

Oxalate degrading microbes

Marker Guide

What this marker measures

The collective capacity of the gut microbial community to degrade oxalate, a compound found in many plant foods and also produced by the body. By degrading oxalate in the intestine, gut microbes may reduce oxalate absorption into the bloodstream and and excretion of oxalate into the urine^{1,2}. Low oxalate-degrading potential may be relevant to calcium oxalate kidney stone risk in susceptible individuals¹⁻⁵.

Clinical associations

Consider this marker when your patient presents with:

Kidney stones

Recurrent calcium oxalate kidney stones, hyperoxaluria, or a history of calcium oxalate stones

Interpreting the result

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

LOW

Oxalate-degrading potential is lower than expected

This may indicate reduced microbial capacity to degrade intestinal oxalate. Interpret alongside stone history, dietary oxalate intake, and calcium intake with meals.
Action: see patient management insights below.

WITHIN RANGE

Oxalate degrading potential is within expected parameters

This suggests microbial oxalate-degrading capacity is not reduced.

HIGH

Oxalate-degrading potential is higher than expected

Usually reassuring in isolation and may suggest greater microbial capacity to degrade intestinal oxalate.

Patient management insights

Support healthy oxalate handling and reduce urinary oxalate exposure in patients with recurrent calcium oxalate kidney stones.

DIETARY STRATEGIES

- Sufficient calcium intake may help reduce urinary oxalate excretion ^{2,6-8}



Tips for patients discussion

Your report suggests lower gut microbial capacity to break down oxalate — a compound found in many plant foods that can contribute kidney stones in susceptible people. One simple way to help is to include calcium-rich foods with your meals — calcium binds to oxalate in the gut, helping to stop it from being absorbed.

The community

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

<i>51_20 sp001917175</i>	<i>Escherichia flexneri</i>	<i>Ruminococcaceae MIC7581</i>
<i>Bifidobacterium animalis</i>	<i>Lactobacillus acidophilus</i>	<i>Streptococcus mutans</i>
<i>Bifidobacterium dentium</i>	<i>Lactobacillus gasseri_A</i>	<i>UBA7173 MIC7159</i>
<i>Bifidobacterium MIC6680</i>	<i>Muribaculum sp002492595</i>	<i>UBA7173 MIC7508</i>
<i>Bifidobacterium pseudocatenulatum</i>	<i>Oxalobacter formigenes_A</i>	<i>UBA7173 MIC7596</i>
<i>CAG-1031 sp000431215</i>	<i>Oxalobacter MIC6654</i>	<i>Escherichia coli</i>
<i>Paramuribaculum MIC6915</i>	<i>Escherichia dysenteriae</i>	<i>Paramuribaculum sp000431155</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.