

# Microbial DNA Testing Reveals What Dermatologists Can't See in Inflammatory Skin Conditions

*Precision microbiome analysis uncovers hidden drivers of inflammatory skin conditions; new documentary explores phage therapy's role in personalized medicine*

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[Parallel Health](#) today announced breakthrough findings from its proprietary whole-metagenome sequencing [platform](#) that reveal specific microbial imbalances underlying common skin conditions,

often invisible to clinical observation. The company's research, published in *The Dermatologist* and other journals, demonstrates how precision microbiome testing can identify bacterial strain-level dysbiosis contributing to acne, rosacea, seborrheic dermatitis, hidradenitis suppurativa and other inflammatory conditions.

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*Dr. Seaver Soon*

The discoveries emerge from Parallel Health's comprehensive analysis of skin microbiome data, which identifies pathobiont bacteria, viruses, and fungi that cause disease under specific conditions rather than single infectious agents. This approach challenges the sole use of traditional dermatological assessment methods and provides practitioners with potential molecular-level understanding.

"Parallel Health's testing reveals microbial associations that even the most experienced dermatologists cannot observe clinically," said Dr. Seaver Soon, double-board-certified dermatologist, Mohs surgeon, and clinical advisor at Parallel Health. "With this technology, we witness patients with nearly identical clinical presentations bear completely different microbial



From left to right: Natalise Kalea Robinson, Dr. Nathan Brown, Dr. Seaver Soon

profiles, thus potentially requiring distinct treatment approaches."

### Microbiome Dermatology™: Beyond Visual Diagnosis

Parallel Health's platform utilizes whole-metagenome shotgun DNA sequencing to analyze complete microbial communities rather than relying on traditional culture methods or limited 16S rRNA sequencing. This technology identifies specific bacterial strains, antimicrobial resistance genes, and functional microbial pathways contributing to skin conditions.

The research demonstrates that conditions like acne and seborrheic dermatitis result from complex dysbiosis involving unique microbial species for individuals rather than single pathogens. This finding has significant implications for treatment selection, as broad-spectrum antibiotics may disrupt beneficial bacteria while failing to address specific pathogenic strains.

### Clinical Context

Traditional dermatological approaches mostly rely on visual assessment and empirical treatment selection.

However, Parallel Health's data reveals substantial microbial heterogeneity among patients with identical clinical presentations. The company's testing platform identifies species-level microbial imbalances and provides quantitative analysis of bacterial communities, enabling precision treatment selection.

Antimicrobial resistance has emerged as a significant concern in dermatology, with widespread antibiotic use contributing to treatment-resistant bacterial strains. The World Health Organization projects that drug-resistant infections could cause 40 million annual deaths by 2050 without intervention. Parallel Health's precision approach offers an alternative to empirical



Parallel's MD-03 Protocol™



Dr. Nathan Brown explains the history of phage therapy

broad-spectrum antibiotic therapy.

## AI-Enabled Research and Development

Parallel Health's platform combines comprehensive microbiome analysis with AI-driven interpretation to develop personalized treatment protocols. The company has built proprietary datasets and biobanks that enable identification of microbial patterns associated with specific skin conditions and treatment responses.

The research platform through Parallel's MD-03 Protocol™ analyzes bacterial communities at the strain level, identifying pathobiont organisms that contribute to inflammation under specific conditions. This granular analysis enables targeted interventions using bacteriophage therapy, custom-compounded prescriptions, and cosmeceutical formulations designed to address identified microbial imbalances.

Current applications focus on anti-aging and general dermatology, with the platform addressing conditions including acne, eczema, rosacea, melasma, hidradenitis suppurativa, body odor, and even certain forms of hair loss. The company operates as a fully licensed telehealth practice, making precision microbiome testing accessible to patients nationwide with HSA/FSA eligibility.

## Bacteriophage Therapy Integration

Concurrent with these research findings, Parallel Health released a documentary examining bacteriophage therapy's potential in precision dermatology. The four-minute film, titled "[Bacteriophages Could Save 40 Million Lives by 2050](#)" explores how naturally occurring nano-microbes that target specific bacterial strains represent a precision alternative to broad-spectrum antibiotics.

Unlike conventional antibiotics that affect entire bacterial populations, bacteriophages demonstrate specificity at the strain level, preserving beneficial microbiome components while targeting pathogenic bacteria. This precision aligns with Parallel Health's microbiome testing capabilities, enabling targeted therapeutic selection based on identified bacterial populations.

The documentary discusses bacteriophage history and phage therapy's effectiveness in reducing target bacterial populations. While phage therapy can be applied to many areas of human health, the documentary focuses on Parallel's current focus on improving inflammatory skin conditions. The film positions phage therapy within the broader context of antimicrobial resistance and the need for precision therapeutic approaches.

## Platform Applications and Future Directions

The company's precision health platform extends beyond current dermatological applications. Research indicates potential applications in neurology, oncology, and infectious disease

treatment, areas where microbiome analysis could inform therapeutic approaches. The platform's AI-driven analysis capabilities enable pattern recognition across large datasets, potentially identifying microbial signatures associated with various health conditions.

Parallel Health's approach represents a shift from symptom-based treatment to addressing underlying microbial causes of disease. The company's data demonstrates that this precision approach can improve treatment outcomes while reducing reliance on broad-spectrum antibiotics, supporting antimicrobial stewardship efforts.

### Industry Recognition and Accessibility

The company has received recognition as a TechCrunch Disrupt Finalist (finishing in the Top 0.2% of startups) and was named a "World Changing Idea" by Fast Company. The American Association of Dermatology has identified Parallel Health's approach as representing the "Future of Dermatology."

### Availability and Access

The documentary "Bacteriophages Could Save 40 Million Lives by 2050" is available at [youtube.com/@parallelhealth](https://youtube.com/@parallelhealth). Microbiome testing and personalized treatment protocols are available through Parallel Health's telehealth platform at [parallelhealth.io](https://parallelhealth.io).

### About Parallel Health

Founded as a precision health company specializing in Microbiome Dermatology™, Parallel Health combines advanced genomic testing with AI-driven analysis to identify microbial causes of skin conditions. The company operates a fully licensed telehealth practice and maintains partnerships with academic research institutions and dermatology practices.

Parallel Health's research platform has generated proprietary datasets on skin microbiome patterns associated with various dermatological conditions. The company's scientific team includes Dr. Nathan Brown, co-founder and Chief Science Officer, and Dr. Seaver Soon, double-board-certified dermatologist and Mohs surgeon.

### Note to Editors

Research data, expert interviews, and additional clinical documentation are available upon request. High-resolution imagery from the documentary and microbiome visualization graphics are available for media use.

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