

Lipidomics Inc.

A new company exploiting
a paradigm shift in
dermatologic immunology

March-2017

Opportunity..

Measurement of skin lipid composition in a fast, reliable, reproducible and non-invasive manner.

Great tool to detect onset of atopic dermatitis/ eczema pathogenesis and characterize eczema subtypes in humans

Products:

- ❖ Cosmetics (indications: redness, itching amelioration)
- ❖ Theranostic tests (protected by strong IP)
- ❖ Derm Pharmaceuticals (Use patents, patient stratification)

Team

- ❖ **Arup Indra, PhD:** Co-founder and Chairman SAB, Lipidomics Inc. 25 years of experience in dermatological research. Professor at OSU-OHSU College of Pharmacy, Department of Dermatology, OHSU, Co-director OHSU-OSU Cancer Prevention and Control Initiative.
- ❖ **Michael Tippie, MS, MBA:** CEO, Lipidomics Inc. Serial entrepreneur with 8 startups and 2 IPO's, numerous venture financings. Most recently CEO TomegaVax with \$150 MM financing.
- ❖ **Gitali Indra, PhD:** Co-founder and COO, Lipidomics Inc. 25 years of experience in dermatological research. Professor at OSU-OHSU College of Pharmacy, Member, Knight Cancer Institute, OHSU
- ❖ *Additions 2016: VP, Cosmetics; Product Manager, Cosmetics; SAB; BOD*

Disease Focus

- ❖ Although our initial focus is on eczema, we would like to expand to other immunological, inflammatory skin disorders such as psoriasis, ichthiosis and rosacea.
- ❖ Each of these diseases will require separate lipid based products

ATOPIC DERMATITIS (AD)



- **Atopic dermatitis** or **eczema** is a chronic itch and inflammatory disease of the skin primarily seen in the pediatric age group. Males and females are equally affected.

- Is very common. In the United States, it is recorded a prevalence of > 10% for children with eczema disease and ≈6% for adults with atopic dermatitis.



\$5 BB TAM, Cosmetics
\$18 BB TAM, Pharmaceuticals

AD is characterized by dry skin, pruritus, erythema, scaling, excoriations, oozing, and crusting.

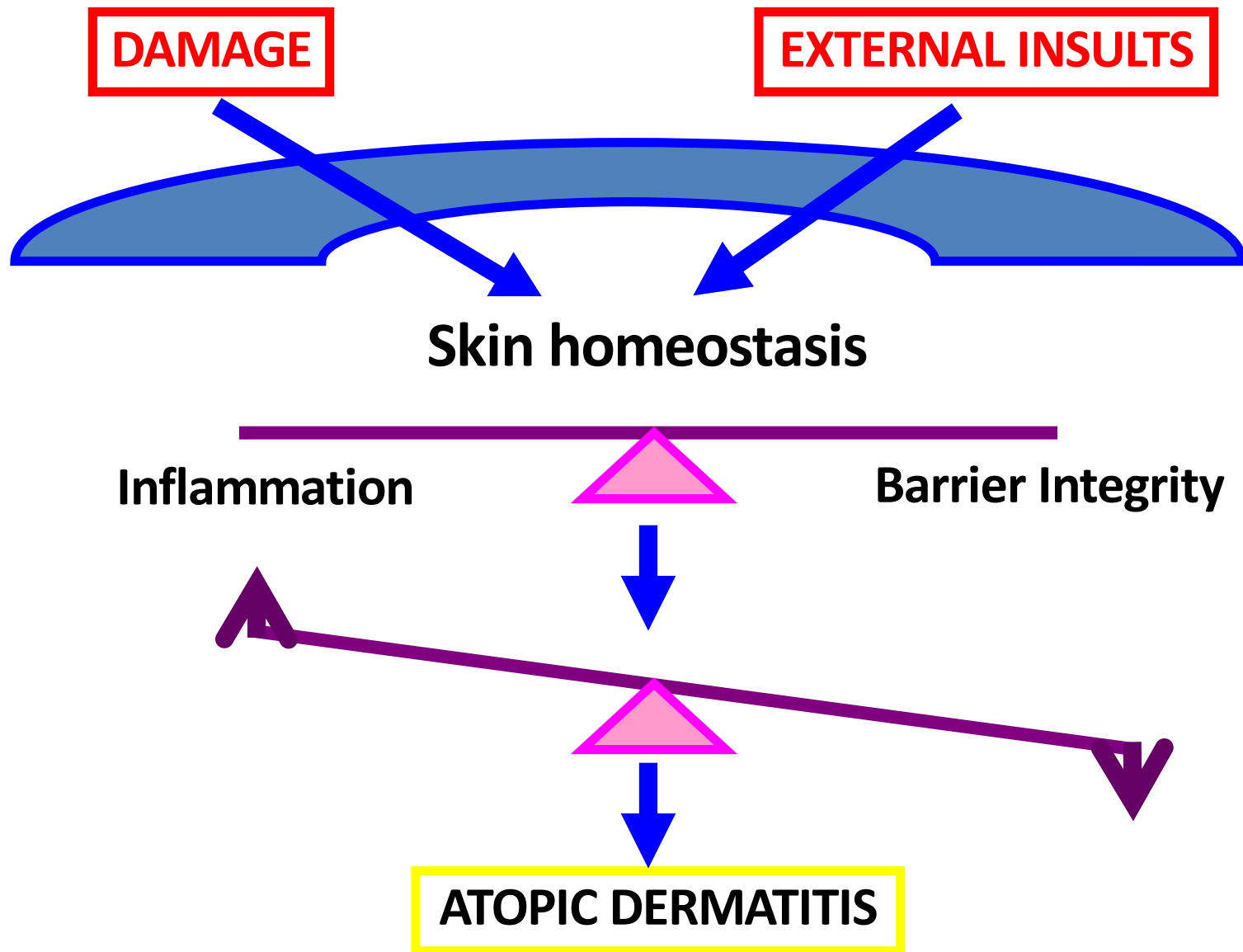
AD is marked by impaired proliferation/differentiation and impaired skin barrier function and altered repertoire of inflammation

Patients suffering from severe AD eventually progress to develop asthma and allergic rhinitis, in a process known as the "atopic march."

Competition

	Brand Name	Mfr	Mode of Admin	Approval Date	MOA	Side Effects	Cost
Tacrolimus	Protopic	Astellas	Cream	2000	Calcineurin inhibitor, Immue Suppressant	Burning on skin (50%)	\$264/tube
Pimicrolimus	Elidel	Novartis	Cream	2001	T cell inhibitor, immune suppressant	Burning on skin (10%). Black box warning. Lymph, skin cancer	\$76/tube
Crisaborole	Eucrisa	Pfizer	Cream	2016	PDE-4 inhibitor	Pain at app site (1%)	\$580/tube
Dupilumab	Dupixent	Regeneration	Injectable	2017	Modulates IL-4 and IL-13 pathways	Cols symptoms (25%); Rash (16%); Headache (16%)	\$30 K/year

Introduction : Paradigm Shift (Indra Lab)

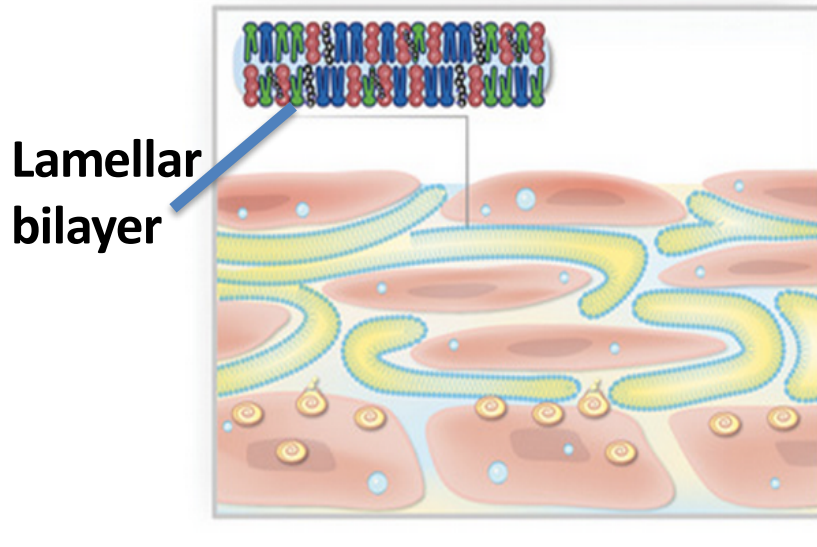


(Elias et al., JACI 2008; Wang et al., PloS One 2012)

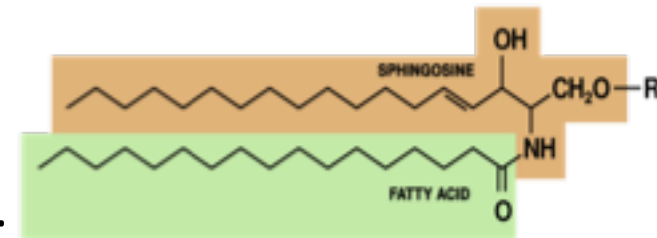
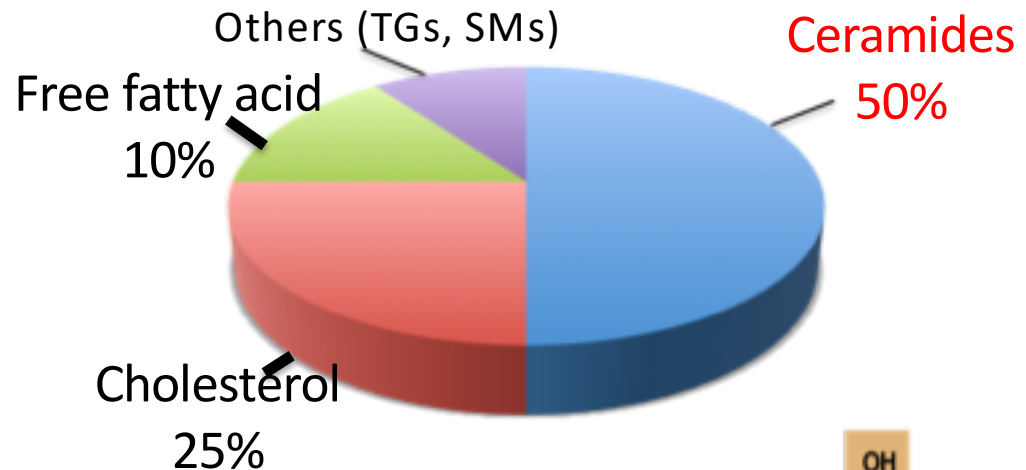
Introduction (Continued)

Lipids are Key Players in Skin Barrier Maintenance

Normal skin barrier



Stratum corneum lipid content by weight



R = H

ceramide

R = phosphocholine
sphingomyelin

- Retain moisture within the body and keep it hydrated.
- Protect our body against external irritation and infection.

Theranostic strategy

Spingolipids

Cholesterol

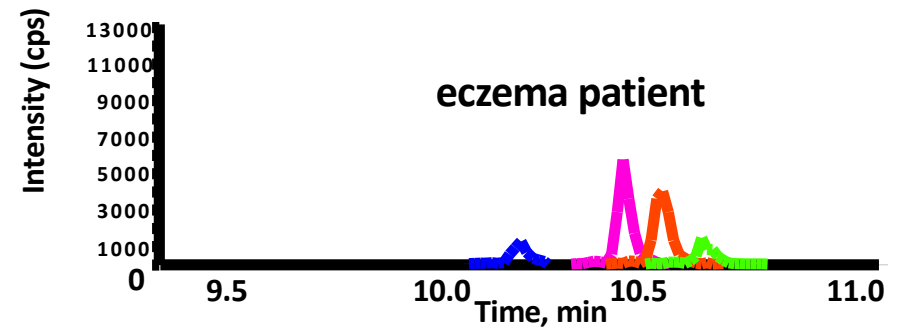
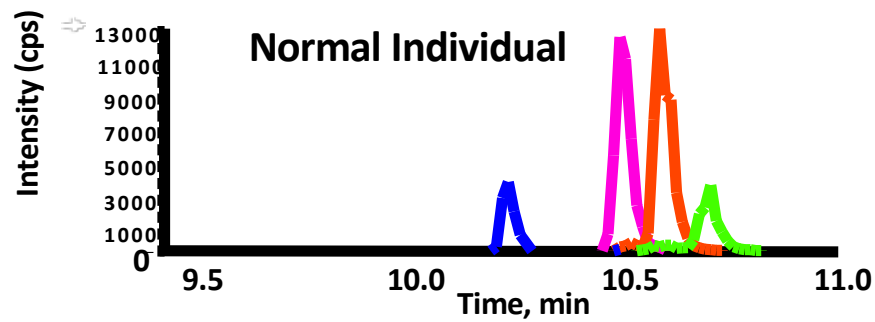
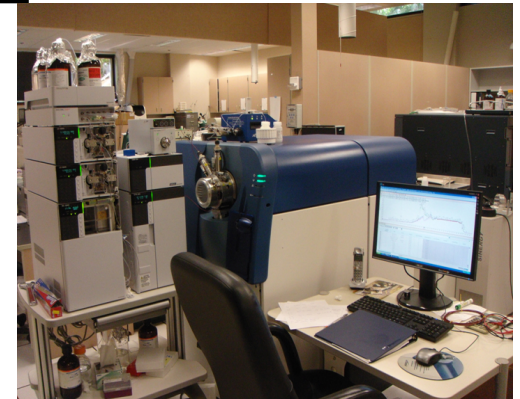
Triglyceride
Free Fatty Acids

Tape
stripping

Sampling
discs
collection

Lipid
Extraction

Lipidomics analysis
(Mass Spectrometry)



Altered Lipid subgroups in eczema patients

AD SUBGROUPS	% Affected	Emollient or cream base containing oil/water emulsion	COST
GROUP I	70%	Lipids A and B	LEAST
GROUP II	15-20%	A,B, C, D and E	MORE
GROUP III	10-15%	A,B, C, D, E, F, G, H and I	MOST

Intellectual Property Strategy

❖ Provisional patent filed March, 2016.

❖ Key claims: A method for determining a lipid imbalance in a subject, comprising:

- providing one or more tape strips comprising a skin surface sample obtained from the subject; extracting epidermal lipids from the skin surface sample;
- detecting a composition of lipids present in the extracted sample;
- and comparing the composition of lipids to a control, wherein a difference in the composition of lipids as compared to the control identifies the lipid imbalance in the subject.
- The method of above claim, further comprising providing a therapeutic composition formulated to ameliorate the lipid present in the skin lipid deficiency category, wherein the composition comprises as described earlier.

❖ **Schwabe, Williamson & Wyatt, Patent Counsel**

Milestones

2017

- PCT Nationalization, Q4.
- Mouse study as prerequisite to human cosmetic trial, Q3
- First cosmetic clinical trial started, Q4
- Marketing team in place to effect cosmetic launch, Q4

2018

- Cosmetic clinical study finished and data published
- Cosmetic rollout
- Second cosmetic clinical study started
- \$1 MM in product revenues
- 2 SBIR grants awarded

2019

- \$2.5 MM in product revenues
- Sustained marketing efforts
- Second cosmetic clinical trial finished and results published

Relevant Cosmetic Exits

2015

- Unilever acquisitions of REN Skincare in 2015 on revenues of \$39 MM. Purchase price not disclosed.
- Unilever acquisition of Dermalogica at 2014 sales of \$240 MM in 2015. Purchase price not disclosed.

2016

- L'Oreal acquisition of IT Cosmetics. \$ 1.2 BB. 2016 run rate of \$182 MM in sales. Up from just \$1 MM in 2010.
- Estee Lauder acquisition of BECCA (cosmetics for darker skin tones) for ca. \$200 MM on revenues of \$80 MM in 2016.
- Stroer Group acq. M.Asam for \$39 MM

2017

- Coty, acquired 60% stake in Younique for \$600 MM, Jan, 2017. Younique sales of \$400 MM in 2016.

Four year Projections

\$ in MM

	2017	2018	2019	2020
Revenues	0	1.34	3.36	10.75
Expenses	1.09	4.28	5.09	8.16
Net Income	(1.09)	(2.94)	(1.73)	2.59

Summary

- Paradigm shift in Immunology/Dermatology allows for unique business opportunity
- Cosmetic first strategy to get to early revenues
- Cosmetic target market: 70% of eczema patients
TAM, \$5 BB. SAM, \$1.4 BB
- Pharmaceutical upside from theranostic-guided therapy on remaining 30%.
TAM \$18 BB. SAM, \$7.7 BB