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 (H₂) and methane (CH₄) 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.¹

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:**²⁻⁷

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

**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.⁸,⁹ Symptoms of SIBO are non-specific, including bloating, abdominal pain, flatulence, nausea, dyspepsia, constipation, and diarrhea.²,⁴,⁸,⁹ 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).²,⁴,⁸,⁹ Symptomatic patients with any underlying conditions or risk factors warrant assessment for SIBO.
2337 Small Intestinal Bacterial Overgrowth (SiBO) 3 Hour - Breath

**Methodology:** GC-TDC/SSS

### Hydrogen (H₂) and Methane (CH₄) Breath Gases

<table>
<thead>
<tr>
<th>Specimen Number</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
<th>S5</th>
<th>S6</th>
<th>S7</th>
<th>S8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concentration (ppm)</strong></td>
<td>0 min (S1)</td>
<td>20 min (S2)</td>
<td>40 min (S3)</td>
<td>60 min (S4)</td>
<td>90 min (S5)</td>
<td>120 min (S6)</td>
<td>150 min (S7)</td>
<td>180 min (S8)</td>
</tr>
<tr>
<td>H₂</td>
<td>12</td>
<td>10</td>
<td>9</td>
<td>12</td>
<td>57</td>
<td>112</td>
<td>121</td>
<td>71</td>
</tr>
<tr>
<td>CH₄</td>
<td>2</td>
<td>2</td>
<td>&lt;2</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>H₂ + CH₄</td>
<td>14</td>
<td>12</td>
<td>NR</td>
<td>14</td>
<td>62</td>
<td>120</td>
<td>129</td>
<td>77</td>
</tr>
<tr>
<td>CO₂</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**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

**CO₂** is measured for quality assurance. ✓ indicates the CO₂ level is acceptable. ✗ indicates room air contamination exceeding acceptable limits.

### Evaluation for Hydrogen (H₂)

**Hydrogen Increase over baseline by 90 minutes**

<table>
<thead>
<tr>
<th>Change in H₂</th>
<th>Result</th>
<th>Expected Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 ppm</td>
<td>H</td>
<td>&lt;20 ppm</td>
</tr>
</tbody>
</table>

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 (CH₄)

**Peak methane level at any point**

<table>
<thead>
<tr>
<th>CH₄ Peak</th>
<th>Result</th>
<th>Expected Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 ppm</td>
<td></td>
<td>&lt;10 ppm</td>
</tr>
</tbody>
</table>

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 ($H_2$) and Methane ($CH_4$) Breath Gases

![Graph showing concentration of $H_2$ and $CH_4$ over time.]

<table>
<thead>
<tr>
<th>Specimen Number</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
<th>S5</th>
<th>S6</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_2$ Baseline</td>
<td>2</td>
<td>9</td>
<td>33</td>
<td>55</td>
<td>72</td>
<td>62</td>
</tr>
<tr>
<td>$CH_4$ Baseline</td>
<td>&lt;2</td>
<td>3</td>
<td>9</td>
<td>11</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>$H_2$ + $CH_4$ Baseline</td>
<td>NR</td>
<td>12</td>
<td>42</td>
<td>66</td>
<td>85</td>
<td>74</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Actual Collection Times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Time</td>
</tr>
<tr>
<td>Actual Interval</td>
</tr>
</tbody>
</table>

**$CO_2$** is measured for quality assurance. ✓ Indicates the $CO_2$ level is acceptable. X indicates room air contamination exceeding acceptable limits.

### Evaluation for Hydrogen ($H_2$)
- **Hydrogen increase over baseline by 90 minutes**
- **Change in $H_2$ Result:** 70
- **Expected Value:** <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 ($CH_4$)
- **Peak methane level at any point**
- **$CH_4$ Peak Result:** 13
- **Expected Value:** <10 ppm

A peak methane level ≥ 10 ppm at any point is indicative of a methane-positive result.
Small Intestinal Bacterial Overgrowth (SIBO)

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SIBO Biomarkers

<table>
<thead>
<tr>
<th>Biomarkers</th>
<th>SIBO 2 Hour #2306</th>
<th>SIBO 3 Hour #2337</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Methane</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

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


CPT codes, turnaround times, sample reports, and additional resources are available online at [www.gdx.net](http://www.gdx.net)