

GastroPanel® identifies patients at risk of diseases characterised by **Atrophic Gastritis**

use GastroPanel® first-line to investigate dyspepsia

get clinically useful information about the status of the stomach

receive recommendations for patient management and referral

target endoscopy resources towards those with greatest need

**GastroPanel®**  
for dyspepsia



Product Code	Description
606400	BIOHIT GastroPanel® including Pepsinogen I, Pepsinogen II, Gastrin 17 and H. pylori IgG ELISAs. 96 wells.

*GastroPanel is also available as a service laboratory test for routine and research use, provided by BIOHIT Laboratory Services Oy. For information on how to access the service please contact us.*

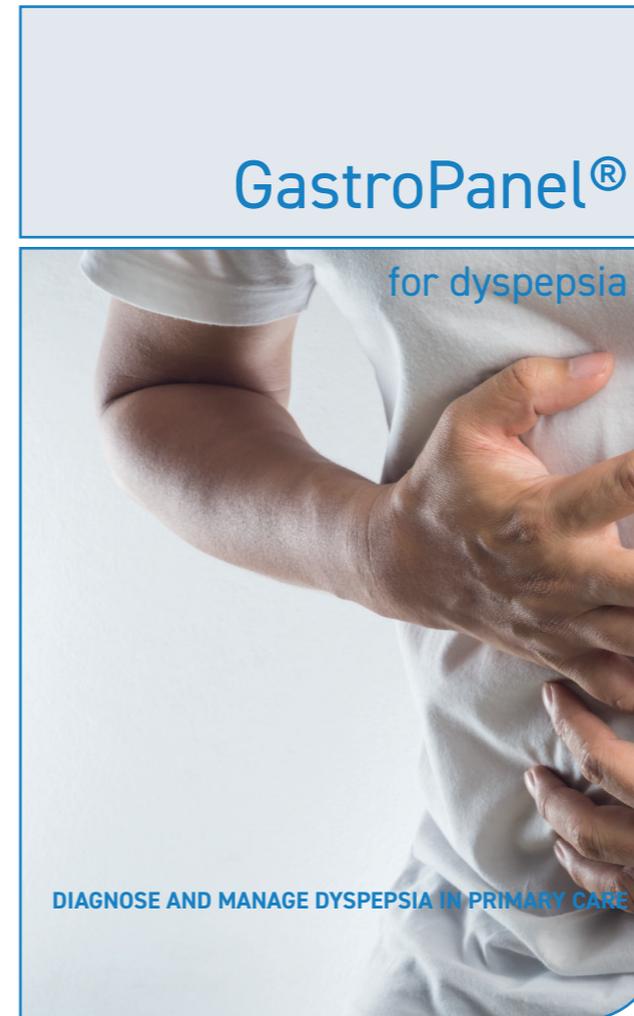
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**Dyspepsia in Primary Care**

40% of the population suffers with dyspepsia which constitutes 4% of all GP consultations. Management of dyspepsia can be challenging due to the myriad of causes, non-specific symptoms and lack of tools to assist the clinical diagnosis of the disease.

**GastroPanel®**

GastroPanel® is a blood test that supports the physician when diagnosing and referring patients presenting with stomach symptoms in Primary Care.

From a single plasma sample GastroPanel® identifies pathological causes of dyspepsia including *Helicobacter pylori* infection and its sequel Atrophic Gastritis, as well as acid disorders and associated risks.

When selecting the right treatment it is important to identify individuals at risk of:

- **Gastric Cancer**
- **Peptic Ulcer**
- **Acid dysfunction**
- **Vitamin and micronutrient deficiency**

Atrophic Gastritis is the highest known risk factor for Gastric Cancer (GCa) and causes impaired acid secretion too. It is a progressive condition caused by the *Helicobacter pylori* bacterium and autoimmune disease.

With the additional clinical information that GastroPanel® provides, it is easy to determine which patients should be managed in Primary Care and which patients should be referred.

**Identifying significant disease earlier**

Atrophic Gastritis is a high-risk, chronic inflammatory condition of the gastric mucosa and is considered the most important risk factor for Gastric Cancer (GCa) with 18% of AG cases progressing to cancer within 10 years.<sup>1</sup>

By targeting endoscopy resources towards those patients with the greatest risk experts agree that it is possible to diagnose diseases sooner, deliver major improvements in survival in a cost-effective way<sup>2</sup>, and help reach the desired quality standards in endoscopy.<sup>3</sup>

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## GastroPanel® biomarkers have excellent predictive value<sup>4</sup>

### H. pylori IgG Antibody (HpAb)

A useful and validated method to indicate whether the patient has been exposed to Helicobacter pylori. To enhance "Test and Treat" strategies GastroPanel® combines HpAb with:

### Pepsinogen I (PGI)

The plasma levels of pepsinogen I reflects both the structure and function of the corpus mucosa. When the corpus becomes atrophic, pepsinogen I concentrations in the blood fall below 30 µg/l.

### Pepsinogen II (PGII)

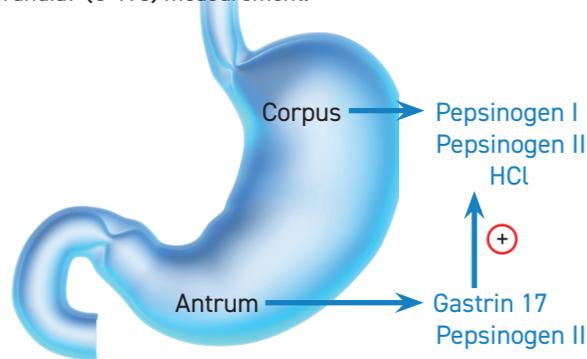
The plasma concentration of pepsinogen II is another indicator of the structure and function of the gastric mucosa. Output of pepsinogen II often increases when the gastric mucosa becomes inflamed (threshold 15 µg/l). The most common cause is a Helicobacter pylori infection, but occasionally some other factors may cause gastritis: e.g. analgesic drugs, Alcohol, diet, bile reflux.

### Pepsinogen I/Pepsinogen II (PGI / PGII) ratio

The pepsinogen I/pepsinogen II ratio falls markedly (< 3) when the gastric corpus is atrophic.

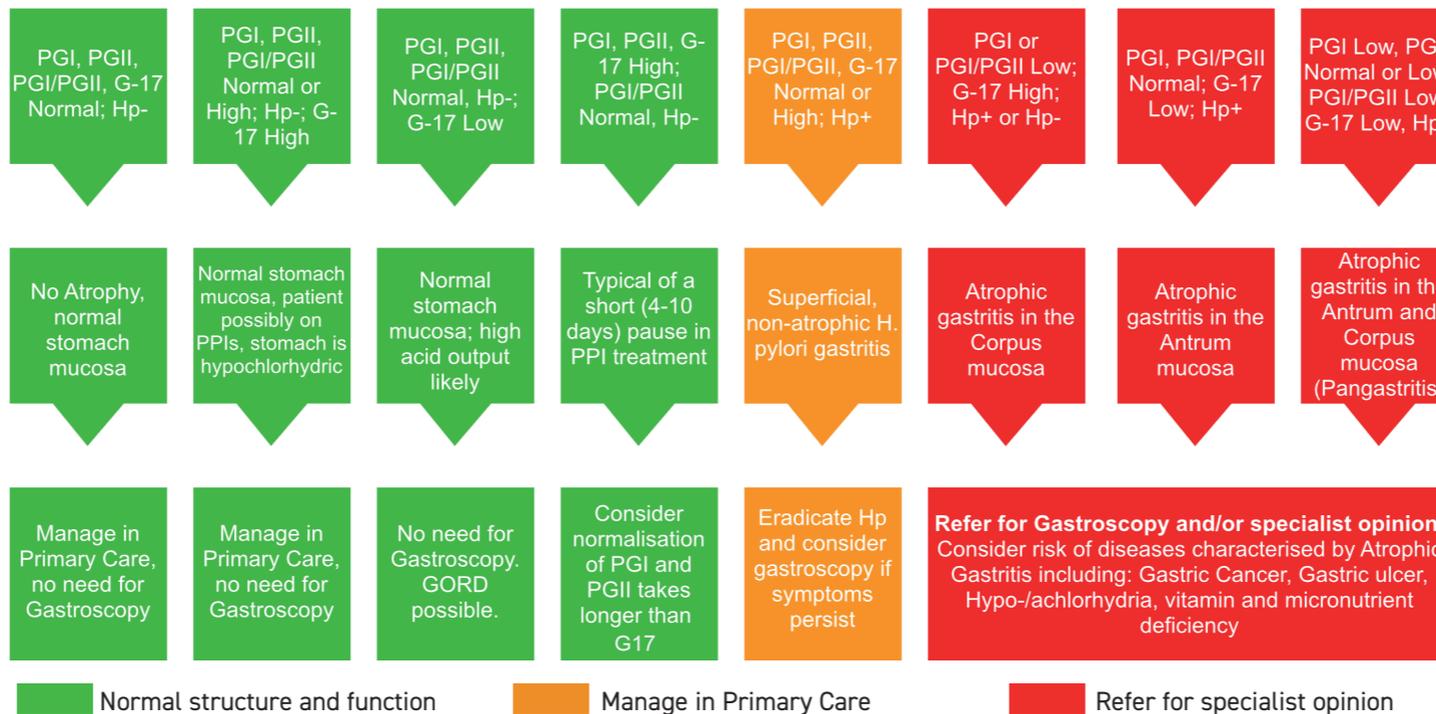
### Gastrin-17 (G-17b)

Plasma gastrin-17 is an indicator of the structure and function of the stomach antrum. Gastrin-17 is secreted exclusively by the G cells in the antrum. It accelerates the secretion of hydrochloric acid from the parietal cells of the corpus. A gastrin-17 level above 7 pmol/l usually indicates low stomach acidity. Low gastrin-17 levels occur in antral atrophic gastritis through loss of G cells, or when there is an increased acid output in the corpus. The two can be differentiated by performing a fasting (G-17b) and post-prandial (G-17s) measurement.



## GastroPanel® helps target endoscopy resources towards those at greatest risk

By using GastroPanel®, GPs and clinicians get to understand the physiological, biochemical and pathological status of the stomach from a simple blood test. By aligning the test results with digestive symptoms they are able to rule out diseases, identify acid-disorders, and prioritise referrals for endoscopy.



### References

- Whiting J. et al. The long term results of endoscopic surveillance of premalignant gastric lesions. Gut 2002;50:378-381.
- Dinis-Ribeiro M. et al. Management of precancerous conditions and lesions in the stomach (MAPS): guideline from ESGE, EEHSG, ESP, and SPED. Endoscopy. 2012 January ; 44(1): 74-94.
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- Tu H. et al. A Serological Biopsy Using Five Stomach-Specific Circulating Biomarkers for Gastric Cancer Risk Assessment: A Multi-Phase Study. Am J Gastroenterol. 2017 May;112(5):704-715.
- Zagari RM. et al. Systematic review with meta-analysis: diagnostic performance of the combination of pepsinogen, gastrin-17 and anti-Helicobacter pylori antibodies serum assays for the diagnosis of atrophic gastritis. Aliment Pharmacol Ther. 2017;46:657-667.

For further information and clinical papers visit [www.biohithealthcare.co.uk/gastropanel-for-primary-care](http://www.biohithealthcare.co.uk/gastropanel-for-primary-care)

The GastroPanel® report provides detailed information about the pathophysiology of the gastric mucosa and provides guidance for patient management.

### Example Report:

#### BIOHIT HealthCare Innovating for Health

#### Patient Data

Patient id GP12345  
Patient age 51  
Gender M

#### Eradicated

No

#### Use of PPI

Occasionally

#### Acid symptoms

Frequent

#### Use of NSAIDs

No

#### Sample Data

Collection time 26.8.2017

Analysis time 28.8.2017

#### Laboratory Analysis Results

	Result	Reference Range
Pepsinogen I (PGI)	26.3 µg/l	30-160 µg/l
Pepsinogen II (PGII)	4.1 µg/l	3-15 µg/l
PGI/PGII	6.4	3-20
Gastrin-17b (G-17b)	13.8pmol/l	1-7pmol/l
H. pylori antibodies (HPAB)	21.5 EIU	<30 EIU

#### Interpretation

The results indicate atrophic gastritis (loss of gastric cells) in the corpus due to a past Helicobacter pylori infection, or an autoimmune disease. Gastric acid secretion is decreased. Atrophic Gastritis (loss of gastric cells, "no gastric acid") is a significant risk factor for gastric cancer. Hence gastroscopy is recommended.

### Clinical performance

GastroPanel® has been extensively validated ready for adoption into routine clinical practice. A recent meta-analysis<sup>5</sup> produced a summary Sensitivity, Specificity, PPV and NPV of 75%, 96%, 86% and 91% respectively for the diagnosis of Atrophic Gastritis.