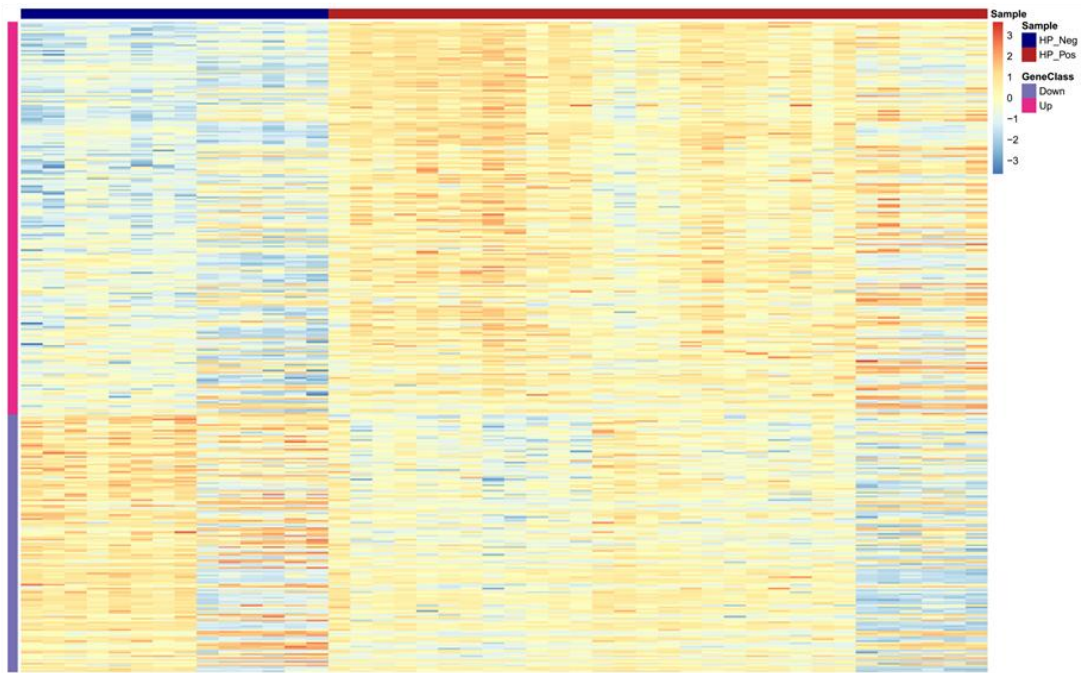
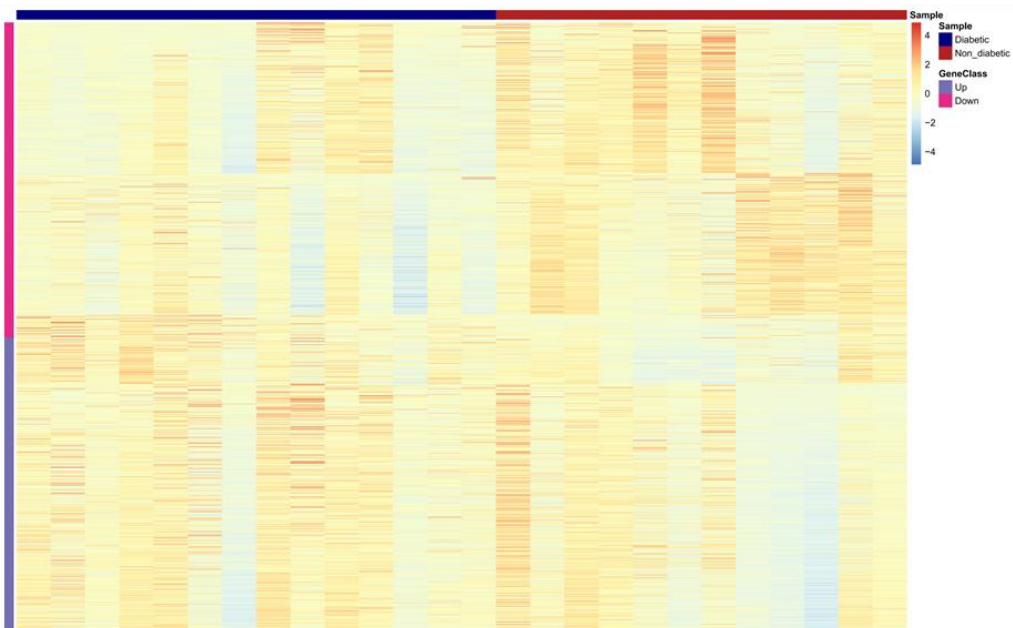


A *H. pylori*: GSE60427 and GSE27411



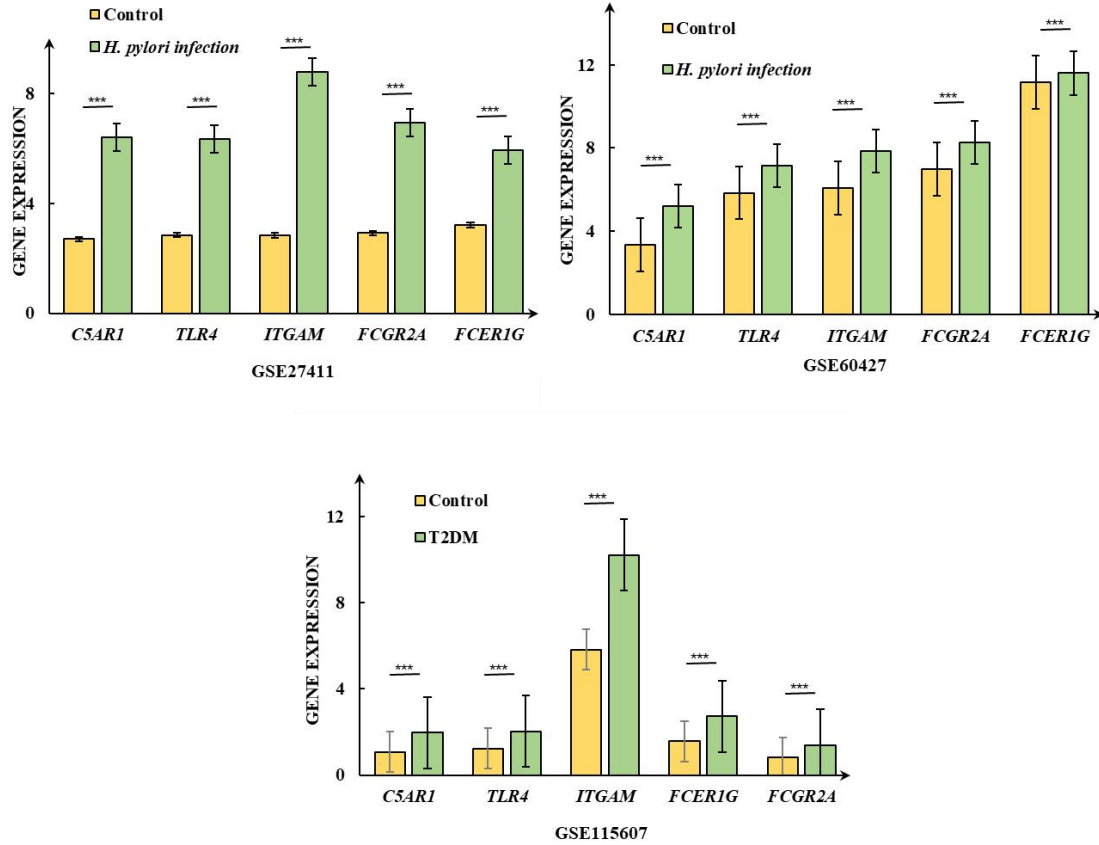
B T2DM: GSE115601



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Supplementary Figure 1 The heatmaps of DEGs. A: GSE60427 and dataset; B: GSE115601 dataset. Color change from red to blue indicates a gradual

decrease in the expression level of the gene in the samples. DEGs, Differential Expressed Genes.



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Supplementary Figure 2 The expressions of 5 hub genes (*TLR4*, *C5AR1*, *ITGAM*, *FCGR2A*, *FCER1G*) in three datasets. (A) GSE27411 dataset; (B) GSE60427 dataset; (C) GSE115607 dataset.

Supplementary Table 1 List of datasets used in this study

Datasets	Disease	Platform	Control	Disease	Sample
GSE60427	<i>H. Pylori</i> infection	GPL17077	8	24	Gastric
*GSE27411	<i>H. Pylori</i> infection	GPL6255	6	6	Gastric

*GSE27411 dataset contains 18 samples, only 12 samples were recruited for further analysis because the other 6 samples has uncertain infection status and therefore were excluded from our further analysis.

Supplementary Table 2 List of primers of hub genes

Species	Gene	Forward primer (5'-3')	Reverse primer (5'-3')
Homo	<i>TLR4</i>	AGACCTGTCCCTGAAC CCTAT	CGATGGACTTCTAA ACCAGCCA
Homo	<i>C5AR1</i>	GGTGCCAGAACTTCC GAGG	GCCACACAACACC TTTGGT
Homo	<i>ITGAM</i>	ACTTGCAGTGAGAAC ACGTATG	TCATCCGCCGAAAG TCATGTG
Homo	<i>FCGR2A</i>	GCTTCAACCATTGACA GTTTTGC	CCACGGGGGCTCA AGTTTC
Homo	<i>FCER1G</i>	AGCAGTGGTCTTGCTC TTACT	TGCCTTTCGCACTT GGATCTT
Homo	<i>GAPDH</i>	GGACCTGACCTGCCGT CTAG	GTAGCCCAGGATG CCCTTGA

Supplementary Table 3 A total 67 DEGs were identified of which 48 were upregulated and 19 were downregulated genes

DEGs	Names of the genes
48 Upregulated genes	<i>S100A8, MMP12, ADAMDEC1, EMR2, FPR1, HAPLN3, ITGAM, C5AR1, TLR4, NCF4, CDH3, FCER1G, LPL, REG1A, SLC28A3, GAPDH, FCGR2A, GPNMB, RHBDF2, ATP8B4, EMILIN2, ALOX5, CD300LF, CCL8, SMAD6, CPNE7, SLC43A3, F13A1, GDF15, ADCY3, GNA15, PTGES, CFH, PLAU,</i>

		<i>LAX1, LAG3, C1R, RGS18, PRRX2, LRP8, NCR3, MAFB, CTSK, FOS, EMILIN2, FOSB, FLJ45079, CXCL6</i>
19	Downregulated genes	<i>ABCG1, PER3, DBP, RGS7, SCG3, ST6GALNAC2, C17orf58, XK, SLC6A2, PHYH, PODXL2, SPRED2, HOOK2, EPB49, TSC22D1, ZNF93, CXADR, ITPR2, ALOX15</i>

DEGs, Differential Expressed Genes.

Supplementary Table 4 Baseline characteristics of the patients for qRT-PCR validation

Baseline characteristics	Control (n = 30)	T2DM (n = 30)	<i>H. Pylori</i> (n = 30)	T2DM+ <i>H. pylori</i> (n = 30)	P_1	P_2	P_3
Sex (male)	15	15	15	15	1.00	1.00	1.00
Age (years)	48.2 ± 6.2	49.9 ± 7.1	48.6 ± 5.9	49.3 ± 5.9	0.498	0.675	0.511
Histological score	0.93 ± 0.58	1.10 ± 0.48	0.90 ± 0.55	1.20 ± 0.41	0.232	0.820	0.388
Fasting glucose (mmol/L)	5.84 ± 1.66	8.98 ± 2.11	5.89 ± 0.98	9.11 ± 1.87	0.002*	0.773	0.032*
HbA1c (%)	5.1	5.9	5.2	6.2	0.000*	0.798	0.091
Insulin (pmmol/L)	135 ± 8	142 ± 10	134 ± 9	144 ± 9	0.003*	0.822	0.208
TG (mmol/L)	1.56 ± 0.8	1.61 ± 1.0	1.55 ± 0.9	1.63 ± 0.7	0.011*	0.816	0.901
TC (mmol/L)	4.5 ± 0.8	4.6 ± 1.0	4.6 ± 0.8	4.8 ± 1.0	0.654	0.774	0.431
Smoking					0.532	0.532	0.532
Yes	5	8	8	5			
No	25	22	22	25			

Drinking					0.606	0.430	0.606
Yes	14	17	10	14			
No	16	13	20	16			
Hypertension					0.382	0.990	0.990
Yes	6	10	7	9			
No	24	20	23	21			
Coronary Artery Disease					0.552	0.990	0.785
Yes	6	9	7	11			
No	24	21	23	19			
GI symptoms					0.030*	0.010*	0.195
Yes	3	11	16	17			
No	27	19	14	13			
T2DM therapy					NA	NA	0.438
Oral drugs	NA	18	NA	14			
Insulin therapy	NA	12	NA	16			

TG, Triglyceride; TC, total cholesterol; GI, gastrointestinal; T2DM, Type 2 diabetes mellitus; *H. pylori*, *Helicobacter pylori*; HbA1c,

Glycosylated Hemoglobin, Type A1C; GI, gastrointestinal

P_1 : T2DM vs. control; P_2 : *H. pylori* vs. control; P_3 : T2DM+*H. pylori* vs. T2DM.

Supplementary Table 5 List of miRNA and its target genes

miRNA	Genes Targeted by miRNA
miR-6848-5p	<i>C5AR1, FCER1G</i>
miR-6796-5p	<i>C5AR1, FCER1G, TLR4</i>
miR-6740-5p	<i>C5AR1, TLR4</i>
miR-8060	<i>C5AR1, TLR4</i>
miR-6730-5p	<i>C5AR1, TLR4</i>
miR-5698	<i>C5AR1, TLR4</i>
miR-12119	<i>C5AR1, TLR4</i>
miR-6881-5p	<i>C5AR1, TLR4</i>
miR-6846-5p	<i>FCER1G, FCGR2A</i>
miR-7703	<i>FCGR2A, TLR4</i>
miR-6728-5p	<i>FCGR2A, TLR4</i>
miR-7107-5p	<i>FCGR2A, TLR4</i>
miR-1914-3p	<i>TLR4, ITGAM</i>