

Title:

Supplementary tables of "Health and disease imprinted in the time variability of the human microbiome"

Running title:

Supplementary tables of "Microbiota, are you sick?"

**Jose Manuel Martí^{1,2,*}, Daniel Martínez-Martínez^{1,2,3,*}, Teresa Rubio¹, César Gracia^{1,2},
Manuel Peña², Amparo Latorre^{1,3,4,5}, Andrés Moya^{1,3,4,5,#} & Carlos P. Garay^{1,2,#}**

¹Institute for Integrative Systems Biology (I2SysBio), 46980, Spain.

²Instituto de Física Corpuscular, CSIC-UVEG, P.O. 22085, 46071, Valencia, Spain.

³FISABIO, Avda. de Catalunya, 21, 46020, Valencia, Spain.

⁴Cavanilles Institute of Biodiversity and Evolutionary Biology, UVEG, 46980, Spain.

⁵CIBER en Epidemiología y Salud Pública (CIBEResp), Madrid, Spain

* Equally contributed

Corresponding authors: andres.moya@uv.es, penagaray@gmail.com

Supplementary Table S1. Taylor's parameters of individuals with either animal-based (A) or plant-based (P) diets (1). Previous to the diet, the population sampled was described by $\bar{V} = 0.09 \pm 0.05$, $\bar{\beta} = 0.77 \pm 0.04$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
A	0.26 ± 0.05	0.826 ± 0.025	0.918	3.1 ± 0.9	1.2 ± 0.6
A	0.32 ± 0.06	0.857 ± 0.025	0.924	4.4 ± 1.1	2.0 ± 0.6
A	0.194 ± 0.033	0.813 ± 0.024	0.918	1.9 ± 0.6	0.9 ± 0.6
A	0.24 ± 0.04	0.824 ± 0.020	0.924	2.7 ± 0.7	1.2 ± 0.5
A	0.34 ± 0.06	0.855 ± 0.024	0.931	4.7 ± 1.1	1.9 ± 0.6
A	0.30 ± 0.05	0.847 ± 0.022	0.921	3.9 ± 1.0	1.7 ± 0.5
A	0.133 ± 0.021	0.784 ± 0.023	0.916	0.7 ± 0.4	0.2 ± 0.6
A	0.25 ± 0.04	0.831 ± 0.024	0.929	3.0 ± 0.8	1.4 ± 0.6
P	0.23 ± 0.05	0.804 ± 0.035	0.885	2.6 ± 0.9	0.7 ± 0.8
P	0.097 ± 0.018	0.705 ± 0.031	0.891	0.03 ± 0.34	-1.6 ± 0.7
P	0.037 ± 0.006	0.642 ± 0.025	0.881	-1.12 ± 0.11	-3.1 ± 0.6
P	0.118 ± 0.019	0.723 ± 0.025	0.895	0.4 ± 0.4	-1.2 ± 0.6
P	0.17 ± 0.04	0.78 ± 0.04	0.842	1.5 ± 0.7	0.1 ± 0.9
P	0.123 ± 0.020	0.757 ± 0.026	0.914	0.5 ± 0.4	-0.4 ± 0.6
P	0.19 ± 0.05	0.77 ± 0.04	0.871	1.8 ± 0.9	-0.0 ± 0.9
P	0.121 ± 0.020	0.736 ± 0.027	0.921	0.5 ± 0.4	-0.9 ± 0.6
P	0.187 ± 0.034	0.771 ± 0.030	0.908	1.8 ± 0.7	-0.1 ± 0.7
P	0.097 ± 0.015	0.735 ± 0.025	0.922	0.05 ± 0.28	-0.9 ± 0.6

Supplementary Table S2. Taylor’s parameters for individuals taking antibiotics (Ab) in the antibiotics study (2), persons diagnosed with irritable bowel syndrome (IBS) in the IBS study (3) and for special intervals concerning gut microbiota (HLS) in the host lifestyle study (6). Prior to the antibiotics intake, the population sampled in the antibiotics study (2) was described by $\bar{V} = 0.12 \pm 0.05$, $\bar{\beta} = 0.75 \pm 0.04$. Healthy individuals sampled in the IBS study (3) were characterized by $\bar{V} = 0.135 \pm 0.010$, $\bar{\beta} = 0.692 \pm 0.024$. The healthy and quotidian periods in the host lifestyle study (6) are characterized by $\bar{V} = 0.25 \pm 0.09$, $\bar{\beta} = 0.777 \pm 0.025$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
Ab	0.35 ± 0.07	0.81 ± 0.04	0.925	4.3 ± 1.4	1.3 ± 0.9
Ab	0.41 ± 0.09	0.82 ± 0.04	0.908	5.6 ± 1.8	1.6 ± 0.9
Ab	0.23 ± 0.04	0.770 ± 0.031	0.920	2.1 ± 0.8	0.5 ± 0.7
Ab	0.165 ± 0.029	0.738 ± 0.031	0.928	0.9 ± 0.6	-0.3 ± 0.7
Ab	0.34 ± 0.06	0.812 ± 0.032	0.936	4.1 ± 1.2	1.5 ± 0.7
Ab	0.26 ± 0.05	0.798 ± 0.033	0.931	2.8 ± 0.9	1.1 ± 0.8
IBS (minor)	0.205 ± 0.034	0.740 ± 0.029	0.917	6.9 ± 3.3	2.0 ± 1.2
IBS (severe)	0.35 ± 0.06	0.793 ± 0.025	0.934	21 ± 6	4.2 ± 1.0
HLS (abroad)	0.51 ± 0.06	0.820 ± 0.012	0.928	2.8 ± 0.6	1.7 ± 0.5
HLS (infection)	0.49 ± 0.08	0.828 ± 0.018	0.923	2.6 ± 0.9	2.0 ± 0.7
HLS (after infection)	0.36 ± 0.05	0.776 ± 0.015	0.922	1.1 ± 0.6	-0.0 ± 0.6

Supplementary Table S3. Taylor's parameters for the healthy subject (DH) and kwashiorkor part (DK) of the discordant twins (4). The population of healthy twins is characterized by $\bar{V} = 0.25 \pm 0.10$, $\bar{\beta} = 0.863 \pm 0.028$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
DH	0.27 ± 0.04	0.835 ± 0.016	0.925	0.2 ± 0.4	-1.0 ± 0.6
DH	0.36 ± 0.06	0.858 ± 0.015	0.929	1.1 ± 0.6	-0.2 ± 0.5
DH	0.35 ± 0.06	0.859 ± 0.014	0.926	1.0 ± 0.5	-0.1 ± 0.5
DH	0.25 ± 0.04	0.829 ± 0.014	0.911	0.0 ± 0.4	-1.2 ± 0.5
DH	0.30 ± 0.05	0.844 ± 0.014	0.920	0.5 ± 0.4	-0.7 ± 0.5
DH	0.29 ± 0.05	0.850 ± 0.016	0.915	0.4 ± 0.5	-0.5 ± 0.5
DH	0.28 ± 0.05	0.848 ± 0.016	0.921	0.3 ± 0.5	-0.5 ± 0.6
DH	0.35 ± 0.07	0.861 ± 0.017	0.918	0.9 ± 0.6	-0.0 ± 0.6
DH	0.31 ± 0.04	0.833 ± 0.012	0.916	0.6 ± 0.4	-1.1 ± 0.4
DH	0.33 ± 0.05	0.843 ± 0.013	0.925	0.8 ± 0.5	-0.7 ± 0.5
DH	0.31 ± 0.05	0.852 ± 0.014	0.925	0.6 ± 0.5	-0.4 ± 0.5
DH	0.31 ± 0.05	0.853 ± 0.015	0.930	0.6 ± 0.5	-0.4 ± 0.5
DH	0.203 ± 0.033	0.815 ± 0.015	0.907	-0.44 ± 0.32	-1.7 ± 0.5
DK	0.40 ± 0.07	0.859 ± 0.017	0.926	1.5 ± 0.7	-0.1 ± 0.6
DK	0.44 ± 0.08	0.868 ± 0.016	0.919	1.8 ± 0.8	0.2 ± 0.6
DK	0.196 ± 0.031	0.819 ± 0.014	0.916	-0.50 ± 0.30	-1.5 ± 0.5
DK	0.160 ± 0.026	0.798 ± 0.015	0.904	-0.85 ± 0.25	-2.3 ± 0.5
DK	0.30 ± 0.05	0.845 ± 0.014	0.924	0.5 ± 0.4	-0.6 ± 0.5
DK	0.23 ± 0.04	0.834 ± 0.014	0.908	-0.1 ± 0.4	-1.0 ± 0.5
DK	0.27 ± 0.05	0.848 ± 0.015	0.930	0.2 ± 0.4	-0.5 ± 0.5
DK	0.35 ± 0.07	0.860 ± 0.019	0.916	1.0 ± 0.7	-0.1 ± 0.7
DK	0.34 ± 0.05	0.835 ± 0.012	0.917	0.9 ± 0.5	-1.0 ± 0.4
DK	0.25 ± 0.04	0.831 ± 0.012	0.912	0.0 ± 0.4	-1.1 ± 0.4
DK	0.36 ± 0.06	0.858 ± 0.013	0.918	1.1 ± 0.5	-0.2 ± 0.5
DK	0.31 ± 0.06	0.851 ± 0.016	0.924	0.6 ± 0.6	-0.4 ± 0.6
DK	0.149 ± 0.022	0.799 ± 0.013	0.905	-0.96 ± 0.22	-2.2 ± 0.5

Supplementary Table S4. Taylor's parameters for individuals with different degrees of over-weight and obesity (5). Healthy people in this study, who were not obese, are characterized by $\bar{V} = 0.19 \pm 0.06$, $\bar{\beta} = 0.806 \pm 0.034$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
OW	0.59 ± 0.12	0.894 ± 0.034	0.920	6.6 ± 2.0	2.6 ± 1.0
OW	0.22 ± 0.04	0.830 ± 0.030	0.904	0.5 ± 0.6	0.7 ± 0.9
OBI	0.28 ± 0.04	0.855 ± 0.022	0.958	1.5 ± 0.6	1.4 ± 0.6
OBI	0.33 ± 0.07	0.870 ± 0.031	0.916	2.4 ± 1.1	1.9 ± 0.9
OBII	0.223 ± 0.032	0.823 ± 0.023	0.938	0.6 ± 0.5	0.5 ± 0.7
OBII	0.208 ± 0.029	0.844 ± 0.022	0.935	0.4 ± 0.5	1.1 ± 0.7
OBIII	0.34 ± 0.05	0.855 ± 0.025	0.943	2.5 ± 0.9	1.4 ± 0.7
OBIII	0.26 ± 0.04	0.845 ± 0.026	0.954	1.1 ± 0.7	1.2 ± 0.8
OBIII	0.33 ± 0.06	0.870 ± 0.027	0.908	2.4 ± 1.0	1.9 ± 0.8
OBIII	0.200 ± 0.026	0.843 ± 0.020	0.949	0.2 ± 0.4	1.1 ± 0.6
OBIII	0.30 ± 0.05	0.846 ± 0.026	0.929	1.9 ± 0.8	1.2 ± 0.7
OBIII	0.176 ± 0.029	0.826 ± 0.026	0.894	-0.2 ± 0.5	0.6 ± 0.8
OBIII	0.30 ± 0.06	0.841 ± 0.031	0.896	1.8 ± 0.9	1.0 ± 0.9
OBIII	0.28 ± 0.04	0.857 ± 0.025	0.941	1.5 ± 0.7	1.5 ± 0.7
OBIII	0.122 ± 0.018	0.822 ± 0.024	0.930	-1.05 ± 0.30	0.5 ± 0.7
OBIIIId	0.47 ± 0.08	0.872 ± 0.023	0.945	4.7 ± 1.3	1.9 ± 0.7
OBIIIId	0.38 ± 0.06	0.846 ± 0.023	0.951	3.2 ± 1.0	1.2 ± 0.7
OBIIIId	0.36 ± 0.06	0.842 ± 0.022	0.954	2.9 ± 0.9	1.1 ± 0.6

Supplementary Table S5. Rank and Rank Stability Index (RSI, as discussed in Material and Methods) over different periods for the taxa listed as *rank stability islands* regarding the gut microbiome of the individual A in the host lifestyle study (6).

Period		Genera											
		<i>Actinomyces</i>		<i>Leuconostoc</i>		<i>Lachnobacterium</i>		<i>Eggerthella</i>		<i>Clostridium</i>		<i>Collinsella</i>	
name	days	rank	RSI	rank	RSI	rank	RSI	rank	RSI	rank	RSI	rank	RSI
<i>before</i>	0 to 70	46	72.5	44	76.3	45	70.2	35	73.3	28	77.2	25	84.2
<i>abroad</i>	72 to 122	56	67.1	46	66.2	77	53.3	48	53.4	36	49.9	41	63.5
<i>returned</i>	123 to 256	44	79.3	41	69.5	31	74.2	33	77.5	34	71.6	27	81.0
<i>after</i>	257 to 364	43	79.0	39	72.2	33	68.4	30	78.5	34	76.7	26	80.4
Overall		47	76.4	43	71.0	36	69.2	35	74.1	34	70.7	28	79.5

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