

Name First Name	Date of Birth Sex	Order ID Order Date		
Sampling Date Sample Material	Validation by Validation Date	Findings Status Findings Date		
Test	Result	Unit	Standard Range	Previous Result
<b>Stool Diagnostics</b>				
<b>Special Request</b>				
Zonulin	<b>74</b>	ng/ml	< 55	

FE  
A) ELISA

Laboratory-Id N<sup>o</sup>.  
Received  
Report  
Last Name  
First Name  
Date of Birth

**Biovis Diagnostik MVZ  
GmbH**

Brüsseler Str. 18  
D-65552 Limburg-Eschhofen

Phone: (+49) 6431 / 21248-0  
Fax: (+49) 6431 / 21248-66  
Email: info@biovis.de

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## Zonulin IDK (Properdin)

### **Zonulin level is above normal.**

Latest research findings lead to a reclassification of the protein measured here into **properdin** that activates the alternative complement pathway. Functionally and structurally, properdin belongs to a "**zonulin family**" of boundary surface permeability mediators that influence the **tight junctions**.

High levels are associated with increased intestinal permeability. Low levels indicate a stable and tight intestinal mucosa. Increased intestinal permeability may induce inflammatory mucosa reactions and sensitizations. Increased values are often measured in patients with coeliac disease, diabetes mellitus type 1 or numerous other autoimmune diseases.

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## Therapy Recommendations

### Anti-inflammatory Measures

Independent of the reason of marker increases one should first try to achieve healing of mucosa reactions with the aid of anti-inflammatory measures. In this context **Colibiogen Children** therapies seem very helpful. Glutamine – as nutrient of intestinal epithelia cells – counteracts mucosa irritations or “leaky gut” syndromes (e. g. Aminoplus Glutamin, Adamin G).

### Milieu Stabilisation by Promoting the Intestinal Acidification Flora

Concerning the **inflammatory mucosal irritations**, milieu stabilizing measures seem sensible. This is possible by giving lactic acid producing bacteria. The duration of the therapy should be 3 to 6 months.

Orally taken acidifiers favour a transient lumen flora, which acidify the intestinal milieu by metabolic processes and thus promotes the reconstitution of the intestinal acidification flora.

Because of the **inflammatory mucosal irritations**, we recommend e.g. the probiotic Lactobact Junior, which provides aside from the influence on the microflora and the mucosal immune system, strong **anti-inflammatory properties**.

Because of the contained bacteria strains, a good price/performance ratio and the exclusion of lactose, gluten and yeasts as excipients, Lactobact Junior seems recommendable, which contains 6 bacteria strains. Aside from selected bifido bacteria and lactobacilli strains, it also contains Streptococcus thermophiles, providing for an **immune modulating effect** in addition to the **milieu stabilizing properties**. Lactobact Junior is especially developed for the flora situation of children and adolescents. With atopic diseases like allergies, asthma or neurodermatitis, Omni-biotic Panda offers a good alternative.

### Dietetic Treatment

Inflammatory mucosa reactions require dietary measures like **bland balanced diets** always taking the need of small children into consideration. Before changing of diet, please make sure it is tolerated well.

With kind regards

Your Biovis-Diagnostik

**Attention:** The recommendations given are only advice based on the compiled findings and possible clinical information. They are exclusively addressed to the therapist/physician and are **not intended** for direct transfer to the patient. They cannot replace diagnosis and therapy of the treating therapist. The recommendations for therapy are a suggestion. The responsibility for the final selection/measure/dosage lies with the medical professional/therapist responsible for each individual case. Please also note that there may be contraindications/interactions associated with the recommended medication/nutritional supplements for pre-existing primary diseases and when taking certain medication. These must be investigated by the medical professional/therapist before starting therapy.

**To achieve a special medical purpose, the dosing recommendations for individual substances may be higher than those of EU Regulation 2016/128.**

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## Minor Intestinal Inflammation – Eat and Drink Properly

### Minor Intestinal Inflammations

Minor intestinal inflammation may be the consequence of various disorders and different intestinal sections may be concerned. Most frequently lower small intestine or upper colon are affected. The organ can only limitedly absorb nutrients. Undigested food components remain in the intestinal tract, which may lead to irritations. Therefore it makes sense on one hand to relieve the intestines and on the other hand to ensure that food consumed is easily digestible, which means it can be utilized well.

### Diets Should Protect the Intestinal Tract

In case of intestinal irritations light balanced diets considering individual food intolerances are generally recommendable. They also should cover the need of important nutrients. **Light balanced diets** should relieve the gastro-intestinal tract as well as possible. This is possible by eating several small meals a day and rare consumption of indigestive foods (Table).

Foods to be avoided:	
Flatulent vegetables	Cabbage, leak, onions, paprika, mushrooms, pulses, cucumbers
Hot spices	Chilli, pepper, paprika powder
Foods with high fat content	Deep-fried, fat fish, lard, fat cheese, mayonnaise
Foods with high sugar content	Sweets, products containing sugar substitutes (fructose, sorbitol etc.)
All too hot or too cold foods and drinks	
Fizzy drinks	

Furthermore special individual food tolerances should be tested to avoid additional intestinal irritation. Foods, which are preferably consumed, but cause intolerance reactions or stress the intestines, can partly be better digestible by certain cooking methods. Gut also false preparation (e. g. deep frying) may have converse effects on the intestines.

During symptom-free phases **high-fibre diets** are recommended to reduce inflammatory activity. The change of diet should be gradual and the food should be selected carefully.



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Suitable are tender young vegetables, low acid fruits and wholemeal bread made with ground cereals.

When eating a lot of fibres one should also drink mineral water or herbal tea to provide for sufficient swelling of fibres.

**Well tolerated are mostly...:**

- Tender young vegetables and green salads
- Porridge/puree made with flakes or wholemeal
- Unsweetened finished mueslis
- Brown rice, millet, amaranth, quinoa, buckwheat
- Fine ground wholemeal bread, wholemeal crisp bread and zwieback
- Fine wholemeal pastries
- Pasta, potatoes
- Eggs, curd, lean fish, poultry, veal
- Fruit, ripe and low-acid, e. g. melons, passion fruits, bananas
- Small amounts of honey, fruit butter and puree

**Nutrient Deficiency**

Due to intestinal resorption disorders of certain nutrients optimal vitamin and mineral supply – especially of vitamin B<sub>12</sub>, but also of magnesium, iron and zinc – is not always given. Lack of appetite may also be promoted by nutrient deficits.

**MCT – Fats in case Fat Digestion Disorders**

MCT-fats are oils and margarines with medium-chain fatty acids, which are used especially in case of fat resorption disorders. Other than long-chain fatty acids, MCT fats have smaller molecules leading to better water solubility. For example: they can be swiftly absorbed and digested independent of bile acids and fat splitting enzymes. The adaptation of these fats should be gradual, as the intestines need some time to adjust. These products are available margarine, cooking oil, cheese spread or spreads enriched with omega-3 respective omega-6 fatty acids.

Normally individually adapted balanced diets are tolerated well. In regard to intolerances there is nothing like “the proof of the pudding is in the eating”.