LIVE WEBINAR

Clinical Conversations with Karly Raven:

Enhancing Clinical Outcomes in SIBO with Microbiome Insights

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Meet your speakers

Dr Brad Leech
Nutritionist and Lead Clinical Educator

Karly Raven
Naturopath

All participants have been muted

Questions will be answered at the end of each case study

Add your questions in the chat to have them answered live

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Disclaimers

- The information provided in this webinar is for the use of qualified healthcare professionals.
- The information contained in this webinar is in no way to be taken as prescriptive or to replace a healthcare professional's duty of care and personalised care practices.
- The clinical opinions and patient case studies shared by presenters are solely those of the individual presenters and do not necessarily represent the view of Co-Biome.

Learning objectives

1. The role of gut microbiome testing when you suspect SIBO in your patient
2. Patterns of microbiome imbalance in SIBO
3. Managing methane dominant SIBO
4. Managing hydrogen-sulphide SIBO
5. SIBO food roadmap for dietary intervention
6. Features of MetaXplore to provide insights into microbial overgrowths in SIBO

Role of gut microbiome testing in SIBO

1. When to consider microbiome testing in suspected SIBO patients

- At the same time to gain all relevant treatment information needed
- When breath test results are inconclusive or borderline
- When symptoms persist despite treatment
- If the patient has recurrent SIBO with no clear root cause
- When there's a history of broad-spectrum antibiotic use, antimicrobial use or unresolved gut dysbiosis
- When dietary changes (e.g., low FODMAP, SIBO diets) provide only partial relief

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Role of gut microbiome testing in SIBO

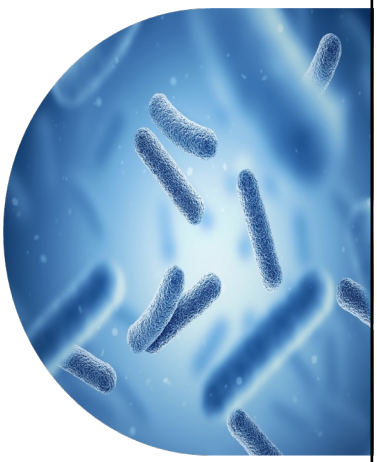
2. How microbiome testing complements SIBO breath testing

➤ **SIBO breath test**

- Measures gas production (hydrogen, methane, hydrogen sulfide)
- Identifies the **presence** of SIBO

➤ **Microbiome testing (metagenomic sequencing - MGS)**

- Maps bacterial composition
- Identifies **why** gas-producing microbes thrive



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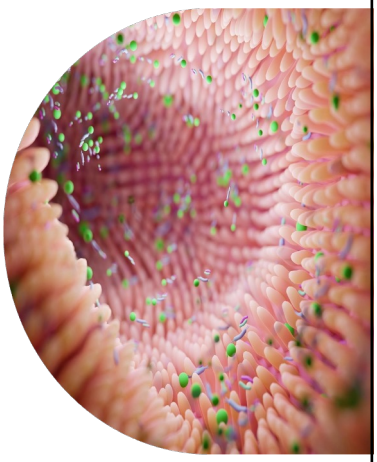
Role of gut microbiome testing in SIBO

➤ **Key insights from microbiome testing:**

- **Methane overgrowth** (e.g. *M. smithii* + 30 other methane producers tested) → Linked to slow motility & constipation
- **Hydrogen sulfide overgrowth** (e.g. *Desulfovibrio spp*. + 200 H2S producers tested) → Associated with diarrhoea & gut inflammation
- **Low butyrate producing bacteria** → Weakened gut lining & increased inflammation
- **Proteobacteria overgrowth** → Impacts gut permeability & chronic symptoms



Microbiome testing provides a deeper understanding of **dysbiosis**, guiding **targeted interventions** beyond SIBO treatment.

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Role of gut microbiome testing in SIBO

3. Duty of care: Providing comprehensive patient support

➤ **Deeper understanding & root cause**

- Prevent SIBO relapse
- Identify pathogens and microbial overgrowths
- Avoid unnecessary interventions

➤ **Holistic approach**

- Identify co-existing issues:
  - Low diversity
  - Gut permeability
  - Digestive dysfunction (pancreatic insufficiency)

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Role of gut microbiome testing in SIBO

4. Informed clinical decisions for improved patient outcomes

- Supports a **multi-pronged approach** for whole microbiome management
- Determine if **SIBO treatment alone is enough** or if additional gut support is required for long-term success
- Detects patterns of microbial overgrowth to inform **antimicrobial vs. probiotic selection**
- Identifies the need for **gut lining support, if considering antimicrobials**
- Provides a **clear roadmap for dietary recommendations** (e.g., fibre tolerance, prebiotic use)

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Patterns of microbiome imbalances in SIBO

Key microbiome markers to assess in SIBO cases

30 + Methanogens (*Methanobrevibacter spp.*, Methanosphaera)	**Methane-predominant SIBO**
Higher gut microbial diversity	Correlated with **higher breath methane**
Sulfate-reducing bacteria (*Desulfovibrio spp.*)	**Hydrogen sulfide-predominant SIBO**
Predominant hydrogen producers (*E.coli.* Klebsiella, Christensenellaceae & Ruminococcaceae)	**Hydrogen dominant SIBO**
Lower gut microbiome diversity	**Correlated with higher levels of breath hydrogen**

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Patterns of microbiome imbalances in SIBO

Key microbiome markers to assess in SIBO cases

Proteobacteria (e.g., Klebsiella, *E.coli*)	**Gut inflammation, endotoxin production, hydrogen SIBO**
Short-chain fatty acid (SCFA) producer	**Gut modulation**
Pancreatic elastase	**Digestive enzyme function ↓ levels = pancreatic insufficiency, dysbiosis, malabsorption, loose bowels**
410 + Oral species (e.g., Streptococcus, Rothia, Veillnella, Fusobacterium)	**Oral bacteria in the gut → oral-gut translocation → gut microbiome imbalance and SIBO persistence**

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SIBO Food Roadmap overview

✓ **Structured Dietary Framework:**	A **step-by-step approach to managing SIBO** & gut conditions through targeted food choices while maintaining **gut diversity** & **long-term gut health**.
✓ **Not Just Low-FODMAP:**	Goes beyond traditional low-FODMAP diets to **consider microbial balance, digestive function & long-term sustainability**.
✓ **Tailored for Individual Cases:**	Recognises **not all SIBO clients need the same dietary approach**, providing **flexible stages** based on symptom response & root causes.
✓ **Microbiome-Supportive:**	Focuses on **gradual food reintroduction** to prevent long-term dysbiosis & ensure gut healing.
✓ **Includes Practitioner Guidance:**	Provides **clear protocols, meal plans & clinical reasoning** to help practitioners & their clients confidently implement dietary strategies.
✓ **Addresses Common Pitfalls:**	Helps **avoid excessive restriction**, underfeeding & **nutrient deficiencies** commonly seen in SIBO patients.
✓ **Pairs with Treatment Phases:**	Designed to work alongside **herbal antimicrobials, prokinetics & microbiome restoration strategies**.

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CASE 1:

Methane-dominant SIBO

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Age/Gender: 29 Years, Female

Diagnosed conditions: Hashimoto's Thyroiditis Dx 1 year prior, Food Anxiety. SIBO positive (Hydrogen + Methane)

Case history: Constipation - skips days, straining, incomplete. Greasy sticky stools frequently. Bloating - daily, worsens by the end of the day. No blood or mucous in stool. History of antibiotic/ antimicrobial use. High Stress. Acne.

Diet: Avoids - Gluten and dairy, keep sugary snacks to a minimum. Fav foods: Savoury dishes - curries, stews, fully loaded tacos with ALL the sides. Chocolate! 1 x fruit daily, 5 cups veg daily, meat with every meal. 1 x coffee daily. Social drinking only. 2 Ltr water daily.

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Medication/supplements:

Iberogast	20 drops twice daily
Digestive enzymes	1 twice daily *she thinks this was contributing to her pain
IBS support probiotic	1 before breakfast
Broad spectrum probiotic	1 daily
Lactulose	20 ml once daily
NAC	1 tsp twice daily
Vitamin D	3 sprays daily until levels improved, now on 1 daily
Iron advanced	1 tablets once daily - 8 months
Magnesium & B12	1 scoop daily twice daily

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Patient goals

Short-term

- Bloat free
- Daily healthy bowel motions
- Feel less stressed about what food to eat and to feel good after eating meals

Medium-term

- To be SIBO free
- To have clear skin

Long-term

- Get Hasimototos under control

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SIBO breath test results - December 2022

TEST	DATE	TIME 0min	30min	60min	90min	120min	150min	180min	SYMPTOMS *
Lactulose									
H2 (ppm)	14/07/22	3	30	55	140	93	84	66	
CH4 (ppm)		0	17	21	33	27	23	21	
Fructose									
H2 (ppm)	20/07/22	4	14	50	39	30	29	14	4
CH4 (ppm)		1	10	20	17	18	16	11	

Summary: Positive hydrogen at 30 mins (L) and 60 mins (F). Positive methane 30 mins (L) and 60 mins (F).

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Microba microbiome test results - December 2022

Number of species identified	159
Bacteroidota	28.6%
Proteobacteria	1.77%
Desulfobacterota	0.603%
Hexa-LPS	0.116%
Methane	Not detected
Oxalate consumption	Low (0.406%)
Propionate	Borderline high (8.02%)
Trimethylamine producing microbes	4.66% (Borderline high)
Butyrate	In range (21.2%)
Bilophila wadsworthia	0.248% higher than average
Desulfovibrio piger	0.271%
Escherichia	Not detected
Mucin degradation	High

5 most abundant species

1. *Bacteroides_B vulgatus* (14.8%)
2. *Fusicatenibacter saccharivorans* (5.16%)
3. *Ruminococcus_E bromii_B* (4.52%)
4. *Alistipes putredinis* (4.10%)
5. *Agathobacter rectale* (2.99%)

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Assess: Outcome of testing

Red flags	Gut terrain	Dysbiosis
N/A	• High Mucin degradation	• Positive Hydrogen SIBO • Positive Methane SIBO • High Proteobacteria • High *Bilophila wadsworthia* • High *Desulfovibrio piger* • Low diversity • Hexa- LPS producers

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Stage 1: Patient management plan

Dietary prescription	Specific pre-/probiotic prescription	Personalised supplement recommendations	Patient education
• Avoid snacking • Constipation Foods: kiwi fruit, pomegranate, dragonfruit, flaxseeds. • Avoid all alcohol	• *Lactobacillus plantarum* 299V • *Saccharomyces cerevisiae* (*Boulardii*) Strain HANSEN CBS 5926	• Glutamine • Iberogast • Vitamin D • Magnesium • Iron	• Potty Stool • Gut40 + Food Diversity • Nervous system regulation support and techniques

Timeframe: 4 weeks

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"Getting great results with a new spontaneous urge to go to the toilet and good poos."

"I've been enjoying adding foods back into my diet."

"The bloating is still there but it is less."

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Stage 2: Patient management plan

Dietary prescription	Specific pre-/post-biotic/herb prescription	Personalised supplement recommendations	Patient education
• **Started SIBO Food Roadmap - Stage 1 (two weeks) then into Stage 2** • Constipation Foods: kiwi fruit, pomegranate, dragonfruit, flaxseeds • Avoid all alcohol	• **Allium** • **Herbal tablets: Phellodendron, oregano leaf, clove & thyme** • **Herbal tablets: Peppermint, pomegranate, nigella & Myrrh** • SB - HANSEN CBS 5926	• **NAC** • **Digestive enzymes** • Iberogast	• Potty Stool • Gut40 + Food Diversity • Nervous system regulation support & techniques

Timeframe: 4 weeks

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SIBO breath test results - Jan 2023

TEST	DATE	TIME 0min	30min	60min	90min	120min	150min	180min	SYMPTOMS *
Lactulose									
H2 (ppm)	20/12/22	7	8	36	39	42	58	53	
CH4 (ppm)		8	11	19	19	22	24	23	
Fructose									
H2 (ppm)	23/12/22	0	2	7	30	43	32	28	2,4
CH4 (ppm)		9	7	11	18	19	20	17	

Summary: Peak hydrogen has reduced from 140 to 39 and peak methane from 33 to 24.

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"I feel a lot better, all symptoms are improving. I'm surprised I was still SIBO positive I felt that good."

"I'm rarely bloated now."

"Passing 1 x stool daily and easy to pass."

"Tolerating stage 3 foods well."

"Since starting to travel my stress is so much less."

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Stage 3: Patient management plan

Dietary prescription	Specific pre-/post-biotic/herb prescription	Personalised supplement recommendations	Patient education
• SIBO Food Roadmap - Stage 2 continued • Continue Constipation Foods: kiwi fruit, pomegranate, dragonfruit, flaxseeds • Avoid all alcohol	• **Phellodendron** • Allium	• **PHGG** • **Vitamin D** • **Iodine** • **Zinc citrate** • Iberogast	• **Support/coaching on travelling Aus while doing treatment**

Timeframe: 4 weeks

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SIBO breath test results - May 2023

TEST	DATE	TIME 0min	30min	60min	90min	120min	150min	180min	SYMPTOMS *
Lactulose									
H2 (ppm)	28/04/23	6	6	7	63	104	68	53	
CH4 (ppm)		10	9	8	31	33	27	26	
Fructose									
H2 (ppm)	2/05/23	3	11	50	50	38	36	27	
CH4 (ppm)		6	13	24	24	21	21	19	

Summary: Hydrogen went from 39 to 50/63, peak methane of 24 increased to 33 however good clearance in SI especially on lactulose.

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Thyroid labs

May 2022	
TSH	2.84
T4	15.8
T3	5.20
TPO	>1300
Anti-thyroglobulin	9

June 2023	
TSH	4.6
T4	15
T3	5.2
TPO	>1300
Anti-thyroglobulin	7
Urine Iodine	223
Urine Creatinine	2.5

Vitamin D	
2021	62
2022	120
2023 (April)	218

Jan 2023	
TSH	2.43
T4	15.2
T3	5.5

2024	
Zinc	11.7
Copper	15
Ferritin	30

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Iron studies

SERUM IRON STUDIES

Date:	**21/04/16**	**30/09/20**	**09/12/21**	**12/05/22**		
Time:	**08:50**	**10:29**	**09:10**	**09:50**		
Lab.No:	**47358254**	**46824810**	**35402737**	**41110015**		
					Units	**Ref. Range**
Ferritin:	37	16	23	51	ug/L	(30-300)
Iron:	23	22	30	21	umol/L	(7-27)
Transferrin:	3.3	3.7	2.8	2.5	g/L	(2.0-3.6)
Transferrin Sat:	28	24	43	34	%	(13-47)

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Stage 3: Patient management plan

Dietary prescription	Specific pre-/post-biotic/herb prescription	Personalised supplement recommendations	Patient education
• SIBO Food Roadmap - Stage 2 continued • Continue Constipation Foods: kiwi fruit, pomegranate, dragonfruit, flaxseeds. + **dietary ginger** + **dietary iron rich foods**	• Allium • **Herbal tablets: bearberry, barberry, purple loosestrife, pomegranate, olive** • **Herbal liquid: rehmannia, hemidesmus, coleus, rhodiola, schisandra**	• **Ginger** • **Zinc glycinate + Molybdenum** • ***Lactobacillus reuteri* DSM 17938** • **Myo-inositol** • PHGG • Iberogast • Selenium • Digestive enzymes	• **Iron rich foods**

Timeframe: 4 weeks

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SIBO breath test results - August 2023

TEST	DATE	TIME 0min	30min	60min	90min	120min	150min	180min	SYMPTOMS *
Lactulose									
H2 (ppm)	16/08/23	2	4	6	16	22	N/A	N/A	
CH4 (ppm)		3	4	6	13	3	N/A	N/A	
Fructose									
H2 (ppm)	21/08/23	5	11	9	4	16	28	19	
CH4 (ppm)		0	2	2	0	3	5	3	

Summary: Peak hydrogen from 63 to 16, peak methane from 33 to 13

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Stage 4: Patient management plan

Dietary prescription	Specific pre-/post-biotic/herb prescription	Personalised supplement recommendations	Patient education
• SIBO Food Roadmap - Stage 2 continued • Continue Constipation Foods: kiwi fruit, pomegranate, dragonfruit, flaxseeds • Dietary ginger + **Aloe vera juice**	• **Herbal Liquid:** • **Oregano, Rhubarb root, rhodiola, rehmannia, nigella**	**Added: glutamine 2 tbs daily** • PHGG • Iberogast • Ginger • Digestive enzymes • Zinc Glycinate + Molybdenum • Selenium • Myo-inositol	• **Support/coaching on how to introduce foods for diversity while on extended SIBO treatment**

Timeframe: 4 weeks

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Results of re-testing with MetaXplore

10 months between tests

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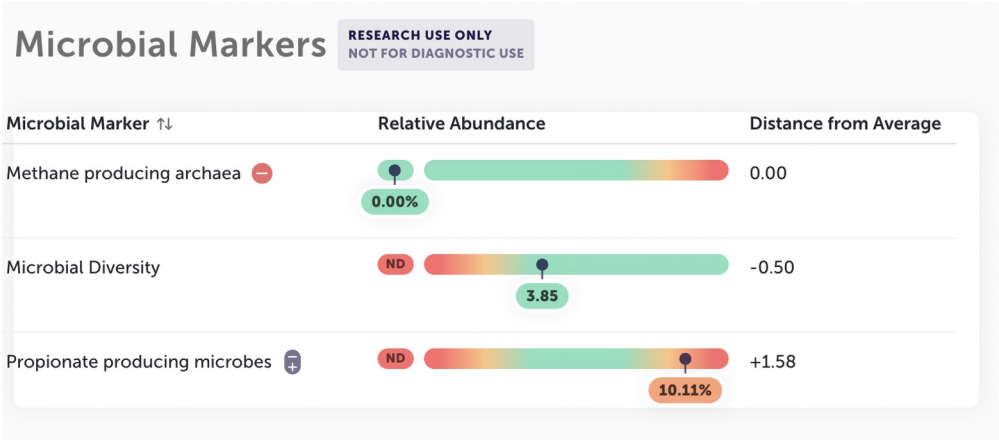
MetaXplore results - Oct 2023 - Intestinal motility



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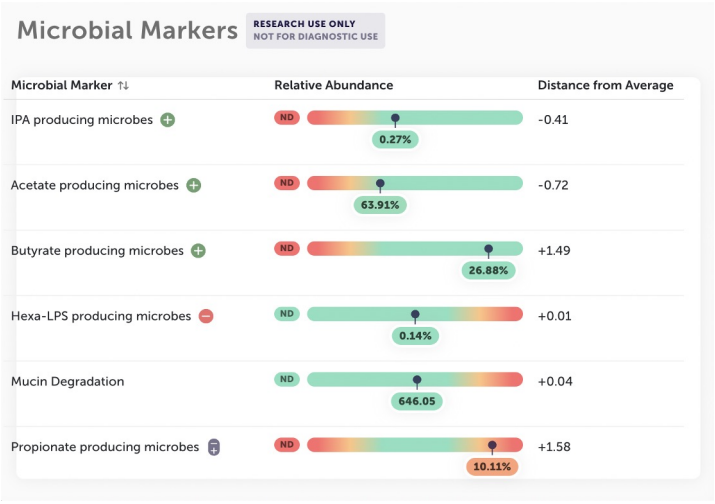
MetaXplore results - Oct 2023 - Intestinal inflammation



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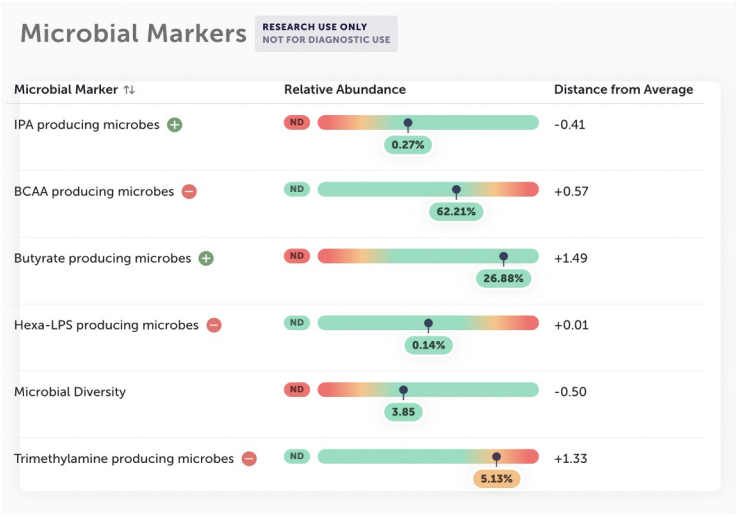
MetaXplore results - Oct 2023 - Systemic inflammation



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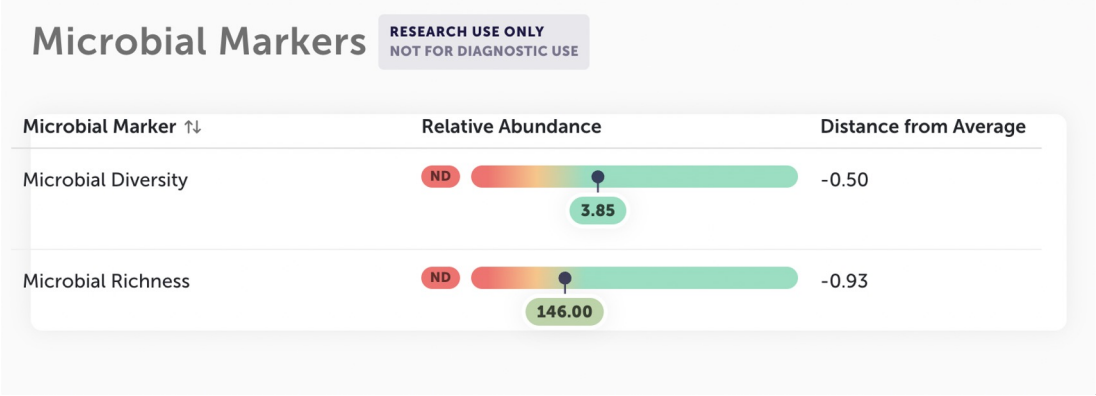
MetaXplore results - Oct 2023 - Diversity



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MetaXplore results - Oct 2023 - Top 5 Species

−	Bacteroides_B vulgatus	Bacteroidota	Common	9.55%	+1.61
±	Alistipes putredinis	Bacteroidota	Common	8.76%	+2.12
+	Fusicatenibacter saccharivorans	Firmicutes_A	Very common	6.69%	+0.89
	Megamonas funiformis	Firmicutes_C	Less common	5.77%	+1.55
+	Agathobacter faecis	Firmicutes_A	Common	3.85%	+1.14

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MetaXplore results - Oct 2023 - Oral species

↑↓	Species ↑↓	Phylum ↑↓	Prevalence ↑↓	Relative Abundance % ↓
−	Streptococcus salivarius	Firmicutes	Common	0.08%
	Streptococcus parasanguinis_B	Firmicutes	Rare	0.06%
	Streptococcus parasanguinis	Firmicutes	Rare	0.04%

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Key patterns of change (Dec 2022 → Oct 2023)

Areas improved:

Proteobacteria decreased	1.77% → 0.67%	Indicating reduced inflammation risk
***Desulfovibrio piger* no longer detected**	0.271% → ND	Linked to lower sulfide gas production & potential gut health improvement
Butyrate increased	21.2% → 26.88%	Better short-chain fatty acid production, supporting gut healing & energy for colon cells

Areas worsened & needing attention:

Total species diversity decreased	159 → 146	Changes to overgrowth
Propionate increased further	8.02% → 10.11%	Could indicate gut dysbiosis or excessive fermentation
Trimethylamine increased	4.66% → 5.13%	Associated with higher cardiovascular risk
***Escherichia coli (flexneri)* detected**	ND → Detected	A possible new infection or imbalance from travelling
***Bilophila wadsworthia* increased further**	0.248% → 0.40%	Linked to inflammation & bile metabolism issues

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Stage 4: Patient management plan

Dietary prescription	Specific pre-/post-biotic/herb prescription	Personalised supplement recommendations	Patient education
• SIBO Food Roadmap - Stage 2 continued • Continue Constipation Foods: kiwi fruit, pomegranate, dragonfruit, flaxseeds. • Dietary ginger • **Aloe vera juice**	• Herbal Liquid: Oregano, Rhubarb root, rhodiola, rehmannia, nigella	**Added: GOS - 1 scoop** • PHGG • Iberogast • Ginger • Digestive enzymes • Zinc glycinate + Molybdenum • Selenium • Myo-inositol • Glutamine	• **Coaching and support for wanting to leave job due to unhappiness** • ***E.coli* education due to it being a pathogen**

Timeframe: 4 weeks

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SIBO breath test results - November 2023

TEST	DATE	TIME 0	(mins) 20	40	60	80	100	120	140	160	180	SYMPTOMS*
Lactulose												
H2 (ppm)	10/11/23	9	10	8	10	16	18	17	13	12	23	
CH4 (ppm)		11	5	5	7	7	11	10	6	5	9	

Summary: Peak methane has reduced from 13 PPM to 11PPM.

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Stage 4: Patient management plan

Dietary prescription	Specific pre-/post-biotic/herb prescription	Personalised supplement recommendations	Patient education
SIBO Food Roadmap - **Stage 3** + Continue constipation foods: kiwi fruit, pomegranate, dragonfruit, flaxseeds + **Iron rich food sources**	• **Herbal liquid: Echinacea, hemedesmis, nigella, withania & curcuma**	• Digestive enzymes • Zinc glycinate + Molybdenum • Selenium • Myo-inositol • GOS - 1 scoop • **Iron** • **Liposomal glutathione** • **Vitamin A** • **SPM**	• Thyroid risk factors • SIBO relapse prevention

Timeframe: 4 weeks

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Case 1: Key takeaways

1. Clinical symptoms improved with a change in microbial markers & SIBO treatment most likely methane, hydrogen, H2S producers and proteobacteria.

2. Waiting 10 months to re-test resulted some positive and negative change in the microbiome

3. Measuring the microbiome at 3-4 months could have resulted in greater clinical improvements

4. Consider prebiotics as soon as possible for SIBO patients especially if using herbal antimicrobials

5. Some clients will have tests that show no colonic methane but be positive for methane SIBO

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Case 1: Clinical reflections

Antimicrobial choices

Re test the microbiome sooner

Hashimotos seemed to be the root cause, interventions sooner might have given quicker results

Patient started travelling and left her job, more stress reduction sooner

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Q&A: Case 1

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CASE 2:

H2S + Methane SIBO & IBD

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Age/Gender: 56 Years, Female

Patient background:

- Works swing shifts (10-12 hour days, occasional night shifts every 2-3 months) with a long commute (1-hour each way)
- History of antibiotic use, including penicillin injections post-tonsillectomy and antibiotics following a C-section in 2000
- Has used Nexium extensively for reflux in the past
- Recently started on testosterone cream for low testosterone

Presenting symptoms:

- **Bloating:** Persistent, all day, some days waking up bloated; discomfort is primarily in the lower abdomen
- **Gas:** Increases with longer gaps between bowel movements; has reduced over the past few months
- **Constipation:**
  - Transit time test this week showed 72 hours
  - Not always hard/pebbly, but stools can be infrequent (2-3 days between)
  - Avoids having bowel movements at work and has a rushed morning routine
- **Heartburn:** Occasional, but reflux is rare

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Diagnoses:

- Crohn's Disease – Current, diagnosed in 2014. Very well controlled at present
- Ulcerative Colitis – Past, diagnosed in 2014, only one episode
- Irritable Bowel Syndrome (IBS) – Diagnosed in early 20s, longstanding gut issues
- Diagnosed with SIBO/IMO in 2021, went through another naturopathic clinic but was never retested post antimicrobials. Also did antimicrobial treatment with an integrative doctor since - not retested

Family medical history: Sister: Diagnosed with Crohn's Disease; has had large bowel removed

Root causes:

- **Infectious:** Gut never well since a tummy bug many many years ago
- **Medications/microbiome:** Gut health worse after C section with antibiotics, lots of abx as a child. Microba test results see next column
- **Stress**: Very stressful job, shift worker in corrections services, also supporting sister through a family violence situation
- **Structural:** Has Crohn's disease, previous gynecological surgery

Medication: Currently on Humira 40mg injection weekly since 2016 (previously stretched to fortnightly, then had acute attack). Occasional Nexium use

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Past Treatment:

- Did not feel supported by naturopath
- Had been living a limited low FODMAP diet of a few veggies, meat, low variety
- Took a range of herbal tinctures for SIBO for 6-8 months

Supplements when she came to us:

- B12 spray - 100mcg, once daily, 01/09/2023, Low B12
- Iron - every second day
- Curcumin 90mg, Daily, has tried at least 4 years different brands
- Woman Multi vitamin, Daily,
- Magnesium Citrate, 300mcg, nocte, Read it can help with constipation
- Phytaxil BioMedica, twice daily GP recommended for SIBO
- Digest Enzyme with meals since 2022
- Gut Motility, 2, nocte, Assist motility
- Atrantil, 1, infrequently, assist bloating
- Vit D3 + K2, 5000 IU, second daily, taking for years
- Essential Amino Acids, 1-2, when training, several years, assist maintain muscle mass/recovery
- Paleo protein powder, 25 g, when training, 12 months, assist maintain muscle mass/recovery

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Patient goals

Short-term	Medium-term	Long-term
• Reduce bloating and feeling of extreme fullness, especially post-meals • Alleviate constipation and support regular bowel movements • Decrease indigestion and improve overall digestive comfort	• To be SIBO free • Address fatigue and brain fog for better energy and mental clarity	• To be SIBO free • Prevention of IBD relapse • Be eating a diverse diet with minimal restrictions

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SIBO breath test results - May 2024

Time (min)

Lactulose 16.05.24	0	20	40	60	80	100	120	140	160	180	Symptoms
Hydrogen (ppm)	2	2	2	2	1	1	2	1	2	2	None reported
Methane (ppm)	17	14	15	19	10	13	12	16	11	18	

Time (min)

Fructose 19.05.24	0	20	40	60	80	100	120	140	160	180	Symptoms
Hydrogen (ppm)	3	3	3	3	1	2	2	2	3	2	Borborygmi Flatulence
Methane (ppm)	16	19	25	37	18	31	26	24	28	20	

Summary: Potential H2S SIBO or long transit time (L), Positive methane SIBO peak methane 19. Positive methane SIBO, peak methane 28 (F).

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Microba microbiome test results - 2021 (ordered by previous naturopath)

Most abundant species	*Klebsiella pneumoniae* (7.45%)
Short-chain fatty acids	Butyrate within normal range
LPS markers	Elevated **hexa-LPS** (8.98%)
Digestive function	Fibre, mucin & protein degradation all within average range
TMA (trimethylamine) production	Elevated
Hydrogen sulfide production	Elevated potential (*Desulfovibrio* 0.04%)
Methanogens	*Methanobrevibacter_A smithii* (0.238%)
Bacteroidota	25.1%
Proteobacteria	10%

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GI Map test results - April 2024 (ordered by Integrative GP)

H. pylori: Positive, currently no symptoms of stomach ulcer. Pending endoscopy

Microbial analysis: Testing technology has limitations in accuracy and the number of microbes assessed

Bacterial Findings:

- *Methanobacteriaceae* species detected
- *Desulfovibrio* species detected

Parasites: None detected

Digestive markers: Steatocrit and elastase within optimal ranges

Inflammatory & immune markers:

- **Faecal blood:** High levels detected → Referred for colonoscopy
- **Secretory IgA:** Very low → Possible links to SIBO, immunosuppressant medication, or conditions like celiac disease
- **Calprotectin: 462 H** → Referred for colonoscopy
- **Zonulin:** Borderline high → to discuss with gastroenterologist regarding coeliac disease testing; levels may also be influenced by short-term physical or psychological stress
- **Anti-Gliadin IgA:** Within normal reference range

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Assess: Outcome of testing

Red flags	Gut terrain	Dysbiosis
· Fecal blood · High calprotectin	· Low sIgA · High zonulin	· Positive H2S SIBO likely · Positive Methane SIBO · High *Desulfovibrio piger* · Hexa- LPS producers · Methanobacteriaceae species detected · *H.pylori* detected · *Klebsiella pneumoniae* detected · Proteobacteria high

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Stage 1: Patient management plan (May 2024)

Dietary prescription	Specific pre-/ probiotics/ herbal prescription	Personalised supplement recommendations	Patient education
• SIBO Food Roadmap **Stage 2** with a focus on minimal meat & saturated fat, maximising plant-based proteins - Soy isoflavones • 2 x kiwi fruit daily • 2 Tbs flaxseeds daily • Ginger in diet daily • Avoid snacking & alcohol	• *Lactobacillus plantarum* 299V • *Lactobacillus reuteri* DSM 17938 • Allicin • Saffron & Turmeric tablets • Herbal liquid: pomegranate, oregano dried leaf, clove, propolis	• PHGG • GOS • 5HTP • Glutamine • Zinc glycinate + Molybdenum	• Potty Stool • Gut40 + Food Diversity • Nervous system regulation support & techniques

Timeframe: 5 weeks

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"Constipation slightly better with diet changes alone."

"I have been off work on stress leave post an incident at work. GP wants to discuss an antidepressant."

"Bloating remains ongoing despite treatment after 5 weeks."

Treatment changes:

- Started taking an antidepressant - changed 5-HTP to ginger as prokinetic
- Discussed re-testing SIBO in 5 weeks due to tx response

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Stage 2: Patient management plan (June 2024)

Dietary prescription	Specific pre-/probiotics/herbal prescription	Personalised supplement recommendations	Patient education
• SIBO Food Roadmap **Stage 3** with a focus on minimal meat & saturated fat, maximising plant-based proteins - Soy isoflavones • 2 x kiwi fruit daily • 2 Tbs flaxseeds daily • Ginger in diet daily • Avoid snacking & alcohol	• *Lactobacillus reuteri* DSM 17938 • Saffron & Turmeric tablets • Herbal liquid: pomegranate, codonopsis, clove, oregano • **Motility Mix** + Allicin • **Ashwagandha - stopped taking after 1 week due to making her anxious**	• PHGG • GOS • Glutamine • Zinc Glycinate + Molybdenum • **Ginger (swapped out 5HTP)**	• Potty Stool • Gut40 + Food Diversity • Nervous system regulation support & techniques

Timeframe: 5 weeks

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August - Colonoscopy report summary

Findings: Active **Crohn's disease** detected in the **ascending colon (3cm lesion)** despite being on Humira and previously believing the condition was under control.

History: Previously diagnosed Crohn's in the **descending colon**, which was unable to be resected.

Family history: Twin sister (not confirmed identical) has a colostomy due to severe Crohn's.

Post-scope recommendations:

- Advised that management options include **observation, additional medication, or surgery**.
- Patient chose to **observe and incorporate additional herbal support**.

Other findings:

- No signs of ulcerative colitis
- Mild diverticulosis
- Good bowel prep quality

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Symptoms now:

- Bloating and flatulence (often smelly, sometimes sulphuric).
- Bowels opening daily, usually easy to pass.

Latest motility test:

- Sesame seed present after 24 hrs and were present up to 72 hrs.

Medications:

- Humira 40mg injection weekly
- Fluoxetine
- Recently started: Ashwagandha (1 mL night), melatonin

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Stage 3: Patient management plan (August 2024)

Dietary prescription	Specific pre/probiotics/herbal prescription	Personalised supplement recommendations	Patient education
• SIBO Food Roadmap Stage 3 with a focus on minimal meat & saturated fat, maximising plant-based proteins - Soy isoflavones • 2 x kiwi fruit daily • 2 Tbs flaxseeds daily • Ginger in diet daily • Avoid snacking & alcohol	• *Lactobacillus reuteri* DSM 17938 • Saffron & Turmeric tablets • Motility Mix • Herbal: pomegranate, codonopsis, clove, dried oregano leaf • Allicin • **Boswellia tablets** • **Curcumin tablets**	• PHGG • GOS • Ginger • Zinc Glycinate + Molybdenum	• Potty Stool • Gut40 + Food Diversity • Nervous system regulation support & techniques

Timeframe: 5 weeks

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SIBO breath test results - August 2024

Time (min)											
Lactulose 17.10.24	**0**	**20**	**40**	**60**	**80**	**100**	**120**	**140**	**160**	**180**	**Symptoms**
Hydrogen (ppm)	**4**	**5**	**4**	**4**	**4**	**4**	**3**	**4**	**5**	**2**	**None reported**
Methane (ppm)	**34**	**25**	**35**	**28**	**42**	**31**	**29**	**38**	**21**	**21**	

Time (min)											
Fructose 20.10.24	**0**	**20**	**40**	**60**	**80**	**100**	**120**	**140**	**160**	**180**	**Symptoms**
Hydrogen (ppm)	**8**	**8**	**8**	**7**	**5**	**5**	**3**	**4**	**2**	**3**	**Flatulence Borborygmi**
Methane (ppm)	**29**	**27**	**30**	**31**	**38**	**34**	**25**	**27**	**23**	**17**	

Summary: Higher methane, peak is now 42 (L) & 38 (F), less flatline for H2S.

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Results of re-testing with MetaXplore

3 years between tests

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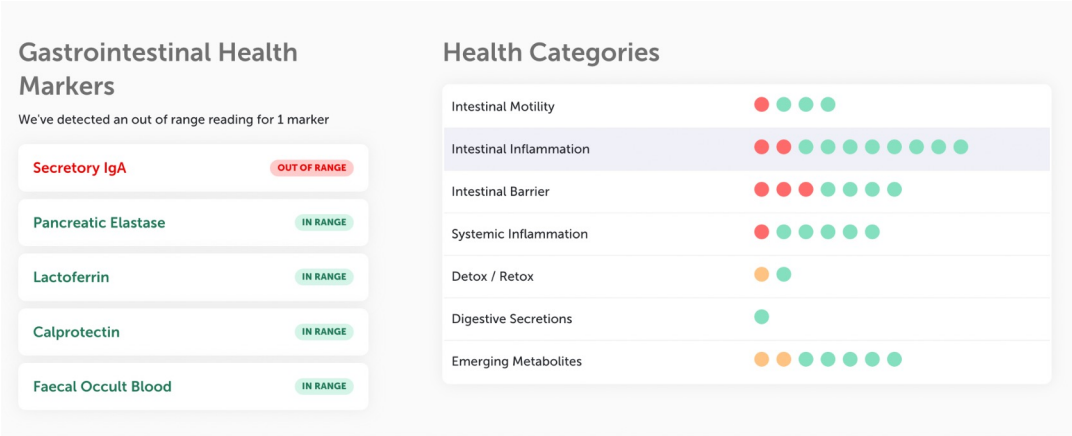
MetaXplore results - Nov 2024



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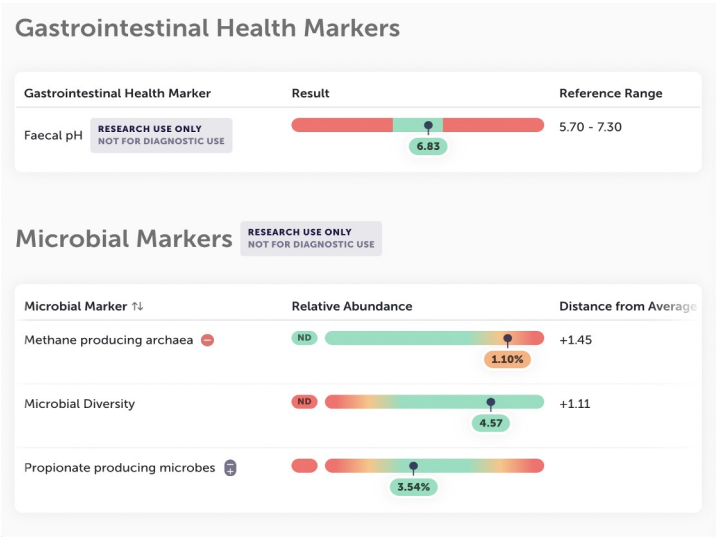
MetaXplore results - Nov 2024 - Intestinal motility



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MetaXplore results - Nov 2024 - Intestinal inflammation

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MetaXplore results - Nov 2024 - Intestinal inflammation

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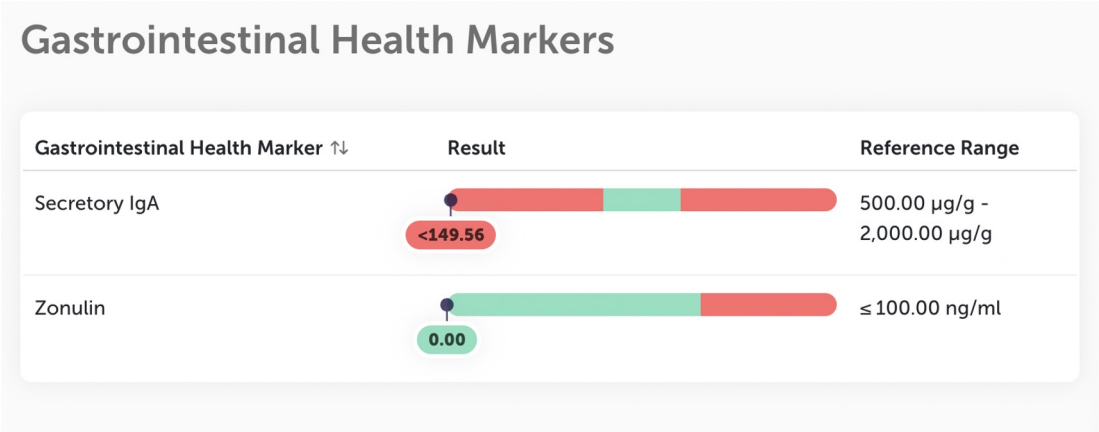
MetaXplore results - Nov 2024 - Intestinal barrier



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MetaXplore results - Nov 2024 - Intestinal barrier

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MetaXplore results - Nov 2024 - Systemic inflammation

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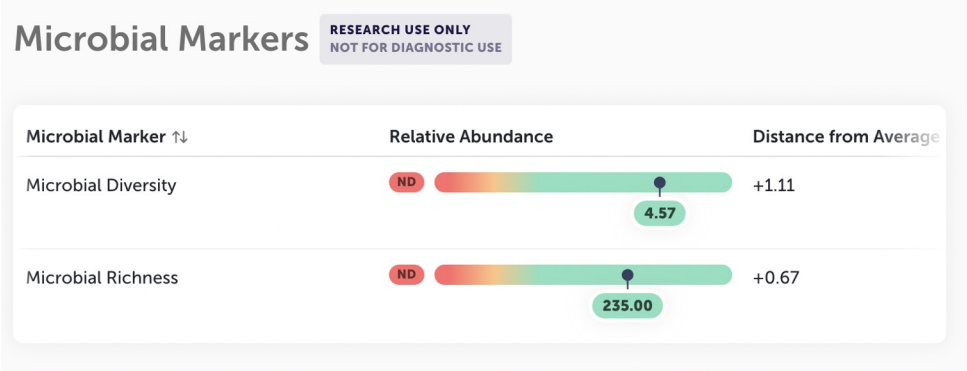
MetaXplore results - Nov 2024 - Diversity



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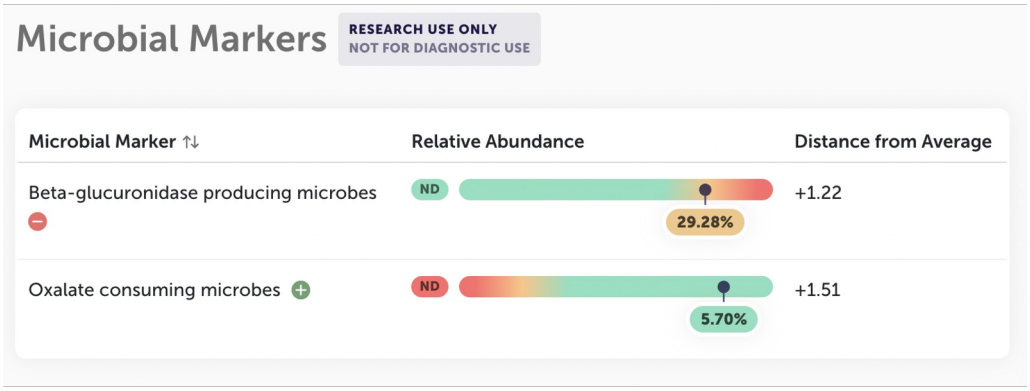
MetaXplore results - Nov 2024 - Detox/Retox



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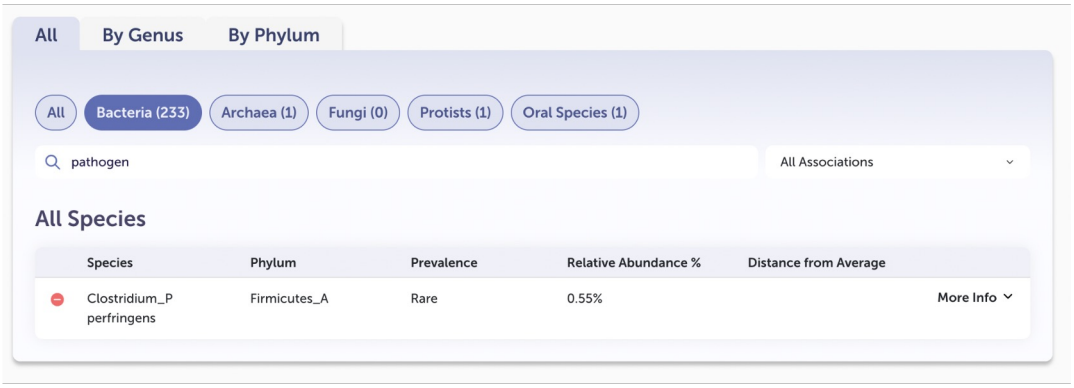
MetaXplore results - Nov 2024 - Pathogen



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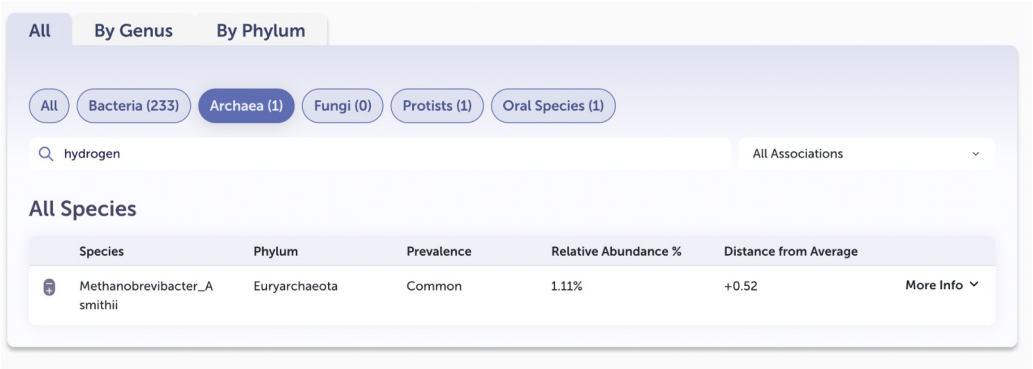
MetaXplore results - Nov 2024 - Archaea



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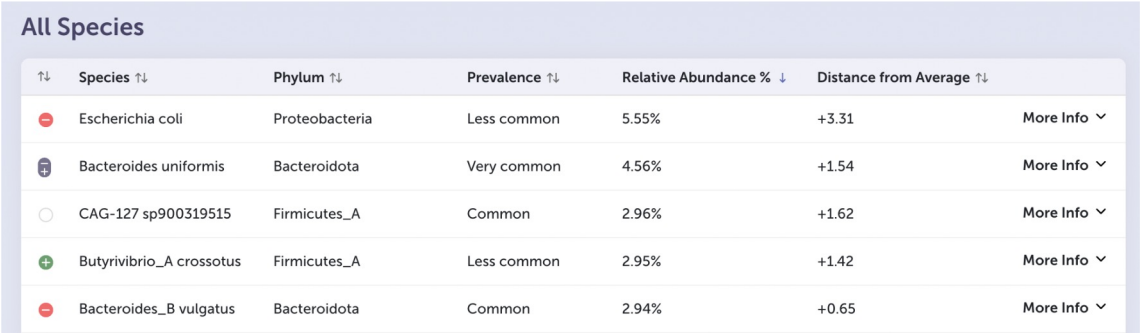
MetaXplore results - Nov 2024 - Bacteria



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Key patterns of change (2021 → October 2024)

Areas improved:

Proteobacteria decreased	10% → 6.11%	Still high but greatly reduced **Key Shift:** *Klebsiella pneumoniae* from **7.45% abundance** to now **undetectable**—a great improvement!
***Bacteroides spp.* improvement**	25.1% → 21.35%	Approaching the ideal range
Microbial diversity	180 species → 235 species	**Evenness:** The average evenness of microbes has improved **Now: 4.57**—all but **one species** now under 5% relative abundance, which is a great sign! **Species** above the ideal of 200+ species) - this is a **strong improvement in diversity**

Areas for further improvement:

***Escherichia coli* (Proteobacteria) overgrowth**	1.53% → 5.55%	Now **high**! Has become the dominant Proteobacteria species
Clostridium perfringens	Detected	Possible food poisoning triggering IBD flare

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Stage 4: Patient management plan (August 2024)

Dietary prescription	Specific pre-/pro-biotics/herbal prescription	Personalised supplement recommendations	Patient education
• SIBO Food Roadmap Stage 3 • Avoid foods high in inulin & foods with added inulin or FOS prebiotics to avoid feeding methane • Avoid green bananas, green banana flour, potato starch • **Include a serving of konjac noodles at least twice per week (5g of glucomannan)** • Include dragon fruit or powder	• *Lactobacillus reuteri* DSM 17938 • Boswellia tablets • Curcumin tablets • ***Lactobacillus gasseri* (KS-13) known to reduce *E. coli* (hexa-LPS producer)** • **Herbal liquid: Oregano dried leaf**	• PHGG • GOS • Ginger • **SPM** • **Zinc carnosine + citrate** • **EPA/DHA** • **IgGI**	• Gut40 + Food Diversity • Nervous system regulation support & techniques

Timeframe: 5 weeks & ongoing

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Case 2: Key takeaways

1. Using MetaXplore testing to confirm H2S species provided more confidence in treatment when you see H2S patterns in SIBO breath testing

2. Waiting 3 years to re-test resulted some positive & negative change in the microbiome

3. Measuring the microbiome at 3-4 months could have resulted in greater clinical improvements

4. Always refer when there are red flags present, this patient's Crohn's was back despite no mucus or blood & we likely caught it before it got worse

5. Some cases are complex & could take years to resolve, especially with a strong family history & genetic predisposition for IBD

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Case 2: Clinical reflections

Ask the patient to do microbiome testing as soon as they started with us

Trial some other IBD treatments like bilberry, green tea

Patients priority was symptom management and we got these under better control

This patient expressed the desire for more support and is getting better results with it

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Key highlights

- Measuring the gut microbiome in SIBO cases offers a deeper understanding of dysbiosis to help guide targeted interventions beyond traditional SIBO management.
- Key patterns of microbiome imbalance have been observed in SIBO, including methanogen overgrowth, hydrogen sulphide producing species and oral species.
- Consider the impact of interventions (e.g. antimicrobials) on the gut microbiome and introduce protective measures and microbiome restoration as soon as possible.
- The SIBO Food Roadmap is a personalised dietary framework for SIBO that supports gut health, microbial balance, and management phases beyond low-FODMAP, with clinician guidance.
- Re-testing is important to assess ongoing microbiome re-building and prevent re-lapse.

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MetaXplore: Unlock health from within

METAXPLORE
Functional Gut Microbiome Profile[2]

METAXPLORE GI
Functional Gut Microbiome Profile[2]
Gastrointestinal Health Markers[1]

METAXPLORE GI PLUS
Functional Gut Microbiome Profile[2]
Gastrointestinal Health Markers[1]
Targeted Pathogen Panel

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Learn more at *co-biome.com/testing*

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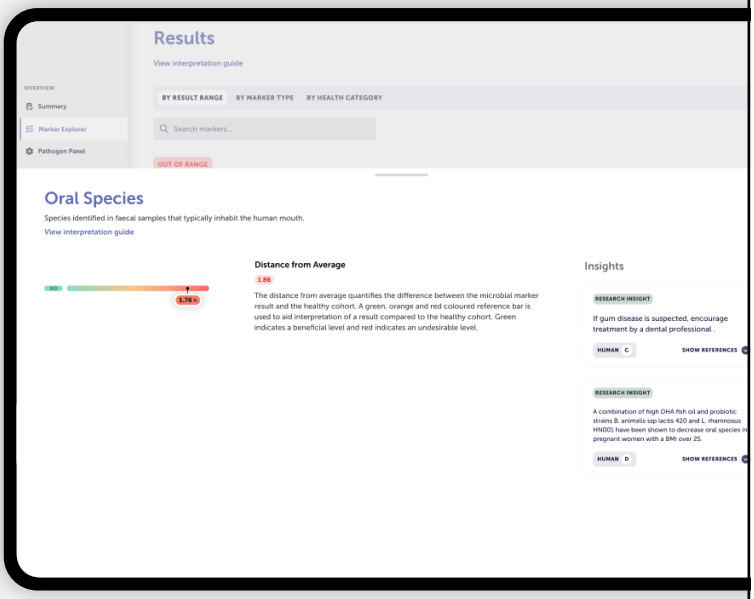
COMING SOON
MetaXplore™ Oral Species

Manage Oral Species in SIBO and Chronic GI Disorders

- ✓ Assess **all oral species** in a sample – **up to 410+ species**
- ✓ Interpret the **impact of high oral species**
- ✓ Apply **targeted evidence-graded insights** to manage high oral species



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Enriching your microbiome education

Visit **Co-Education** for additional resources You can access this via your Practitioner Portal: practitioner.co-biome.com/login

Additional resources:

- Prebiotic Guide
- Low FOMAP Prebiotic Guide
- Dietary Impacts on the Gut Microbiome Guide
- Pathogen and Pathobiont Management Guide
- Interpretation Guide
- MetaXplore Range Report Interpretation Checklist
- Patient Referral Letter Template
- Testing Your Microbiome Patient Brochure
- Patient Handouts – Ellagic acid; Arabinoxylan; Beta-glucan; Inulin; FOS; GOS; Pectin; Resistant starch

Register as a Co-Biome Clinician today for microbiome educational resources at your fingertips!

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