

## Product Information

### ANTI-GASTRIN I

Developed in Rabbit  
Delipidized, Whole Antiserum

Product Number **G0785**

#### Product Description

Anti-Gastrin I is developed in rabbit using a synthetic gastrin I fragment (1-13) conjugated to KLH as the immunogen. This peptide fragment does not contain the C-terminal tetrapeptide common with cholecystokinin (CCK).

Anti-Gastrin I specifically stains gastrin-containing cells in formalin-fixed, paraffin-embedded sections of human stomach (neuroendocrine cells). Specific staining is inhibited with gastrin I (human), but not with sulfated cholecystokinin (26-33) amide (CCK-8, sulfated). The antibody reacts in radioimmunoassay with human gastrin I and human gastrin I fragment (1-13). No cross-reactivity is observed with rat gastrin I, human big gastrin, sulfated cholecystokinin (26-33) amide, non-sulfated cholecystokinin (26-33) amide, CCK(30-33) amide, and human gastrin releasing peptide (GRP).

Gastrin is a 17 amino acid peptide hormone and neurotransmitter widely distributed throughout the gastrointestinal (GI) tract and the central nervous system (CNS). Gastrin, together with cholecystokinin, secretin and vasoactive intestinal peptide (VIP), belong to the family of gastrointestinal hormones.<sup>1</sup> Gastrin is closely related to CCK and both peptides share the same biologically active C-terminal pentapeptide. Gastrin occurs in four biologically active forms: gastrin I (17 amino acid residues); big gastrin, G-34 (34 amino acid residues); minigastrin, G-14 (14 amino acid residues); and gastrin II (gastrin I, sulfated).<sup>2</sup> Gastrin and minigastrin can be extracted from normal antral mucosa and gastrinomas, and are normally present in fetal but not adult human pancreas.<sup>3</sup> Big gastrin is found abundantly in duodenal mucosa. In the CNS, gastrin is localized in neurons of the hypothalamus and pituitary. In the peripheral nervous system, gastrin is mainly localized in gastrin-producing, neuroendocrine cells in the glands of the antropyloric mucosa, gastric antral mucosa (G-cells), duodenum, and proximal small intestine mucosa (G- and IG-cells).<sup>9,10</sup>

Gastrin release stimulates gastric acid secretion, pepsin secretion, enzyme secretion from the pancreas, causes gall bladder contraction and gastric smooth muscle contraction.<sup>1</sup> Gastrin also exerts trophic effects on the gastrointestinal mucosa and normal pancreas.

It stimulates the growth of gastric cancer cells *in vitro*.

In pathological states gastrin is produced by endocrine tumors, which arise from the pancreas and the proximal duodenum.<sup>4,5</sup> Increased gastrin secretion has been associated with hypergastrinemia, gastric acid secretion, peptic ulcer disease, and the Zollinger-Ellison syndrome,<sup>6</sup> the latter commonly associated with gastrinomas and identified as hyperplasia of the G-cells of the gastric mucosa.<sup>7,8</sup> Antibodies that react specifically with gastrin may be used to study the differential tissue expression and intracellular and subcellular localization of gastrin in neuroendocrine cells of the gastrointestinal tract, and in the CNS.

Antibodies to gastrin are also useful for the identification and detection of gastrin in normal and neoplastic tissue.

#### Reagents

The antiserum has been treated to remove lipoproteins. Rabbit Anti-Gastrin is provided as a liquid containing 0.1% sodium azide as preservative.

#### Precautions and Disclaimer

Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

#### Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

### RIA Dilution Instructions

The working dilution was determined to be 1:2,000 using 5 - 10 pg/tube of <sup>125</sup>I-labeled human gastrin I.

It is recommended that the antiserum first be evaluated in the particular assay system chosen due to differences in systems and procedures.

### Specificity

Specificity of the antiserum is defined as the ratio of antigen concentration to cross-reactant concentration at 50% inhibition of maximum binding. The cross-reactivity data obtained in the second antibody PEG I<sup>125</sup> RIA system is as follows:

Cross-reactant	% Cross-reactivity
Gastrin I (human)	100
Gastrin I (1-13) (human)	100
Gastrin I (rat)	0.2
Big Gastrin (human)	0.5
CCK(26-33), amide, sulfated	0.01
CCK(26-33), amide, non-sulfated	0.5
CCK(30-33), amide	0.01
Gastrin Releasing Peptide (human)	0.2

### Sensitivity

Sensitivity is defined as the 90% intercept of a B/B<sub>0</sub> standard curve. In the above system, the sensitivity has been found to be 2 pg/tube.

### RIA Affinity Constant

The affinity constant (K<sub>a</sub>) is determined by a Scatchard plot using this RIA system.

$$K_a = 3.0 \times 10^{12} \text{ L/M.}$$

### Product Profile

A dilution of 1:1,000 was determined by indirect immunoperoxidase staining of formalin-fixed, paraffin-embedded sections of human stomach (antrum/duodenum).

In order to obtain best results, it is recommended that each user determine the optimal working dilution for individual applications by titration assay.

### References

1. Walsh, J., *Gastrointestinal Hormones*. In: *Physiology of the Gastrointestinal Tract*, Johnson, R. (ed.), Raven Press, New York, p 181 (1987).
2. Gregory, R., *Bioorg. Chem.*, **8**, 497 (1979).
3. Larsson, L., et al., *Scand. J. Gastroenterol.*, **12**, 869 (1977).
4. Wool, P., *Br. J. Cancer*, **63**, 469 (1991).
5. Lamers, C., and Jansen, J., *Eur. J. Cancer Clin. Oncol.*, **24**, 267 (1988).
6. Bordi, C., et al., *Arch. Pathol.*, **98**, 274 (1974).
7. Lechago, J., and Shah, I., *Gastroenteropancreatic Hormones*. In: *Atlas of Diagnostic Immunohistopathology*, True, L. (ed.), Lippincott, J.B., New York (1990).
8. Hodges, J., et al., *Gut*, **22**, 237 (1981).
9. Buchan, A., et al., *Nature*, **277**, 138 (1979).
10. Greider, M., et al., *Gastroenterology*, **63**, 572 (1972).

JWM/KMR 07/02

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.