

# HCl Plus



## Clinical Applications

- Provides Hydrochloric Acid to Help Maintain Gastric pH\*
- Contains Factors to Promote Healthy Digestion, Especially of Dietary Protein\*
- Supports Absorption of Certain Macro- and Micronutrients\*
- Helps Maintain Normal Gastric Flora\*

*HCl Plus provides a variety of health-supportive factors. L-glutamic acid, betaine HCl, and pepsin, a proteolytic enzyme, which assist in protein digestion. Gentian root, an herbal bitter, promotes normal secretion of saliva and gastric acid for digestive support. HCl (hydrochloric acid) supports nutrient absorption and helps maintain a healthy gastric pH, which, in turn, supports healthy gastric ecology.\**

All 3rd Opinion Inc Formulas Meet or Exceed cGMP Quality Standards

## Discussion

**HCl Plus** is designed to support the gastric phase of digestion directly and provide stimulus for the excretion of pancreatic digestive juices in the small intestine. Adequate hydrochloric acid is fundamental to healthy protein digestion, nutrient availability, and the maintenance of normal gastric flora.<sup>[1-3]</sup> There is a natural decline in the ability to produce hydrochloric acid, especially after the age of 60.<sup>[1]</sup> There appears to be an even greater decline in pepsin production related to normal aging.<sup>[4]</sup> Support of natural gastric secretions and acidity helps support normal digestion, absorption, and immune health.<sup>[5]</sup> Maintaining an acidic pH in the stomach helps support normal gastric and intestinal flora as well.\*<sup>[6-8]</sup>

**L- Glutamic Acid** This amino acid can be obtained from dietary protein or synthesized endogenously from other amino acids, such as glutamine. L- glutamic acid is used in HCl Plus as an acidifying agent.\*

**Betaine Hydrochloride (HCl)** Betaine (also known as trimethylglycine) is a natural substance found in foods such as beets, spinach, and grains. Research suggests that betaine supports cell health by acting as a methyl donor, and this, in turn, supports healthy methionine, homocysteine, and hepatic fat metabolism. Betaine also functions as an osmolyte, which supports the integrity of cells and proteins during fluctuations in hydration, salinity, and temperature. Betaine HCl, the acidic form of betaine, has traditionally been used to support digestion and absorption due to its ability to lower gastric pH.\*<sup>[9,10]</sup>

**Pepsin** One of the first enzymes to initiate protein digestion, pepsin is first synthesized in the parietal cells of the gastric mucosa and secreted as the inactive zymogen precursor pepsinogen. Hydrochloric acid activates pepsinogen to convert it to pepsin once it is outside the cell. This activation sets up a chain reaction leading to the production of still more pepsin. Porcine pepsin, in addition to betaine HCl, is provided in HCl Plus with the goal of promoting more endogenous pepsin production.\*<sup>[4,6]</sup>

**Gentian Root (*Gentiana lutea*)** Used for centuries to support healthy digestion, gentian contains the bitter glycosides gentiopicroin and amarogentin. Gentian's bitter taste can be detected even at a dilution level of 50,000:1. Gentian root appears to support digestion by stimulating secretion of saliva in the mouth, hydrochloric acid in the stomach, and digestive juices from the pancreas. Due to the stimulant effect that gentian root has on endogenous production of HCl, individuals may be able to discontinue HCl Plus after a period of use.\*<sup>[11-14]</sup>

HCl Plus is formulated with a variety of compounds and is designed to support gastric acidity, digestion, and normal gastrointestinal flora. HCl Plus should be taken with, or immediately following a meal. Do not use if there is a prior history of, or a current complaint of, a peptic or duodenal ulcer.\*





# Supplement Facts

Serving Size: 1 Capsule  
Servings Per Container: 90

	Amount Per Serving	%Daily Value
L-Glutamic Acid	350 mg	**
Betaine HCl	300 mg	**
Pepsin 1:10,000 (from porcine)	100 mg	**
Gentian ( <i>Gentiana scabra</i> )(root)	20 mg	**

\*\* Daily Value not established.

**Other Ingredients:** HPMC (capsule), vegetable stearic acid, silica, vegetable magnesium stearate, and medium-chain triglyceride oil.

## Directions

Take one capsule with meals, or as directed by your healthcare practitioner.

Consult your healthcare practitioner prior to use. Individuals taking medication should discuss potential interactions with their healthcare practitioner. Do not use if tamper seal is damaged.

## References

- Bland J, Liska D, Jones DS, et al. *Clinical Nutrition A Functional Approach*. 2nd ed. Gig Harbor, WA: The Institute for Functional Medicine. 2004.
- Giannella RA, Broitman SA, Zamcheck N. Gastric acid barrier to ingested microorganisms in man: studies in vivo and in vitro. *Gut*. 1972 Apr;13(4):251-6. [PMID: 4556018]
- Lovat LB. Age related changes in gut physiology and nutritional status. *Gut*. 1996 Mar;38(3):306-9. [PMID: 8675079]
- Feldman M, Cryer B, McArthur KE, et al. Effects of aging and gastritis on gastric acid and pepsin secretion in humans: a prospective study. *Gastroenterology*. 1996 Apr;110(4):1043-52. [PMID: 8612992]
- Untersmayr E, Jensen-Jarolim E. The effect of gastric digestion on food allergy. *Curr Opin Allergy Clin Immunol*. 2006 Jun;6(3):214-9. Review. [PMID: 16670517]
- Smolin LA, Grosvenor MB. *Nutrition: Science and Applications*. 2nd ed. Hoboken, NJ: John Wiley & Sons, Inc. 2010.
- Canani RB, Terrin G. Gastric acidity inhibitors and the risk of intestinal infections. *Curr Opin Gastroenterol*. 2010 Jan;26(1):31-5. Review. [PMID: 19907324]
- Kanno T, Matsuki T, Oka M, et al. Gastric acid reduction leads to an alteration in lower intestinal microflora. *Biochem Biophys Res Commun*. 2009 Apr 17;381(4):666-70. [PMID: 19248769]
- Craig SA. Betaine in human nutrition. *Am J Clin Nutr*. 2004 Sep;80(3):539-49. Review. [PMID: 15321791]
- New York University Langone Medical Center. Betaine Hydrochloride. <http://www.med.nyu.edu/content?ChunkIID=21560>. Last Reviewed 2011. Accessed March 23, 2012.
- Mowrey D. *Scientific Validation of Herbal Medicine*. New Canaan, CT: McGraw-Hill. 1999.
- Monterey Bay Spice Company. Gentian Root. <http://www.herbco.com/p-763-gentian-root-cs-wild-crafted.aspx>. Accessed March 25, 2012.
- Vilkin A, Levi Z, Morgenstern S, et al. Higher gastric mucin secretion and lower gastric acid output in first-degree relatives of gastric cancer patients. *J Clin Gastroenterol*. 2008 Jan;42(1):36-41. [PMID: 18097287]
- Behrens M, Brockhoff A, Batram C, et al. The human bitter taste receptor hTAS2R50 is activated by the two natural bitter terpenoids andrographolide and amarogentin. *J Agric Food Chem*. 2009 Nov 11;57(21):9860-6. [PMID: 19817411]

## Does Not Contain

Wheat, gluten, yeast, soy, dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, or artificial preservatives.

**\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.**

