Food Intolerance

Gluten Sensitivity

Histamine Intolerance

Lactose Intolerance

Test kits for medical routine and research

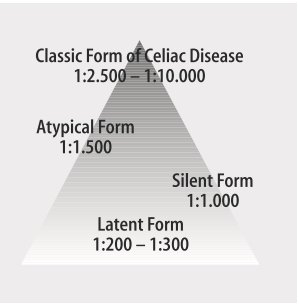
Gluten Sensitivity

Even atypical and silent forms can be detected

Coeliac disease (CD), also known as gluten-sensitive enteropathie (GSE), is a genetically determined, T-cell mediated, chronic inflammatory condition of the small intestine which has an autoimmune component. The symptoms vary and differ between adults and children.

Total villous atrophy, once considered the only histologic finding compatible with a diagnosis of CD, is now considered only the extreme of a continuous spectrum of tissue damage that can be detected during the acute phase of the disease. In half of all adult cases there are no bowel symptoms (like recurring gastrointestinal pains, swollen stomach, diarrhoea) but other indications:

- Poor appetite and failure to gain weight
- Iron-deficiency anaemia
- Neurological disturbances (e.g. depressions, lethargy)
- Recurrent abortions; reduced infertility
- Dermatitis herpetiformis Duhring
- Rheumatoid arthritis symptoms



The persistence of mucosal injury with or without typical symptoms can lead to serious complications, and gastrointestinal malignancies (particularly lymphomas) which occur in 10%-15% of adult patients with CD who do not strictly comply with a gluten free diet.

Who should be tested?

Testing is indicated for subjects with symptoms suggestive of CD, as well as for those with CD-associated diseases (e.g. insulin dependant Diabetes mellitus, autoimmune thyroiditis, Sjögren syndrome).

Diagnostic: Detecting antibodies against transglutaminases

Tissue transglutaminase (tTG) is the target of specific autoimmune responses and has been used to develop innovative diagnostic tools. But the discovery of tTG as the main endomysial autoantigen failed to explain why only a proportion of gluten sensitivity patients show other symptoms (e.g. of dermatitis herpetiformis, DH) and why there is a difference in the antigenic repertoire between CD and the other known diseases associated with gluten sensitivity. It turned out that the epidermal transglutaminase (TGe), an isoform of the enzyme, rather than tTG is the autoantigen in DH (Sardy et al. 2002).

Serum analysis

In serum, anti-gliadin-, anti-tTG- and anti-TG_e-antibodies can be detected. Diagnosing in serum is advised if the patient is suspected of having a gluten sensitivity.

Stool analysis

Anti-endomysial antibodies are produced by the intestinal mucosa from CD patients (Picarelli et al. 2002). Moreover, CD patients with TG-negative serum were TG-positively tested when stool samples were analysed. Consequently, analysis of stool samples are useful for additional information. Anti-gliadin-IgA/sIgA and anti-tTG-IgA/sIgA can be detected in stool with our ELISAs (see table 1).

Diagnostic from Serum

	anti-human tissue transglutaminase IgA (anti-htTG-IgA)	**ELISA**	(Cat. No. K 9399)
	anti-human epidermal transglutaminase IgA (anti-heTG-IgA)	**ELISA**	(Cat. No. K 9396)
New!	***IDK*® anti-human neuronal transglutaminase IgA (anti-hnTG IgA)**	**ELISA**	(Cat. No. K 9400)
New!	***IDK*® anti-human neuronal transglutaminase IgG (anti-hnTG IgG)**	**ELISA**	(Cat. No. K 9401)
	anti Gliadin IgA	**ELISA**	(Cat. No. K 9310)

Diagnostic from Stool

anti-human tissue transglutaminase sIgA (anti-htTG-sIgA)	**ELISA**	(Cat. No. K 9393)
anti Gliadin sIgA	**ELISA**	(Cat. No. K 9311)

HLA DQ Genotyping

MutaGEL® HLA-DQ 2+8	PCR	(Cat. No. KE09020)
MutaPLATE® HLA-DQ 2+8 (TM)	PCR	(Cat. No. KF190532)

The **MutaGEL®** HLA-DQ 2+8 test allows the individual HLA-DQ genotyping by amplification of the encoding allels. For this purpose only a small sample of EDTA-blood is necessary for the preliminary extraction of DNA (reagents not included). The subsequent processing with molecular biological methods leads to specific amplicfication products detectable by gel electrophoresis.

Histamine Intolerance

Comprehensive diagnostics by determination of DAO concentration and activity

Diamine oxidase (DAO) is an endogenous enzyme that metabolizes histamine. Although DAO is found throughout the body, the most important site of action is the intestine. The enzymatic activity of DAO determines the speed of histamine degradation. In the case of DAO deficiency or inhibition, incorporated or endogenous histamine cannot be degraded quickly enough, and the symptoms of histamine intolerance develop. Millions of people suffer from gastrointestinal problems, migraine, irritations of nasal mucosa and other allergy-like symptoms after consumption of certain nutrients. Too much histamine in the body can be the reason for this wide range of symptoms. Another possibility for reduced DAO function could be the intake of activity-inhibiting substances, such as alcohol or medication (e.g. acetyl salicylic acid, blood pressure regulating or mucolytic substances as well as special antibiotics) or the lack of DAO cofactors such as vitamin C, vitamin B_6, copper or manganese ions.

Patients exhibiting histamine intolerance symptoms should first of all be tested for a lack of DAO by a quantitative analysis of DAO concentration with our **DAO ELISA**. As expected, the ELISA recognizes elevated DAO levels in pregnant women compared to non-expecting women. Furthermore, it indicates a higher DAO concentration 30 minutes after intravenous heparin injection compared to the basal level.
If the amount of DAO is sufficient, DAO activity in the circulation should be verified using our **DAO REA (^{3}H)**, since the symptoms could also be caused by DAO malfunction. In addition, a parallel determination of DAO cofactors as well as the identification of potential DAO inhibiting drugs is useful for diagnosis. If indicated, a change in medication can be necessary.

DAO ELISA and DAO REA represent two complementary tools for the diagnosis of histamine intolerance, which reliably detect a lack or malfunction of DAO.

Indications:

- Detection of histamine intolerance
- Monitoring of a histamine-free diet

Diagnostic from Serum

***IDK*® DAO ELISA**	(Cat. No. K 8500)
Histamine ELISA	(Cat. No. K 8212)

worldwide unique!

Diagnostic from Stool

Histamine ELISA	(Cat. No. K 8213)
***IDK*® DAO ELISA**	(Cat. No. K 8500)

Lactose Intolerance

Genetic risk of lactose intolerance: Detecting the polymorphism in the lactase gene

Patients with lactose intolerance are not able to digest milk sugar (lactose) taken in with food. Due to this fact, these persons subsequently suffer under malabsorption problems like nausea, flatulence, diarrhoea or stomach pain. The foremost reason for lactose intolerance is a genetic lack of the enzyme lactase which is responsible for the degradation of milk sugar in the organism. This common gene defect is easy to detect by analysing the T/C base replacement at position -13910 from the regulatory region of the lactase gene. If this point mutation is homozygous, a lactase deficiency and subsequent lactose intolerance is predetermined. The manifestation of the disease occurs at about 20 years of age and the prevalence of the homozygous mutation in Germany is > 15 %.

The kit "MutaGEL Laktase" allows the detection of the common **T13910C polymorphism** in the lactase gene LCT.

Indications:
Nausea, cramps, bloating, gas, and diarrhea, which begin about 30 minutes to 2 hours after drinking or eating fluids, foods containing lactose

- **MutaGEL® Laktase (AS):** classic version with agarose gel (allel specific) *(for research use only)* (Cat. No. KE09009)

IDK® EDN (EDN ELISA; Cat. No. K 6811)

For the differentiation of food allergy and food intolerance

EDN (eosinophil derived neurotoxin, eosinophil protein x, EPX) measuring in stool is recommended for **diagnosing a food allergy with an immediate reaction** or to test the clinical efficiency of an elimination diet. EDN measurements also support an examination of the integrity of the intestinal mucous, when looking into an inflammable intestinal disease, investigating Colon Carcinoma or for the diagnosis of an intestinal parasite.

The classical ways of diagnosing an allergy (determine allergy specific IgE antibodies and the prick-test) are limited when used to determine a food allergy. For example, a normal IgE level and a negative result from the prick-test doesn't rule out an intestinal food allergy. In this case, an EDN measurement in stool is recommended.

Indications

- Confirmation of a food allergy with immediate reaction
- Assessment of an elimination diet
- Indication of a damaged integrity of the intestinal mucous membrane caused by an invasive disease (e.g. CED, CC etc.)
- Detection of intestinal parasites

IDK® Casomorphin/Gliadorphin Peptides (LC-MS/MS Kit; Cat. No. KM8000)

LC-MS/MS determination of 8 casomorphin and gliadorphin peptides in urine

- Determination of the inability to digest gluten and casein peptides
- Detection of different classes of gluten and casein peptides
- Indication for autism, schizophrenia, Asperger syndrome, ADD, dyslexia, chronic fatigue, fibromyalgia, depressions ...

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