

SHOTGUN · SLST · 16S COMPARISON

Which test actually proves your claim?

Shotgun, SLST, and 16S each answer a different question. This guide breaks down what each test measures, how long it takes, and what it can (and can't) prove for an acne or longevity claim.

The claim should determine the test — not the other way around.
Match the test to what the claim needs before the study starts, not after.

COMPARE THE THREE TESTS

Feature	16S + ITS amplicon sequencing	SLST	Shotgun metagenomics
Primary objective	Profile overall bacterial and fungal community composition	Resolve <i>Cutibacterium acnes</i> sequence types and phylotypes	Broad taxonomic and functional characterization of the microbiome
Assays required	Two separate assays: 16S for bacteria and ITS for fungi	One targeted <i>C. acnes</i> locus	One untargeted total-DNA assay
Bacteria detected	Yes, through 16S	Only <i>C. acnes</i>	Yes
Fungi detected	Yes, through ITS	No	Yes
Viruses and bacteriophages	No	No	Yes
Taxonomic resolution	Species level resolution with HelloBiome proprietary DB	Phylotype resolution within <i>C. acnes</i>	Usually species level; strain-level inference may be possible
<i>C. acnes</i> phylotype resolution	Poor; 16S generally cannot distinguish clinically relevant <i>C. acnes</i> lineages	Excellent and specifically designed for this purpose	Potentially high, but dependent on microbial read depth and the strain-analysis pipeline

Ready to prove your claims?

Talk to Our Team

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Continued from page 1 – functional data, cost, and where each test is best applied.

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Functional genes and pathways	No, only predictions from raw fastq files	No	Yes — genes, pathways, virulence factors and resistance determinants
Absolute microbial load	Yes, as HelloBiome combines the run with qPCR	No	No
Human-DNA interference	Limited because microbial loci are selectively amplified	Limited because the SLST locus is selectively amplified	Major consideration; human reads may consume much of the sequencing output
Data volume and analysis complexity	Moderate	Low to moderate	High
Typical relative project cost	Low to moderate	Moderate	High
Best application	General bacterial and fungal microbiome profiling in clinical claim studies	Acne/longevity studies focused on health- and acne-associated <i>C. acnes</i> lineages	Mechanistic, multikingdom, strain-level and functional microbiome research studies
Main limitation	Limited strain resolution and no direct functional data	No information about the rest of the microbiome	Higher complexity and risk of insufficient usable microbial reads in skin samples

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BRINGING SLST INTO YOUR STUDY

What it takes to add SLST to your next study

WHICH PATH FITS YOUR STUDY?



Add-on to Standard NGS

Recommended default — a claim still needs the overall composition picture 16S/ITS provides, with SLST layered on for phylotype resolution.



Standalone SLST

For narrower cases where phylotype-level data is the only question being asked.



Retroactive on Banked Samples

Runs on previously collected shotgun samples — no new collection needed if samples were stored correctly.

STUDY DESIGN REQUIREMENTS

Minimum sample size	≥30 participants (occasionally 27) to account for person-to-person variation
Statistical threshold	Wilcoxon signed-rank test (paired samples) or Mann-Whitney U (unpaired), with Benjamini-Hochberg FDR correction. A shift counts as significant at adjusted p < 0.05.
Study duration	4 weeks, matching skin's average cell-turnover time. Separate from SLST's own lab turnaround, which is 1-2 weeks for both acne and longevity claims.
Phenotypic proof needed	Acne scoring, before/after photography, redness or inflammation measurement
SLST pricing	SLST comes in below the cost of both standalone 16S and shotgun metagenomics — talk to our team for pricing specific to your study design.

BUILT FOR

Acne & Blemish Brands

Prove a shift toward a healthier *C. acnes* profile.

Longevity & Anti-Aging

Confirm the healthy-associated sub-types are growing.

CRO Partners

Add phylotype depth to client studies.

Add SLST to your next study.

Talk to Our Team