SYNOPSIS
In the United States, psoriasis affects upward of 3% of the population, leading to healthcare costs of >$110 billion annually. The emergence of targeted biologic treatments has revolutionized the management of moderate to severe psoriasis patients, with impressive results. However, these clinical gains have come with a concomitant dramatic increase in the spending on higher priced biologic drugs. A personalized approach allows clinicians to prescribe the best medication, the first time. Patient outcomes quickly improve, without incurring the excess cost associated with a trial-and-error approach.

OBJECTIVE
To develop and validate a machine learning-based classifier that can predict if a psoriasis patient will respond to a specific biologic drug class prior to drug exposure.

METHODS
Transcriptomes were collected from subjects (N=232) with a psoriasis diagnosis using a proprietary Dermal Biomarker Patch kit (Figure 1A) that allows simple, rapid, and painless extraction of RNA from the skin (Figure 1B). Patient PASI scores were measured at baseline as well as weeks 12 and 16 after drug exposure. Transcriptomes were analyzed using next-generation sequencing (NGS) following standard protocols. The resulting data set (transcriptomic data and clinical outcomes) was used to train and prospectively validate a machine learning-based classifier for each class of biologic (TNFαi, IL-17i, IL-23i).

RESULTS

![Graph showing patient outcomes over time](image)

CONCLUSION
INTELLIGENTLY, CONFIDENTLY CHOOSE PSORIASIS BIOLOGIC
By combining Mindera Health Dermal Biomarker Patch technology with machine learning methods, we developed a precision medicine test (Mind.Px) that can:

- accurately predict psoriasis-patient response to biologic class (TNFαi, IL-17i, or IL-23i) prior to drug exposure
- prescribe patients the right biologic the first time, for improved outcomes and tremendous cost-savings
- minimize the trial-and-error approach to psoriasis treatment

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