

## Detection of lactose intolerance from a biopsy specimen – reliable results in only 20 minutes

Patients seeking medical treatment for the symptoms caused by lactose intolerance (hypolactasia) are often ordered to an upper intestinal endoscopy. However, lactose intolerance cannot be diagnosed on the basis of gastroscopy alone or on the basis of microscopical evaluation of biopsy samples. Lack of lactase enzyme must be determined biochemically from a biopsy specimen or on the basis of a lactose tolerance test or a breath hydrogen test. All these tests are uncomfortable for the patient, time-consuming, and expensive. Until recently, the above investigations have been the only means for diagnosing this disorder.

### Biohit Lactose Intolerance Quick Test

However, Biohit's unique Point of Care (POC) -test in connection with gastroscopy enables a quick diagnosis of those patients suffering from lactose intolerance. A biopsy specimen taken from the mucosa of the upper part of the small intestine (duodenum) is examined immediately. The development of color in the test liquid after 20 minutes informs whether lactase enzyme is present in the biopsy specimen or not. In case of a normal biopsy specimen, color develops as lactase enzyme in the biopsy specimen breaks down milk sugar added to the test buffer. However, if there is no or only a slight color reaction, it can be concluded that the patient suffers from lactose intolerance.

1. In the first step, lactase enzyme in the biopsy specimen breaks down lactose substrate into monosaccharides - glucose and galactose.
2. In the second, signal reaction step, the amount of glucose released is detected by using a chromogen solution and the signal reaction solution, resulting in the formation of a colored compound.



*Lactose intolerance (hypolactasia) results in inability to digest lactose, the predominant sugar of milk. This inability results from shortage of lactase enzyme, which is produced in the small intestine. Lactase breaks down milk sugar (lactose) into simpler forms (glucose and galactose), which can then be absorbed into the bloodstream.*

*Lactase activity begins to decrease after weaning. One-third of the adult population worldwide retains the ability to digest lactose. It is estimated that approx. 15-20% of Western and Northern Europeans, and 90% of Asian, African and native Americans suffer from lactose intolerance. Often the symptoms remain undiagnosed, and thus lactose intolerance may not be treated for years.*

*Symptoms include: nausea; flatulence; abdominal bloating, cramps and pain; and/or diarrhea.*



### Lactose Intolerance Quick Test:

- A biopsy specimen is taken in connection with gastroscopy
- Simple procedure
- No additional equipment needed
- All reagents are ready for use
- Results available in 20 minutes

**Biohit Quick Tests**  
Fast - Reliable - Easy

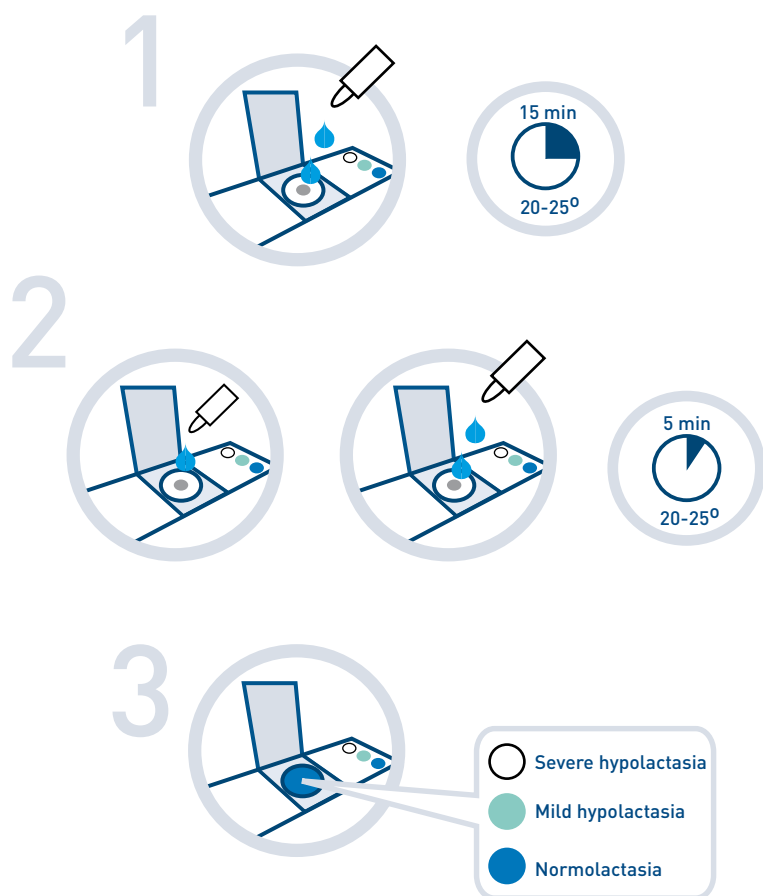


## Biohit Lactose Intolerance Quick Test - fast, reliable and easy

Lactose Intolerance Quick Test  
- comparison to biochemical determination of lactase in biopsy specimen:

Ref. Kuokkanen et al, Endoscopy 2006; 38: 708-712

<b>N</b>	=	<b>80</b>
<b>Sensitivity</b>	=	<b>95%</b>
<b>Specificity</b>	=	<b>100%</b>
<b>PPV</b>	=	<b>100%</b>
<b>NPV</b>	=	<b>98%</b>



### Procedure

1. Place the biopsy specimen into the plate well, add reagent 1, and incubate for 15 minutes at room temperature (20-25°C).
2. Add reagents 2 and 3, and incubate for another 5 minutes at room temperature (20-25°C).
3. After the incubation period, read the results.

### Lactose Intolerance Quick Test\*

Cat. No.	Item
602010	Plates and reagents for 25 tests
602012	Plates and reagents for 10 tests

\*In the United States: For research use only; not for use in diagnostic procedures.



### Headquarters Biohit Oyj

Laippatie 1 • 00880 Helsinki • Finland • Tel. +358-9-773 861 • Fax: +358-9-773 86 290 • [info@biohit.com](mailto:info@biohit.com) • [www.biohit.com](http://www.biohit.com)

CHINA  
Biohit Biotech (Suzhou) Co Ltd.  
Tel: +86-21-6248 5589  
Fax: +86-21-6248 7786  
[info.china@biohit.com](mailto:info.china@biohit.com)

FRANCE  
Biohit SAS  
Tel: +33-1-3088 4130  
Fax: +33-1-3088 4102  
[commercial.france@biohit.com](mailto:commercial.france@biohit.com)

GERMANY  
Biohit Deutschland GmbH  
Tel: +49-6003-82 820  
Fax: +49-6003-828 222  
[info@biohit.de](mailto:info@biohit.de)

JAPAN  
Biohit Japan Co., Ltd.  
Tel: +81-3-5822 0021  
Fax: +81-3-5822 0022  
[sales@biohit.co.jp](mailto:sales@biohit.co.jp)

RUSSIA  
Biohit OOO  
Tel: +7-812-327 5327  
Fax: +7-812-327 5323  
[main@biohit.ru](mailto:main@biohit.ru)

UK  
Biohit Ltd.  
Tel: +44-1803-315 900  
Fax: +44-1803-315 530  
[sales@biohit.co.uk](mailto:sales@biohit.co.uk)

USA  
Biohit Inc.  
Tel: +1-732-922 4900  
Fax: +1-732-922 0557  
[diagnostics.usa@biohit.com](mailto:diagnostics.usa@biohit.com)