

SUPPLEMENTAL INFORMATION

SUPPLEMENTAL TABLE

Table S1. Primers used to amplify fragments of the 5' arm, the *KanR* gene, α CgT and the 3' arm in targeting vectors.

Primers	Sequences (5' to 3') ^a	Site	Products (bp)
5' arm sense	CGGGGTACCATCATGCTCATTGTAAACGATAAAATC	<i>KpnI</i>	1222 ^b
5' arm antisense	ATCCTTCTCGAGTTAACTACTCTTCTTTAAAATTG	<i>XhoI</i>	
α CgT sense	ATCCTTCTCGAGATGGTTATTGTTTTAGTCGTGG 3'	<i>XhoI</i>	1170 ^c
α CgT antisense	AAAAC <u>TGCAGT</u> TATGATAAGGTTTTAAAGAGATGG	<i>PstI</i>	
KanR sense	AAAAC <u>TGCAGT</u> GAAAGGATAAAAAATGAGCCATATTCAACGG	<i>PstI</i>	816 ^d
KanR antisense	CGCGGATCCTTAGAAAACTCATCGAGCATC 3'	<i>BamHI</i>	
3' arm sense	CGCGGATCCTGAAAGGATAAAAAATGCAAGAAG 3'	<i>BamHI</i>	1879 ^e
3' arm antisense	GCGAGCTCTAGCGATTAAAGCCGTTTAAATC 3'	<i>SacI</i>	

(a) Restriction sites are underlined.

The thermal conditions were as below:

(b) 98°C for 30 sec; 35 cycles of 98°C for 10 sec, 55°C for 5 sec, 72°C for 2 min; followed by 72°C for 3 min.

(c) 98°C for 30 sec; 35 cycles of 98°C for 10 sec, 58°C for 5 sec, 72°C for 1 min; followed by 72°C for 3 min.

(d) 98°C for 30 sec; 30 cycles of 98°C for 10 sec, 55°C for 5 sec, 72°C for 1 min; followed by 72°C for 3 min.

(e) 98°C for 30 sec; 40 cycles of 98°C for 10 sec, 58°C for 30 sec, 72°C for 1 min; followed by 72°C for 3 min.

Table S2. Primers used for RT-PCR of *H. pylori*-infected mouse stomach tissues.

mRNA	Primers	Sequences (5' to 3')	Products (bp)	References
V α 14J α 18	sense	GACCCAAGTGGAGCAGAGTCCT	300 ^a	[62]
	antisense	CAGCTCCAAAATGCAGCCTCCCTAA		
β -actin	sense	TGGAATCCTGTGGCATGCATGAAAC	348 ^b	[63]
	antisense	TAAAACGCAGCTCAGTAACAGTCCG		
Foxp3	sense	TTCATGCATCAGCTCTCCAC	190 ^c	[64]
	antisense	CTGGACACCCATTCCAGACT		

Other primer sequences, except for mouse cytokines, will be provided upon request.

(a) 95°C for 2 min; 39 cycles of 95°C for 30 sec, 62°C for 30 sec, 72°C for 30 sec; followed by 72°C for 3 min.

(b) 95°C for 2 min; 24 cycles of 95°C for 30 sec, 55°C for 30 sec, 72°C for 30 sec; followed by 72°C for 3 min.

(c) 95°C for 2 min; 40 cycles of 95°C for 30 sec, 57°C for 30 sec, 72°C for 30 sec; followed by 72°C for 3 min.

SUPPLEMENTAL METHODS

Detection of α CgT mutations from clinical isolates

Genomic DNA encoding α CgT from wild-type *H. pylori* 26695 and clinical isolates was amplified by PCR using primers containing *Nde*I (5') and *Xho*I (3') restriction sites. Purified PCR products were cloned into pTKNd6xH [14], resulting in pTKNd6xH/ α CgT (WT) and pTKNd6xH/ α CgT (samples #1-#24). All clones were sequenced for α CgT and, the sequence was compared to that of the standard strain.

Site-directed mutagenesis

Twenty amino acid substitutions in α CgT were detected from Japanese clinical isolates. *In vitro* site-directed mutagenesis was performed using a protocol established by Stratagene. pTKNd6xH/ α CgT (WT) served as a template vector. For each mutation, oligonucleotide primers containing the mutant and complementary sequence were designed; primer sequences will be provided upon request. After digestion of parental DNA with 20 U of *Dpn*I (New England Biolabs), vector DNA containing the mutation was transformed into BL21 (Novagen) competent cells for repair and mutations were confirmed by DNA sequencing.

Generation of α CgT mutants by homologous recombination

The strategy used to disrupt the α CgT gene and replace mutated α CgT from clinical isolates is shown in Figure S2. Two flanking fragments, the 5' and 3' arms of α CgT from *H. pylori* 26695, and the kanamycin resistance gene (*kanR*) from the pET-28a(+) vector (Novagen, Gibbstown, NJ) were amplified using primers described in Table S1. All components flanked by

different restriction sites were cloned into pBluescript SK (-) (Stratagene, La, Jolla, CA), resulting in pBSSK(-)/ α CgT^Δ deficient in α CgT gene.

For α CgT knock-in bacteria harboring high and low active α CgT, α CgT sequences from clinical isolates (#10, #17, and #52) were amplified using primers containing *Pst*I (5') and *Bam*HI (3') restriction sites and inserted between the 5' arm and the *kanR* into the pBSSK(-)/ α CgT^Δ vector, as pBSSK(-)/ α CgT^{high} and pBSSK(-)/ α CgT^{low}. As a control, WT α CgT from *H. pylori* 26695 was similarly subcloned and constructed as pBSSK(-)/ α CgT^{cont}.

H. pylori 26695 was electroporated by a method similar to that described by Segal [65]. Bacteria cultured on TSAII plates were harvested and washed with cold phosphate-buffered saline (PBS) twice. Cells were resuspended in cold electroporation buffer (9% glycerol/15% sucrose) at $2-5 \times 10^8$ cells/ml. Two micrograms of targeting vector (1 μ g/ μ l in sterilized water) was mixed with a 100 μ l cell suspension. The mixture was added to a 0.2 cm electroporation cuvette (Bio-Rad Laboratories, Hercules, CA) and subjected to a single-pulse of initial voltage 2.5 kV, 25 μ F, and 400 Ω in parallel. Bacteria was transferred onto a cold TSAII plate and incubated 24 hours at 35°C under 12% CO₂. Cells were then inoculated onto selective media with 30 μ g/ml kanamycin and incubated 4 days to allow colony growth.

α CgT enzyme assay

Escherichia coli BL21 was transformed with pTKNd6xH/ α CgT (WT), pTKNd6xH/ α CgT (#1-#24), or pTKNd6xH/ α CgT generated by site-directed mutagenesis. Histidine-tagged α CgT recombinant protein was purified using a HisTrap spin column (GE Healthcare, Little Chalfont, England). α CgT activity was assayed as previously described with

minor modifications [14]. Briefly, recombinant α CgT protein was incubated in 50 mM Hepes-NaOH (pH7.5) containing 20 μ M (100,000 cpm) [3 H]UDP-glucose, 5 μ M cholesterol, and 0.1% Triton X-100 for 10 min. The reaction was then stopped by adding HCl to 80 mM. Ten volumes of ethyl acetate were mixed and upper phase was collected for measurement of radioactivity after centrifugation.

Modeling and refinement of method for α CgT

Prior to homology modeling, a primary sequence alignment of α CgT in *H. pylori* 26695 (wild type) and phosphatidylinositol mannosyltransferase (PimA) was generated by Profile Multiple Alignment with Local Structure (PROMALS), a progressive multiple sequence alignment method [66]. An α CgT structural model was then created with the Alignment Mode of SWISS-MODEL using sequence alignment and the crystal structure of PimA (PDB code: 2GEJ) as template [67]. The structure of UDP-glucose (UDP-Glc) and its topology and parameter files were downloaded from HIC-Up server in the Hetero-compound Information Centre (Uppsala, Sweden) [68]. We manually replaced the 2GEJ's ligand, GDP-mannose (GDP-man), with UDP-Glc and rotated UDP-Glc's torsion angles to resemble GDP-man using the Crystallographic Object-Oriented Toolkit (COOT) program [69]. The resulting α CgT-UDP-Glc model was energy minimized with the Crystallography & NMR System (CNS), a program designed to provide a flexible multi-level hierarchical approach [70].

Thin-layer chromatography (TLC)

Precultured wild-type or recombinant α CgT *H. pylori* was washed with 5 ml PBS three times, and then glycolipid fractions were extracted from 2×10^8 bacterial cells using chloroform/methanol (2:1=v/v) at room temperature for 1 hour. The organic phase was centrifuged at $3000 \times g$ for 10 min and dried under a nitrogen stream. The residue was dissolved in 10 μ l of chloroform/methanol (2:1=v/v) and subjected to TLC using chloroform/methanol/water (65/25/4=v/v/v). Separated glycolipids were visualized using orcinol-containing sulfuric acid buffer at 95°C.

***H. pylori* growth assay**

After preculturing, *H. pylori* 26695 (WT) and recombinant α CgT mutants were diluted to 1×10^7 cells/ml with BHI/YE/FBS. Bacteria in a 96-well plate was cultured at 35°C in 12% CO₂, and bacterial growth was measured by monitoring the OD at 600 nm each day for 4 days.

Scanning electron microscopy

Precultured *H. pylori* was fixed in 2.5% glutaraldehyde at 4°C overnight. Bacteria were washed three times in 0.1 M phosphate buffer (PB), pH 7.2, and then refixed in PB containing 1% osmium on ice for 1 hour, followed by serial dehydrations in ethanol. After centrifugation, bacteria were rinsed in t-butyl alcohol and placed into aluminum foil containers 5 mm in diameter. Containers were completely submerged in t-butyl alcohol for 10 min, followed by three washes with t-butyl alcohol. Samples were gradually frozen at -20°C and then lyophilized using a JFD-310 machine (JEOL, Tokyo, Japan). Containers were mounted on a copper plate and coated with osmium using osmium plasma coater OPC40 (Filgen, Nagoya, Japan). Micrographs

were obtained using a scanning electron microscope (JSM-6000F (JEOL)) at 15 kV accelerating voltage.

Phagocytosis assay

The human monocyte cell line THP-1 was differentiated by adding 20 nM phorbol 12-myristate 13-acetate (Sigma, St Louis, MO) in RPMI1640 (Mediatech Inc, Manassas, VA) supplemented with 2 mM L-glutamine and 10% FBS for 72 hours at 37°C in 5% CO₂. 4 x 10⁸ CFU/ml of precultured *H. pylori* was dispersed with 2 x 10⁵ macrophage-like differentiated cells at a multiplicity of infection (MOI) of 100 bacteria/macrophage. Phagocytosis was synchronized by centrifugation at 100 g for 2 min at RT and then allowed to proceed 60 min. Non-adherent bacteria were removed by washing with phosphate-buffered saline (PBS) twice and then incubated with RPMI1640 supplemented with 100 µg/ml gentamicin (Sigma) for 1 hour at 37°C. Macrophages were rinsed with PBS three times and maintained in antibiotic-free culture medium for 20 hours at 37°C. The macrophages were washed and lysed in 100 µl of 0.1% saponin in PBS, and serial dilutions of each sample were plated onto TSA II plates in duplicate and incubated for four days at 35°C under microaerophilic conditions to determine the number of CFU of *H. pylori*.

Human monocyte isolation

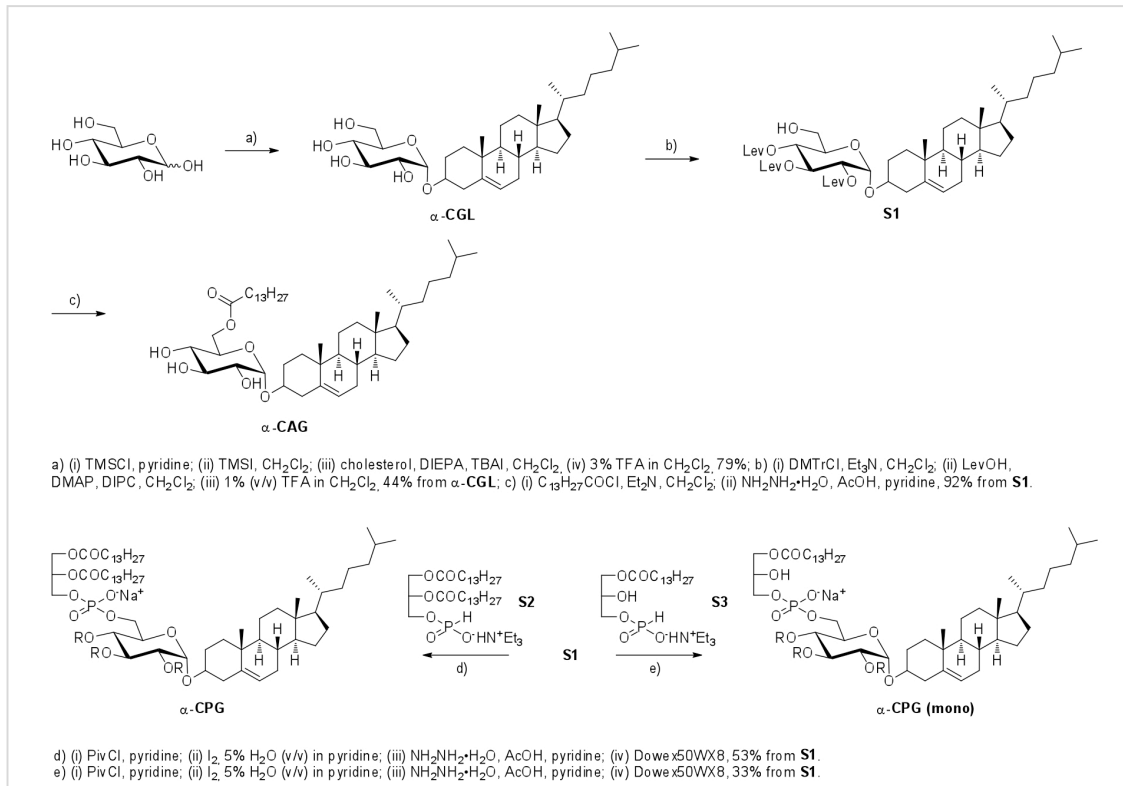
Peripheral blood mononuclear cells (PBMC) were obtained from venous blood of healthy adult volunteers not infected with *H. pylori*, using Ficoll-Hypaque Plus (GE Healthcare) with LeucoSep (Greiner Bio-One, Frickenhausen, Germany), according to the manufacturer's instructions.

Determination of human dendritic cell maturation

CD14-positive monocytes were isolated from PBMC by MACS with CD14 MicroBeads (Miltenyi Biotech, Auburn, CA), and purity was determined by FACS analysis using anti-CD14-fluorescein isothiocyanate (FITC) (BioLegend, San Diego, CA). To generate immature DCs, CD14⁺ monocytes were cultured in RPMI1640 supplemented with 10% human serum (Sigma) and 2 mM L-glutamine (Mediatech Inc) for six days in the presence of 25 ng/ml of human recombinant IL-4 (R&D Systems, Minneapolis, MN) and 25 ng/ml of human recombinant granulocyte-macrophage colony-stimulating factor (GM-CSF) (R&D Systems).

A total of 1.5×10^5 differentiated DCs was incubated with *H. pylori* lysates at a MOI of 5 for 48 hours in a 96-well plate. Similar treatment with 0.5 µg/ml lipopolysaccharide (LPS) (Sigma) served as a positive control. Pulsed DCs were gated out using anti-CD11c-phycoerythrin (PE) and analyzed for anti-CD40-allophycocyanin (APC), anti-CD86-Alexa Fluor 488, and anti-HLA-DR-peridinin chlorophyll protein complex (PerCP) (BioLegend) by flow cytometry. Acquisition was performed on a FACSCalibur (BD Biosciences), and data were analyzed using FlowJo software (Tree Star, Ashland, OR).

Chemical synthesis of α CGL, α CAG, α CPG and monoacylated α CPG



NMR spectra were recorded on a JEOL ECX (400MHz) spectrometer in CDCl₃ or CD₃OD with tetramethylsilane (TMS) (δ 0.0) as an internal standard for ¹H NMR and CDCl₃ (δ 77.0) as an internal standard for ¹³C NMR. ESI mass spectra were recorded on an Agilent ESI-TOF spectrometer. Chemicals and solvents were purchased from TCI America, Acros Organics, Alfa Aesar, Bachem and Sigma-Aldrich and used as supplied.

Cholesteryl α -D-glucopyranoside (α CGL). α CGL was synthesized using a method described previously [71]. Briefly, 2,3,4,6-tetrakis-*O*-(trimethylsilyl)- α -D-glucopyranosyl iodide was synthesized from D-glucose and reacted with cholesterol. Removal of trimethylsilyl group yielded α CGL as a colorless powder. ¹H NMR (CDCl₃-CD₃OD, 1:1, v/v) δ 5.35 (d, 1H, J = 3.7 Hz, C=CH), 4.98 (d, 1H, J = 3.7 Hz), 3.79 (m, 2H, H-6a, H-6b), 3.64–3.69 (m, 2H, H-3, H-5),

3.35–3.55 (m, 3H, H-2, H-4, H-3' cholesterol), 2.36 (m, 2H), 1.87–2.04 (m, 5H), 0.86–1.54 (m, 33H), 0.69 (s, 3H). ^{13}C NMR ($\text{CDCl}_3\text{-CD}_3\text{OD}$) δ 140.9, 122.3, 97.2, 76.4, 74.3, 72.4, 72.0, 70.6, 61.9, 57.1, 56.5, 50.5, 42.6, 40.3, 40.1, 39.8, 37.3, 37.0, 36.5, 36.1, 32.2, 28.5, 28.3, 27.0, 24.6, 24.1, 22.9, 22.7, 21.4, 19.5, 18.9, 12.0. ESI-MS calcd. for $[\text{M}+\text{Na}]^+$: 571.4; found 571.3. ^1H NMR matched to the reported values [10].

Preparation of Cholesteryl 6-*O*-myristoyl- α -D-glucopyranoside (α CAG). 6-*O*-

dimethoxytritylation and 2,3,4-tri-*O*-levulinylolation to α -CGL were performed successively.

Removal of the dimethoxytrityl group gave cholesteryl 2,4,6-tri-*O*-levulinyl- α -D-

glucopyranoside (**S1**) as a colorless foam. (Data for **S1**) ^1H NMR (CDCl_3) δ 5.66 (t, 1H, J = 10 Hz, H-3), 5.33 (d, 1H, J = 5.5 Hz, $\text{C}=\text{CH}$), 5.16 (d, 1H, J = 3.7 Hz, H-1), 4.99 (t, 1H, J = 10 Hz, H-4), 4.80 (dd, 1H, J = 3.7 Hz, 10, H-2), 3.88 (m, 1H, H-5, H-6a), 3.74–3.59 (m, 2H, H-6b), 3.46–3.36 (m, 1H, H-3' cholesterol), 2.80–2.52 (m, 12H), 2.40–0.82 (m), 0.68 (s, 3H). ^{13}C NMR (CDCl_3) δ 206.5, 206.4, 206.2, 172.8, 171.8, 171.8, 140.3, 122.1, 94.2, 78.5, 71.1, 69.6, 69.5, 69.0, 60.8, 56.7, 56.1, 50.0, 42.3, 39.9, 39.7, 39.5, 37.8, 37.7, 37.6, 36.9, 36.6, 36.2, 35.7, 31.8, 29.8, 29.7, 29.7, 28.2, 28.0, 27.9, 27.8, 27.8, 27.7, 24.2, 23.8, 22.8, 22.5, 21.0, 19.3, 18.7, 11.8.

ESI-MS calcd. for $[\text{M} + \text{K}]^+$: 881.5; found 881.5. 6-*O*-myristoylation of **S1** followed by removal of levulinyl group gave α CAG as a colorless foam. ^1H NMR (CDCl_3) δ 5.35 (m, 1H, $\text{C}=\text{CH}$), 5.02 (d, 1H, J = 4.3 Hz, H-1), 4.48 (dd, 1H, J = 1.8 Hz, 12 Hz, H-6a), 4.26 (dd, 1H, J = 1.8 Hz, 12 Hz, H-6b), 3.86 (m, 1H, H-5), 3.72 (t, 1H, J = 9.4 Hz, H-3), 3.54–3.44 (m, 2H, H-2, H-3' cholesterol), 3.33 (t, 1H, J = 9.4 Hz, H-4), 2.37–0.84 (m), 0.68 (s, 3H). ^{13}C NMR (CDCl_3) δ 174.7, 140.4, 122.3, 96.9, 78.5, 74.7, 72.2, 70.1, 63.2, 56.8, 56.2, 50.2, 42.3, 39.8, 39.6, 37.1,

36.7, 36.2, 35.9, 34.3, 32.0, 32.0, 29.8, 29.8, 29.7, 29.5, 29.4, 29.3, 28.3, 28.1, 25.1, 24.4, 24.0, 22.9, 22.8, 22.6, 21.1, 19.4, 18.8, 14.2, 11.9. ESI-MS calcd. for $[M+Na]^+$: 781.6; found 781.6. 1H NMR matched to the reported value [10].

Preparation of Cholesteryl 6-*O*-(2',3'-bis-*O*-myristoyl-*rac*-glyceryl)phosphoryl- α -D-

glucopyranoside sodium salt (α CPG) 1,2-Di-*O*-myristoyl-*rac*-glycerol was treated with PCl_3 and then 1 M aqueous triethylammonium bicarbonate to give **S2**, which was used without further purification. Condensation of **S2** and **S1** with pivaloyl chloride followed by oxidation with I_2 in pyridine- H_2O (95:5, v/v) and then removal of levulinyl groups gave α CPG as colorless foam. 1H NMR (CD_3OD) δ 5.35 (br, 1H, $C=CH$), 5.24 (br, 1H, H-2'' glycerol), 4.97 (m, 1H, H-1), 4.44 (m, 1H, H-3'' glycerol), 4.29–4.16 (m, 2H, H-3'' glycerol, H-6a), 4.02–3.91 (m, 3H, H-6b, H-1'' glycerol), 3.70–3.65 (m, 2H, H-5, H-3), 3.57 (t, 1H, $J = 9.2$ Hz, H-4), 3.54–3.41 (m, 2H, H-2, H-3' cholesterol), 2.35–0.81 (m), 0.70 (s, 3H). HRMS (ESI) calcd. for $[M-H]^-$: 1121.7996; found 1121.7996.

Preparation of Cholesteryl 6-*O*-(3'-*O*-myristoyl-*rac*-glyceryl)phosphoryl- α -D-

glucopyranoside sodium salt (α CPG (monoacyl)). 2-*O*-Levulinyl-3-*O*-myristoyl *rac*-glycerol was synthesized from DL-1,2-isopropylidenglycerol following a published method [72] and was treated with PCl_3 and then 1 M aqueous triethylammonium bicarbonate to give **S3**, which was used without further purification. Condensation of **S3** and **S1** with pivaloyl chloride followed by oxidation with I_2 in pyridine- H_2O (95:5, v/v) and then removal of levulinyl groups yielded α CPG (monoacyl) as a colorless powder. 1H NMR (CD_3OD) δ 5.37 (br, 1H, $C=CH$),

4.97 (d, 1H, $J = 3.1$, H-1), 4.29 (m, 1H), 4.20–3.93 (m, 5H), 3.78–3.65 (m, 2H), 3.57–3.41 (m, 3H), 2.40–2.29 (m, 4H), 2.07–1.80 (m, 5H), 1.69–0.84 (m), 0.70 (s, 3H). HRMS (ESI) calcd. for $[M-H]^-$: 913.6164; found 913.6162.

Synthesis of β CGL: β CGL was synthesized using a method similar to that described previously [73].

In vitro loading of lipid antigens and isoelectrofocusing analysis

Mouse CD1d protein was expressed and purified as described [74]. Aliquots of 10 μ g of mouse CD1d at a concentration of 20 μ M were loaded overnight at room temperature in the presence of 3 times molar excess of each ligand (in DMSO, final concentration 3-6%) and 4mM CHAPS. Porcine brain sulfatide extract (Avanti Polar Lipid Inc) was used as positive control. The binding of charged lipids was assessed by isoelectric focusing on a PhastGel IEF 5-8 using a PhastSystem (GE Healthcare), followed by staining with Coomassie dye.

Total RNA extraction from mouse stomach and RT-PCR

Total RNA was isolated from half of a gastric tissue sample using TRIzol (Invitrogen, Carlsbad, CA). To remove genomic DNA, total RNA was digested with 10 U of RNase-free DNase I (New England Biolabs, Ipswich, MA) in the presence of 20 U of RNasin (Promega, Madison, WI) at 37°C for 3 hours. Three micrograms of DNase I treated-total RNA was reverse-transcribed using 100 U of Superscript II (Invitrogen) with 0.5 μ g of oligo dT primer (Promega) at 42°C for 1 hour. PCR amplification of 0.5 μ g of synthesized cDNA in a 10 μ l reaction mixture was carried out in a GeneAmp 2700 thermal cycler (Applied Biosystems, Carlsbad, CA) using

0.5 U of Ex Taq HS (Takara Bio, Otsu, Japan) with 10 x PCR buffer and deoxynucleotide triphosphate at 0.2 mM and primers at 0.2 μ M each. The primers, annealing temperature, and cycle conditions for V α 14J α 18, Foxp3, and β -actin are described in Table S2 [62-64]. Other primers for mice cytokines will be provided upon request.

Real-time PCR (Q-PCR) of human V α 24J α 18 mRNA

After measuring α CgT activity, 16 of 24 gastric biopsy specimens retrieved at Shinshu University Hospital were selected randomly. Total RNA was extracted from gastric biopsy specimens embedded in paraffin blocks with a minor modification as described [75]. Briefly, 10 slices of 5 μ m-thick tissue sections were transferred to a 1.5 ml tube. DNase treated-total RNA was purified using a RecoverAll Total Nucleic Acid Isolation Kit (Ambion, Austin, TX) according to the manufacturer's instructions. For single-strand cDNA synthesis, 2 μ g of total RNA, 0.5 μ l of 0.5 μ g/ μ l Oligo(dT)₁₅ primer (Promega), and 0.5 μ l of 0.5 μ g/ μ l Random primers (Promega) were incubated at 65°C for 10 min to hybridize. Two micrograms of human stomach total RNA purchased from Clontech, Mountain View, CA, was used as a control. Total RNA was transcribed by adding 0.5 μ l of 200 U/ μ l SuperScript III Reverse Transcriptase (Invitrogen), 4 μ l of 5x First-strand buffer, 1 μ l of 2.5 mM dNTP mixture, 1 μ l of 0.1 M dithiothreitol, and 0.5 μ l of 40 U/ μ l RNasin (Promega) at 50°C for 60 min and then heated to 70°C for 10 min. First-strand cDNA was used as template for Q-PCR.

Q-PCR was analyzed using a StepOnePlus Real Time PCR system (Applied Biosystems). The probe and primers for V α 24J α 18 were designed according to a published report [76]. The VIC-labeled probe was VIC- 5'-CCTCCTACATCTGTGTGGTGAGCGACA-

3'-MGB. The forward and reverse primers were 5'-CCTCCCAGCTCAGCGATTC-3', and 5'-TATAGCCTCCCCAGGGTTGA-3' respectively. A premixed FAM-labeled probe and primers for β_2 -microglobulin (B2M) (Hs99999907_m1, Applied Biosystems) were used as an endogenous standard. The reaction was in 20 μ l final volume containing 10 μ l of TaqMan Gene Expression Master Mix (Applied Biosystems), 1 μ l of cDNA, 250 nM of VIC or FAM-labeled TaqMan probe, and 900 nM of each primer in Fast 96-well reaction plates (Applied Biosystems). Plates were heated to 50°C for 2 min then 95°C for 10 min followed by 60 cycles at 95°C for 15 sec, 55°C for 1 min. Assays were performed in duplicate. Relative expression of V α 24J α 18 mRNA was determined with the comparative CT method using average CT values for V α 24J α 18 and B2M. Expression of V α 24J α 18 mRNA in commercially available total RNA from human stomach was assessed and defined as 1. Median values and the 25-75 percentile were indicated.

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