

Table. S1 Demographic characteristics of the control and disease groups (Sample Collection I)

Demographic	Control I		Disease I						
	(n=17)	CNAG	Control vs.	CAG	Control	GC	Control	All	Control
		(n=23)	CNAG	(n=23)	vs. CAG	(n=18)	vs. GC	(n=64)	vs. All
		<i>P</i> value		<i>P</i> value		<i>P</i> value		<i>P</i> value	
Age (year, mean $\pm$ SD)	50.36 $\pm$ 8.66	48.84 $\pm$ 9.92	0.97	54 $\pm$ 8.09	0.71	57.14 $\pm$ 10.66	0.27	51.39 $\pm$ 9.04	0.40
Gender (M/F)	10/7	12/11	0.75	10/13	0.52	13/5	0.48	35/29	0.79

Table. S2 Demographic characteristics of the control and disease groups (Sample Collection II)

Demographic	Control II		Disease II						
	(n=9)	CNAG	Control vs.	CAG	Control	GC	Control	All	Control
		(n=9)	CNAG	(n=9)	vs. CAG	(n=9)	vs. GC	(n=27)	vs. All
		<i>P</i> value		<i>P</i> value		<i>P</i> value		<i>P</i> value	
Age (year, mean $\pm$ SD)	47 $\pm$ 8.17	44.88 $\pm$ 11.61	0.96	56 $\pm$ 5.29	0.20	56.55 $\pm$ 11.37	0.16	52.48 $\pm$ 10.94	0.17
Gender (M/F)	5/4	6/3	1	3/6	0.63	6/3	1	15/12	1

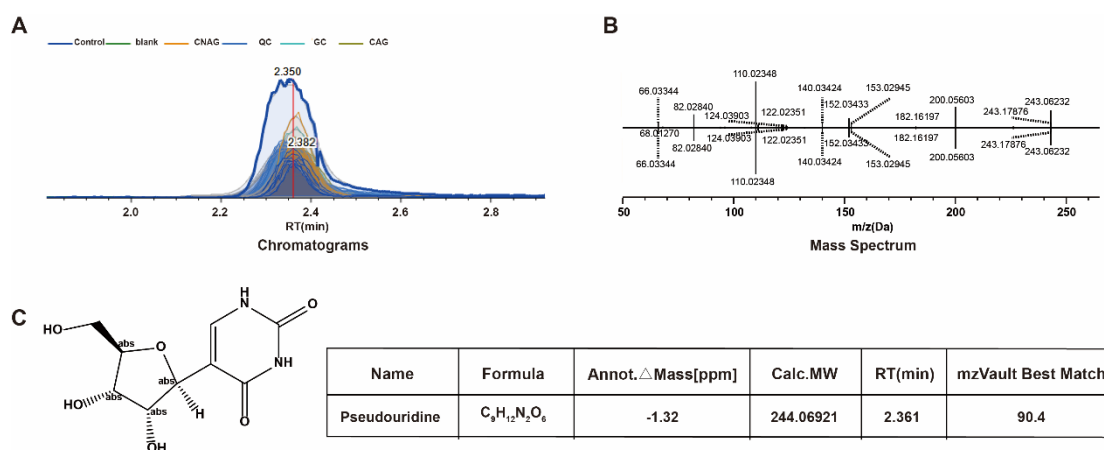


Fig. S1 Typical flowchart for metabolite identification, based on Compound Discoverer software. (A) Cumulative chromatograms of compounds for the various groups; (B) Comparison of the secondary fragments of compounds for which secondary fragments were present in the database; (C) Information regarding the compound structure, name,

and database match scores

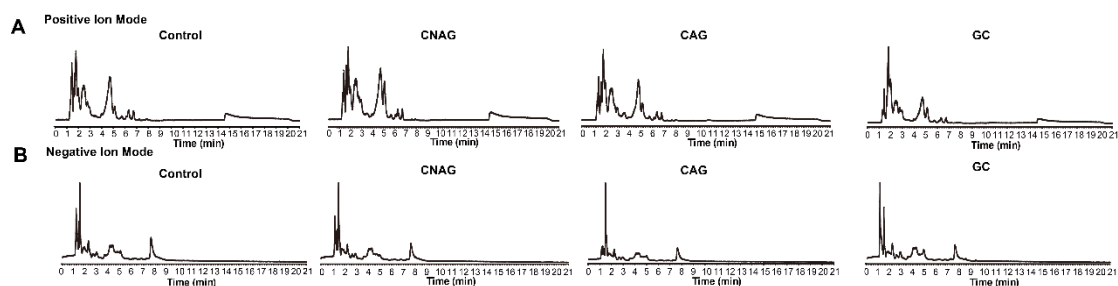


Fig. S2 Total ion chromatograms for the Control, CNAG, CAG, and GC groups. (A) Positive ion mode; (B) Negative ion mode

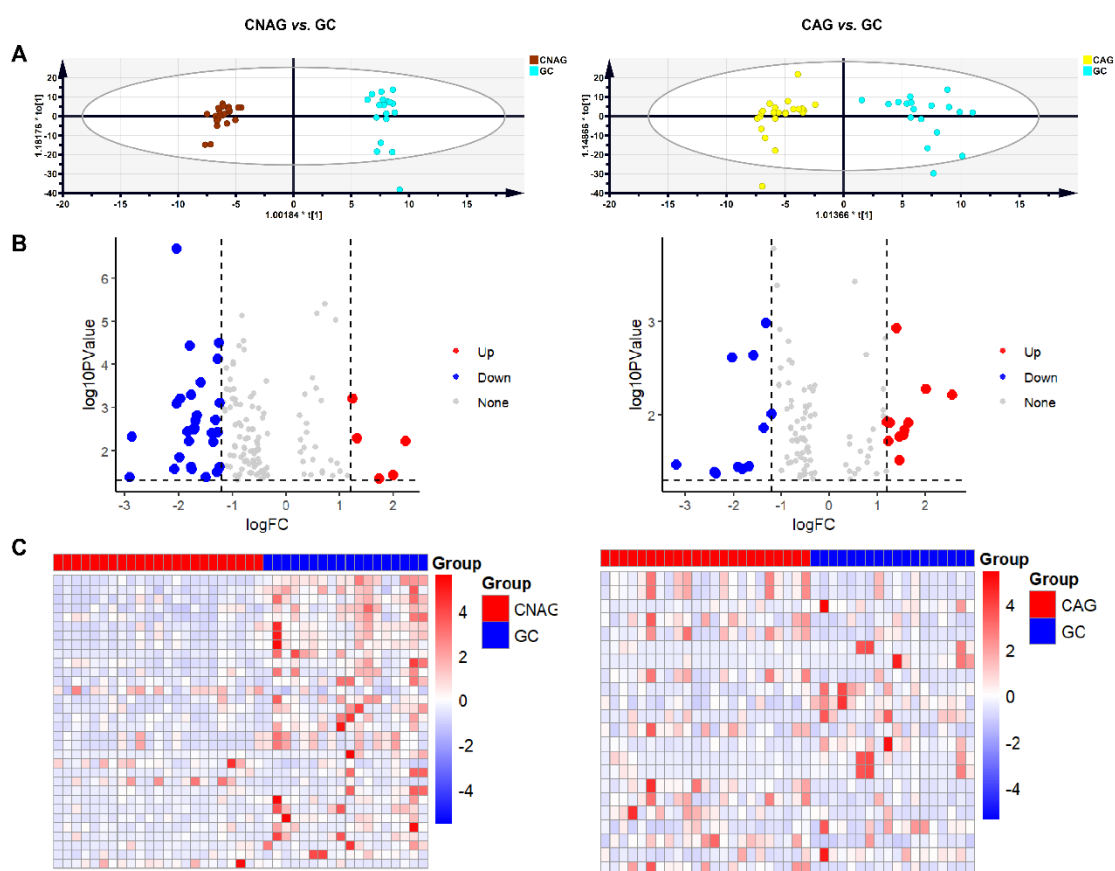


Fig. S3 Metabolites present at differing concentrations (DMs) on non-targeted metabolomics. (A) The OPLS-DA score plot for the GC vs. the CNAG and CAG groups. (B) Volcano plot of DMs for the GC vs. the CNAG and CAG groups, to identify DMs. Those with $P < 0.05$ and $|\log_2 FC| \geq 1.2$ were considered to be significant. (C) Heatmap plot of the DMs for the GC vs. the CNAG and CAG groups. CNAG: Chronic non-

atrophic gastritis; CAG: Chronic atrophic gastritis; GC: Gastric cancer.

Table. S3 Names and AUCs of the selected DMs in the different groups.

ID	Metabolites	AUC				
		Control vs. CNAG	Control vs. CAG	Control vs. GC	CNAG vs. GC	CAG vs. GC
(1)	[FAhydroxy(18:0)]12_13-dihydroxy-9Z-octadecenoicacid	0.571	0.511	0.611	0.474	0.579
(2)	Farylhydrazone A	0.676	0.708	0.867	0.775	0.708
(3)	O-(4,8-dimethylnonanoyl)carnitine	0.568	0.637	0.989	0.988	0.944
(4)	L-Threonic acid	0.505	0.542	0.417	0.421	0.415
(5)	Cybastacine A	0.600	0.732	0.594	0.649	0.754
(6)	Dehydroepiandrosteronesulfate(DHEAS)	0.629	0.658	0.956	0.889	0.912
(7)	Decanoylcarnitine	0.942	0.905	0.989	0.532	0.667
(8)	O-heptanoylcarnitine	0.834	0.984	0.922	0.687	0.658
(9)	PALGLY	0.968	0.889	0.961	0.579	0.570
(10)	L-Phenylalanine	0.816	0.897	0.711	0.664	0.760
(11)	[FA(20:3)]11_12-epoxy-5Z_8Z_14Z-eicosatrienoicacid	0.729	0.916	0.839	0.561	0.640
(12)	N1-(2-Ethoxyphenyl)-N2-(2-ethylphenyl)oxalamide	0.837	0.834	0.844	0.494	0.535
(13)	(2S)-1-Hydroxy-3-(pentadecanoyloxy)-2-propanyl (9Z)-9-hexadecenoate	0.668	0.689	0.922	0.860	0.813
(14)	3-(4-Methoxyphenyl)propyl hydrogen sulfate	0.737	0.674	0.922	0.819	0.825
(15)	Pseudouridine	0.863	0.958	0.700	0.719	0.895
(16)	[ST(4:0)]5beta-Cholestane-3alpha_7alpha_12alpha_26-tetrol	0.847	0.700	0.833	0.430	0.626
(17)	(14RS)-(10E,12E)-14-hydroxy-9-oxo-10,12-octadecadienoic acid	0.874	0.897	0.900	0.637	0.822