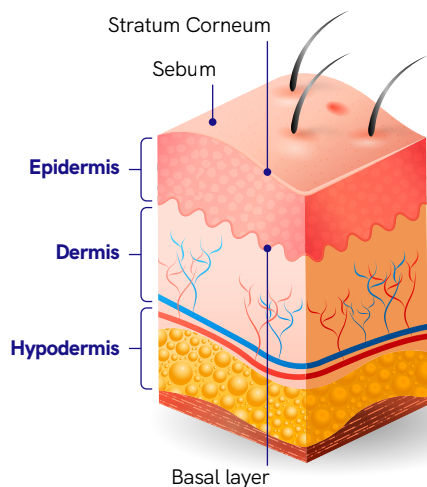


# Noninvasive Skin Tapes

Measure biomarkers for cosmetics and skincare to understand skin biology



**Sebum:** lipid-rich secretion of sebaceous cells on the outmost layer of skin; understand acne, seborrheic dermatitis, oily skin, and lipid biomarkers for drug development

**Stratum Corneum:** Topmost layers of epidermis; measure microbiome signatures, proteins, metabolites, and unique lipids to profile dermatologic conditions and skin health



## NON-INVASIVE

Identify and measure *in situ* biomarkers without a blood draw



## PROSPECTIVE COLLECTION

Define your I/E criteria  
Concurrently collect other sample types



## RECALLABLE DONORS

Longitudinal trial design



## DONOR-CENTRIC

Samples collected in-home or on-site for ease and comfort

HLA typing

Clinical annotation

Biomarker characterization

Questionnaires



Skin tapes collected in donor's home or at your company facility



Optionally collect blood, stool, urine, other samples



Temperature-controlled, overnight delivery to Sanguine Lab for storage

Prospectively collect once or multiple time points

Skin is the largest organ in the body, protecting against environmental insults and sensing external stimuli. A complex, layered community of epithelial and immune cells with diverse roles; cross-functional lipids, biochemicals, and proteins; as well as resident microbiota and opportunistic pathogens, our skin is the conduit for how we measure and project ourselves to the world.

Dermatological sampling no longer requires invasive biopsies and punches. Rather, skin taping technologies allow for sebum and stratum corneum collection of skin cells, biomarkers and microbe signatures that inform on skin biology, product mechanism of action, microbiome function, and cosmetic impact on skin health.<sup>1</sup> Noninvasive skin sampling can also be simultaneously collected alongside other biospecimens, such as serum or PBMCs, to provide systemic biomarker relationships.<sup>2</sup>

## Use Skin Tapes for:

### Applications

Cosmetics, skincare products, antimicrobials, dandruff, hair loss

### Skin Biology

Animal-free biomarkers for inflammation, skin barrier, UV damage, circadian rhythm

### Skin Microbiome

Metagenomics, 16S RNA sequencing, metabolomics, transcriptomics, proteomics

### Product Characterization

Non-invasive biomarkers for target engagement, MoA, safety, metabolism

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## Skin Tape Case Studies:

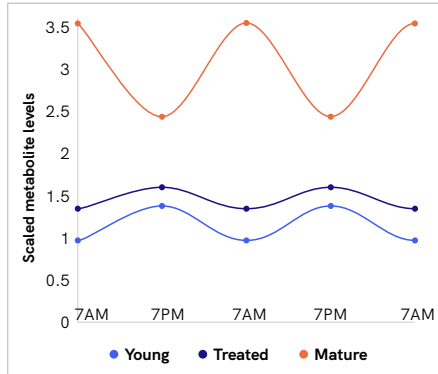
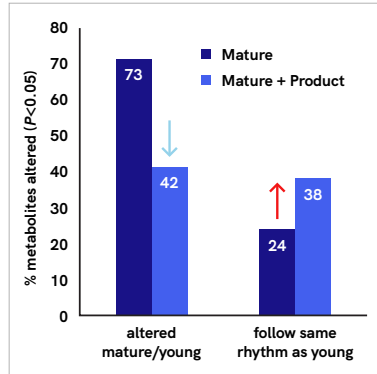
### Nighttime cosmetic serum restores youthful circadian rhythm of skin biomolecules<sup>2</sup>

#### Challenge

Natural circadian dynamics of skin biology decrease with age.

#### Experiment

Women aged ~50 years applied a night-time serum cosmetic to half their faces, and stratum corneum tape discs were compared among treated, untreated, and women aged ~25 years.



#### Insight

The rhythms of metabolites involved in skin health and inflammation associated with younger skin were restored in the serum-treated women.

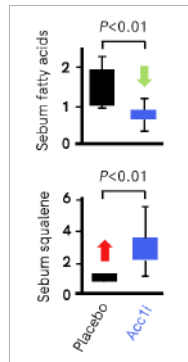
### Sebum measurements shed light on acne pathogenesis and reveal potential therapy<sup>3</sup>

#### Challenge

A hallmark of acne is the overproduction of sebum lipids on the skin surface.

#### Experiment

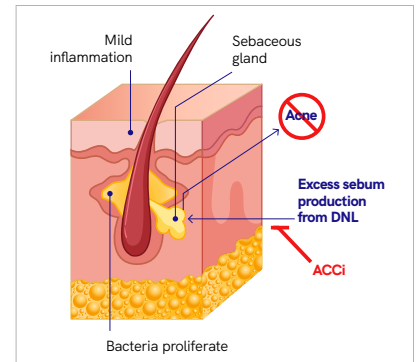
Sebum and serum lipidomics reveal that *de novo* lipogenesis (DNL) responsible for ~80% of sebum lipids.




#### Insight

DNL inhibitor (ACC1i) significantly reduces sebum lipid levels *in vivo*, but not DNL-independent and beneficial lipids like squalene.

Blocking DNL via ACC inhibition represents a selective and effective mechanism for reducing acne.



<b>Areas of Research</b>	<ul style="list-style-type: none"> <li>■ Cosmetics and cosmeceuticals</li> <li>■ Skincare products</li> <li>■ Dermatology</li> <li>■ Acne vulgaris</li> <li>■ Skin microbiome</li> <li>■ Antimicrobials</li> <li>■ Hair loss and hair care</li> <li>■ Wound healing</li> </ul>
<b>Use</b>	Research Use Only (RUO)
<b>Collection Methods</b>	<ul style="list-style-type: none"> <li>■ Stratum corneum tape discs</li> <li>■ Sebum tapes</li> <li>■ Skin swabs</li> </ul>
<b>Temperature, storage, and shipment</b>	Custom
<b>Concurrent, in-home sample collection</b>	<ul style="list-style-type: none"> <li>■ Serum/Plasma</li> <li>■ Whole blood</li> <li>■ PBMCs</li> <li>■ Urine</li> <li>■ Stool</li> <li>■ Hair, Nails</li> <li>■ Saliva</li> <li>■ Other</li> </ul>



**Access our growing network of 70,000+ research-ready study participants**

<sup>1</sup>Kim et al. (2019) [Side-by-side comparison of skin biopsies and skin tape stripping highlights abnormal stratum corneum in atopic dermatitis](#). *J Invest Dermatol.* 139(11): 2387-2389.e1.

<sup>2</sup>Corallo K et al. (2020) [Unlocking the blueprint of skin aging in Caucasian and Chinese women](#). *J Invest Dermatol.* 140(7): S117.

<sup>3</sup>Esler et al. (2019) [Human sebum requires de novo lipogenesis, which is increased in acne vulgaris and suppressed by acetyl-CoA carboxylase inhibition](#). *Science Transl Med.* 11(492): eaau8465.