

# Uncover the Cause of Unexplained Abdominal Symptoms With Breath Testing



Small Intestinal  
Bacterial Overgrowth (SIBO)  
GASTROINTESTINAL

CLINICIAN INFORMATION

## SIBO IS A COMMON CLINICAL CONDITION AND CAN DEVELOP IN A VARIETY OF PATIENT POPULATIONS

### SIBO Breath Testing

Genova Diagnostics' **Small Intestinal Bacterial Overgrowth (SIBO) Profiles** are non-invasive breath tests which capture exhaled hydrogen (H<sub>2</sub>) and methane (CH<sub>4</sub>) gases, following patient ingestion of a lactulose solution, to evaluate bacterial overgrowth of the small intestine. The profiles reflect the current state of scientific understanding related to SIBO breath testing and results interpretation, and follows the American Journal of Gastroenterology consensus paper guidelines.<sup>1</sup>

Clinicians have the option of a **2 or 3-hour SIBO** assessment. **The 3-hour SIBO** profile provides insight into gas levels over a longer period of time, and is recommended for patients with slower gastrointestinal transit or constipation.

### The report features:

- Evaluation for Hydrogen result box
- Evaluation for Methane result box
- Carbon Dioxide as a quality assurance measurement
- Actual patient collection times for comparison to recommended collection times
- Extensive interpretive commentary

### Some common conditions associated with SIBO include:<sup>2-7</sup>

- IBS
- Obesity
- IBD
- Parkinson's Disease
- Celiac Disease
- Hypothyroidism
- Diabetes
- Fibromyalgia
- Rosacea

### What Is SIBO?

SIBO is a condition that is characterized by excessive bacteria in the small intestine, leading to multiple symptoms and complications such as malabsorption and intestinal permeability.<sup>8,9</sup> Symptoms of SIBO are non-specific, including bloating, abdominal pain, flatulence, nausea, dyspepsia, constipation, and diarrhea.<sup>3,4,8,9</sup> Risk factors for the development of SIBO include structural/anatomic issues, motility disorders, immunocompromise, decreased digestive secretions, elderly age, and various medications (recurrent antibiotics, PPIs, opioid analgesics).<sup>2,4,8,9</sup> Symptomatic patients with any underlying conditions or risk factors warrant assessment for SIBO.



IBS/IBD



CELIAC DISEASE



BLOATING



WEIGHT ISSUES

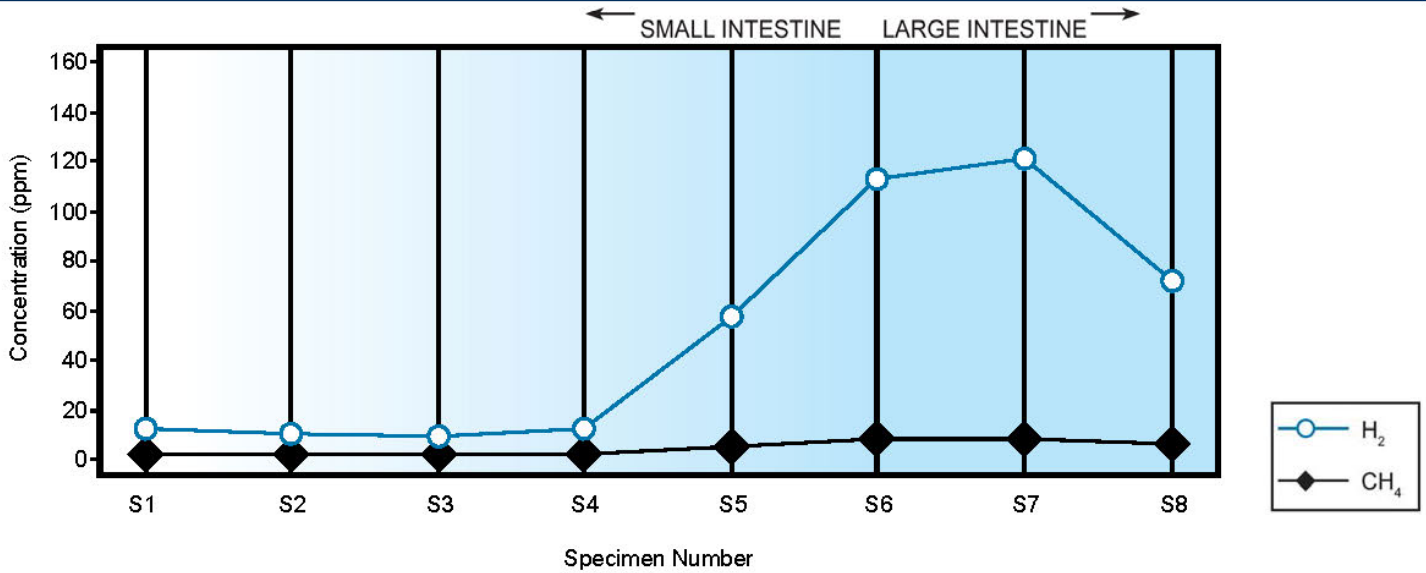
GENOVA  
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2337 Small Intestinal Bacterial Overgrowth (SIBO) 3 Hour - Breath

Methodology: GC-TDC/SSS

Hydrogen (H<sub>2</sub>) and Methane (CH<sub>4</sub>) Breath Gases



Hydrogen (H <sub>2</sub> ), Methane (CH <sub>4</sub> ) and Carbon Dioxide (CO <sub>2</sub> ) (ppm)								
	Baseline 0 min (S1)	20 min (S2)	40 min (S3)	60 min (S4)	90 min (S5)	120 min (S6)	150 min (S7)	180 min (S8)
H <sub>2</sub>	12	10	9	12	57	112	121	71
CH <sub>4</sub>	2	2	<2	2	5	8	8	6
H <sub>2</sub> + CH <sub>4</sub>	14	12	NR	14	62	120	129	77
CO <sub>2</sub> **	✓	✓	✓	✓	✓	✓	✓	✓
Actual Collection Times								
Actual Time	7:55	8:15	8:35	8:55	9:25	9:55	10:25	10:55
Actual Interval	0 min	20 min	40 min	60 min	90 min	120 min	150 min	180 min
**CO <sub>2</sub> is measured for quality assurance. ✓ indicates the CO <sub>2</sub> level is acceptable. ✗ indicates room air contamination exceeding acceptable limits.								

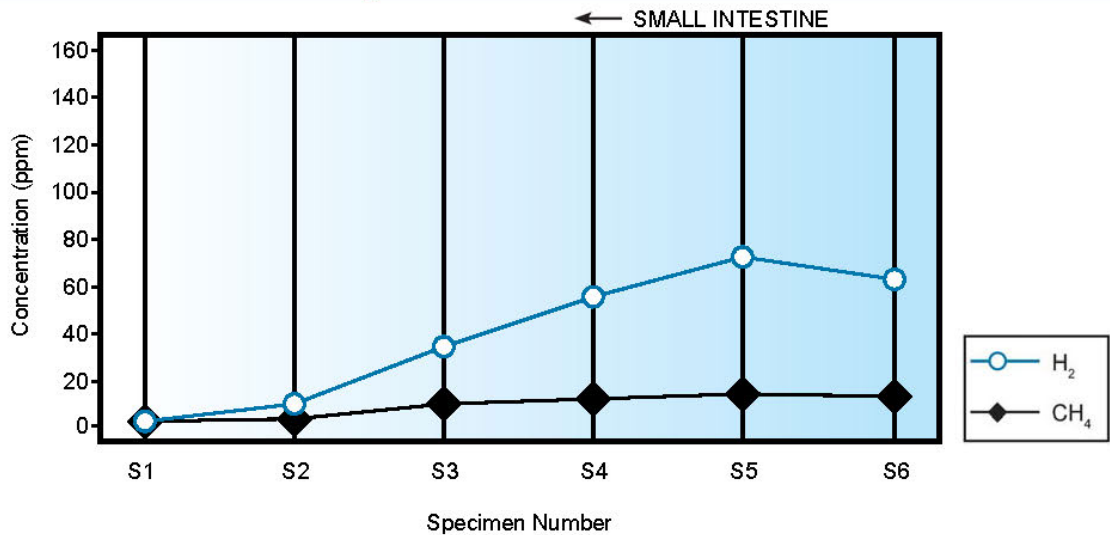
Evaluation for Hydrogen (H <sub>2</sub> )		
<i>Hydrogen increase over baseline by 90 minutes</i>		
	Result	Expected Value
Change in H <sub>2</sub>	45	<20 ppm
A rise of ≥ 20 ppm from baseline in hydrogen by 90 min should be considered a positive test to suggest the presence of SIBO.		

Evaluation for Methane (CH <sub>4</sub> )		
<i>Peak methane level at any point</i>		
	Result	Expected Value
CH <sub>4</sub> Peak	8	<10 ppm
A peak methane level ≥ 10 ppm at any point is indicative of a methane-positive result.		

## 2306 Small Intestinal Bacterial Overgrowth (SIBO) 2 Hour- Breath

Methodology: GC-TDC/SSS

### Hydrogen (H<sub>2</sub>) and Methane (CH<sub>4</sub>) Breath Gases



Hydrogen (H <sub>2</sub> ), Methane (CH <sub>4</sub> ), and Carbon Dioxide (CO <sub>2</sub> ) (ppm)						
	Baseline 0 min (S1)	20 min (S2)	40 min (S3)	60 min (S4)	90 min (S5)	120 min (S6)
H <sub>2</sub>	2	9	33	55	72	62
CH <sub>4</sub>	<2	3	9	11	13	12
H <sub>2</sub> + CH <sub>4</sub>	NR	12	42	66	85	74
CO <sub>2</sub> **	✓	✓	✓	✓	✓	✓
Actual Collection Times						
Actual Time	9:34	9:54	10:14	10:34	11:04	11:34
Actual Interval	0 min	20 min	40 min	60 min	90 min	120 min
**CO <sub>2</sub> is measured for quality assurance. ✓ Indicates the CO <sub>2</sub> level is acceptable. ✗ Indicates room air contamination exceeding acceptable limits.						

#### Evaluation for Hydrogen (H<sub>2</sub>)

Hydrogen increase over baseline by 90 minutes

	Result	Expected Value
Change in H <sub>2</sub>	70 H	<20 ppm

A rise of ≥ 20 ppm from baseline in hydrogen by 90 min should be considered a positive test to suggest the presence of SIBO.

#### Evaluation for Methane (CH<sub>4</sub>)

Peak methane level at any point

	Result	Expected Value
CH <sub>4</sub> Peak	13 H	<10 ppm

A peak methane level ≥ 10 ppm at any point is indicative of a methane-positive result.



## SIBO Biomarkers

Biomarkers	SIBO 2 Hour #2306	SIBO 3 Hour #2337
Hydrogen	√	√
Methane	√	√
Carbon Dioxide	√	√

### ● Small Intestinal Bacterial Overgrowth (SIBO)

- #2306 SIBO 2-Hour Profile
- #2337 SIBO 3-Hour Profile

### ● Specimen Requirements

- **SIBO 2 Hr** - Six fasting breath samples, taken at Baseline, 20 minutes, 40 minutes, 60 minutes, 90 minutes, and 120 minutes
- **SIBO 3 Hr** - Eight fasting breath samples, taken at Baseline, 20 minutes, 40 minutes, 60 minutes, 90 minutes, 120 minutes, 150 minutes, and 180 minutes

### ● Value-added Services

- Medical Education Specialists Support
- Online Resources
- Educational Webinars
- Convenient Billing Options

### ● References

1. Rezaie A, Buresi M, Lembo A, et al. Hydrogen and Methane-Based Breath Testing in Gastrointestinal Disorders: The North American Consensus. *Am J Gastroenterol*. 2017;112(5):775-784.
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6. Patil AD. Link between hypothyroidism and small intestinal bacterial overgrowth. *Indian J Endocrinol Metab*. 2014;18(3):307-309.
7. Pimentel M, Wallace D, Hallegua D, et al. A link between irritable bowel syndrome and fibromyalgia may be related to findings on lactulose breath testing. *AnnRheumDis*. 2004;63(4):450-452.
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