

Supplementary material

Table S1. Primers used in this study

Name	Sequence (5'-3')*	Usage
Δ hpn1	TTAAACGGCATTAAATCC	Construction of Δ hpn::cat mutant
Δ hpn2	atccacttttcaatctatATCGATGACTCCTTTGATTAA	Construction of Δ hpn::cat mutant
Δ hpn3	cccagtttgcgcactgaTAATATCGGTGTGGCTAGGG	Construction of Δ hpn::cat mutant
Δ hpn4	CCAACGAGTTTATTAGGC	Construction of Δ hpn::cat mutant
Δ hpn-like1	TCCTCATATTATACCTTAAAAAGG	Construction of Δ hpn-like::aphA3 mutant
Δ hpn-like2	gtataacatagatcgacTGATGACTCCTTTAATTG	Construction of Δ hpn-like::aphA3 mutant
Δ hpn-like3	gaattgttttagtacctagTGATTGGGGCGTTTGTGGG	Construction of Δ hpn-like::aphA3 mutant
Δ hpn-like4	CCGCATCAAATACGCAAGAC	Construction of Δ hpn-like::aphA3 mutant

* Upper case letters indicate *H. pylori*-derived sequences; *aphA3*-or *cat*-specific sequences are in lower case letters. All primers were purchased from Integrated DNA Technology (IDT), Coralville, IA.

Table S2. Ni-free and Ni-supplemented defined mouse chow formula.

Ni-free diet			
#	Ingredient	Provider and Reference	Quantity (g/kg of mouse chow)
1	EDTA-treated Casein ES12	Casein: Covance#09551, EDTA treated	150.0
2	L-Cystine	Harlan Laboratories	2.0
3	Corn Starch	Harlan Laboratories	275.499
4	Hi-maize® 220 (Resistant Starch)	Corn Products International, Bridgewater, NJ	150.0
5	Hi-maize®260 (Resistant Starch)	Corn Products International, Bridgewater, NJ	75.0
6	Maltodextrin	Harlan Laboratories	150.0
7	Sucrose	Harlan Laboratories	107.725
8	Lard	Harlan Laboratories	35.0
9	Soybean Oil	Harlan Laboratories	15.0
10	Calcium Carbonate, Ultra-Pure (99.997%)	Alfa Aesar #43073	12.495
11	Potassium Phosphate, Ultra-Pure (99.999%)	Alfa Aesar #10840	6.86
12	Potassium Citrate, monohydrate	Harlan Laboratories	2.477
13	Sodium Chloride, Ultra-Pure (99.999%)	Alfa Aesar #10862	2.59
14	Potassium Sulfate, Ultra-Pure (99.997%)	Alfa Aesar #10845	1.631
15	Magnesium Oxide, Ultra-Pure (99.998%)	Alfa Aesar #10800	0.851
16	Ferric Citrate	Harlan Labs, supplied by GFS Chemicals, inc #1181	0.212
17	Zinc Oxide, Ultra-Pure (99.999%)	Alfa Aesar #11137	0.044
18	Manganese Oxide, Ultra Pure (99.999%)	Alfa Aesar #10805	0.022
19	Copper Chloride, dihydrate, Ultra-Pure (99.999%)	Alfa Aesar #10698	0.016
20	Potassium Iodate	Harlan Laboratories	0.0004
21	Sodium Selenate	Harlan Laboratories	0.0004
22	Ammonium Paramolybdate, tetrahydrate	Harlan Laboratories	0.0003
23	Sodium Meta-Silicate, nonahydrate	Harlan Laboratories	0.0004
24	Chromium Potassium Sulfate, dodecahydrate	Harlan Laboratories	0.0096
25	Lithium Chloride	Harlan Laboratories	0.0006
26	Boric Acid	Harlan Laboratories	0.0029
27	Sodium Fluoride	Harlan Laboratories	0.0022
28	Ammonium Meta-Vanadate	Harlan Laboratories	0.0002
29	Vitamin Mix, AIN-93-VX (94047)	Harlan Laboratories	10
30	Choline Bitartrate	Harlan Laboratories	2.5
31	TBHQ, antioxidant	Harlan Laboratories	0.01
Ni-supplemented diet			
1-31	All ingredients #1-31		
32	Nickel carbonate hydroxide, hexahydrate	Harlan Laboratories	0.0022