



SPIMS

St. Patrick Institute of Medical Sciences

Microbiome Concordance Index Score (MCIS)

2025 -2026 Classification



THE **LGS**
PROTOCOL

THE LEAKY GUT SYNDROME PROTOCOL

5th Edition

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Gas-Producing Bacteria Reference Table

Hydrogen (H₂) Producers





- Campylobacter spp.
- C. difficile Toxin A
- C. difficile Toxin B
- Enterohemorrhagic E. coli
- E. coli O157
- Enteroinvasive E. coli/Shigella
- Enterotoxigenic E. coli LT/ST
- Shiga-like Toxin E. coli stx1
- Shiga-like Toxin E. coli stx2
- Salmonella- Vibrio cholerae
- Yersinia enterocolitica
- Bacillus spp.
- Enterococcus faecalis
- Enterococcus faecium
- Pseudomonas spp.
- Pseudomonas aeruginosa (Secondary H₂S)
- Staphylococcus spp.
- Staphylococcus aureus
- Streptococcus spp.
- Citrobacter spp.
- Citrobacter freundii
- Klebsiella spp.
- Klebsiella pneumoniae
- Enterobacter spp.
- Escherichia spp.
- Fusobacterium spp.
- Prevotella spp.

Hydrogen Sulfide (H₂S) Producers

- Helicobacter pylori
- Morganella spp
- Desulfovibrio spp. (Primary)
- Proteus spp.- Proteus mirabilis
- Pseudomonas aeruginosa (Primary & Secondary)
- Citrobacter freundii (Primary & Secondary)

Methane (CH₄) Producers

- Methanobacteriaceae (Primary)
- Klebsiella spp. (Secondary)
- Klebsiella pneumoniae (Secondary)
- Enterobacter spp. (Secondary)
- Escherichia spp. (Secondary)

-  Reference: Pimentel M et al., 2006. Methane, a gas produced by enteric bacteria, slows intestinal transit and augments visceral sensitivity. Am J Physiol Gastrointest Liver Physiol.
-  Reference: Carbonero F et al., 2012. Microbial pathways in colonic sulfur metabolism and links with health and disease. Front Physiol.
-  Reference: Pimentel M et al., 2025 Hydrogen Sulfide and Methane on Breath Test Correlate with Human Small Intestinal Hydrogen Sulfide Producers and Methanogens
-  Reference: Beltran, E., & SPIMS Clinical Research Team. (2023). Correlation between intestinal gas production and gut microbiome profiles: Analysis of over 3,000 patients using integrated breath testing and metagenomics. Saint Patrick Institute of Medical Sciences (SPIMS), Columbus, OH.

Microbiome Concordance Index Score (MCIS)

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MCIS Interpretation Table – Degrees of Dysbiosis

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MCIS Total Score	Interpretation	Clinical Implication
0–10	Mild Dysbiosis	Minimal microbial imbalance. Often associated with early symptoms or subclinical findings. Supports preventive care and gentle modulation.
11–20	Moderate Dysbiosis	Noticeable microbiome disruption. Suggests need for microbiome modulation, dietary support, and targeted supplementation.
21–30	Significant Dysbiosis	Clear imbalance with clinical symptoms and/or lab abnormalities. May require focused intervention including antimicrobials, probiotics, or metabolic correction.
31–50	Severe Dysbiosis	Substantial and likely multi-factorial dysbiosis. Often linked to systemic effects or disease. Comprehensive treatment plan required.
>50	Critical Dysbiosis / Microbial Collapse	Indicates microbiome breakdown, biofilm dominance, or potential for systemic inflammation. Intensive therapeutic strategies necessary (e.g., advanced antimicrobials, detox support, metabolic therapy).

The MCIS Interpretation Table – Degrees of Dysbiosis provides a structured scoring system for interpreting the Microbiome Concordance Index Score (MCIS), which integrates microbiome test data, gas production profiles (H₂, CH₄, H₂S), inflammatory markers, and patient symptoms.

The MCIS (Microbiome Concordance Index Score) is a cumulative composite score based on three domains:

- Gas Bacteria Correlation Score** (0–30 points total) Based on microbiome testing and/or breath test profiles. Each gas (Hydrogen, Methane, Hydrogen Sulfide) is scored from **1 to 10 depending on severity**.
- Intestinal Health Marker Score** (0–10+) Includes markers such as calprotectin, zonulin, Secretory IgA, CRP, ESR, elastase, etc. **Each abnormal marker = +1 point**
- Symptom Score** (0–10+) Common symptoms associated with dysbiosis: Diarrhea, bloating, belching, flatulence, constipation, reflux, nausea, weight changes, extraintestinal signs, etc. **Each reported symptom = +1 point**

Scoring Guidance:

- Increasing Scores Over Time:** Suggest worsening dysbiosis or microbial resistance. Re-evaluate interventions.
- Decreasing Scores:** Suggest microbiome recovery and therapeutic efficacy.
- Stable Scores:** May reflect chronic colonization or need for longer therapeutic course.

First Name: _____

Last Name: _____

DOB: ____/____/____
Month Day Year

SEX: M F

DATE OF SCORING: ____/____/____
Month Day Year

A

Gas Bacteria Correlation

Check one number for each gas type:

GI Map Correlation

Maximum 30 Points

Hydrogen (H₂): [] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9 [] 10

Methane (CH₄): [] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9 [] 10

Hydrogen Sulfide (H₂S): [] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9 [] 10

Is there correlation with [SIBO Beath Test Gas Predominance?](#)
Yes No (Leave Blank is Breath Test was not done)

Total Gas Score: _____

B

Intestinal Health Markers

Check all that apply:

Maximum 10 Points

Calprotectin

Zonulin

Secretory IgA

CRP (C-Reactive Protein)

ESR

Occult Blood Test

Anti-gliadin

Beta-Glucuronidase

Elastase

Steatocrit

Total Marker Score: _____

C

Patient Symptoms

Check all that apply:

Maximum 10 Points

Diarrhea

Bloating

Belching

Flatulence

Constipation

Abdominal Discomfort

Weight Gain or Loss

Acid Reflux

Nausea

Extraintestinal Signs/Symptoms

Total Symptom Score: _____

A+B+C = _____ (Final MCIS Score)