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CHARACTERIZATION OF CHI3L1 AS A POTENTIAL PLASMA BIOMARKER FOR ENDOSCOPIC RESECTABLE GASTRIC CANCER BY SWATH-MS AND TRANSCRIPTOME DATABASE ANALYSIS

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Background Early diagnosis of T1a gastric cancer (GC) provides patients opportunities for endoscopic minimally invasive resection, which avoids the trauma of surgery and improve quality of life. However, most recent biomarkers were discovered from early/advanced mixed GC patients, which showed limited potential in identifying endoscopic curable GC patients.

Methods The overall study design was shown in figure 1A (figure 1A). Here we recruited 5 T1aN0M0 GC patients received endoscopic resection of GC and 5 age/sex-matched chronic superficial gastritis (CSG) controls. Plasma samples were collected before endoscopic resection or any other treatment. We used SWATH-MS proteomics to screen for up-regulated proteins in GC plasma, and the detailed workflow was shown in figure 1B (figure 1B). Then we identified differentially expressed genes (DEGs) of five GC datasets by GEO2R to construct a consensus list of up-regulated genes in GC. Overlapped secreted/membrane proteins between this consensus list and SWATH-MS up-regulated list were verified in an independent cohort by ELISA.

Results We identified 37 up-regulated and 21 down-regulated proteins in GC plasma by SWATH-MS, which could well distinguish GC from CSG. Ten of those proteins were antibody fragments, which could not be mapped to a single

gene. The rest 48 genes were associated with response to stress, extracellular space, and ion binding, according to GO analysis. For online database analysis, 174 genes were identified as DEGs in all those databases, but most of them were down-regulated. There were 94 genes up-regulated in at least 3 databases, and most of those genes were mutually associated in a PPI network. 58 of the 94 genes were secreted or membrane-associated, and only 1 gene, CHI3L1, was characterized as up-regulated in both the database consensus list and the SWATH-MS list. Finally, ELISA in an independent cohort (n=42) verified that CHI3L1 was significantly higher in the plasma of T1a GC than that of healthy controls ($p<0.001$).

Conclusions We provide a novel strategy for biomarker screening combining recent MS technique with public database analysis, and identified plasma CHI3L1 as a potential biomarker for endoscopic resectable GC patients

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LACTOBACILLUS RHAMNOSUS GGSUPERNATANT IMPROVES BOWEL FUNCTION VIA UPREGULATING 5HT4R AND MUC2 EXPRESSION AND MODULATING MICROBE ENVIRONMENT IN MICE

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Background *Lactobacillus rhamnosus* GG (LGG) has been reported to improve bowel function in constipation patients.

Abstract IDDF2019-ABS-0297 Figure 1 A) General analysis pipeline; B)