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Surname, First name Mustermann, Max

DOB 01-12-1970

Sex male

Lab number 2-4312

Report date 04-10-2021

Laboratory report

Enclosed you will find the results of your laboratory examination. In addition to your results, you will also receive a summary of the correlating effects, regarding the tested parameters. These are compiled without any knowledge on the clinical background and as such, may only be used as an interpretation aid. In case of health problems, please consult a doctor or practitioner for medical treatment and accompaniment for making the best decisions for your health. We explicitly warn against beginning, suspending, or changing any medication or therapy without consulting your doctor or practitioner.

Test: Leaky Gut Complete

Sample material: Stool

Date collected: 26-09-2021

Date received: 28-09-2021

Analyte	Result	Reference Range	Result
Aerobic Bacteria			
Escherichia coli	< 10 ⁴ cfu/ml	10 ⁶ -10 ⁷ cfu/ml	
Proteus spp.	< 10 ⁴ cfu/ml	< 10 ⁴ cfu/ml	
Citrobacter spp.	< 10 ⁴ cfu/ml	< 10 ⁴ cfu/ml	
Klebsiella spp.	< 10 ⁴ cfu/ml	< 10 ⁴ cfu/ml	
Other Enterobacteriaceae	< 10 ⁴ cfu/ml	< 10 ⁴ cfu/ml	
Pseudomonas spp.	< 10 ⁴ cfu/ml	< 10 ⁴ cfu/ml	
Enterococcus spp.	< 10 ⁴ cfu/ml	10 ⁶ -10 ⁷ cfu/ml	
Anaerobic Bacteria			
Bacteroides spp.	10 ⁹ -10 ¹¹ cfu/ml	10 ⁹ -10 ¹¹ cfu/ml	
Bifidobacterium spp.	10 ⁹ -10 ¹¹ cfu/ml	10 ⁹ -10 ¹¹ cfu/ml	
Lactobacillus spp.	10 ⁵ -10 ⁷ cfu/ml	10 ⁵ -10 ⁷ cfu/ml	

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Analyte	Result	Reference Range	Result
Clostridium spp.	< 10 ⁵ cfu/ml	< 10 ⁵ cfu/ml	
Yeast and Fungi			
Candida albicans	10 ⁷ -10 ⁹ cfu/ml	< 10 ² cfu/ml	
Candida spp.	< 10 ² cfu/ml	< 10 ² cfu/ml	
Geotrichum candidum	10 ² -10 ³ cfu/ml	< 10 ² cfu/ml	
Mould	positive	negative	
Intestinal Milieu			
pH Value	7,2	6,2-6,8	
Inflammation and Permeability			
sIgA	300 µg/ml	510-2040 µg/ml	
Alpha-1 Antitrypsin	45 mg/dl	<= 40 mg/dl	
Pankreas Diagnostics			
Zonulin	100 ng/ml	<= 78 ng/ml	

Sample material: Mouth swab

Date collected: 26-09-2021

Date received: 28-09-2021

Analyte	Result	Reference Range	Result
Yeast and Fungi			
Oral Candida spp.	< 10 ² cfu/ml	< 10 ² cfu/ml	

Escherichia coli

Escherichia coli (E. coli) is a minority member of the gut microbiome, but a very important one. E. coli bacteria normally live in the intestines of healthy people and stimulate the intestinal immune system. Ample amounts of E. coli have been associated with a balanced gut flora. E. coli produces folic acid, vitamin K2, Co-enzyme Q10, and 3 amino acids, namely tyrosine, phenylalanine, and tryptophan. If there are low counts of E. coli, one can expect deficiencies in the above micronutrients that result in different problems, i.e. osteoporosis and bone problems, mitochondrial function, low mood, and poor gut motility.

Proteus spp.

Proteus spp. are part of the Enterobacteriaceae family and most commonly found in the human intestinal tract as part of normal human intestinal flora. A low level of Proteus spp. is considered normal. There is no evidence of Proteus spp. overgrowth.

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Citrobacter spp.

There is no evidence of *Citrobacter* spp. overgrowth. *Citrobacter* spp. are members of the Enterobacteriaceae family and are less commonly identified as pathogens.

Klebsiella spp.

There is no evidence of *Klebsiella* spp. overgrowth. *Klebsiella* spp. are bacteria, which belong to the Enterobacteriaceae family. They can naturally be found in the gastrointestinal tract of humans.

Other Enterobacteriaceae

The measured Enterobacteriaceae are within reference range. Enterobacteriaceae is a bacteria family that includes, along with normal members of the gut microbiota, some of the more familiar pathogens, such as *Salmonella* and *Shigella*. Only low levels of these are tolerated in the healthy gut flora.

Pseudomonas spp.

Pseudomonas spp. are within reference range. *Pseudomonas* spp. belong to the environmental germs and are normally not part of the human flora. Only low levels are considered normal.

Enterococcus spp.

Low levels of enterococci in the stool indicate disturbances in balance of the intestinal flora. Enterococci produce short-chain fatty acids during the carbohydrate utilisation, which contributes to the acidification and stabilisation of the intestinal environment. As an important contribution to the intestinal milieu, they produce bacteriostatic substances.

Bacteroides spp.

Bacteroides are the most abundant bacteria in the human microbiota, which allow us to digest soluble fibre and make short chain fatty acids.

Bifidobacterium spp.

Members of the genus *Bifidobacterium* make up a significant portion of the human gut flora and indicate a healthy gut flora.

Lactobacillus spp.

Lactobacilli are lactic acid forming bacteria, which produce large amounts of short chain fatty acids (SCFA). SCFAs lower the intestinal pH and thereby make the gut milieu acidic — unsuitable for microbial pathogens (e.g. yeasts). In addition, lactobacilli secrete antifungal and antimicrobial agents. Low levels of lactobacilli indicate disturbances of the intestinal flora.

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Clostridium spp.

Clostridium spp. are prevalent in the human intestine but not members of the healthy gut microbiota. Colony counts much lower than 10^5 cfu/ml specimen indicate a normal colonisation.

Candida albicans

High levels of Candida albicans indicate deficiencies in colonisation resistance, disturbances of intestinal flora, and/or defects of mucosa. Yeasts may burden the body with toxic metabolites. C. albicans overgrowth is associated with diverse non-specific symptoms like digestive issues, fatigue, brain fog, recurring fungal infections, skin problems, mood swings, and more.

Candida spp.

There is no evidence of Candida spp. overgrowth. Candida spp. are common members of the human gut. The genus Candida includes around 150 species. Besides Candida albicans there are several other species that are also frequently isolated as causative agents of Candida infections (e.g. C. glabrata, C. krusei, C. lusitanae, C. parapsilosis, and C. tropicalis).

Geotrichum candidum

Geotrichum candidum levels are higher than the reference range. It is a fungus which is a member of the human microbiome and reaches the intestine through food. Slightly elevated levels of G. candidum may cause allergic and asthmatic reactions.

Mould

Increased levels of mould were detected. Mould spores enter the intestines with food. The main sources of mould exposure, however, are from the indoor air in buildings with substantial mould growth. Due to the lack of oxygen in the intestine, they cannot normally cause mycosis there. The mould spores themselves are usually harmless — if one is in good health. People who are sensitive or allergic to mould develop symptoms like respiratory distress. Also, exposure can trigger infections in the skin, lungs, eyes, and other organs.

pH Value

An alkaline faecal pH indicates an imbalanced intestine flora. An alkaline faecal pH indicated an imbalanced intestine flora. It is possible that proteolytic putrefactive germs are predominant, which raise the faecal pH by secreting alkaline metabolites (e.g. due to a high-protein diet).

sIgA

Secretory IgA (sIgA) is an immune protein, which reacts anti-inflammatory. It coats the intestinal lining, especially the mucosal surfaces and is supposed to protect us from inside. As secretory IgA represents the first line of defence of the gastrointestinal tract (GI tract), immunological activity in the GI tract can be assessed using secretory IgA. Low levels of faecal sIgA increase the risk of leaky gut syndrome and



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promote the growth of microbial pathogens in the intestine. The risk of inflammatory immune reactions to undigested food and protein is also increased if low levels of sIgA are present. Low faecal IgA levels can result from physical or mental stress and/or inadequate nutrition.

Alpha-1 Antitrypsin

Alpha-1 antitrypsin is a glycoprotein, which is produced by the liver and cells of the gut. It belongs to the group of acute phase proteins and is a marker of protein loss and permeability of the gut. The measurement of alpha-1 antitrypsin levels in stool reflects the permeability of the gut during inflammatory processes. Increased levels of alpha-1 antitrypsin indicate an increased permeability of the intestinal mucous membrane, which leads to an enteral loss of alpha-1 antitrypsin.

Zonulin

Zonulin is a protein molecule involved in the regulation of intercellular tight junctions in the intestinal wall. When it binds to specific receptors on the cell surface, the tight junctions open and as a result increase the permeability of the intestinal epithelial cells. Higher than normal levels indicate leaky gut syndrome. This can be caused by certain bacteria, an interrupted intestinal mucus layer, a missing muconutritive flora or the contact with gliadin. The influx of foreign antigens and cell components can trigger immunological reactions and dysregulation. Elevated levels can be found in type 1 diabetes, autoimmune diseases, celiac disease, multiple sclerosis, rheumatoid arthritis, and other chronic conditions.

Oral Candida spp.

The enclosed mouth swab showed no or low amounts of facultative pathogenic yeasts. At normal levels, fungi are not problematic since the healthy bacteria of our mouth flora keep the fungi under control.

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