Rural	Female	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	27	1.6	49	19.14	11	21504	18469	3300	188	11	14	23	50	105
FGX38	Zhuang	Rural	Female	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	31	1.56	51	20.96	12	16965	14177	2555	167	9	15	18	35	88
FGX41	Zhuang	Rural	Female	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	30	1.55	45	18.73	12	13034	11547	2196	90	8	10	16	32	69
FGX42	Zhuang	Rural	Female	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	27	1.56	47	19.31	12	13193	11619	1975	61	9	14	15	35	65
FGX26	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	30	1.6	53	20.7	10	80667	70468	6067	559	10	16	20	50	110
FGX27	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	30	1.6	55	21.48	10	17179	14777	1914	117	7	13	15	37	85
FGX28	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	32	1.58	47	18.83	10	11902	10590	1678	123	7	14	14	33	75
FGX29	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	30	1.6	55	21.48	11	24532	22292	1674	58	9	12	16	28	64
FGX30	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	25	1.6	53	20.7	11	12428	10889	1798	72	6	13	13	33	77
FGX32	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	28	1.7	60	20.76	11	15013	13959	1536	94	7	13	12	30	72
FGX34	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	34	1.7	65	22.49	11	12162	10963	1248	33	6	12	15	30	61
FGX35	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	27	1.68	55	19.49	11	11308	9404	2384	138	10	14	20	40	87
FGX37	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	30	1.68	70	24.8	12	6204	4561	1063	44	10	14	16	29	61
FGX40	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	35	1.65	65	23.88	12	10185	9078	1247	47	6	11	11	26	52
FGX43	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	25	1.68	60	21.26	12	13725	12493	2064	85	8	14	14	35	65
FGX44	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	33	1.68	70	24.8	13	18344	16539	2457	119	10	17	17	38	74
FGX45	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	28	1.65	55	20.2	13	13329	11801	1598	98	9	15	19	39	75
FGX46	Zhuang	Rural	Male	Lingyun County, Baise, Guangxi Zhuang Autonomous Region	28	1.6	55	21.48	13	17795	15754	830	47	8	14	19	32	63
FGX13	Zhuang	Urban	Female	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	25	1.6	47.5	18.55	8	34645	26170	2437	421	10	15	19	45	98
FGX3	Zhuang	Urban	Female	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	30	1.56	48	19.72	7	12480	11465	2164	80	10	16	16	33	72
FGX36	Zhuang	Urban	Female	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	30	1.5	42	18.67	12	8565	7327	1149	64	8	13	16	31	49
FGX39	Zhuang	Urban	Female	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	25	1.6	50	19.53	12	9399	8159	1440	61	8	13	16	34	63
FGX9	Zhuang	Urban	Female	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	27	1.62	52	19.81	8	10685	9699	1895	74	10	16	15	33	70
FGX10	Zhuang	Urban	Male	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	26	1.78	68	21.46	8	18895	16746	2796	268	10	16	17	37	81
FGX11	Zhuang	Urban	Male	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	31	1.71	59	20.18	8	11632	11126	1200	39	6	12	13	27	50
FGX12	Zhuang	Urban	Male	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	32	1.69	59	20.66	8	10402	8815	1807	112	8	14	13	32	68
FGX2	Zhuang	Urban	Male	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	28	1.72	56	18.93	7	13067	12205	924	47	11	15	13	30	61
FGX4	Zhuang	Urban	Male	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	29	1.66	62	22.5	7	20296	17264	1488	92	9	13	17	35	69
FGX5	Zhuang	Urban	Male	Xingning District, Nanning, Guangxi Zhuang Autonomous Region	32	1.64	59	21.94	7	23043	20147	3050	188	7	13	16	32	68
FGX1	Zhuang	Urban	Female	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	25	1.59	48	18.99	7	11896	10656	2023	130	7	11	17	36	74
FGX15	Zhuang	Urban	Female	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	25	1.6	52	20.31	9	9625	8531	1308	35	9	15	17	31	63
FGX17	Zhuang	Urban	Female	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	25	1.56	46	18.9	9	13199	11685	2189	179	7	14	14	36	82
FGX20	Zhuang	Urban	Female	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	26	1.55	45	18.73	9	9258	7247	1158	36	9	14	13	34	61
FGX6	Zhuang	Urban	Female	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	24	1.6	50	19.53	7	13208	10914	1009	89	6	12	11	24	53
FGX7	Zhuang	Urban	Female	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	28	1.6	51	19.92	7	7423	6243	1592	82	8	14	16	36	70
FGX8	Zhuang	Urban	Female	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	25	1.58	47	18.83	8	13287	11780	1392	77	7	13	14	32	61
FGX14	Zhuang	Urban	Male	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	27	1.65	67	24.61	8	15312	13809	2022	94	8	14	15	36	86
FGX16	Zhuang	Urban	Male	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	30	1.73	65	21.72	9	14719	14120	956	28	10	14	16	33	71
FGX18	Zhuang	Urban	Male	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	28	1.6	62	24.22	9	12073	10425	1649	43	10	15	19	38	83
FGX21	Zhuang	Urban	Male	Xixiangtang District, Nanning, Guangxi Zhuang Autonomous Region	32	1.63	61	22.96	9	9765	7179	1184	23	7	13	15	29	59

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Supplementary Table S3 Abundant genera identified in this study.

Genus	Proportion in total used sequences (%)	Prevalence (*n*/%)	Median (%)	Range (%)
Phascolarctobacterium	13.16	314/100.0%	9.30	0.007-70.39
Roseburia	6.70	314/100.0%	5.29	0.017-34.56
Prevotella	6.00	305/97.1%	0.98	0-55.91
Bacteroides	5.54	314/100.0%	3.09	0.017-55.08
Blautia	4.78	314/100.0%	3.89	0.124-25.81
Megamonas	4.74	290/92.4%	0.18	0-57.01
Faecalibacterium	4.63	314/100.0%	3.31	0.010-22.36
Clostridium	4.58	314/100.0%	4.02	0.159-17.68
Subdoligranulum	3.42	314/100.0%	2.80	0.023-21.47
Ruminococcus	2.78	314/100.0%	1.99	0.019-21.57
Klebsiella	2.18	305/97.1%	0.47	0-41.33
Methanobrevibacter	2.09	259/82.5%	0.06	0-39.10
Coprococcus	2.04	314/100.0%	1.44	0.010-18.11
Dorea	1.92	312/99.4%	1.44	0-10.09
Bifidobacterium	1.89	289/92.0%	0.50	0-31.00
Megasphaera	1.03	295/94.0%	0.06	0-64.18

Only the genera with more than 1% of total sequences are listed.

Supplementary Table S4 The genus-level phylotypes showing significant differences among ethnic groups.

Genus	Median, range (%)							*P* values for the Kruskal-Wallis test	FDR
	Han	Bai	Zhuang	Kazakh	Uyghur	Mongol	Tibetan		
Phascolarctobacterium	4.167, 0.028-59.514	9.289, 0.179-53.206	15.790, 0.030-45.479	14.599, 0.293-70.388	5.137, 0.905-42.394	13.558, 0.120-64.909	5.623, 0.007-43.308	2.62E-05	0.0002
Prevotella	0.331, 0-30.118	2.012, 0.039-42.544	0.884, 0-51.703	0.143, 0.013-4.414	0.714, 0.044-17.648	0.480, 0-24.147	9.315, 0.008-55.915	3.88E-08	5.39E-07
Bacteroides	2.216, 0.017-29.688	2.387, 0.032-32.905	2.571, 0.083-40.821	4.351, 0.059-22.344	5.164, 0.940-16.549	9.215, 1.902-55.075	1.676, 0.022-39.640	4.65E-12	2.04E-10
Blautia	5.667, 0.124-25.810	3.698, 0.366-15.806	4.627, 0.127-16.956	2.583, 0.460-11.014	2.539, 1.012-9.325	3.736, 0.971-8.081	2.717, 0.523-15.744	8.23E-06	7.76E-05
Megamonas	0.355, 0-53.841	0.697, 0.028-57.009	0.093, 0-55.118	0.200, 0.034-36.760	0.187, 0.033-2.870	0.313, 0-49.860	0.021, 0-12.243	4.69E-07	5.90E-06
Clostridium	4.768, 0.188-17.675	3.706, 0.756-10.426	4.107, 0.159-11.427	2.836, 0.277-16.154	3.736, 1.227-9.315	4.245, 1.586-14.528	2.981, 0.445-17.030	0.0036	0.0214
Ruminococcus	2.458, 0.064-21.567	1.664, 0.149-10.166	2.878, 0.019-14.722	1.260, 0.046-6.951	1.632, 0.567-3.494	1.862, 0.186-6.603	2.352, 0.118-16.485	0.0085	0.0460
Klebsiella	0.692, 0-33.965	0.227, 0.010-27.626	0.544, 0.018-10.845	0.736, 0.017-33.181	0.836, 0.094-41.330	0.892, 0.004-18.971	0.024, 0-3.602	2.14E-11	8.07E-10
Methanobrevibacter	0.032, 0-14.588	0.094, 0-4.438	0.019, 0-39.092	0.900, 0.115-39.104	0.328, 0.027-24.187	0.321, 0-22.376	0.009, 0-35.333	9.18E-09	1.51E-07
Coprococcus	1.829, 0.010-9.251	1.488, 0.151-5.229	1.656, 0.055-18.111	0.964, 0.099-4.110	1.441, 0.544-5.767	1.308, 0.303-4.012	1.378, 0.011-10.627	0.0065	0.0367
Dorea	2.527, 0.033-7.512	1.504, 0.054-5.489	1.541, 0-10.087	0.983, 0.092-3.148	1.483, 0.316-5.147	1.071, 0.075-2.887	0.818, 0-4.059	4.33E-06	4.62E-05
Bifidobacterium	0.409, 0-19.981	0.107, 0-10.564	0.058, 0-8.264	2.431, 0.063-28.788	1.648, 0.237-14.235	2.080, 0.099-30.998	0.296, 0-18.873	6.59E-17	8.70E-15
Megasphaera	0.046, 0-40.607	0.097, 0-5.100	0.040, 0-0.208	0.086, 0-5.619	0.265, 0-34.423	0.109, 0-6.391	0.031, 0-64.180	0.0009	0.0062
Collinsella	0.393, 0-5.299	0.151, 0-8.935	0.280, 0-5.502	0.701, 0.030-2.999	1.524, 0.019-6.337	0.732, 0-2.970	0.410, 0-6.620	5.24E-05	0.0004
Anaerostipes	0.748, 0.023-3.690	0.460, 0.066-1.831	0.478, 0.032-5.479	0.334, 0.025-3.216	0.488, 0.079-1.956	0.695, 0-1.661	0.257, 0-1.916	4.38E-06	4.62E-05
Enterobacter	0.184, 0-28.555	0.086, 0-3.134	0.168, 0-6.005	0.208, 0.008-9.193	0.273, 0.013-3.119	0.280, 0-1.916	0.006, 0-0.580	3.65E-13	1.93E-11
Parasutterella	0.036, 0-13.236	0.017, 0-3.752	0, 0-2.977	0.051, 0.007-5.877	0.065, 0-0.869	0.392, 0-3.199	0, 0-7.984	6.18E-15	5.44E-13
Methanosphaera	0, 0-9.210	0.018, 0-13.399	0, 0-17.723	0.187, 0.007-4.632	0.328, 0-10.021	0.069, 0-5.631	0, 0-4.726	3.05E-18	8.04E-16
Akkermansia	0.009, 0-11.372	0.013, 0-0.727	0.005, 0-7.456	0.104, 0.008-1.767	0.046, 0-0.559	0.133, 0-7.377	0.007, 0-40.705	1.11E-09	2.65E-08
Streptococcus	0.151, 0.007-2.228	0.084, 0-2.247	0.199, 0.018-7.815	0.098, 0.008-9.311	0.169, 0.013-8.822	0.175, 0-1.685	0.057, 0-5.458	0.0012	0.0077
Veillonella	0.127, 0-2.254	0.214, 0.009-3.226	0.284, 0.009-7.783	0.234, 0.030-0.750	0.328, 0.025-0.839	0.272, 0.008-0.810	0.153, 0.008-1.050	0.0028	0.0175
Kluyvera	0.052, 0-13.616	0.009, 0-2.199	0.031, 0-2.157	0.051, 0.013-1.210	0.115, 0-3.373	0.085, 0-2.045	0, 0-0.307	6.00E-11	1.98E-09
Shigella	0.157, 0-2.289	0.065, 0-1.709	0.093, 0-1.229	0.118, 0-1.029	0.145, 0.013-4.306	0.209, 0-1.111	0.027, 0-0.381	1.02E-07	1.35E-06
Acidaminococcus	0.006, 0-9.978	0.014, 0-13.200	0.007, 0-6.330	0.008, 0-5.265	0.011, 0-5.329	0.012, 0-0.613	0, 0-0.101	7.09E-06	6.93E-05
Sporobacterium	0.211, 0.005-1.230	0.158, 0.009-1.098	0.192, 0-1.521	0.097, 0.007-0.356	0.133, 0.050-0.498	0.161, 0-0.338	0.105, 0-0.885	6.53E-05	0.0005
Butyricicoccus	0.159, 0-2.294	0.150, 0-0.621	0.216, 0-1.112	0.074, 0-0.862	0.103, 0.022-0.246	0.123, 0.014-0.628	0.047, 0-0.382	5.86E-09	1.10E-07
Hespellia	0.155, 0-1.341	0.100, 0-1.253	0.116, 0.012-2.872	0.083, 0-0.313	0.092, 0.023-0.418	0.148, 0.008-0.353	0.076, 0-0.414	0.0082	0.0451
Lactobacillus	0.008, 0-13.712	0.010, 0-0.494	0, 0-1.204	0.056, 0-2.842	0.054, 0-2.935	0.025, 0-0.848	0.035, 0-1.488	7.49E-09	1.32E-07
Oscillibacter	0.027, 0-1.836	0.047, 0-0.267	0.098, 0-0.755	0.092, 0-0.546	0.096, 0-0.890	0.095, 0-1.143	0.194, 0-3.027	1.46E-08	2.26E-07

Robinsoniella	0.035, 0-2.051	0.100, 0-1.621	0.030, 0-3.549	0.017, 0-0.440	0.029, 0-0.535	0.082, 0-1.246	0.022, 0-0.406	6.49E-07	7.78E-06
Mitsuokella	0, 0-0.810	0, 0-2.834	0, 0-0.220	0.003, 0-11.510	0.033, 0-11.853	0, 0-0.132	0, 0-10.968	1.24E-05	0.0001
Cedecea	0.020, 0-4.244	0.010, 0-0.335	0.044, 0-1.947	0.020, 0-0.454	0.038, 0-0.373	0.024, 0-0.655	0, 0-0.124	3.83E-08	5.39E-07
Propionispora	0.011, 0-18.989	0.017, 0-0.227	0.021, 0-1.276	0.040, 0-0.163	0.023, 0-0.100	0.033, 0-11.591	0.011, 0-0.085	0.0016	0.0099
Enterococcus	0.007, 0-4.374	0, 0-0.296	0, 0-3.647	0, 0-0.033	0.010, 0-0.077	0.020, 0-8.791	0, 0-1.120	5.63E-05	0.0004
Dialister	0.005, 0-0.874	0.008, 0-0.702	0, 0-1.021	0.010, 0-8.126	0.069, 0-4.544	0.012, 0-0.172	0.009, 0-1.515	0.0003	0.0019
Sutterella	0, 0-0.837	0.018, 0-1.043	0, 0-1.684	0, 0-0.427	0.021, 0-0.737	0.012, 0-3.836	0.023, 0-1.107	7.16E-07	8.21E-06
Giesbergeria	0, 0-0.032	0, 0-0.087	0, 0-10.608	0.004, 0-0.213	0.008, 0-1.150	0.003, 0-0.517	0, 0-0.359	2.37E-10	6.26E-09
Lactonifactor	0.037, 0-2.723	0.048, 0-1.967	0.029, 0-3.354	0.017, 0-0.598	0.031, 0-0.067	0.025, 0-0.702	0.014, 0-0.325	0.0009	0.0061
Howardella	0.048, 0-0.637	0.058, 0-1.414	0.033, 0-0.575	0.018, 0-0.079	0.040, 0-0.152	0.059, 0-2.147	0.037, 0-0.286	0.0058	0.0330
Asaccharobacter	0.063, 0-0.678	0.035, 0-0.305	0.059, 0-0.422	0.056, 0-0.286	0.085, 0.008-0.962	0.068, 0-0.535	0.028, 0-0.378	8.16E-05	0.0006
Erwinia	0.062, 0-1.276	0.039, 0-0.621	0.028, 0-0.597	0.076, 0-0.458	0.075, 0-0.461	0.062, 0-0.531	0.007, 0-0.075	1.04E-10	3.06E-09
Papillibacter	0.018, 0-0.545	0.015, 0-0.181	0.025, 0-0.521	0.030, 0-0.348	0.055, 0-0.593	0.047, 0-0.386	0.125, 0-1.535	4.89E-06	4.96E-05
Moryella	0.069, 0-0.459	0.039, 0-0.218	0.013, 0-0.464	0.034, 0-0.120	0.046, 0.005-0.344	0.054, 0-0.200	0.018, 0-0.280	1.75E-05	0.0001
Desulfovibrio	0, 0-0.814	0.004, 0-0.139	0.022, 0-0.548	0.009, 0-0.379	0.091, 0-3.224	0.008, 0-0.536	0, 0-0.731	9.50E-06	8.64E-05
Methanobacterium	0, 0-1.120	0, 0-0.460	0, 0-0.912	0.038, 0-1.614	0.041, 0-2.428	0.019, 0-0.711	0, 0-0.840	1.26E-13	8.32E-12
Anaerosinus	0.012, 0-2.209	0.014, 0-0.833	0, 0-0.950	0.007, 0-0.707	0.010, 0-0.161	0.008, 0-0.126	0, 0-0.145	0.0048	0.0279
Xylanibacter	0.012, 0-0.972	0.021, 0-1.269	0.006, 0-0.653	0, 0-0.136	0.022, 0-0.136	0.012, 0-0.200	0.059, 0-0.775	0.0001	0.0007
Bilophila	0.011, 0-0.529	0.011, 0-0.236	0.028, 0-0.592	0.024, 0-0.379	0.018, 0-0.387	0.093, 0.003-0.934	0.023, 0-0.187	1.21E-09	2.65E-08
Slackia	0.003, 0-0.477	0.004, 0-0.165	0.009, 0-1.542	0.061, 0-0.332	0.169, 0-0.882	0.012, 0-0.259	0.037, 0-0.707	1.33E-09	2.69E-08

Only the genera representing more than 0.05% of the total sequences are included for comparison. Both the unadjusted *P* values ($P < 0.01$) for the Kruskal-Wallis test and the FDR values are listed.

Supplementary Table S5 The genus-level phylotypes showing significant differences between 169 rural and 145 urban individuals.

Genus	Median, range (%)		*P* values for the Kruskal-Wallis test	FDR
	Rural	Urban		
Methanobacterium	0, 0-2.428	0, 0-0.912	0.0064	0.2126
Methanobrevibacter	0.106, 0-35.333	0.041, 0-39.104	0.0086	0.2509
Methanosphaera	0.014, 0-13.399	0, 0-17.723	0.0023	0.1461
Prevotella	1.861, 0-55.915	0.231, 0-51.728	5.79E-07	0.0002
Xylanibacter	0.028, 0-0.972	0.005, 0-1.269	2.16E-05	0.0029
Megasphaera	0.084, 0-64.180	0.049, 0-7.091	0.0054	0.2048
Blautia	3.552, 0.124-19.387	4.290, 0.460-25.810	0.0030	0.1461
Anaerostipes	0.487, 0-3.690	0.669, 0-5.479	0.0005	0.0400
Butyricicoccus	0.106, 0-2.294	0.158, 0-1.170	0.0033	0.1461

Only the genera representing more than 0.05% of the total sequences are included for comparison. Both the unadjusted *P* values ($P < 0.01$) for the Kruskal-Wallis test and the FDR values are listed.

Supplementary Table S6 The genus-level phylotypes showing significant differences between 26 rural and 22 urban Mongol individuals.

Genus	Median, range (%)		*P* values for the Kruskal-Wallis test	FDR
	Rural Mongolian	Urban Mongolian		
Prevotella	1.982, 0.042-20.613	0.030, 0-24.147	3.55E-06	0.0002
Megamonas	0.660, 0.067-5.891	0.028, 0-49.860	6.41E-05	0.0017
Methanobrevibacter	2.080, 0.021-10.619	0.019, 0-22.376	5.20E-06	0.0002
Megasphaera	0.552, 0.015-1.512	0.064, 0-6.391	0.0005	0.0069
Methanosphaera	0.368, 0.003-5.631	0, 0-1.111	6.01E-08	1.33E-05
Akkermansia	0.218, 0.015-6.722	0.017, 0-7.377	0.0040	0.0421
Streptococcus	0.220, 0.029-0.593	0.065, 0-1.685	0.0035	0.0388
Veillonella	0.420, 0.048-0.810	0.191, 0.008-0.773	0.0002	0.0029
Acidaminococcus	0.091, 0-0.613	0.008, 0-0.050	0.0001	0.0024
Butyricicoccus	0.082, 0.014-0.195	0.238, 0.015-0.628	0.0002	0.0038
Lactobacillus	0.056, 0-0.848	0.006, 0-0.065	3.14E-05	0.0009
Oscillibacter	0.173, 0.007-1.143	0.046, 0-0.877	0.0010	0.0132
Mitsuokella	0.017, 0-0.132	0, 0-0.010	0.0002	0.0029
Sporomusa	0.018, 0-0.182	0, 0-0.059	0.0020	0.0239
Propionispora	0.052, 0-11.591	0.014, 0-0.140	0.0011	0.0133
Enterococcus	0.041, 0-8.791	0, 0-0.621	0.0009	0.0124
Dialister	0.040, 0-0.172	0, 0-0.064	7.89E-06	0.0003
Sutterella	0.032, 0-3.836	0, 0-1.474	0.0095	0.0928
Giesbergeria	0.022, 0-0.184	0, 0-0.517	0.0022	0.0251
Lactonifactor	0.049, 0.012-0.702	0.002, 0-0.112	1.52E-06	0.0001
Erwinia	0.155, 0-0.517	0.034, 0-0.531	0.0055	0.0560
Papillibacter	0.086, 0.007-0.386	0.011, 0-0.384	8.24E-05	0.0020
Desulfovibrio	0.031, 0-0.536	0, 0-0.441	0.0004	0.0056
Methanobacterium	0.136, 0-0.711	0, 0-0.049	1.01E-07	1.33E-05
Anaerosinus	0.026, 0-0.126	0, 0-0.036	4.84E-06	0.0002
Xylanibacter	0.060, 0-0.200	0, 0-0.171	6.97E-07	6.13E-05
Slackia	0.024, 0-0.076	0, 0-0.259	0.0001	0.0024

Only the genera representing more than 0.05% of the total sequences are included for comparison. Both the unadjusted *P* values ($P < 0.01$) for the Kruskal-Wallis test and the FDR values are listed.

Supplementary Table S7 The 30 most prevalent OTUs identified in this study.

OTU ID	Phylum	Genus	Prevalence (*n*/%)	Proportion in total used sequences (%)
OTU61903	*Actinobacteria*	*Collinsella*	288/91.7%	0.671%
OTU69950	*Firmicutes*	*Blautia*	288/91.7%	0.099%
OTU51265	*Firmicutes*	*Blautia*	302/96.2%	0.262%
OTU62767	*Firmicutes*	*Blautia*	302/96.2%	0.355%
OTU53704	*Firmicutes*	*Blautia*	304/96.8%	0.430%
OTU83797	*Firmicutes*	*Clostridium*	295/93.9%	0.401%
OTU88919	*Firmicutes*	*Clostridium*	302/96.2%	0.446%
OTU43582	*Firmicutes*	*Coprococcus*	296/94.3%	0.862%
OTU42758	*Firmicutes*	*Dorea*	283/90.1%	0.058%
OTU1142	*Firmicutes*	*Dorea*	290/92.4%	0.072%
OTU89633	*Firmicutes*	*Dorea*	302/96.2%	0.316%
OTU51442	*Firmicutes*	*Dorea*	303/96.5%	0.597%
OTU97220	*Firmicutes*	*Faecalibacterium*	288/91.7%	0.374%
OTU71777	*Firmicutes*	*Faecalibacterium*	289/92.0%	0.602%
OTU41732	*Firmicutes*	*Faecalibacterium*	297/94.6%	0.313%
OTU70817	*Firmicutes*	*Faecalibacterium*	306/97.5%	0.785%
OTU8392	*Firmicutes*	*Phascolarctobacterium*	284/90.4%	5.136%
OTU59189	*Firmicutes*	*Roseburia*	288/91.7%	0.405%
OTU64386	*Firmicutes*	*Roseburia*	294/93.6%	1.619%
OTU83535	*Firmicutes*	*Ruminococcus*	287/91.4%	0.161%
OTU69346	*Firmicutes*	*Subdoligranulum*	295/93.9%	0.477%
OTU14239	*Firmicutes*	*Subdoligranulum*	304/96.8%	0.869%
OTU33494	*Firmicutes*	Unclassified *Clostridiaceae*	293/93.3%	0.250%
OTU80072	*Firmicutes*	Unclassified *Clostridiaceae*	299/95.2%	0.378%
OTU18105	*Firmicutes*	Unclassified *Clostridiaceae*	300/95.5%	0.222%
OTU61228	*Firmicutes*	Unclassified *Clostridiaceae*	301/95.9%	0.194%
OTU554	*Firmicutes*	Unclassified *Clostridiaceae*	301/95.9%	0.522%
OTU55587	*Firmicutes*	Unclassified *Lachnospiraceae*	287/91.4%	0.203%
OTU69334	*Firmicutes*	Unclassified *Firmicutes*	287/91.4%	0.182%
OTU75613	*Proteobacteria*	*Klebsiella*	301/95.9%	1.759%

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