

Propionate producing microbes

Marker Guide

What this marker measures

The collective capacity of the microbial community to produce propionate, a short-chain fatty acid (SCFA) generated through the fermentation of dietary fibre and other fermentable substrates. Propionate may help regulate intestinal inflammation by supporting regulatory T-cell activity and modulating immune responses through short-chain fatty acid receptors¹⁻⁴.

Clinical associations

Consider this marker when your patient presents with:

Immune dysregulation

Conditions where immune modulation via SCFAs may be relevant

Gut fermentation balance

Consider when propionate-producing potential is high relative to butyrate-producing potential, suggesting an imbalance between these SCFA producers

Dietary context

Low fibre intake, restricted diet, poor dietary variety

Interpreting the result

All results are compared to Microba's healthy cohort to determine whether they fall within or outside the expected range.

LOW

Propionate producing potential is lower expected

May indicate reduced microbial capacity to support SCFA-mediated immune regulation. Action: see patient management insights below.

WITHIN RANGE

Propionate producing potential is within expected parameters

This suggests microbial capacity to support propionate-mediated intestinal immune regulation.

HIGH

Propionate producing potential is higher than expected

Usually not a concern in isolation but may indicate an altered SCFA profile if elevated relative to butyrate-producing potential. Interpret alongside other SCFA markers, symptoms, and diet.

Patient management insights

Support propionate-producing potential through dietary fibre and targeted probiotic support

DIETARY STRATEGIES

- A diet rich in wholegrains may increase plasma propionate.^{5,6}
- Frequent intake of oats may increase plasma propionate⁷

LIFESTYLE FACTORS

- *Lactobacillus plantarum* 299v may increase plasma propionate⁸



Tips for patients discussion

Your report suggests your gut microbiome has a lower capacity to produce propionate, a beneficial short-chain fatty acid that helps regulate immune pathways in the gut. Increasing fermentable fibres from wholegrains, particularly oats and wholegrain wheat or rye, can help support propionate-producing microbes

The community

Propionate is not produced by a single species, it's a community-level function. Below are some of the most common, though this list is not exhaustive.

<i>Alistipes finegoldii</i>	<i>Alistipes obesi</i>	<i>Alistipes onderdonkii</i>
<i>Alistipes putredinis</i>	<i>Alistipes shahii</i>	<i>Alistipes_A ihumii</i>
<i>Bacteroides caccae</i>	<i>Bacteroides cellulosilyticus</i>	<i>Bacteroides ovatus</i>
<i>Bacteroides stercoris</i>	<i>Bacteroides thetaiotaomicron</i>	<i>Bacteroides uniformis</i>
<i>Bacteroides xylanisolvens</i>	<i>Bacteroides_B dorei</i>	<i>Bacteroides_B massiliensis</i>
<i>Bacteroides_B vulgatus</i>	<i>Barnesiella intestinihominis</i>	<i>Blautia_A obeum</i>
<i>Coprococcus_A catus</i>	<i>Eubacterium_E hallii</i>	<i>Eubacterium_E hallii_A</i>
<i>Odoribacter splanchnicus</i>	<i>Parabacteroides distasonis</i>	<i>Parabacteroides merdae</i>

How results are calculated

All microbiome marker results are compared against the Microba Healthy Cohort — a purpose-built group of more than 450 healthy individuals, with samples collected and analysed using the same workflow as patient samples.

Each marker is scored by comparing the patient's relative abundance against the cohort average. The distance from this average is expressed as standard deviations, and determines whether a result is classified as Low, Borderline, or High.

How the result scale works



The patient's relative abundance is compared to the Healthy Cohort average. A **negative** distance from average means the microbial group is less abundant than the Healthy Cohort. A **positive** distance means it is more abundant. Results falling outside the expected range are classified as borderline or high/low (borderline high/low: +/-0.68, and high/low: +/-1.28).

GRADE DESCRIPTION

A	Body of evidence can be trusted to guide practice
B	Body of evidence can be trusted to guide practice in most situations
C	Body of evidence provides some support for recommendation, but care should be taken in its application
D	Body of evidence is weak, and recommendation must be applied with caution
PP H	Body of evidence is observational only and must be applied with caution
PP IV	Body of evidence is in vitro and must be applied with a high degree of caution

Evidence grading for patient management insights

The letter grades shown next to each patient management insight show the quality of the research behind it. Every insight provided has been through a rigorous review of the scientific literature and graded using the NHMRC Levels of Evidence, so you can see exactly how strong the evidence is before applying it in practice.