BioHealth LABORATORY Quality First.
23900 Hawthorne Blvd. # 150, Torrance, CA 90505
800-570-2000/307-212-6600 | www.biohealthlab.com

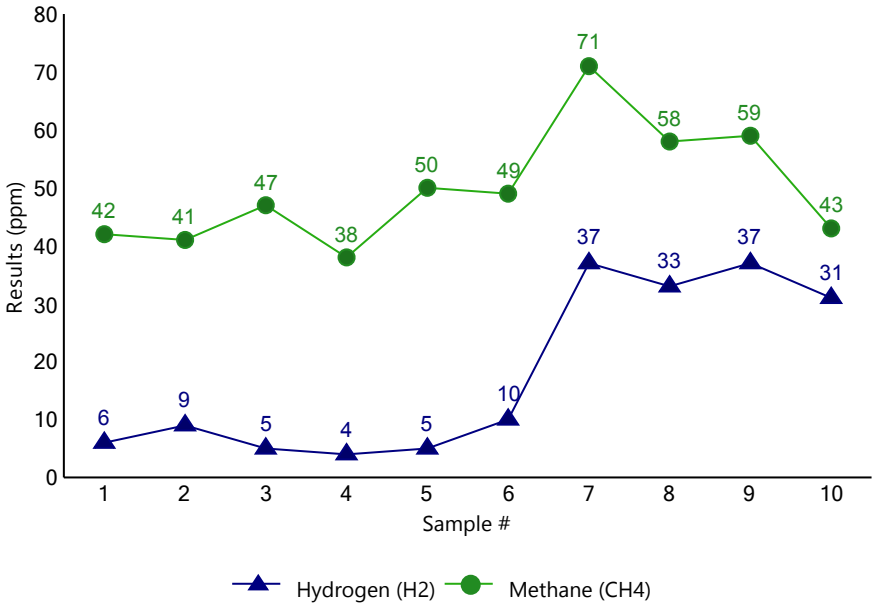
SIBO Breath Test (Lactulose)

for **Test Patient**

Accession #Z112169

Authorizing Clinician	Patient	Collected	Received	Reported
BioHealth Laboratory 23900 Hawthorne Blvd Suite #150 Torrance , CA 90505	**Test Patient** Gender: Female DOB: 01/01/1988	02/26/2018	02/28/2018	03/01/2018

SIBO Breath Test (Lactulose #900-C)



Collection Time	ppm H2	ppm CH4	Sum H2 and CH4	CO2*
1. Baseline	6	42	48	OK
2. 15 min	9	41	50	OK
3. 30 min	5	47	52	OK
4. 45 min	4	38	42	OK
5. 60 min	5	50	55	OK
6. 75 min	10	49	59	OK
7. 90 min**	37	71	108	OK
8. 105 min	33	58	91	OK
9. 120 min	37	59	96	OK
10. 135 min	31	43	74	OK

* Samples are corrected for Carbon Dioxide (CO2) concentration to account for variations in collection. Invalid samples are categorized as Quantity Not Sufficient (QNS).

**90 minutes is the typical time at which the biomarker travels from the small intestine to the colon. However, slow transit times may result in SIBO markers during the last 45 minutes.
This guideline was updated January 2018 as a result of ongoing research and recently published literature consensus.

Summary of Results			
Trace Gas Markers	**Result (ppm)**	**Guideline**	**Interpretation**
Greatest Hydrogen (H2) rise over lowest previous value in first 90 minutes	33	Normal: < 20 ppm	**Elevated**
Peak Methane (CH4) at any point in the test	71	Normal: < 10 ppm	**Elevated**

In an effort to remain up to date on the latest data analysis and literature consensus, we are updating our SIBO breath testing interpretation guidelines to reflect the recommendations recently published in the American Journal of Gastroenterology.

The North American consensus recommends a 120 minute test duration for lactulose and glucose SIBO breath testing. The final reading at 135 minutes is provided to capture delayed reactions in patients with constipation or prolonged orocecal transit time due to factors such as medications or disease. Within 90 minutes, the sugar substrate should transition from the small intestine to the colon; however, slow transit times may result in SIBO markers appearing after 90 minutes. The late hydrogen peaks that typically occur after 120 minutes are usually the result of normal bacterial fermentation in the colon. Health providers have the ultimate authority as to how they interpret their patient's results.

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Interpretive Guidance

Small Intestinal Bacterial Overgrowth (SIBO) is suspected if one or more of the following criteria are met. These guidelines are for research purposes only. Additional criteria used by some clinicians to identify possible SIBO presence, are also listed below. The results should be interpreted by the clinician in the context of the patient's symptoms and other external diagnostic data.

Elevated Hydrogen: In the first 90 minutes after ingesting the solution, an increase in hydrogen gas of greater than or equal to 20 ppm from the lowest previous result may be an indication of bacterial overgrowth.

Peak Methane: In any of the collections, a methane gas result of greater than or equal to 10 ppm are considered methane-positive and may suggest methanogen overgrowth. Studies have shown a relationship between methane production and constipation-predominant IBS. Methane results may not increase and instead stay elevated throughout all collections. Some providers may wish to interpret any amount of methane production as positive therefore values between 3 and 9 ppm may also suggest methanogen overgrowth.

Elevated Baseline: Some literature suggests a baseline hydrogen gas result of greater than 20 ppm may be an indication of bacterial overgrowth; however clinical significance is unclear. An elevated baseline may also be an indication of a lack of adherence to the test's diet and fasting instructions.

Elevated Sum of Hydrogen and Methane: Although the 2017 North American consensus did not provide a recommendation on interpretation of combined gases, some providers may wish to evaluate the rise in the sum of hydrogen and methane results for individuals who produce both gases. Previous guidelines suggested an indication of bacterial overgrowth if there is a rise of >15 ppm above the lowest previous sum of hydrogen and methane.

References:

1. Dukowicz AC, Lacy BE, Levine GM. Small Intestinal Bacterial Overgrowth: A Comprehensive Review. Gastroenterology & Hepatology. 2007;3(2):112-122.
2. Rezaie A, et al. Hydrogen and Methane-Based Breath Testing in Gastrointestinal Disorders: The North American Consensus. Am J Gastroenterol. 2017;112:775-784.
3. Saad RJ, Chey WD. Breath Testing for Small Intestinal Bacterial Overgrowth: Maximizing Test Accuracy.Clinical Gastroenterology and Hepatology. 2014;12:1964-1972.