

Diminution of the gut resistome after a gut microbiota-targeted dietary intervention in obese children

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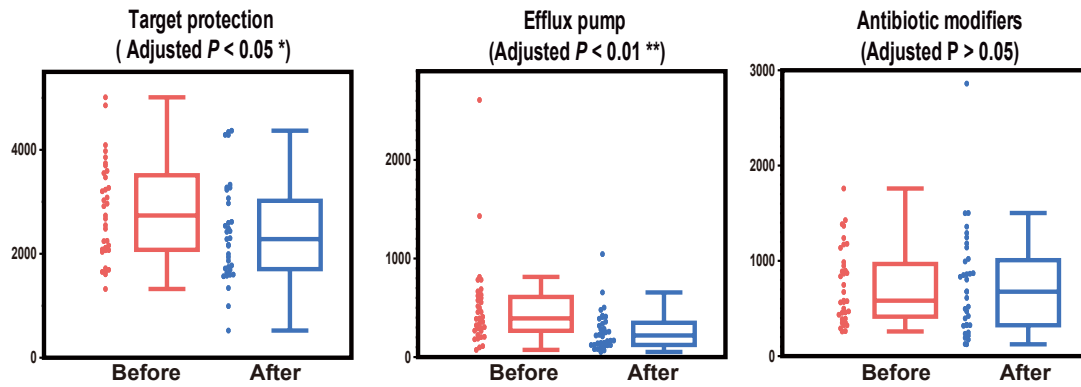
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Supplementary Figure S1 | The altered abundances of ARGs acting via

three different mechanisms. The ARGs were assigned to the three major

resistance mechanisms according to ARDB. The abundances of ARGs conferring

resistance for the same mechanism were summed. The boxes denote the

interquartile range (IQR) between the first and third quartiles (25th and 75th

percentiles, respectively), and the line inside the boxes denotes the median. The

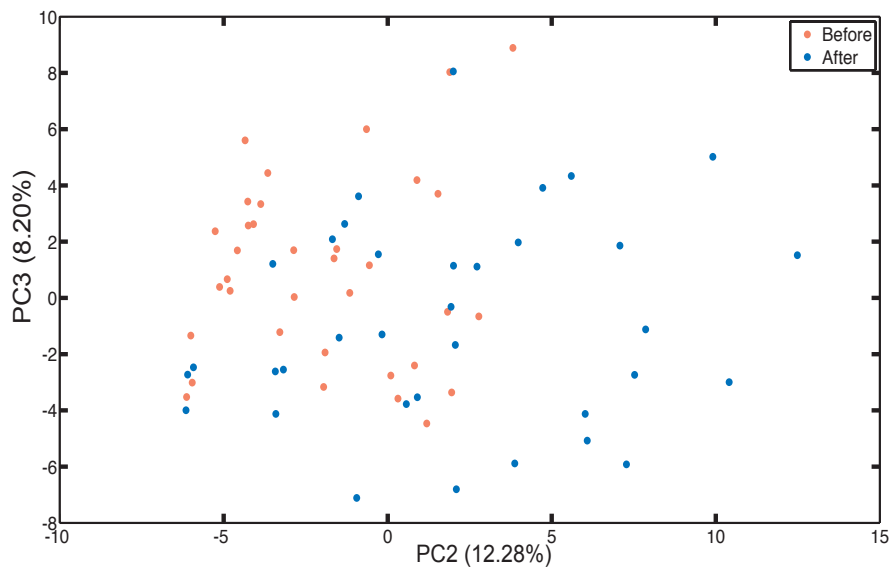
whiskers denote the lowest and highest values within 1.5 times of the IQR from

the first and third quartiles, respectively. The samples are displayed as the dot

on the left. Statistical analysis was performed with a two-tailed Wilcoxon

matched-pairs signed rank test ($n = 35$). The P-values were adjusted (Benjamini

& Hochberg 1995).



Supplementary Figure S2 | The altered profiles of ARG carriers after dietary intervention. PCA score plot based on the profile of 120 ARG carriers showing a trend for segregation between samples before and after dietary intervention (log-transformed, PERMONOVA $P = 0.0584$, permutation = 9999).

Gene ID	P-value*	Change	Gene type	Antibiotic	Antibiotic class	Mechanism
G002_103489	0.010849027	decrease	bill_ec	cephalosporin	beta_lactam	Antibiotic modifiers
G002_106249	0.022718203	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G002_110811	0.01954128	decrease	ermq	lincosamide, streptogramin_b, macrolide	lincosamides, streptogramin, macrolide	Target protection
G002_112204	0.02754178	decrease	mtf	erythromycin	macrolide	Efflux pump
G002_112205	0.011756398	decrease	mtf	erythromycin	macrolide	Efflux pump
G002_123177	0.01068977	decrease	macb	macrolide	macrolide	Efflux pump
G002_127083	0.01068977	decrease	catall	chloramphenicol	amphenicols	Antibiotic modifiers
G002_158373	0.03738599	decrease	tet40	tetracycline	tetracyclines	Efflux pump
G002_174171	0.046471785	decrease	teto	tetracycline	tetracyclines	Target protection
G002_186861	0.006405585	decrease	tetc	tetracycline	tetracyclines	Efflux pump
G002_23042	0.011117519	decrease	mtb	fostomycin	other	Efflux pump
G002_23054	0.017763681	decrease	mtg	fostomycin	other	Efflux pump
G002_27563	0.010849027	decrease	nfa	NA	NA	NA
G002_29013	0.01068977	decrease	emrd	NA	NA	Efflux pump
G002_41625	0.006405585	decrease	mtk	enoxacin, norfloxacin	quinolone, quinolone	Efflux pump
G002_45183	0.007289125	decrease	rosb	fosmidomycin	other	Efflux pump
G002_45198	0.01863889	decrease	acra	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G002_45199	0.008949203	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G002_50698	0.01068977	decrease	ama	polymyxin	polypeptides	Target protection
G002_57948	0.007289125	decrease	mtm	chloramphenicol, norfloxacin	amphenicols, quinolone	Efflux pump
G002_68989	0.006405585	decrease	tolc	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G002_73580	0.01333727	decrease	baca	bacitracin	polypeptides	Efflux pump
G002_82568	0.006405585	decrease	mtl	chloramphenicol	amphenicols	Efflux pump
G002_83077	0.01068977	decrease	hcr	NA	NA	Efflux pump
G002_89355	0.022718203	decrease	mtp	purpocycin	aminocyclitol	Efflux pump
G002_89356	0.01782169	decrease	mtt	purpocycin	aminocyclitol	Efflux pump
G002_89357	0.010849027	decrease	mtn	purpocycin	aminocyclitol	Efflux pump
G002_97267	0.013767497	decrease	ksga	kasugamycin	aminoglycosides	Target protection
G003_234422	0.027332673	decrease	aacfi	isepamicin, netilmicin, tobramycin, amikacin, sisomicin, dibekacin	aminoglycosides, aminoglycosides, aminocyclitol, aminoglycosides, aminoglycosides	Antibiotic modifiers
G003_269264	0.023840108	decrease	emrd	NA	NA	Efflux pump
G003_274003	0.039971477	decrease	tetc	tetracycline	tetracyclines	Efflux pump
G004_183056	0.047854853	decrease	vamg	vancomycin	glycopeptide	Target protection
G004_370449	0.01068977	decrease	acra	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G006_23263	0.032511559	decrease	mtm	chloramphenicol, norfloxacin	amphenicols, quinolone	Efflux pump
G006_135131	0.020962238	decrease	bl2e_cep	cephalosporin	beta_lactam	Antibiotic modifiers
G006_152065	0.047854853	decrease	teiq	tetracycline	tetracyclines	Target protection
G011_81761	0.006405585	decrease	ermg	lincosamide, streptogramin_b, macrolide	lincosamides, streptogramin, macrolide	Target protection
G012_115363	0.010849027	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G013_66594	0.048980477	decrease	mtb	fostomycin	other	Efflux pump
G013_88182	0.019889406	decrease	acra	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G015_139317	0.007107035	decrease	tetc	tetracycline	tetracyclines	Efflux pump
G015_245514	0.011117519	decrease	bill_ec	cephalosporin	beta_lactam	Antibiotic modifiers
G018_219448	0.047854853	decrease	tet32	tetracycline	tetracyclines	Target protection
G020_105167	0.022817204	decrease	rosa	fosmidomycin	other	Efflux pump
G020_121947	0.04029534	decrease	tetpb	tetracycline	tetracyclines	Target protection
G020_71487	0.038612143	decrease	baca	bacitracin	polypeptides	Efflux pump
G020_92301	0.047854853	decrease	ksga	kasugamycin	aminoglycosides	Target protection
G021_110170	0.03891539	decrease	tetpb	tetracycline	tetracyclines	Target protection
G023_145347	0.006405585	decrease	acra	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G023_145348	0.00710725	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G024_225038	0.006405585	decrease	tetc	tetracycline	tetracyclines	Efflux pump
G026_103338	0.022840108	decrease	mtg	fostomycin	other	Efflux pump
G026_138810	0.018240177	decrease	tolc	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G026_144604	0.045070807	decrease	ber	NA	NA	Efflux pump
G028_61950	0.010849027	decrease	tetc	tetracycline	tetracyclines	Efflux pump
G029_109842	0.047854853	decrease	teto	tetracycline	tetracyclines	Target protection
G031_102048	0.010849027	decrease	baca	bacitracin	polypeptides	Efflux pump
G031_147921	0.007289125	decrease	tetc	tetracycline	tetracyclines	Efflux pump
G031_154298	0.03784003	decrease	tolc	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G031_231624	0.010683375	decrease	nfa	NA	NA	NA
G031_256237	0.03784003	decrease	bl2a_otp	penicillin	NA	Antibiotic modifiers
G031_269207	0.03891539	decrease	acrb	lincosamide, streptogramin_b, macrolide	lincosamides, streptogramin, macrolide	Target protection
G032_10102	0.020969055	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G032_113960	0.049345271	decrease	mtb	fostomycin	other	Efflux pump
G032_140719	0.018997409	decrease	macb	macrolide	macrolide	Efflux pump
G032_250806	0.022718203	decrease	vamg	vancomycin	glycopeptide	Target protection
G032_26136	0.006405585	decrease	acra	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G032_84470	0.02754178	decrease	mtk	enoxacin, norfloxacin	quinolone, quinolone	Efflux pump
G032_8579	0.024011769	decrease	ama	polymyxin	polypeptides	Target protection
G036_144381	0.02852171	decrease	su12	sulfonamide	sulfonamide	Target protection
G036_225459	0.006405585	decrease	tetc	tetracycline	tetracyclines	Efflux pump
G039_140471	0.01215458	decrease	mtm	chloramphenicol, norfloxacin	amphenicols, quinolone	Efflux pump
G040_197303	0.011117519	decrease	ama	polymyxin	polypeptides	Target protection
G040_248676	0.008490279	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G041_230207	0.010683375	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G043_122542	0.006405585	decrease	mtm	chloramphenicol, norfloxacin	amphenicols, quinolone	Efflux pump
G043_91986	0.022184965	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G050_155565	0.019754128	decrease	ama	polymyxin	polypeptides	Target protection
G051_174000	0.00962987	decrease	tetc	tetracycline	tetracyclines	Efflux pump
G052_146010	0.010849027	decrease	acra	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G052_217520	0.006405585	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G052_222708	0.006405585	decrease	mtk	enoxacin, norfloxacin	quinolone, quinolone	Efflux pump
G056_156702	0.01863889	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G056_191144	0.022840108	decrease	acra	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G056_215195	0.022840108	decrease	acrb	aminoglycoside, glycyrrhizine, macrolide, beta_lactam	aminoglycosides, glycyrrhizine, macrolide, beta_lactam	Efflux pump
G059_221482	0.006405585	decrease	mtm	chloramphenicol, norfloxacin	amphenicols, quinolone	Efflux pump
G004_205799	0.002729865	increase	p6p6	penicillin	beta_lactam	Target protection
G004_112145	0.00213488	increase	p6p6	penicillin	beta_lactam	Target protection
G006_240415	0.003591982	increase	p6p6	penicillin	beta_lactam	Target protection
G017_122282	0.00214111	increase	ermx	lincosamide, streptogramin_b, macrolide	lincosamides, streptogramin, macrolide	Target protection
G024_231729	0.009789412	increase	p6p6	penicillin	beta_lactam	Target protection
G032_160233	0.00398803	increase	ter1	tetracycline	tetracyclines	Efflux pump
G035_157074	0.000151587	increase	ermx	lincosamide, streptogramin_b, macrolide	lincosamides, streptogramin, macrolide	Target protection
G039_124849	0.000488281	increase	baca	bacitracin	polypeptides	Efflux pump
G040_172907	0.005306385	increase	p6p2b	penicillin	beta_lactam	Target protection
G051_86167	0.000776411	increase	baca	bacitracin	polypeptides	Efflux pump

* P value was calculated by two-tailed Wilcoxon matched-pairs signed rank test (n=35) and adjusted by Benjamini & Hochberg 1995

Supplementary Table S1 |The information of the 96 ARGs with significant changes.