

1 **Systematic evaluation of antimicrobial food preservatives on glucose metabolism and gut microbiota in healthy mice**

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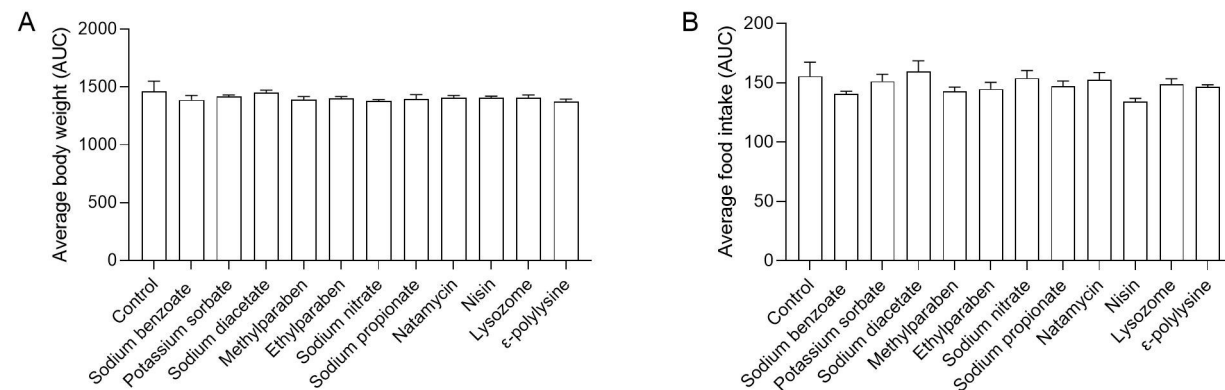
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13 **Supplementary Figures:**

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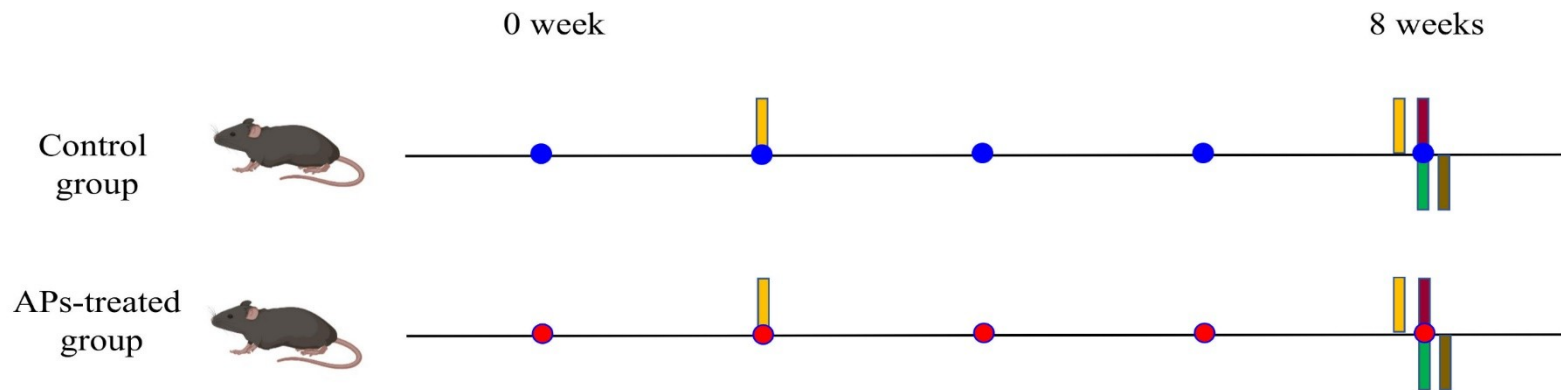
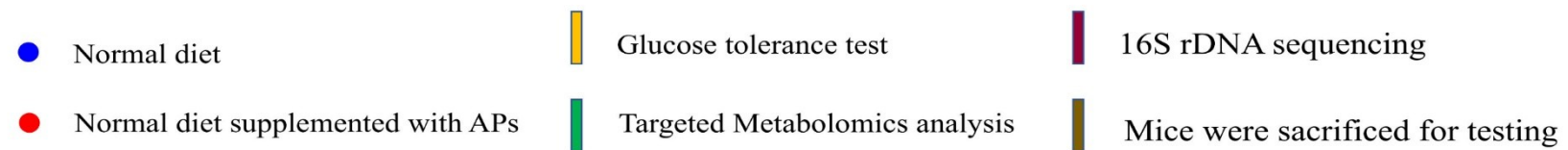


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16 Supplementary figure 1. Average food intake and average body weight of different groups. A, Area under the eight-week body weight curve. B,
17 Area under the eight-week food intake curve. The values are expressed as the means $\pm$ S.E.M., n = 9 per group.

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21 Supplementary figure 2. Experimental scheme. After 1 week of acclimation, the mice were randomized into control and APs-treated groups and
 22 treated for 8 weeks.

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24 **Supplementary Table:**

25 Supplementary table 1. List of the eleven antimicrobial preservatives used.

Antimicrobial preservative	Origin (synthetic or biogenic)	E No ¹	CAS No	Molecular Weight (g/mol)	ADI ² (mg/kg bodyweight)	Source	Purity	Calculation formula for supplementation
Sodium benzoate	synthetic	211	532-32-1	144.10	0-5	Sigma-Aldrich	99%	15 mg kg ⁻¹ day ⁻¹ * average mouse weight 0.03 kg * 56 days
Potassium sorbate	synthetic	202	24634-61-5	150.22	0-25	Sigma-Aldrich	99%	75 mg kg ⁻¹ day ⁻¹ * average mouse weight 0.03 kg * 56 days
Sodium diacetate	synthetic	262(ii)	126-96-5	142.09	0-15	Yuanye Bio, China	99%	45 mg kg ⁻¹ day ⁻¹ * average mouse weight 0.03 kg * 56 days
Methylparaben	synthetic	218	99-76-3	152.15	0-10	Sigma-Aldrich	99%	30 mg kg ⁻¹ day ⁻¹ * average

								mouse weight 0.03 kg * 56 days
								30 mg kg ⁻¹ day ⁻¹ * average
Ethylparaben	synthetic	214	120-47-8	166.17	0-10	Sigma-Aldrich	99%	mouse weight 0.03 kg * 56 days
								11 mg kg ⁻¹ day ⁻¹ * average
Sodium nitrate	synthetic	251	7631-99-4	84.99	0-3.7	Sigma-Aldrich	99%	mouse weight 0.03 kg * 56 days
Sodium propionate	synthetic	281	137-40-6	96.06	Not limited; Max level: 3000 mg/kg-GMP ³	Sigma-Aldrich	99%	9 g kg ⁻¹ * average food intake 3 g day ⁻¹ * 56 days

Natamycin	biogenic	235	7681-93-8	665.74	0-0.3	Rhawn, China	98%	0.9 mg kg ⁻¹ day ⁻¹ * average mouse weight 0.03 kg * 56 days
Nisin	biogenic	234	1414-45-5	3354.07	0–2	Meilunbio, China	activity: ≥900IU/ mg	6 mg kg ⁻¹ day ⁻¹ * average mouse weight 0.03 kg * 56 days
Lysozyme	biogenic	1105	12650-88-3	about 14,000	Not specified; Max level: 500 mg/kg- GMP ³	Solarbio, China	activity: 20000U/ mg	1.5 g kg ⁻¹ * average food intake 3 g day ⁻¹ * 56 days
ε-polylysine	biogenic	NA ⁵	28211-04-3	3800.00	FDA: 50 mg/kg ⁴	Yuanye Bio, China	95%	0.15 g kg ⁻¹ * average food intake 3 g day ⁻¹ * 56 days

¹Acceptable daily intake (ADI): The amount of an additive in food that could be ingested orally on a daily basis over a lifetime without an appreciable health risk.

²In the European Union, all food additives are labeled with the letter “E” and a specific number.

³Codex General Standard for Food Additives online database.

⁴ Food and Drug Administration (FDA) approved the use of ϵ -polylysine in cooked or sushi rice at levels up to 50 mg/kg.

⁵NA: not applicable.