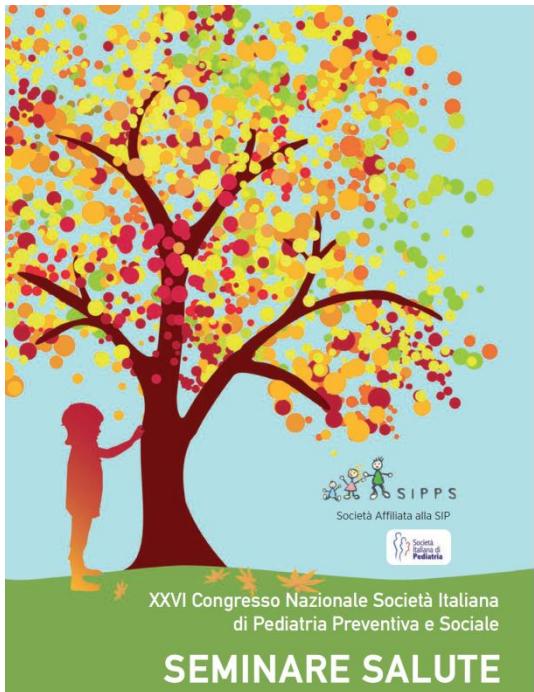


# La Dermatite atopica vista dal pediatra

Diego Peroni

Universita' di Ferrara

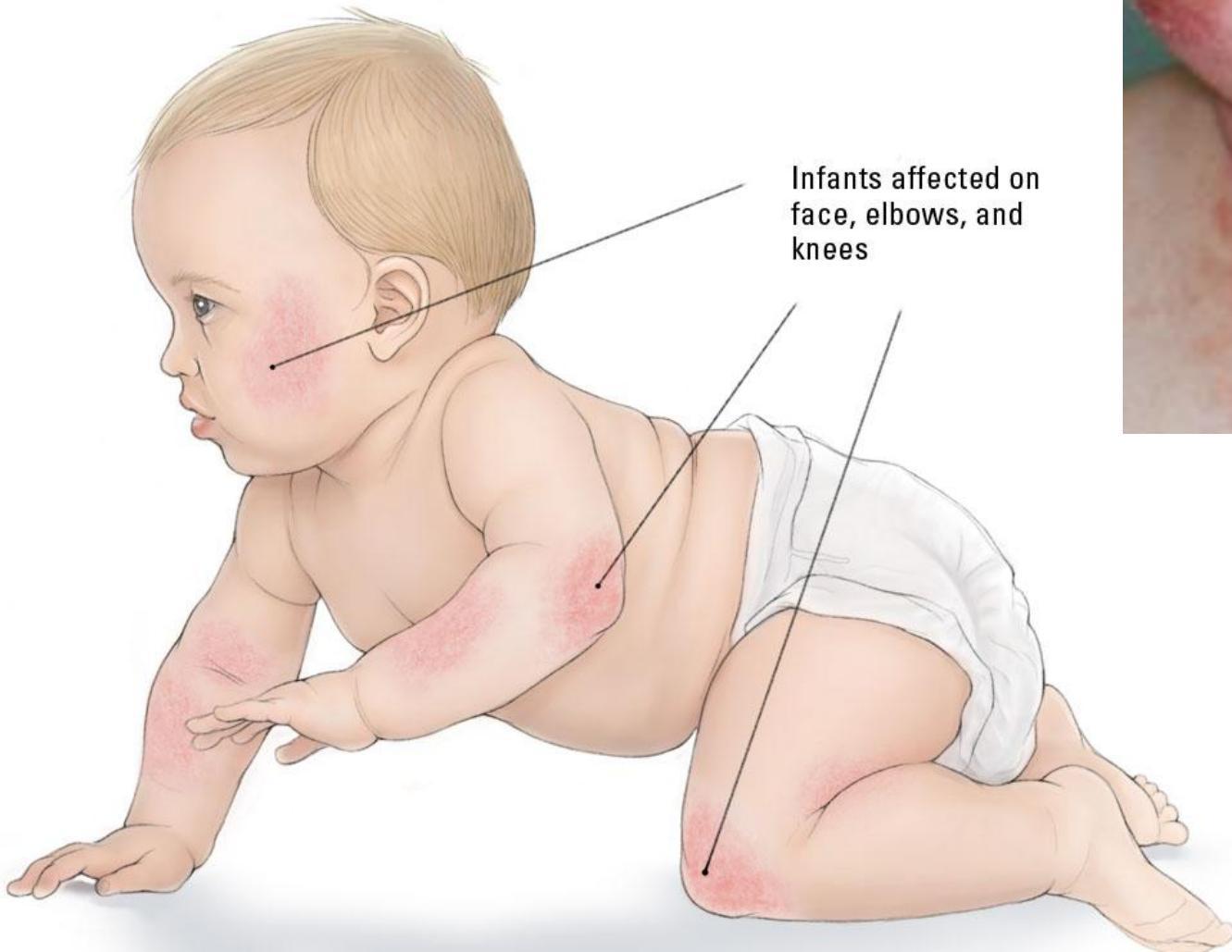


- ✓ Introduction
- ✓ Pathogenesis
- ✓ Triggers & Allergens
- ✓ Treatments
- ✓ Conclusions

[diego.peroni@unife.it](mailto:diego.peroni@unife.it)

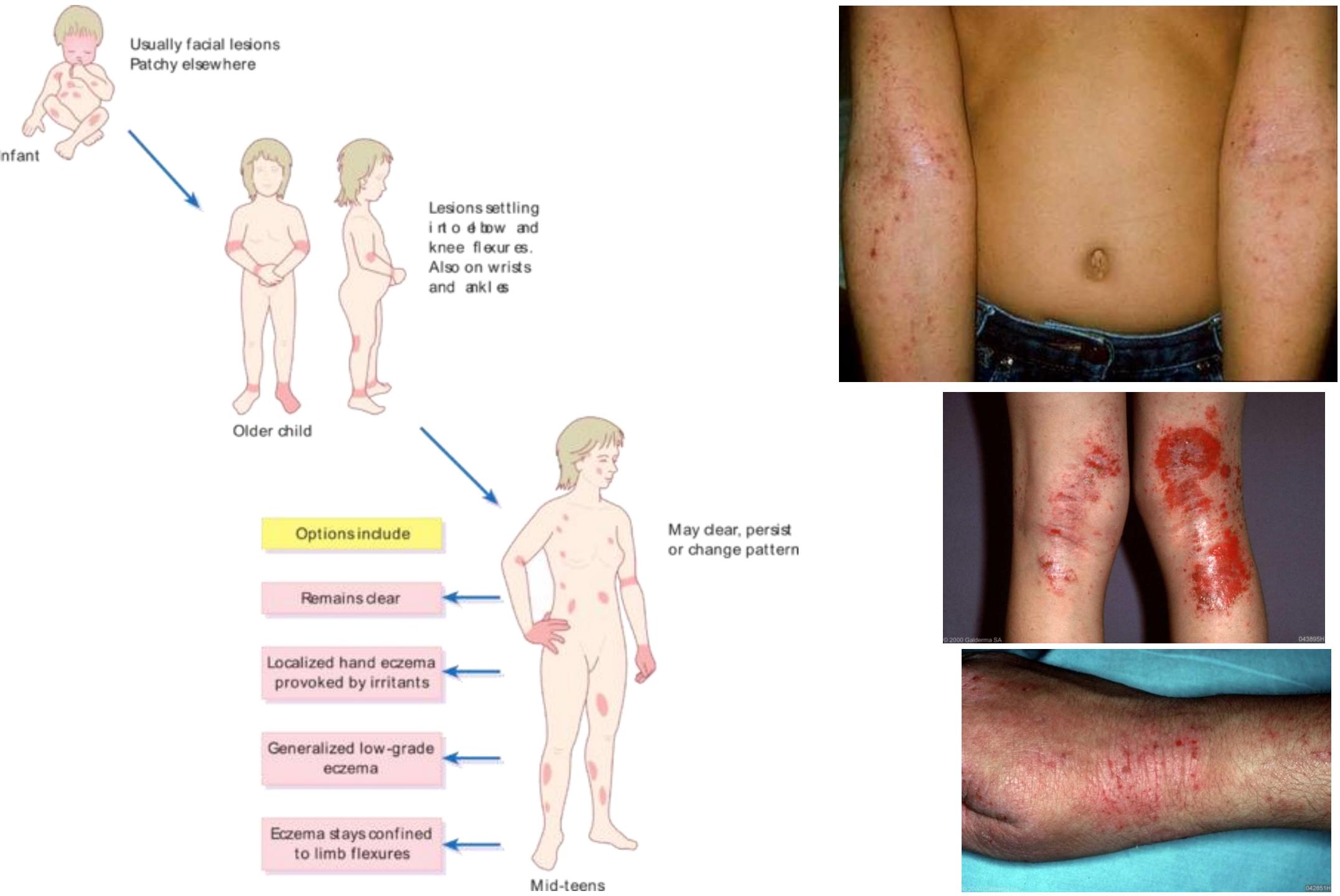


## Atopic Dermatitis



© 2009 Logical Images, Inc





# Atopic Dermatitis: Prevalence and Morbidity

- Atopic dermatitis is an **important condition** that affects up to **20% of children** with a possible **rising prevalence** in westernized societies.

• Williams HC. Is the prevalence of atopic dermatitis increasing? *Clin Exp Dermatol* 1992; 17:385-91.



- It is associated with significant **morbidity**, including:
  - sleepless nights** and
  - poor self-esteem for the child**, and
  - financial strain** and
  - family stress** for parents and other siblings.

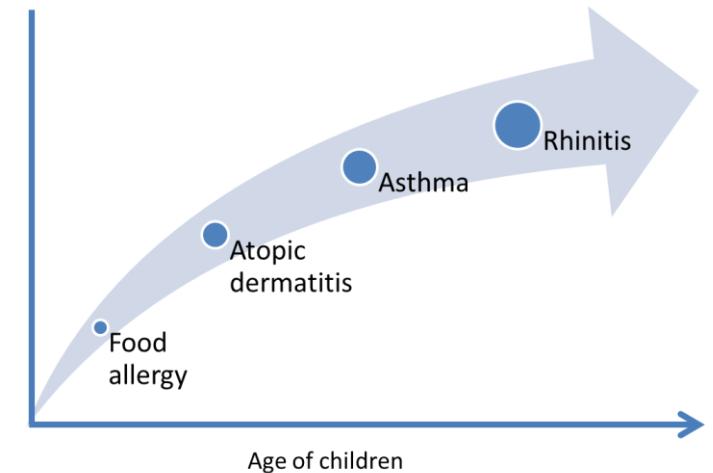
• Verboon P, et al. The cost of atopic dermatitis in the Netherlands: an international comparison. *Br J Dermatol* 2002; 147:716-24.

• Kemp AS. Cost of illness of atopic dermatitis in children. *Pharmacoeconomics* 2003; 21:105-13.

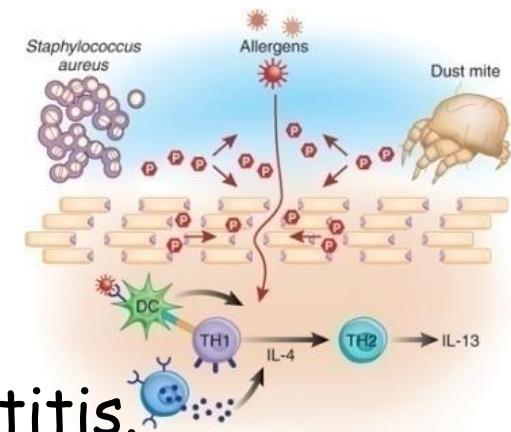
# Atopic Dermatitis: Development

- There are at least **two theories proposed to explain the development** of this common disorder.

**1)** For years, the major theory was that patients had an aberrant and robust **Th2 adaptive immune response to largely innocuous environmental antigens.**



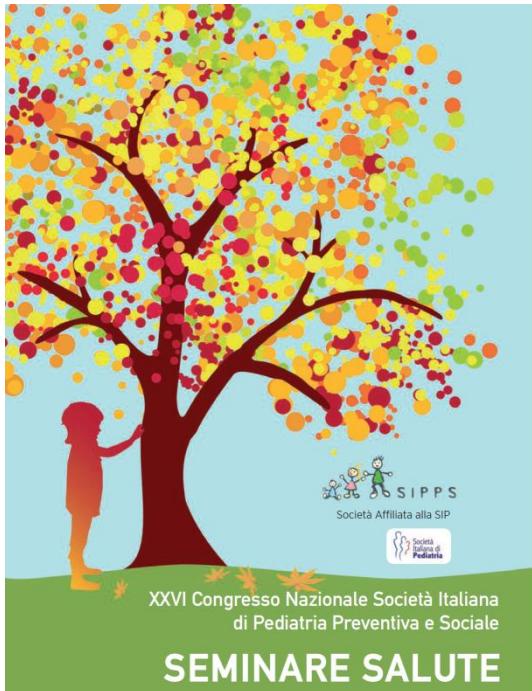
**2)** Recent research highlights the importance of **skin barrier abnormalities and an inadequate host response to common cutaneous microbes** as other highly plausible mechanisms that might predispose individuals to develop atopic dermatitis.



# La Dermatite atopica vista dal pediatra

Diego Peroni

Universita' di Ferrara



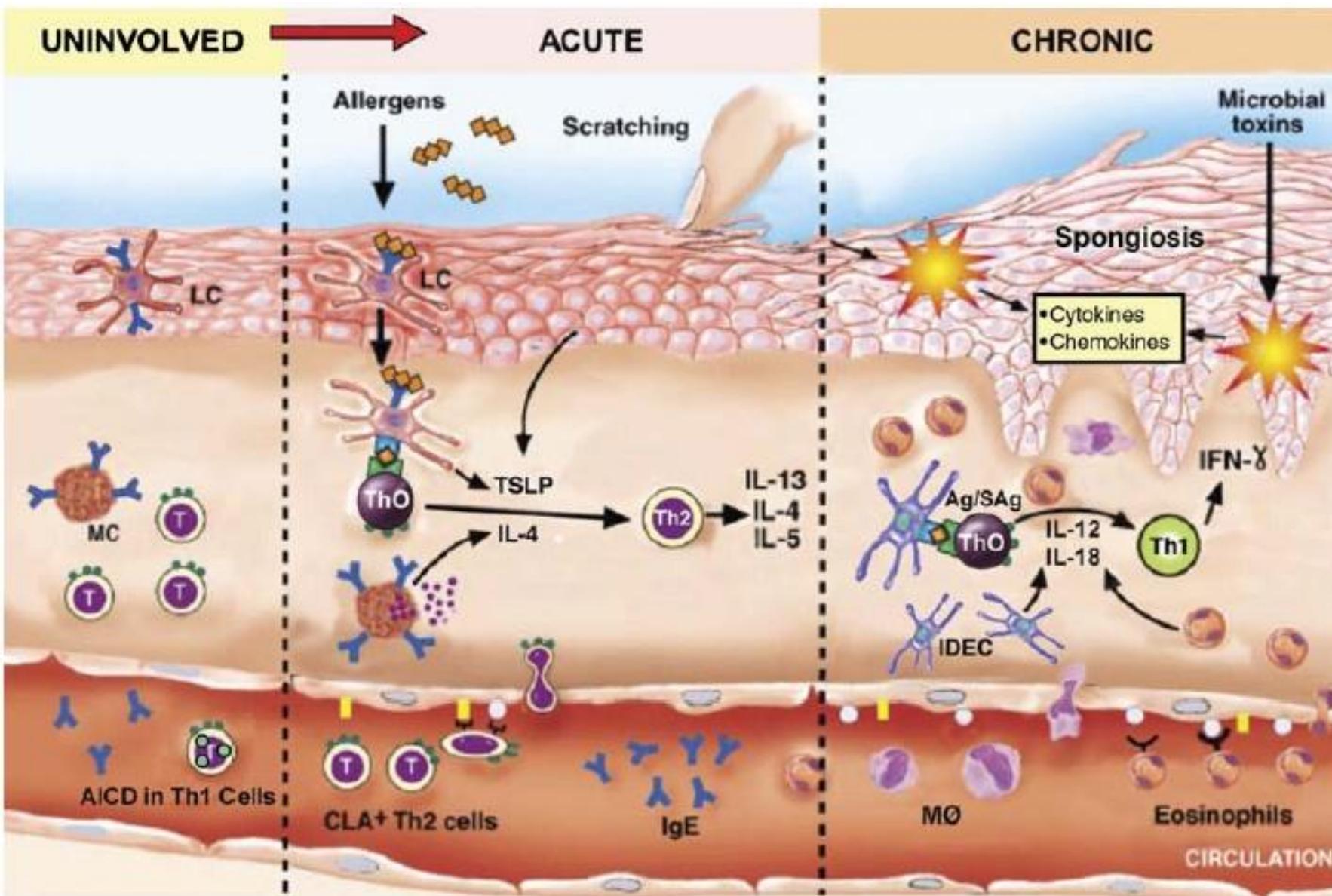
- ✓ Introduction
- ✓ Pathogenesis
- ✓ Triggers & Allergens
- ✓ Treatments
- ✓ Conclusions

[diego.peroni@unife.it](mailto:diego.peroni@unife.it)



# Immunologic pathway involved in the progression of AD.

Akdis CA, JACI 2006;118:152



LC,  
Langerhans cell;

MC, mast cell;

TSLP, human  
thymic stromal  
lymphopoietin;

Ag, antigen;

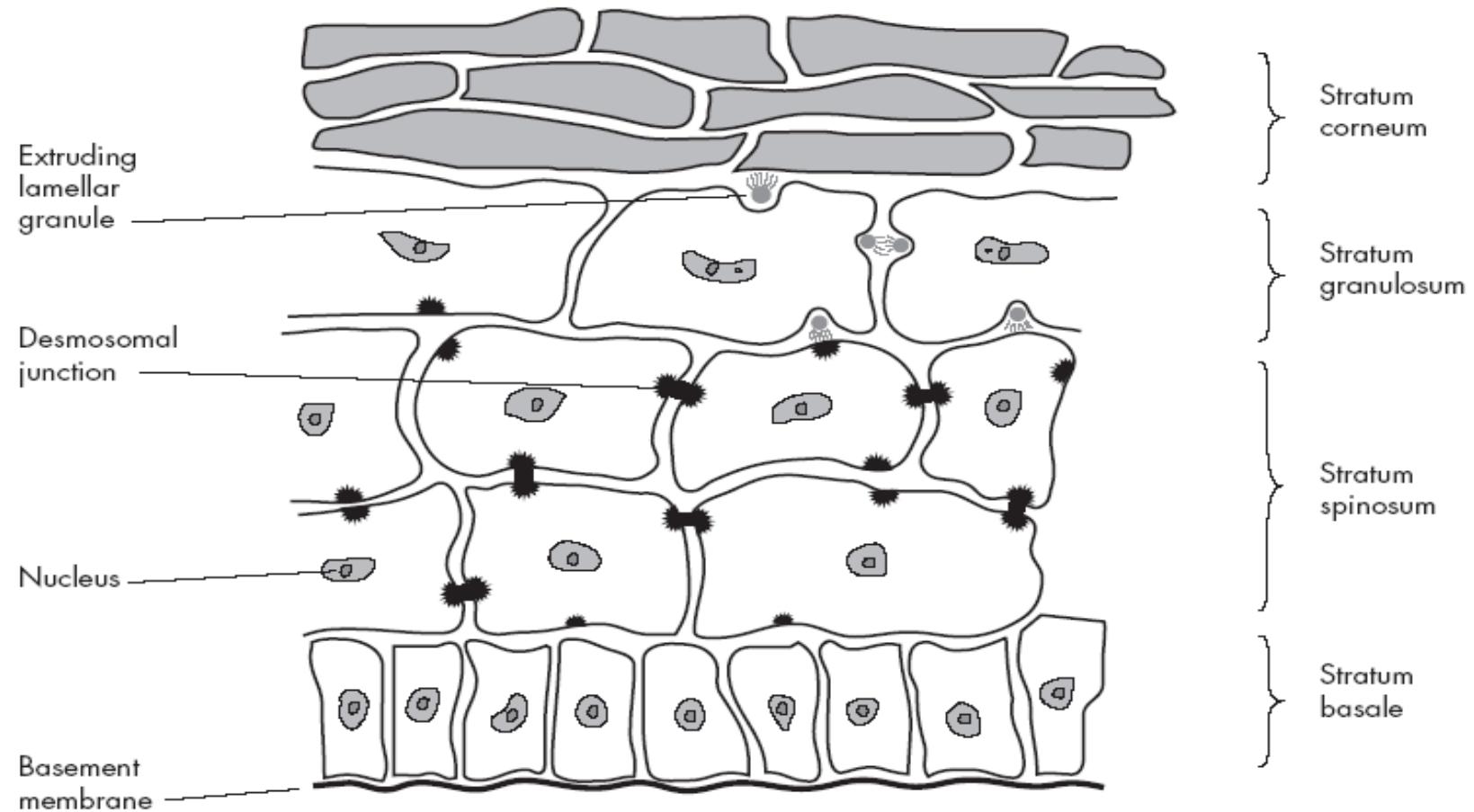
SAg,  
superantigen;

AICD,  
activation-  
induced cell  
death;

CLA, cutaneous  
lymphocyte  
antigen;

MO, monocyte.

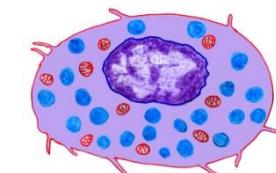
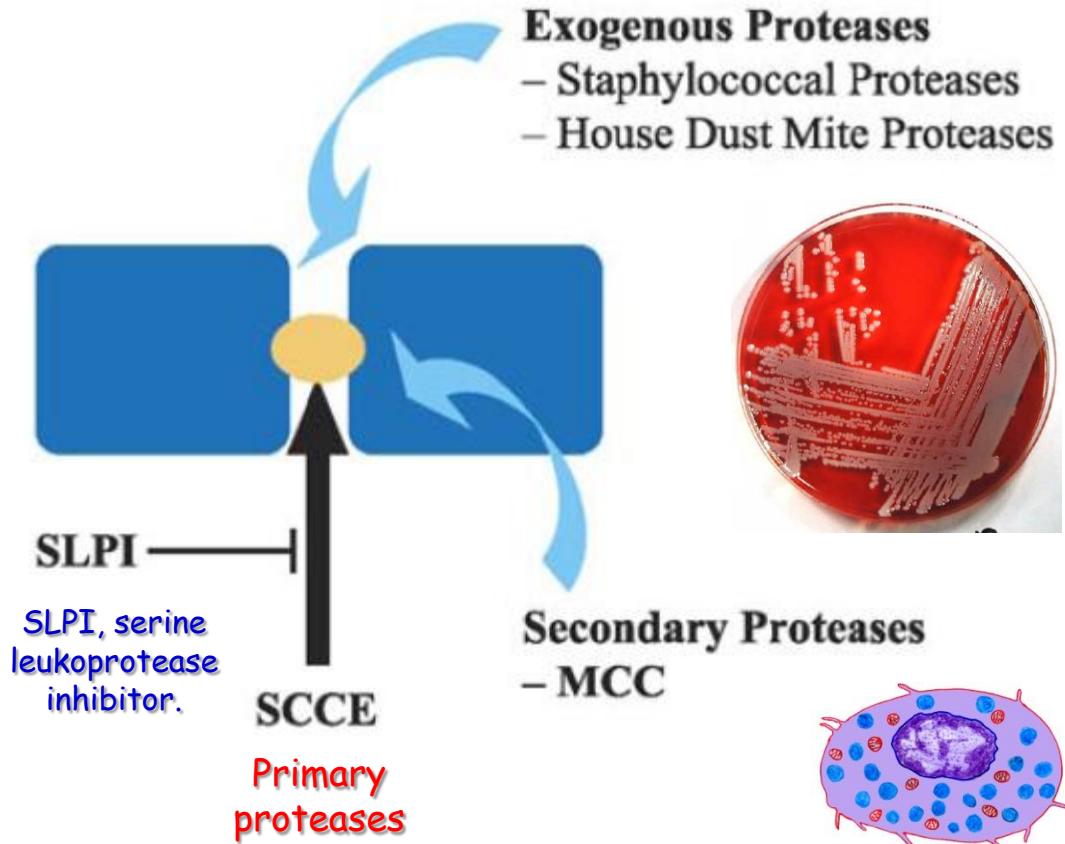
# Histology of human skin



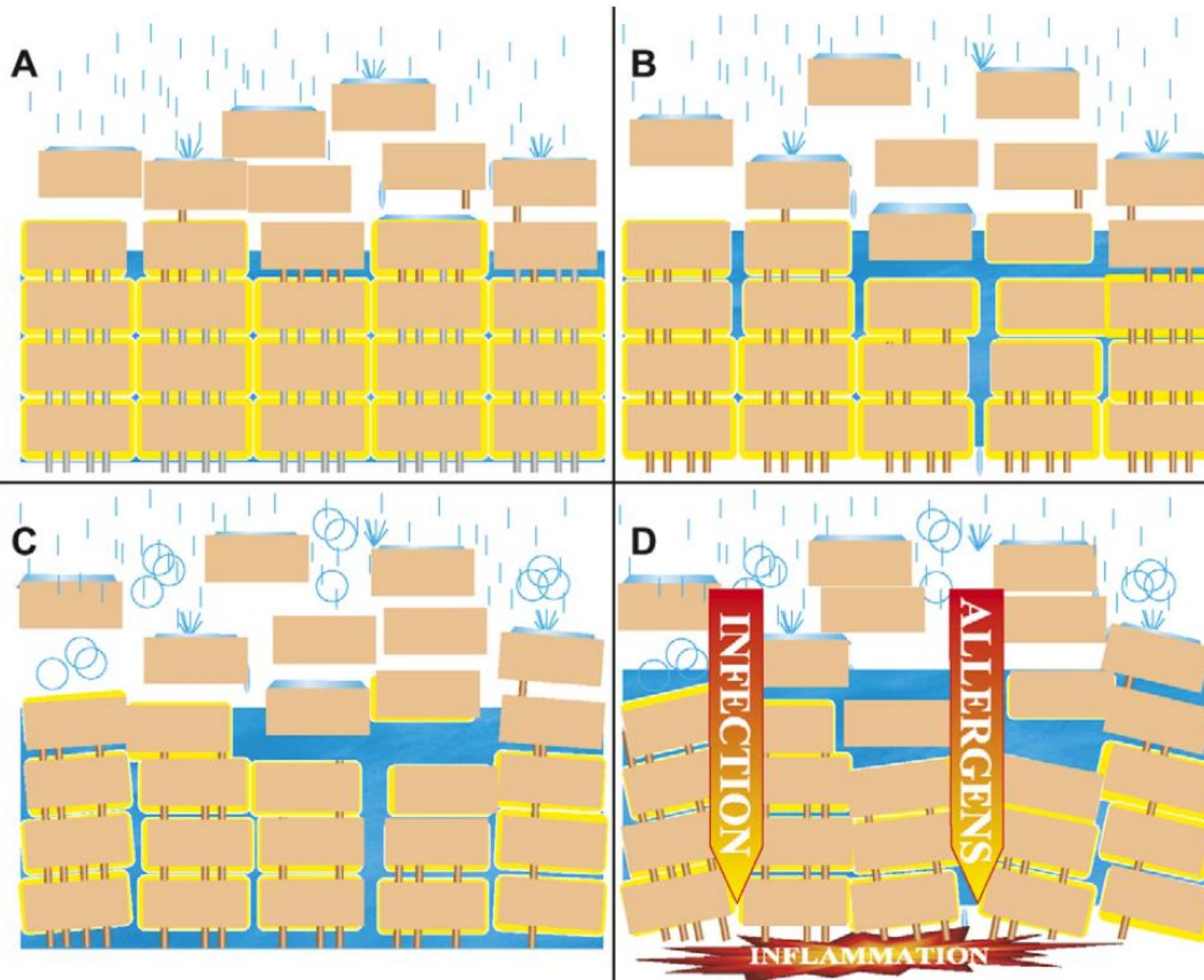
# ROLE OF EPIDERMAL BARRIER DYSFUNCTION IN ATOPIC DERMATITIS PATHOGENESIS



- Corneodesmosomes are not only broken down by endogenous proteases.
- Once a flare of AD has been triggered, cells within the inflammatory infiltrate produce secondary proteases, which can also break down the skin barrier eg, mast cell chymase (MCC).
- The stratum corneum is also exposed to many exogenous proteases from the environment, such as *Staphylococcus aureus* and house dust mites.



# ROLE OF EPIDERMAL BARRIER DYSFUNCTION IN ATOPIC DERMATITIS PATHOGENESIS



The brick wall analogy of the stratum corneum of the epidermal barrier.

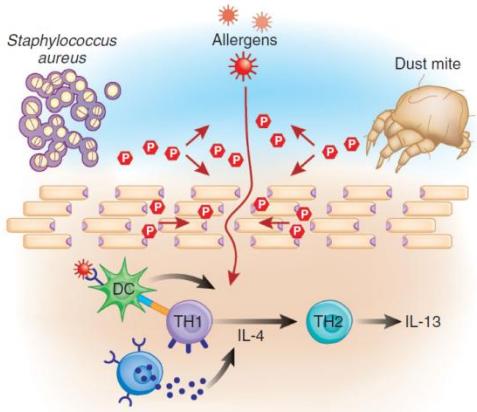
In healthy skin the corneodesmosomes (iron rods) are intact throughout the stratum corneum.

At the surface, the corneodesmosomes start to break down as part of the normal desquamation process, analogous to iron rods rusting (A).

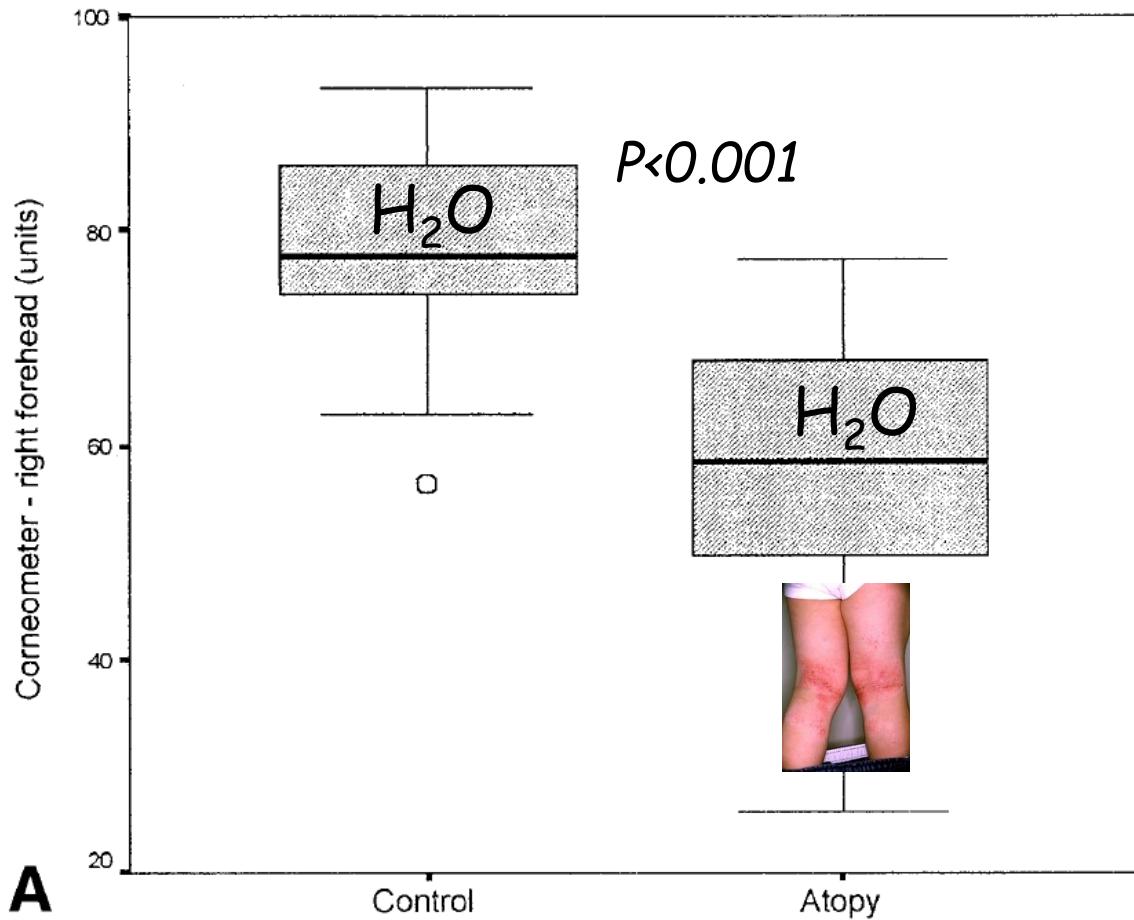
# Comparison of epidermal hydration and skin surface lipids in healthy individuals and in patients with atopic dermatitis

Sator J Am Acad Dermatol 2003;48:352-8.

- ✓ 48 patients
- ✓ Corneometer CM 820
- ✓ Sebumeter SM 810



Comparison of **water content of stratum corneum** between atopic dermatitis group and control group

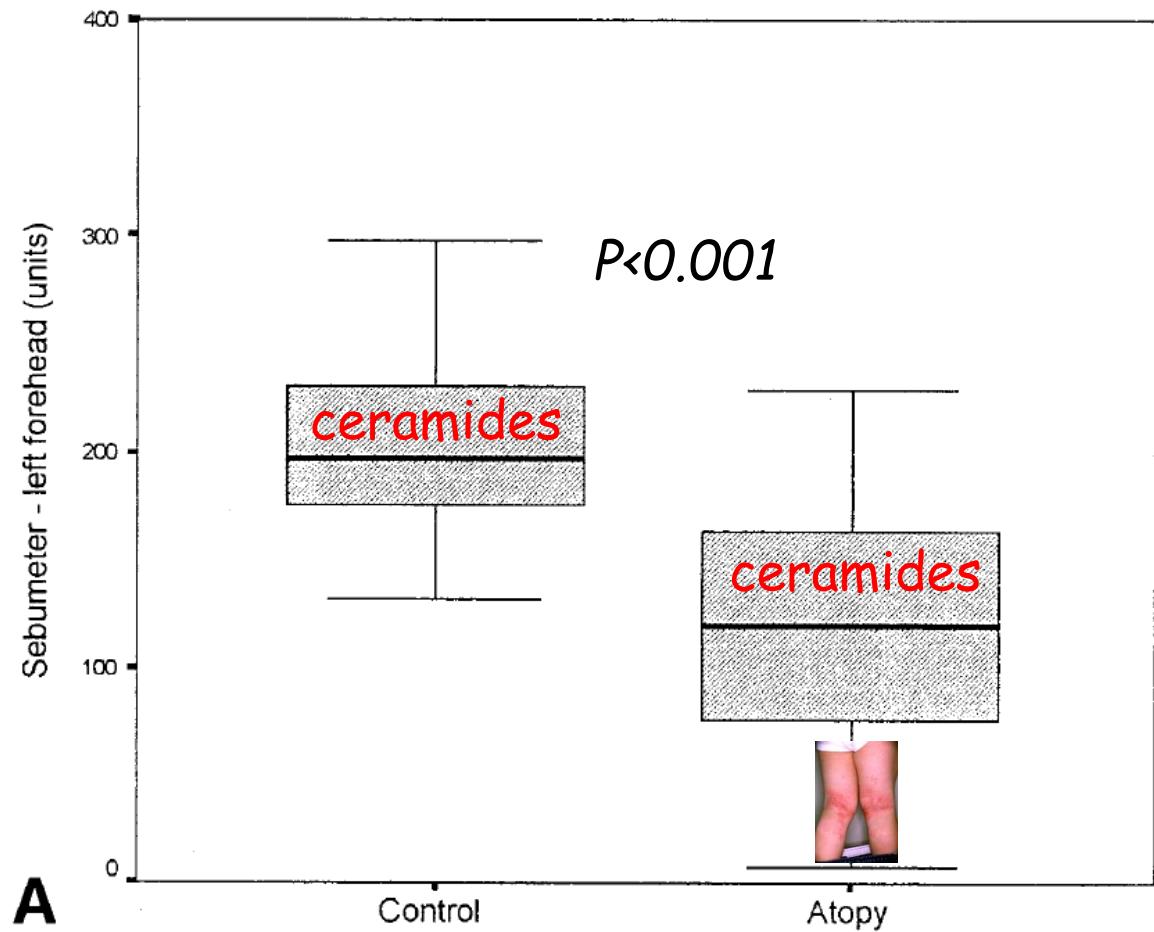
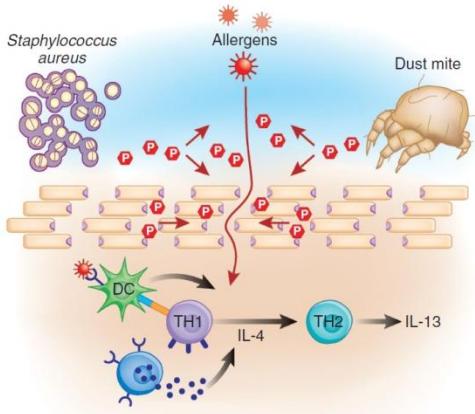


# Comparison of epidermal hydration and skin surface lipids in healthy individuals and in patients with atopic dermatitis

Sator J Am Acad Dermatol 2003;48:352-8.

Comparison of skin surface lipids between atopic dermatitis group and control group

- ✓ 48 patients
- ✓ Corneometer CM 820
- ✓ Sebumeter SM 810

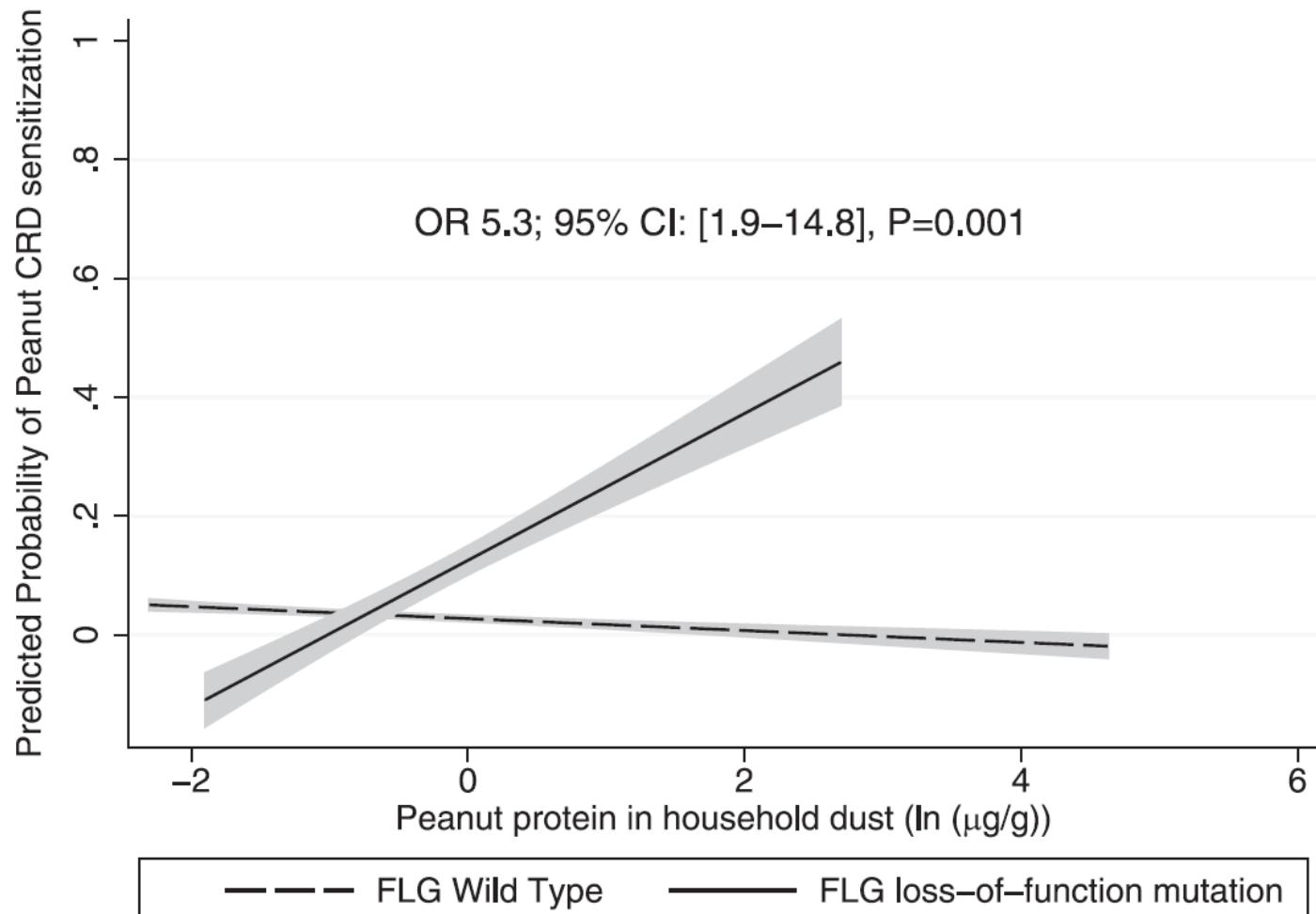


# Peanut allergy: Effect of environmental peanut exposure in children with filaggrin loss-of-function mutations. Brough H, JACI 2014; 134:867

Exposure to peanut antigen in dust within the first year of life

Peanut sensitization and peanut allergy at 8 and 11 years.

Genotyping was performed for 6 *FLG* mutations



Clinical implications: Children with *FLG* loss-of-function mutations are at an increased risk of peanut sensitization and allergy if they are exposed to peanut antigen in household dust in early life. Interventional studies to assess a causal relationship are required.

# Skin barrier impairment correlates with the risk of aeroallergen sensitization.

61 ch with AD

SCORAD index

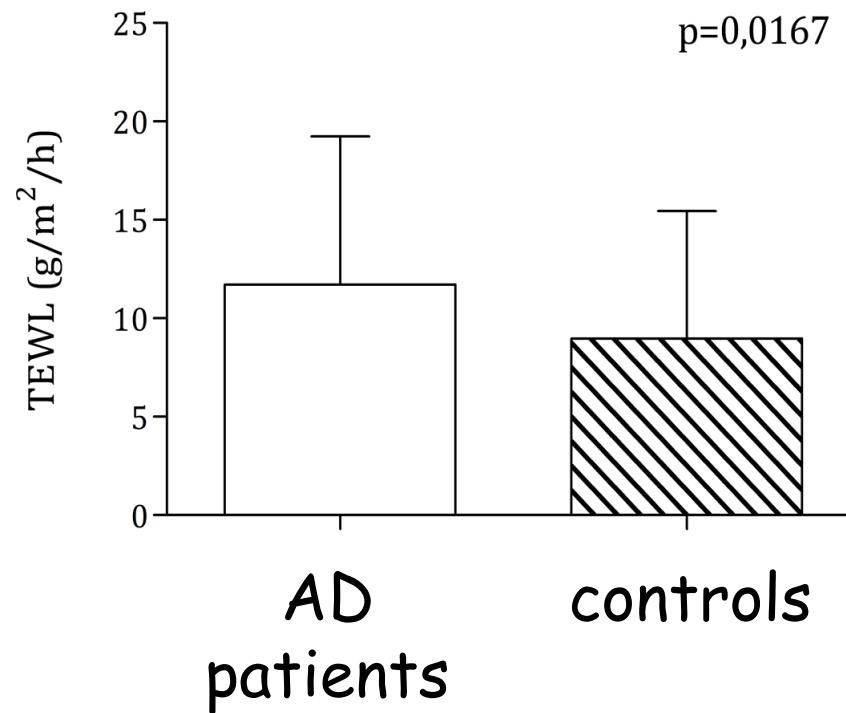
TEWL

Corneometer

SPT aeroallergens

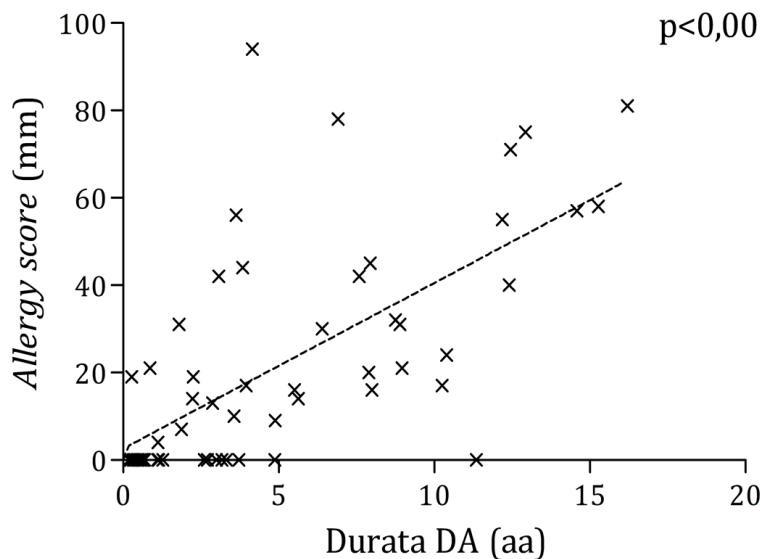
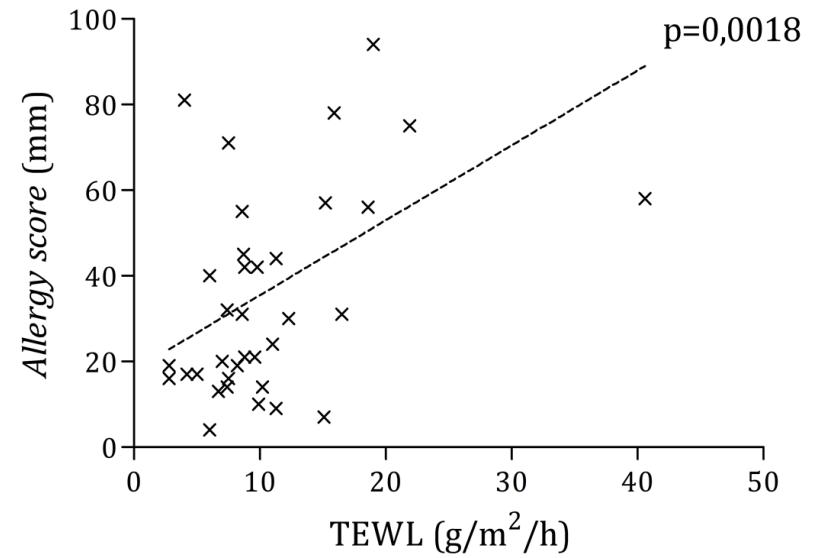
Allergy score

TEWL on healthy skin of



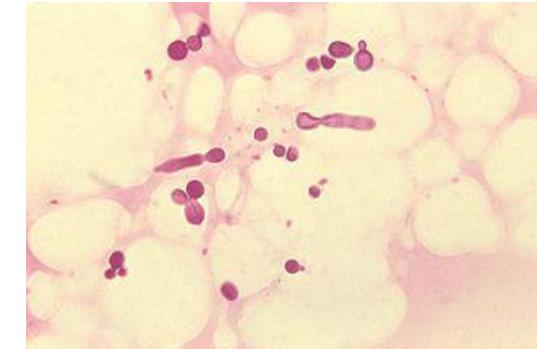
# Skin barrier impairment correlates with the risk of aeroallergen sensitization

- 61 ch with AD
- 6 months and 17 years
- SCORAD index
- TEWL
- Corneometer
- SPT aeroallergens
- Allergy score



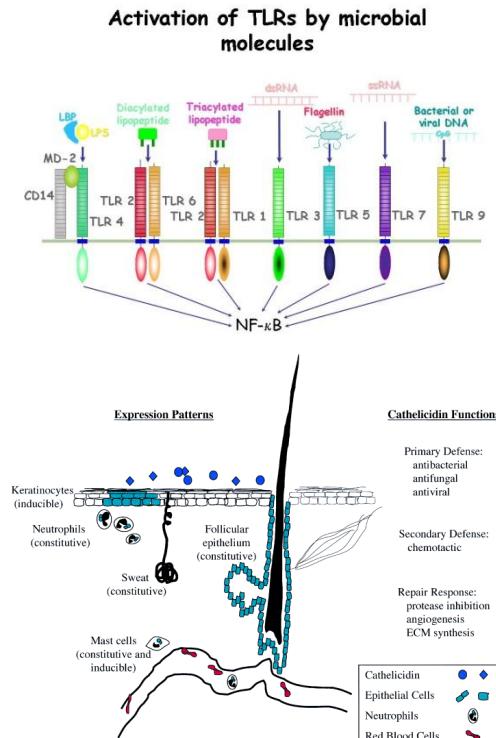
# THE ROLE OF INNATE IMMUNITY IN ATOPIC DERMATITIS PATHOGENESIS

- Patients with AD have a greatly increased risk of certain types of bacterial (*Staphylococcus aureus*), viral (*herpes simplex virus* and *pox viruses*), and fungal (*Malassezia sympodialis*) infections.



- Epithelial cells are equipped with a variety of pattern-recognition receptors (eg, Toll-like receptors [TLRs]) sensing different microbial structures.

- Thus activated, epithelial cells start to produce antimicrobial peptides, including defensins, cathelicidins, dermcidin, and psoriasin.

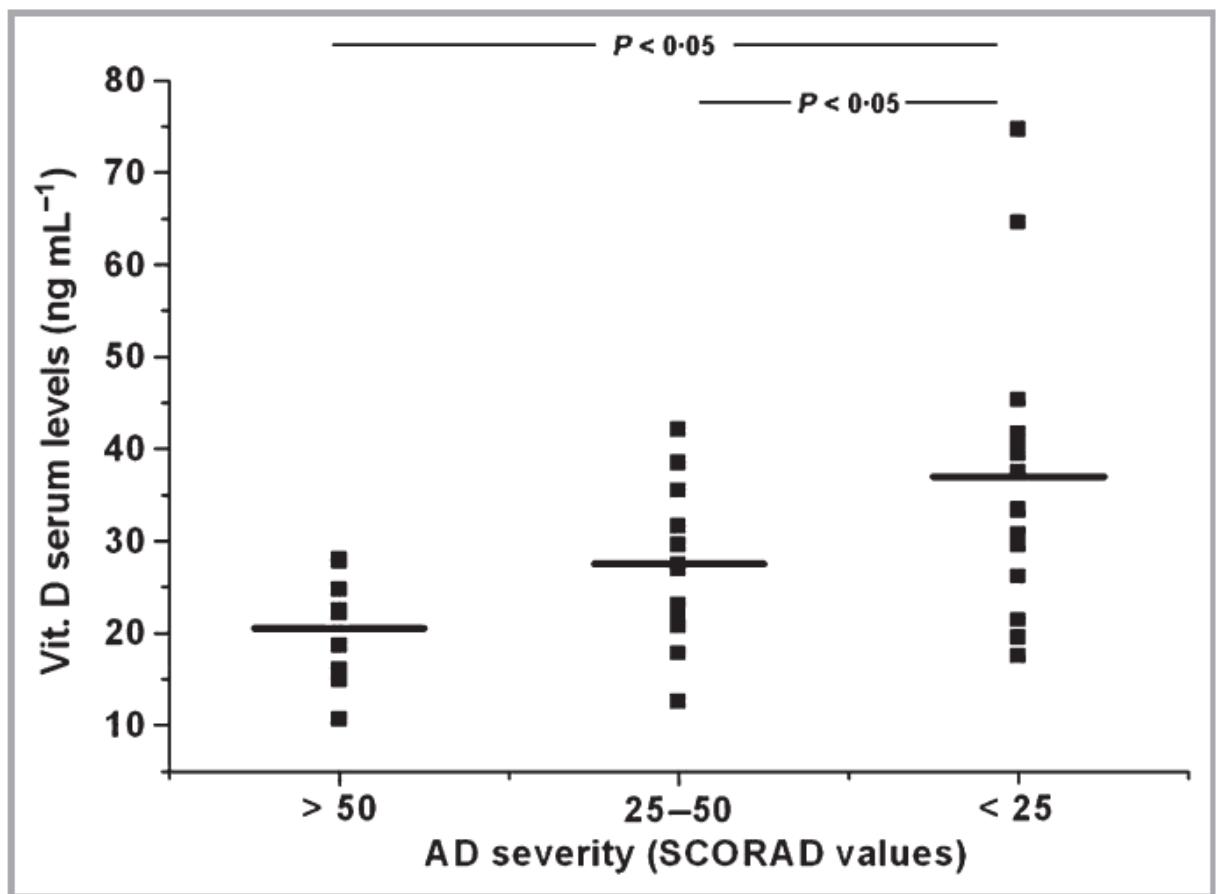


# Correlation between serum 25-hydroxyvitamin D levels and severity of atopic dermatitis in children.

Peroni DG, Br J Dermatol. 2011;164:1078-82.

Serum vitamin D levels in relation to different threshold values of AD severity.

- ✓ 37 children (8 months and 12 years) with AD,
- ✓ SCORAD index,
- ✓ Serum levels of 25-hydroxyvitamin D
- ✓
- ✓ sIgE to *S.aureus* and to *M. furfur*



# Correlation between serum 25-hydroxyvitamin D levels and severity of atopic dermatitis in children.

Peroni DG, Br J Dermatol. 2011;164:1078

The prevalence of allergic sensitization to staphylococcal superantigens and to *Malassezia furfur* in children with mild, moderate and severe AD

	SEA IgE+, n (%)	SEB IgE+, n (%)	SEC IgE+, n (%)	Malassezia IgE+, n (%)
Mild AD (n = 15)	5 (33)	5 (33)	5 (33)	4 (27)
Moderate AD (n = 13)	4 (31)	4 (31)	5 (38)	5 (38)
Severe AD (n = 9)	4 (44)	5 (56)	5 (56)	6 (67)

SEA, staphylococcal enterotoxin A; SEB, staphylococcal enterotoxin B; SEC, staphylococcal enterotoxin C.

# Correlation between serum 25-hydroxyvitamin D levels and severity of atopic dermatitis in children.

## Microorganism-induced exacerbations in atopic dermatitis: a possible preventive role for Vitamin D?

Peroni et al.

Allergy Asthma Proc 2014

The pr  
and to

Mild AD (n)  
Mod AD (n)  
Severe AD (n)

antigens  
vere AD

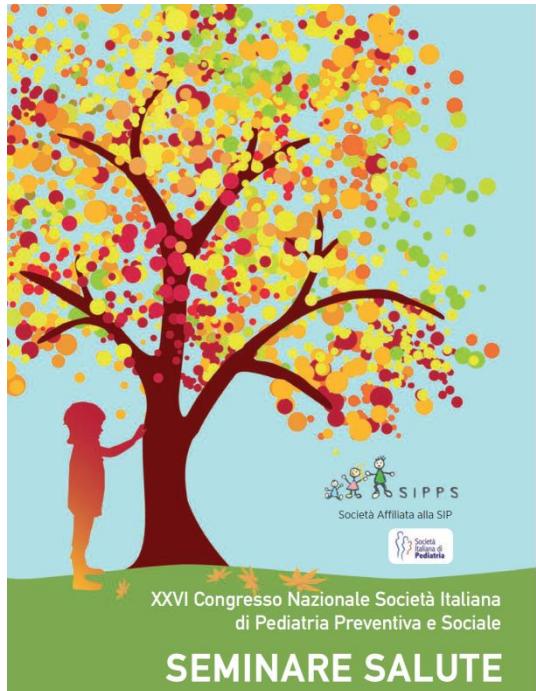
rhinitis IgE+,  
0)  
4 (27)  
5 (38)  
6 (67)

SEA, staphylococcal enterotoxin A; SEB, staphylococcal enterotoxin B; SEC, staphylococcal enterotoxin C.

# La Dermatite atopica vista dal pediatra

Diego Peroni

Universita' di Ferrara



- ✓ Introduction
- ✓ Pathogenesis
- ✓ Triggers & Allergens
- ✓ Treatments
- ✓ Conclusions

[diego.peroni@unife.it](mailto:diego.peroni@unife.it)



# THE ROLE OF PRURITUS IN ATOPIC DERMATITIS PATHOGENESIS

- neuropeptides,
- proteases,
- IL-31,
- kallikrein 7;
- .....?

Pruritus is an unpleasant sensation provoking the desire to scratch and constitutes an essential feature of atopic dermatitis

# pruritus



# Trigger factors aggravating pruritus perception in AD

## Epidermal barrier

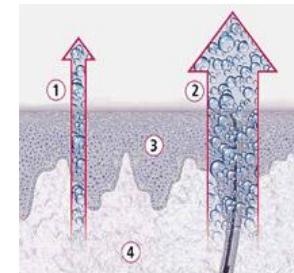
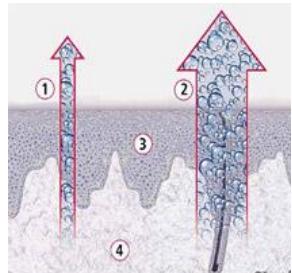
Xerosis, a common problem of the skin of patients suffering from AD, results in an increased transepidermal water loss and a decreased ability of the stratum corneum to bind water



a disturbed epidermal barrier constitutes an activator of pruritus.



scratching behaviour and induction of pruritus are triggered by water content below 10%



Buddenkotte J, Allergy. 2010;65:805-21.

# Trigger factors aggravating pruritus perception in AD

## Exogenous factors

- Pruritus elicited by direct contact with wool in patients with AD is a characteristic and reproducible phenomenon.

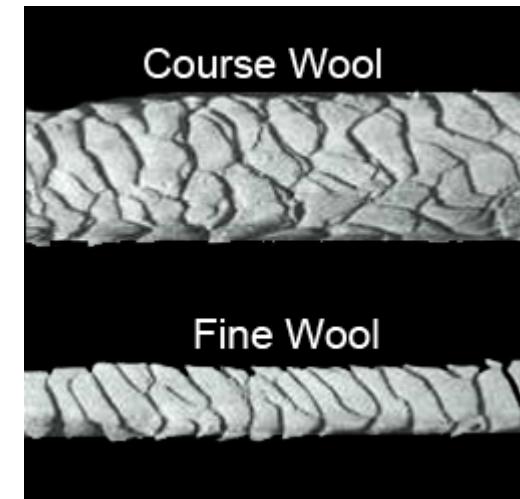
Bendsoe N, Itching from wool fibres in atopic dermatitis.

Contact Dermatitis 1987;17:21-22.

Wahlgren CF, Patients' perception of itch induced by histamine, compound 48/80 and wool fibres in atopic dermatitis. Acta Derm Venereol 1991;71:488-494.

- It is likely that the irritation is caused by the spiky nature of wool fibres itself and thicker wool fibres were found to provoke more intense itching than thinner fibres.

Fisher AA. Nonallergic "itch" and "prickly" sensation to wool fibers in atopic and nonatopic persons. Cutis 1996;58:323-324.



# Trigger factors aggravating pruritus perception in AD

## Exogenous factors

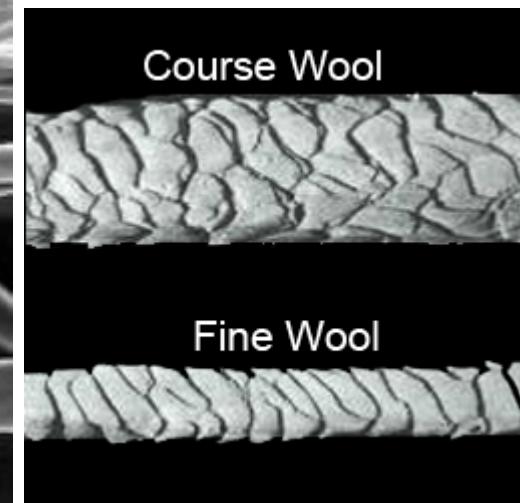
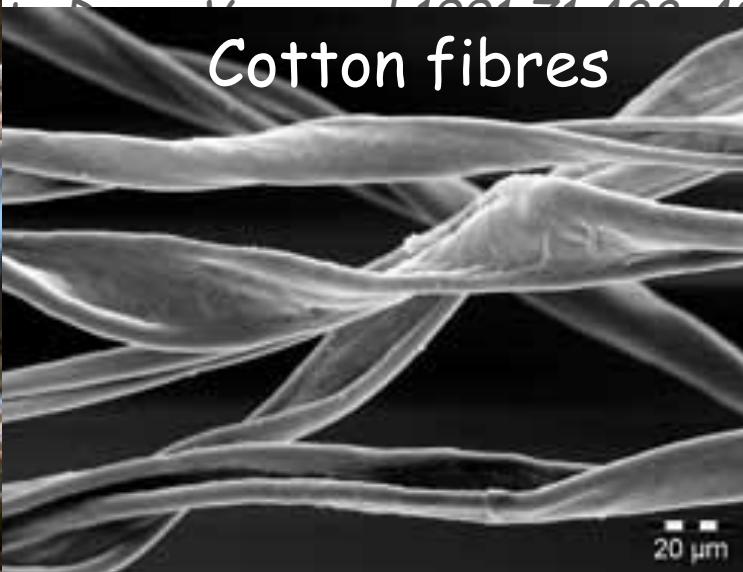
- Pruritus elicited by direct contact with wool in patients with reproducible phenomenon.

Silk fibres



Pruritus may also occur in patients with atopic dermatitis.

Cotton fibres



# Management of pruritus in AD

- Scratch-induced skin damage caused by nocturnal scratch movements may be improved by using **cotton gloves**.
- Also controlled physical exercise like gymnastics or ball games were demonstrated in a controlled study to teach patients to cope better with itch attacks



# Bacterial Colonization And Infection In Ad: To Treat Or Not To Treat (With Antibiotics) Boguniewicz JACI 2010;125:4

Other approaches include  
**silver-impregnated clothing**,  
which has been shown:

- 1) to reduce staphylococcal colonization,
- 2) improve clinical parameters, and
- 3) reduce topical steroid use in patients with AD.



Gauger A, Dermatology 2003;207:15-21.

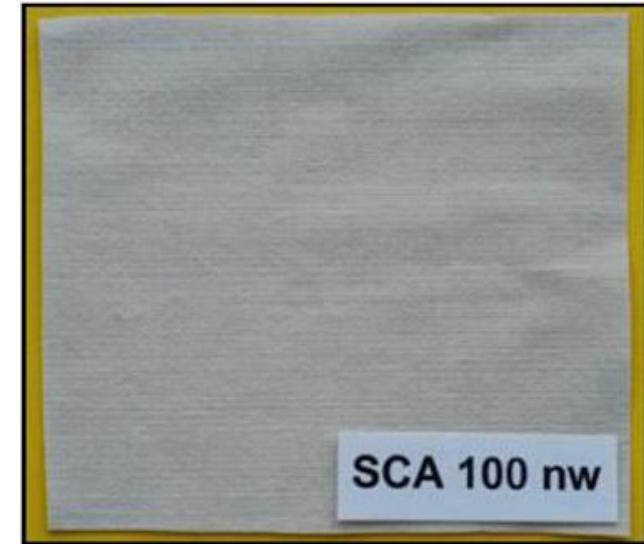
Gauger A, J Eur Acad Dermatol Venereol 2006;20:534-41.

# Antibiotics for the allergist

La Shell Ann Allergy Asthma Immunol 2009;102:1

Silver also has antimicrobial properties, and the use of **silver-coated textiles** has been associated with reduced *S aureus* colonization and AD severity as well.

Gauger A, Dermatology 2003;207:15-21.  
Gauger A, J Eur Acad Dermatol Venereol. 2006;20:534 -541.



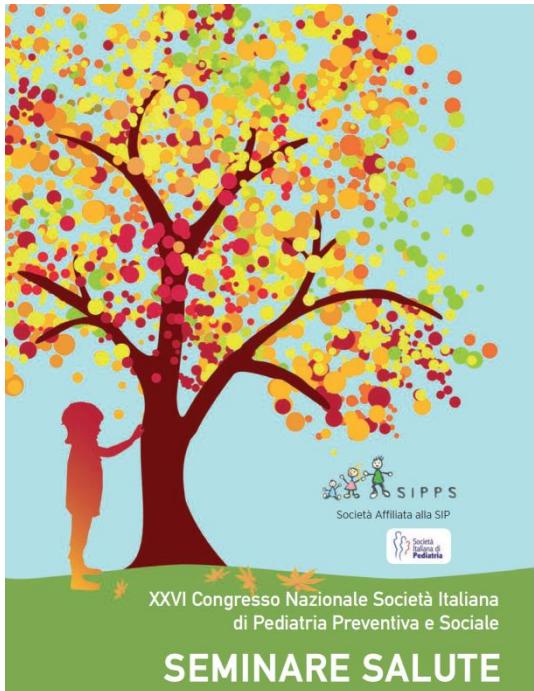
particolare  
della  
manopolina  
avvolgente



# La Dermatite atopica vista dal pediatra

Diego Peroni

Universita' di Ferrara



- ✓ Introduction
- ✓ Pathogenesis
- ✓ Triggers & Allergens
- ✓ Treatments
- ✓ Conclusions

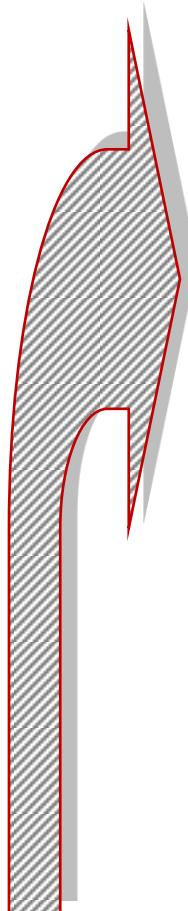
[diego.peroni@unife.it](mailto:diego.peroni@unife.it)



# What causes worsening of eczema? A systemic review.

Langan SM. Williams HC. Br J Dermatol. 2006;155:505-514.

- ✓ Medline from 1966 until 20 April 2005
- ✓ The roles of:
  - foodstuffs (13 studies),
  - house dust mite (three),
  - other aeroallergens (two),
  - seasonality (two),
  - bacterial infections (one),
  - textiles (three),
  - detergents (one),
  - sunlight (one) and
  - stress (two)

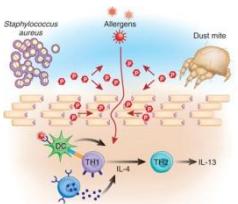


- ✓ Collectively, these studies provide some evidence that:
  - **certain foods**,
  - **house dust mite**,
  - **stress** and
  - **seasonal factors** are relevant causes of disease worsening in certain subgroups with eczema.
- ✓ No good evidence could be found to support the role of detergents, textiles and irritants in causing worsening of eczema.

# THE ROLE OF ADAPTIVE IMMUNITY IN ATOPIC DERMATITIS PATHOGENESIS and TREATMENT STRATEGIES

TH2-dominated cytokine milieu downregulates

FLG expression in  
keratinocytes  
Howell MD, JACI  
2007;120:150-5.



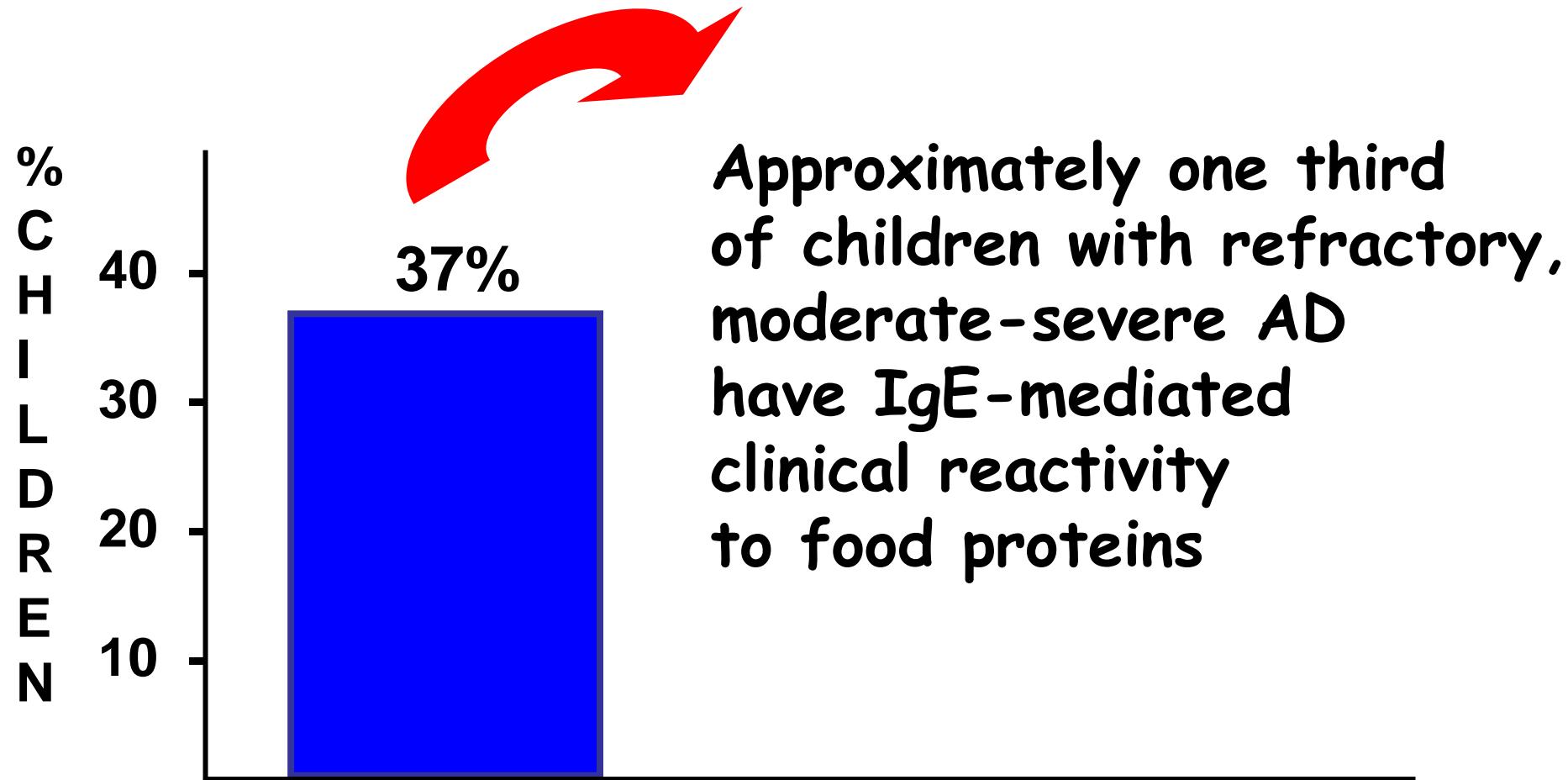
The antimicrobial peptidic  
response in AD skin  
Howell MD, Immunity 2006;24:341-8.



# allergen avoidance

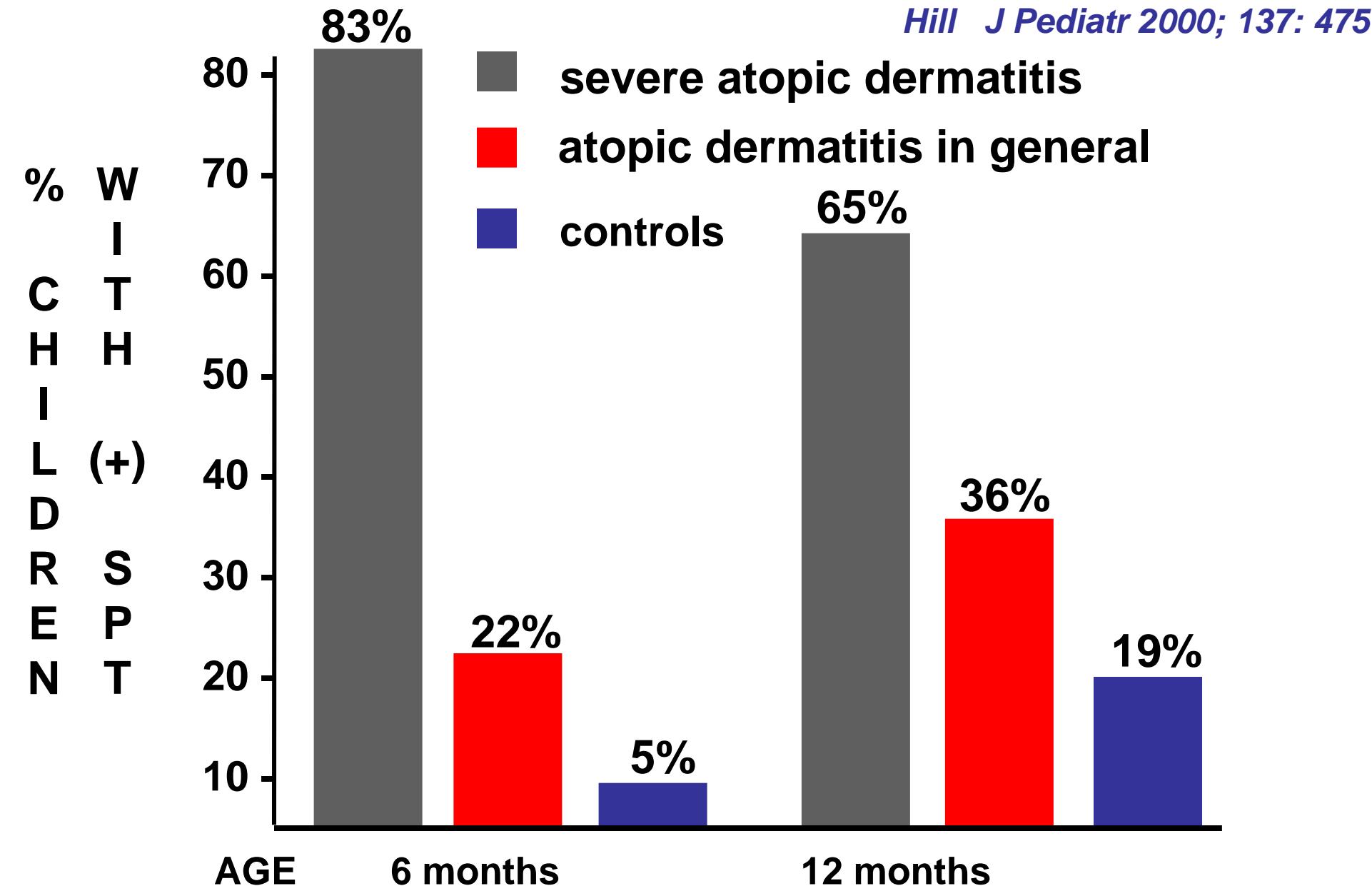
# Prevalence of IgE-mediated food allergy among Children with atopic dermatitis

Eigenmann Pediatrics 1998; 101: E8



# IgE food sensitization to cow's milk, egg or peanut is a major risk factor for the presence of atopic dermatitis in infancy

Hill J Pediatr 2000; 137: 475



# Dietary intervention: Food allergens



- Among food allergens, cow's milk, hen's egg, wheat, soy, tree nuts and peanuts are most frequently responsible for eczema or exacerbation in infancy.

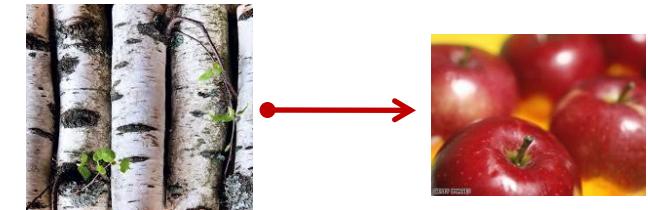
Werfel T, *Curr Opin Allergy Clin Immunol* 2004; 4: 379-385.



- In older children, adolescents and adults pollen related food allergy should be taken into account.

Breuer K, *Allergy* 2004; 59:988-994.

Reekers R, *J Allergy Clin Immunol* 1999; 104: 466-472.



- Patients with moderate to severe AE should observe a diet eliminating those foods that elicited clinical early or late reactions upon controlled **oral provocation tests**.

Guidelines for treatment of atopic eczema (atopic dermatitis) Part I  
J. Ring, *JEADV* 2012, 26, 1045-1060



# Testing in high-risk children

Guidelines on infant feeding  
and available evidence

Burks AW, Tang M, Sicherer S, et al.  
ICON: food allergy. JACI 2012; 129: 906-20.

in some infants who are very likely  
to have a food allergy with  
**atopic dermatitis that started in  
the first months of life,  
testing can be considered.**

Longo G, Lancet 2013;382:1656

**No routine testing for sIgE  
in breastfed children with  
atopic dermatitis  
before the introduction of  
common food allergens.**



# Aeroallergens avoidance



- Aeroallergens have been shown to elicit eczematous skin lesions.
- In a rather high percentage of patients with AE the APT is positive (30-80%).
- Most common airborne allergens eliciting eczema are derived from house dust mites of the species *Dermatophagoides pteronyssinus* and *D. farinae*.
- Encasings of mattresses and beddings protect humans from mites contained in mattresses.

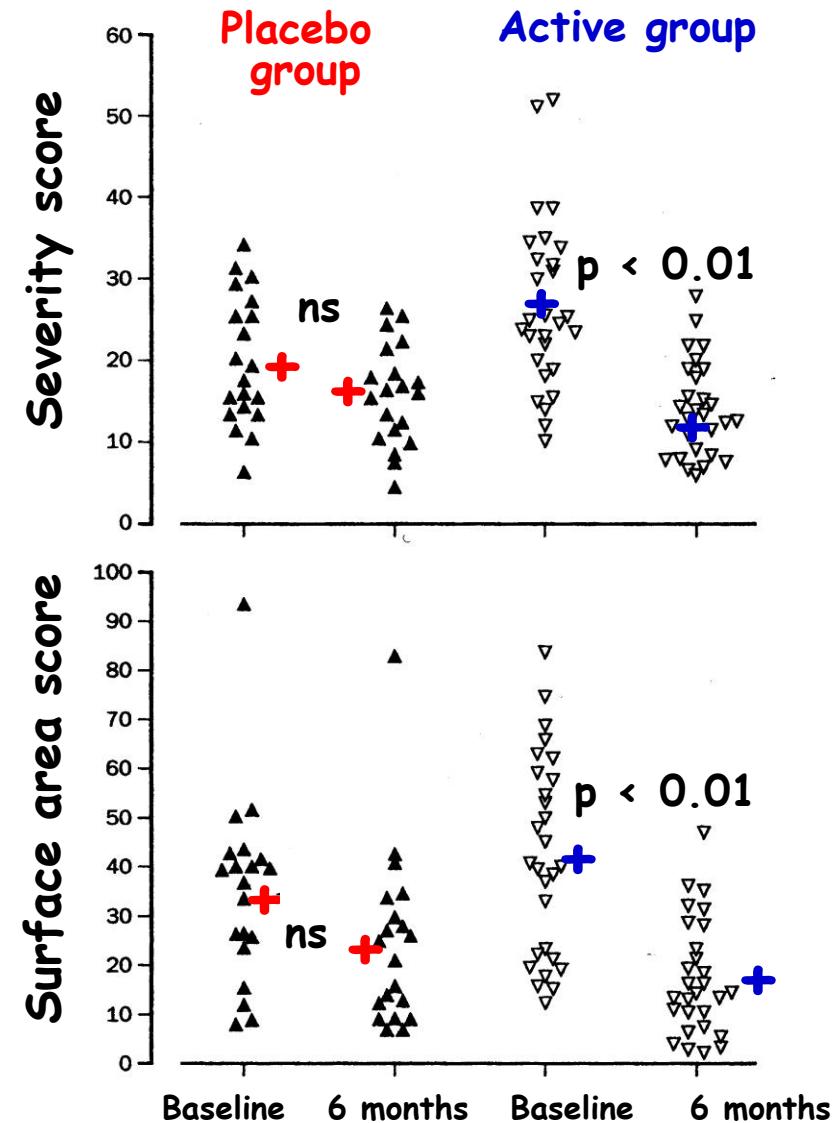
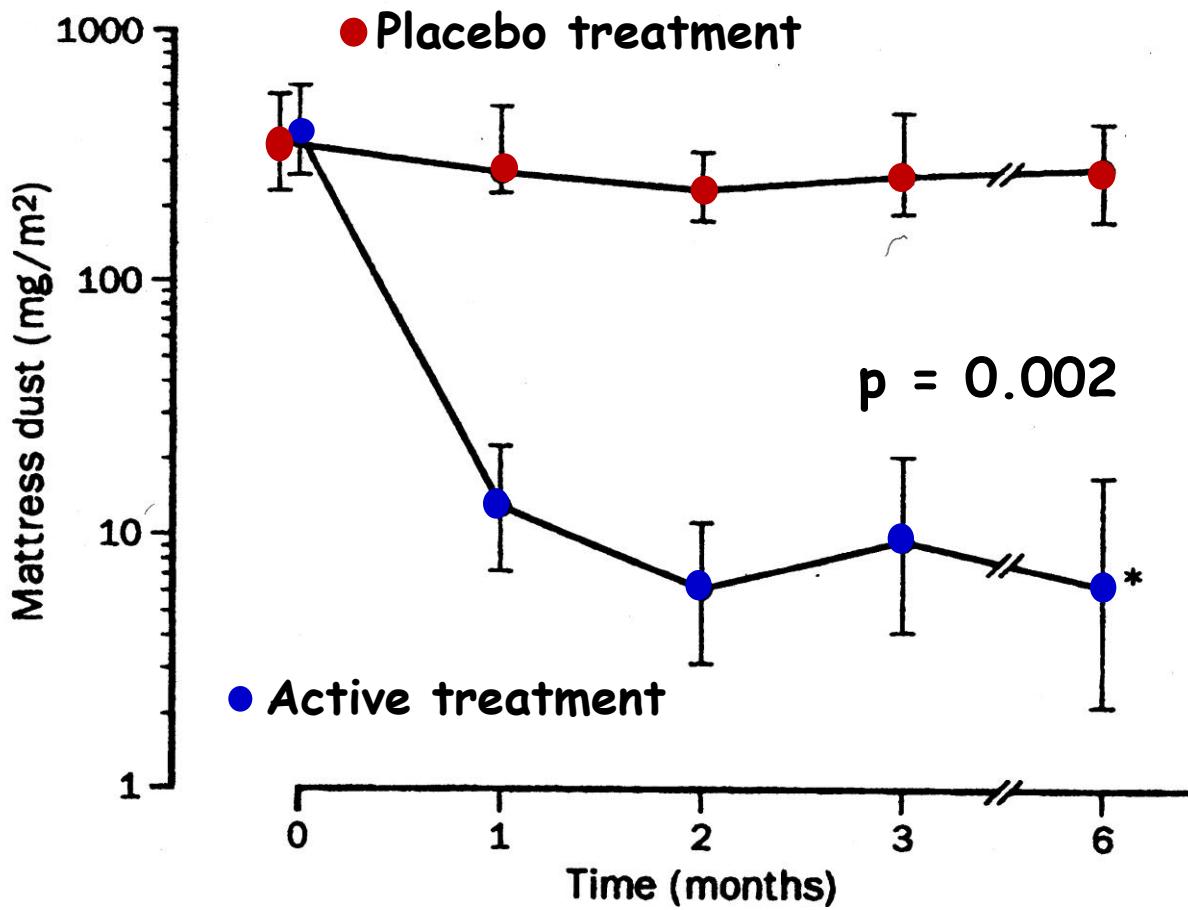


Guidelines for treatment of atopic eczema (atopic dermatitis) Part I  
J. Ring, JEADV 2012, 26, 1045-1060



# Activity of atopic dermatitis can be greatly reduced by effective HDM avoidance

Tan Lancet 1996; 347: 15



# Effectiveness of occlusive bedding in the treatment of atopic dermatitis a placebo-controlled trial of 12 months' duration

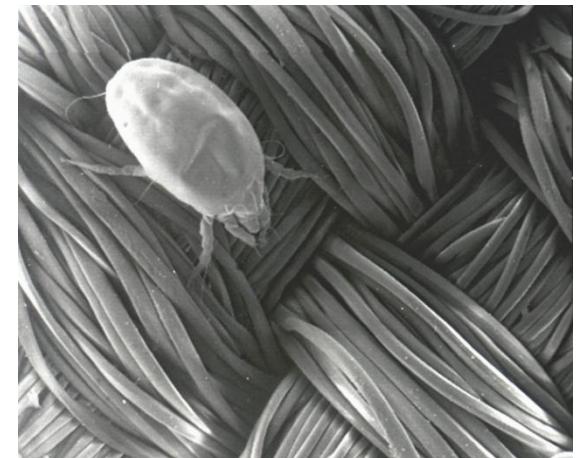
Holm Allergy 2001; 56: 152

- ◀ Eczema severity decreased significantly in both HDM sensitive and non sensitive patients ( $p < 0.001$ )
- ◀ sCD30 levels were significantly reduced in both groups ( $p < 0.001$ )
- ◀ Patients not sensitized to HDM allergens benefited from the bedcovers as much as sensitized patients



A result which could be due to a reduction in beds of:

- other important allergens
- supertantigens
- irritants and enzymes

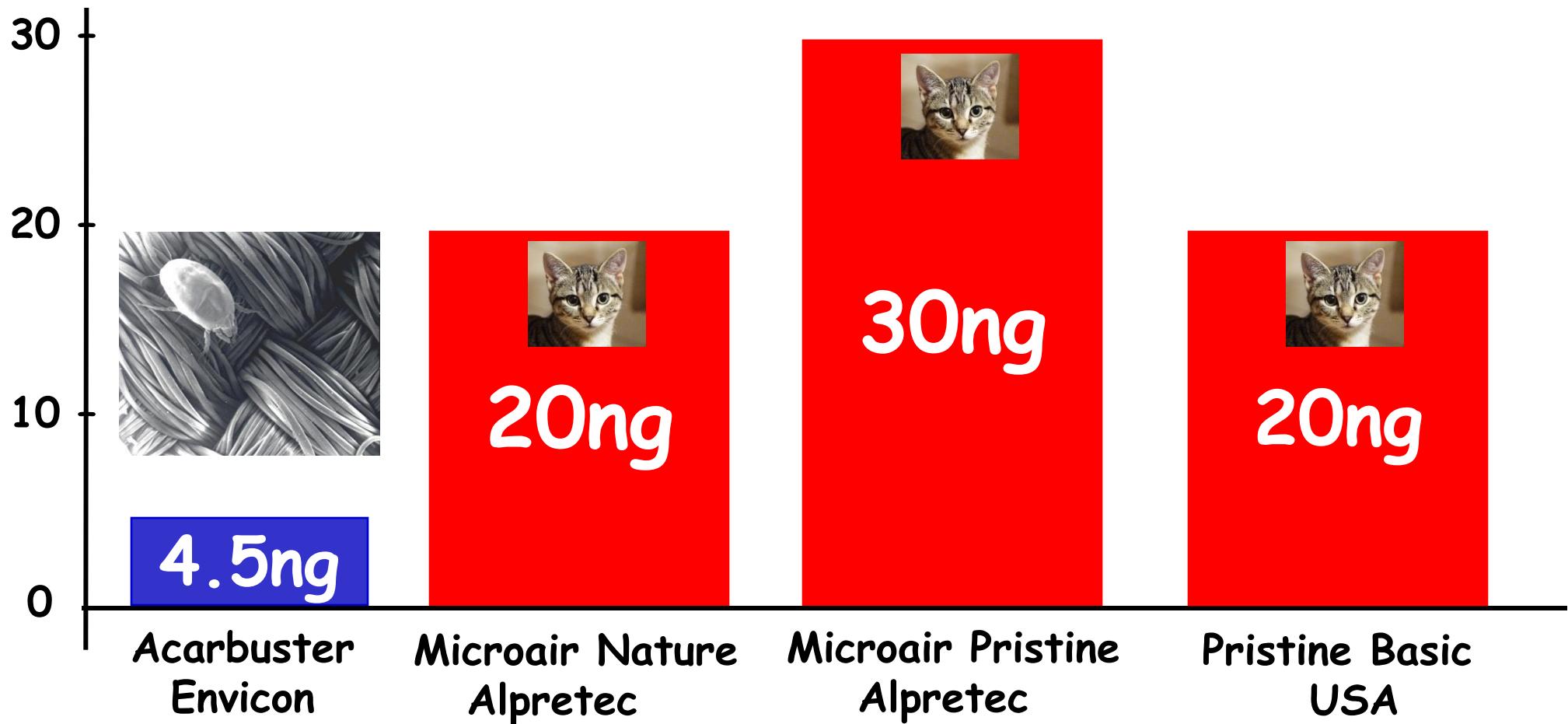


**"bedcovers should be part of routine treatment for AD"**

# Efficacy in allergen control and air permeability of different materials used for bed encasement.

Peroni DG, Allergy. 2004 Sep;59(9):969-72.

Fel d 1 permeability throughout different anti-mites encaising

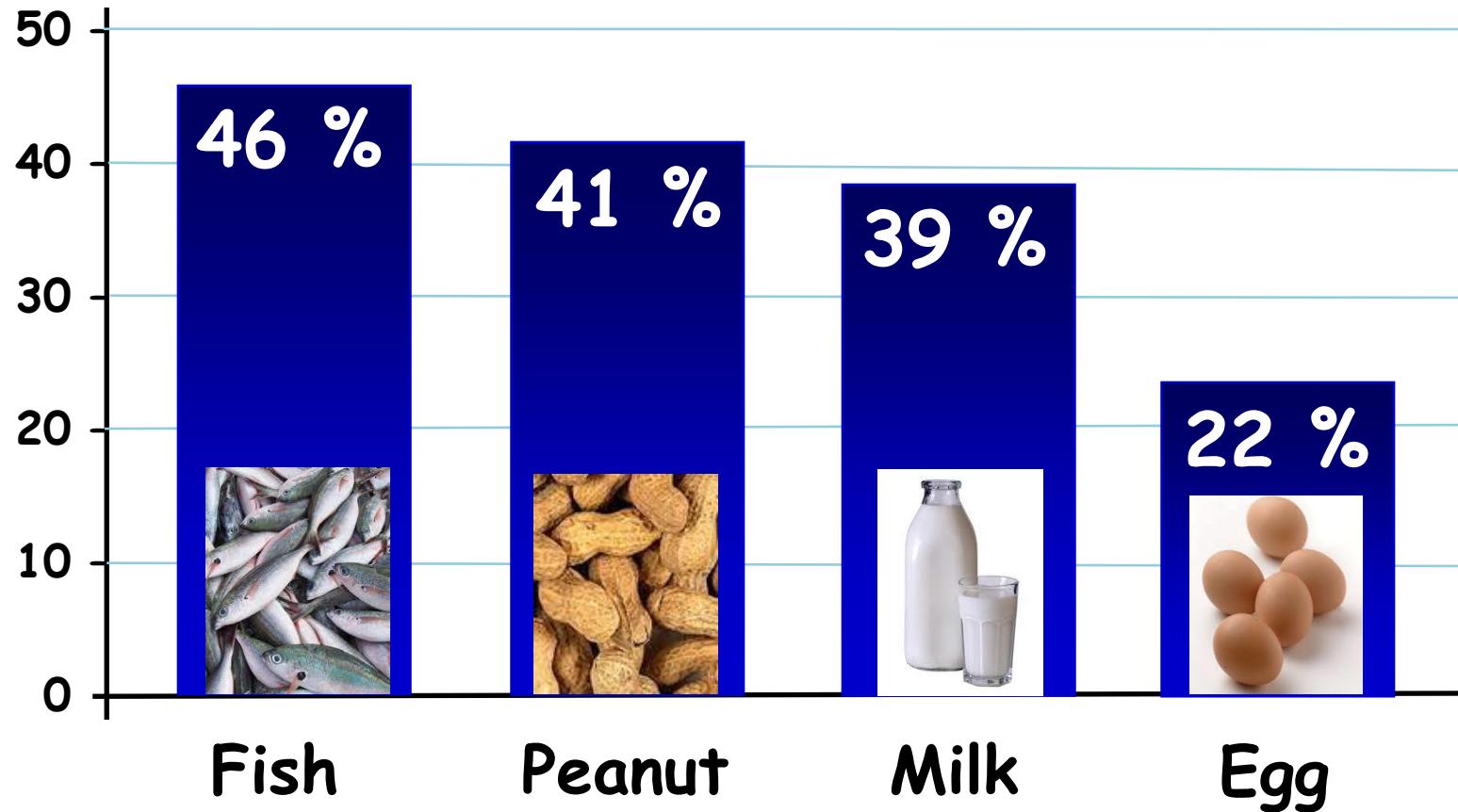


# Food allergens in mattress dust in Norwegian homes - a potentially important source of allergen exposure

Bertelsen RJ, CEA 2014;44:142-149

% mattress dust sample (+) for

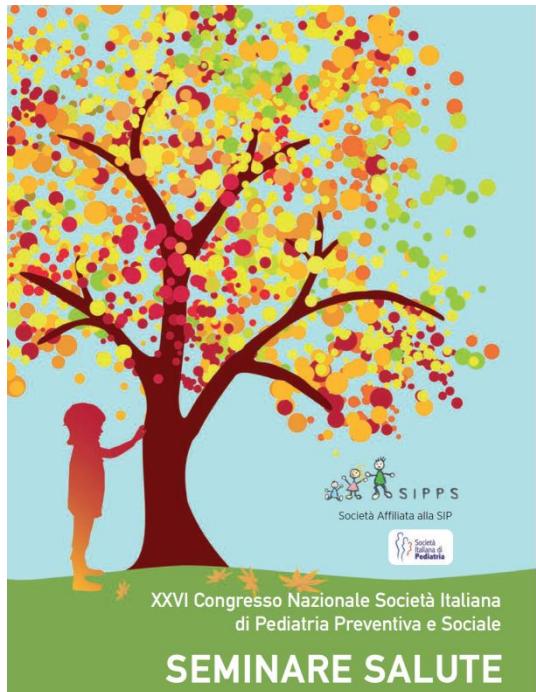
- ✓ Food allergens measured in mattress dust from 143 homes in Oslo, Norway



# La Dermatite atopica vista dal pediatra

Diego Peroni

Universita' di Ferrara



- ✓ Introduction
- ✓ Pathogenesis
- ✓ Triggers & Allergens
- ✓ Emollient Treatments
- ✓ Conclusions

[diego.peroni@unife.it](mailto:diego.peroni@unife.it)



# Cleansing and bathing

- The skin must be cleansed thoroughly, but gently and carefully to get rid of crusts and mechanically eliminate bacterial contaminants in the case of bacterial super-infection.
- Cleansers with or without antiseptics
- Salt baths may be beneficial because of removing the dead keratolytic material. In heavily impetiginized or ichthyotic skin salt baths are very useful.



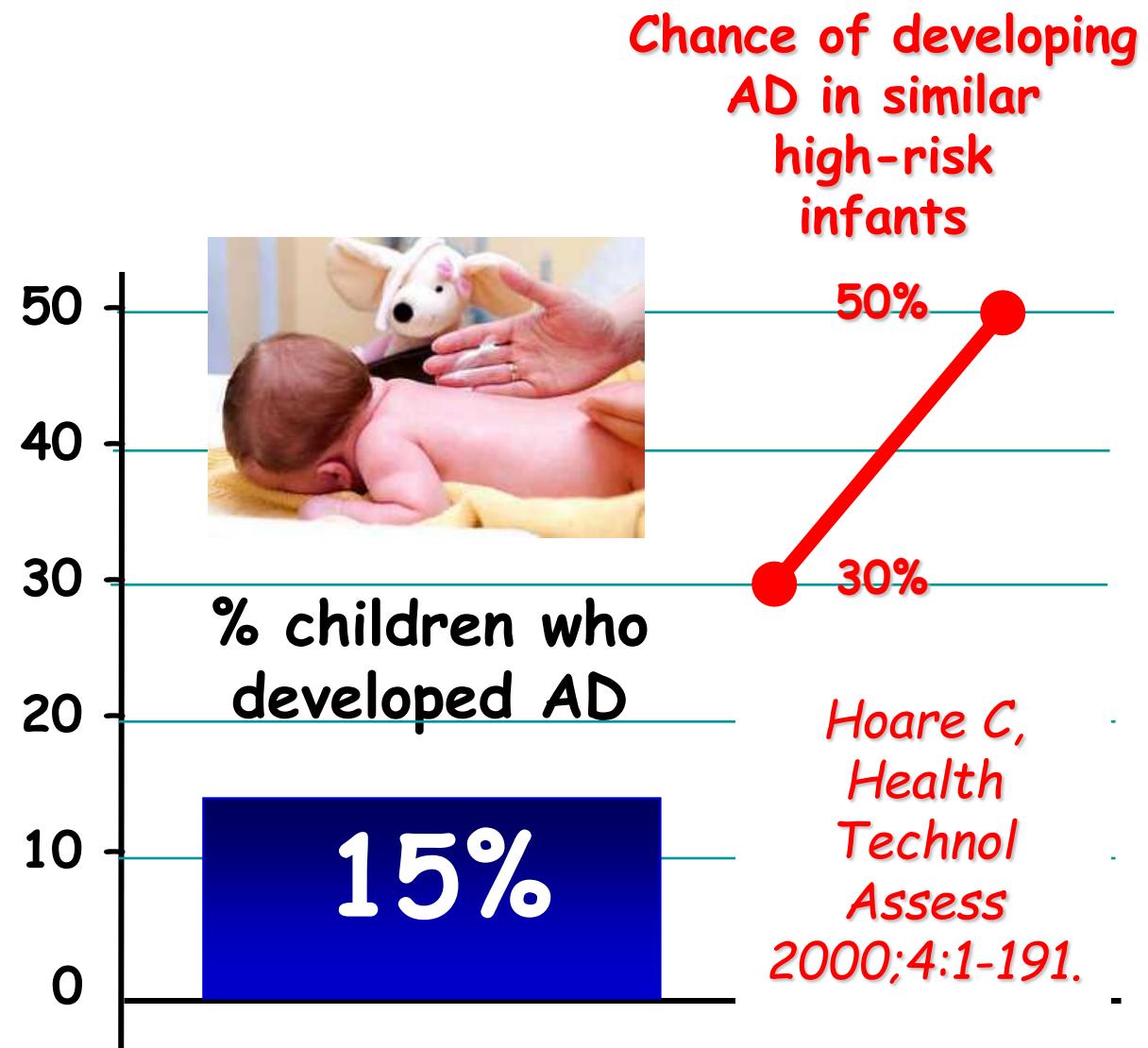
Guidelines for treatment of atopic eczema (atopic dermatitis) Part I  
J. Ring, JEADV 2012, 26, 1045-1060



# A pilot study of emollient therapy for the primary prevention of atopic dermatitis.

Simpson EL, J Am Acad Dermatol. 2010;63:587-93.

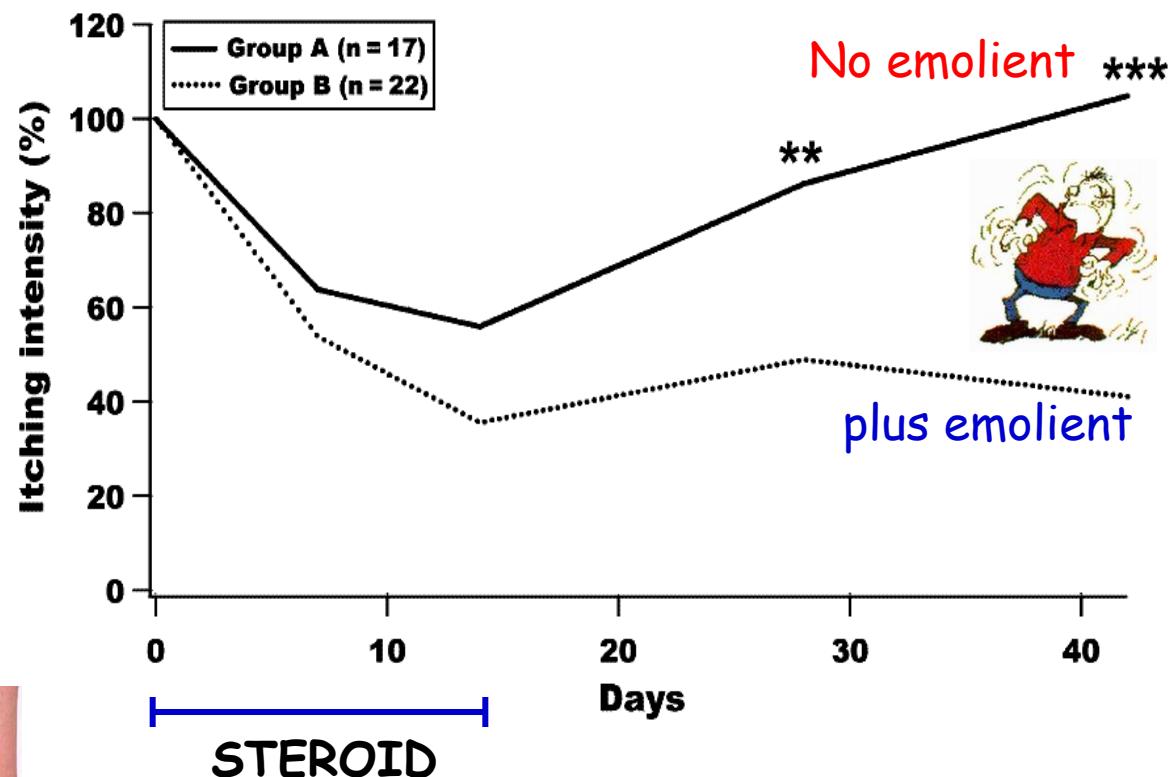
- ✓ 22 neonates at high risk for developing AD
- ✓ emollient therapy from birth.
- ✓ followed up mean time of 547 days



# Emollients Improve Treatment Results with Topical Corticosteroids in Childhood Atopic Dermatitis: a Randomized Comparative Study

Szczepanowska Ped All Immunol 2008;19:614

- ✓ 52 ch with AD (2-12 yrs).
- ✓ 26 ch received a steroid cream for 2 weeks (+4 weeks follow-up with no treatment) (Group A).
- ✓ 26 ch received steroid cream for 2 weeks + emollients for 6 weeks (Group B).

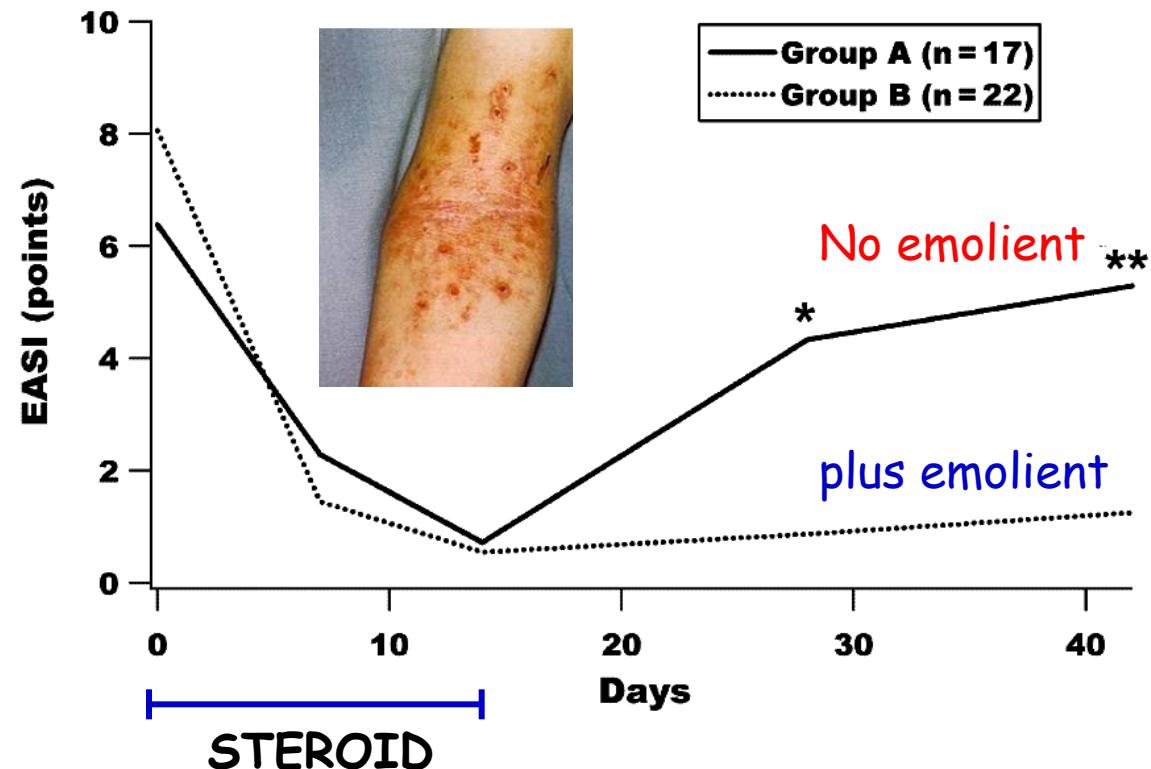


\* p=0.004 \*\* p=0.01 \*\*\*p<0.001

# Emollients Improve Treatment Results with Topical Corticosteroids in Childhood Atopic Dermatitis: a Randomized Comparative Study

Szczepanowska Ped All Immunol 2008;19:614

- ✓ 52 ch with AD (2-12 yrs).
- ✓ 26 ch received a steroid cream for 2 weeks (+4 weeks follow-up with no treatment) (Group A).
- ✓ 26 ch received steroid cream for 2 weeks + emollients for 6 weeks (Group B).



\*  $p=0.004$  \*\*  $p=0.01$  \*\*\* $p<0.001$

# Emollient Therapy

1. The direct use of emollients **on inflamed skin may be poorly tolerated** and it is better to treat the acute flare first. 
2. Emollients are the **mainstay of maintenance therapy**.
3. Hydration of the skin is usually maintained by **twicedaily**  **at least twice daily** application of moisturizers.
4. The **cost of high-quality** (low in contact allergens) emollient therapies often restrict their use because such therapies are considered to be non-prescription drugs and the quantities required are usually high (**150-200 g per week in young children, up to 500 g in adults**).

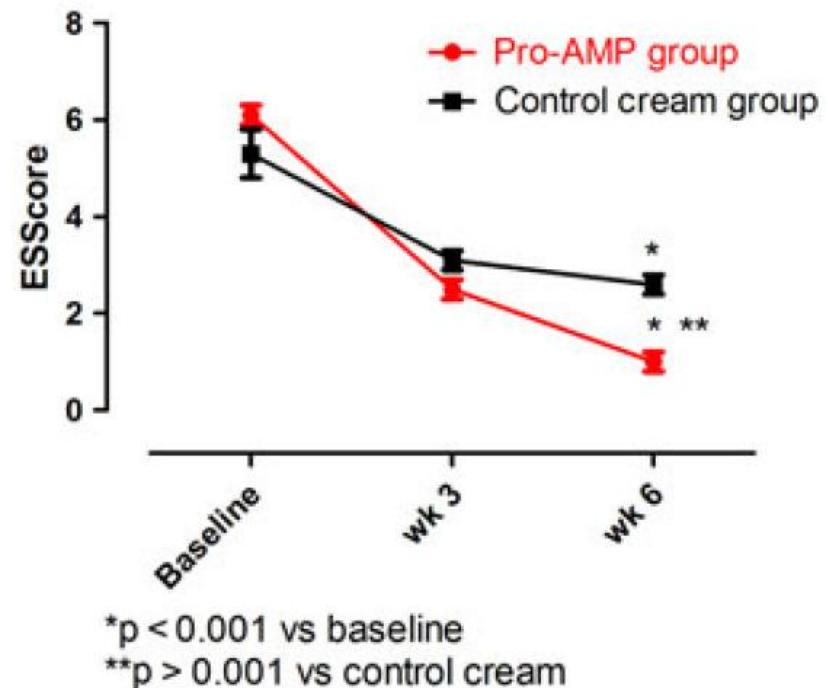


# Local rhamnosoft, ceramides and L-isoleucine in atopic eczema: a randomized, placebo controlled trial

Marseglia A. PAI, 2014; 25:271-275

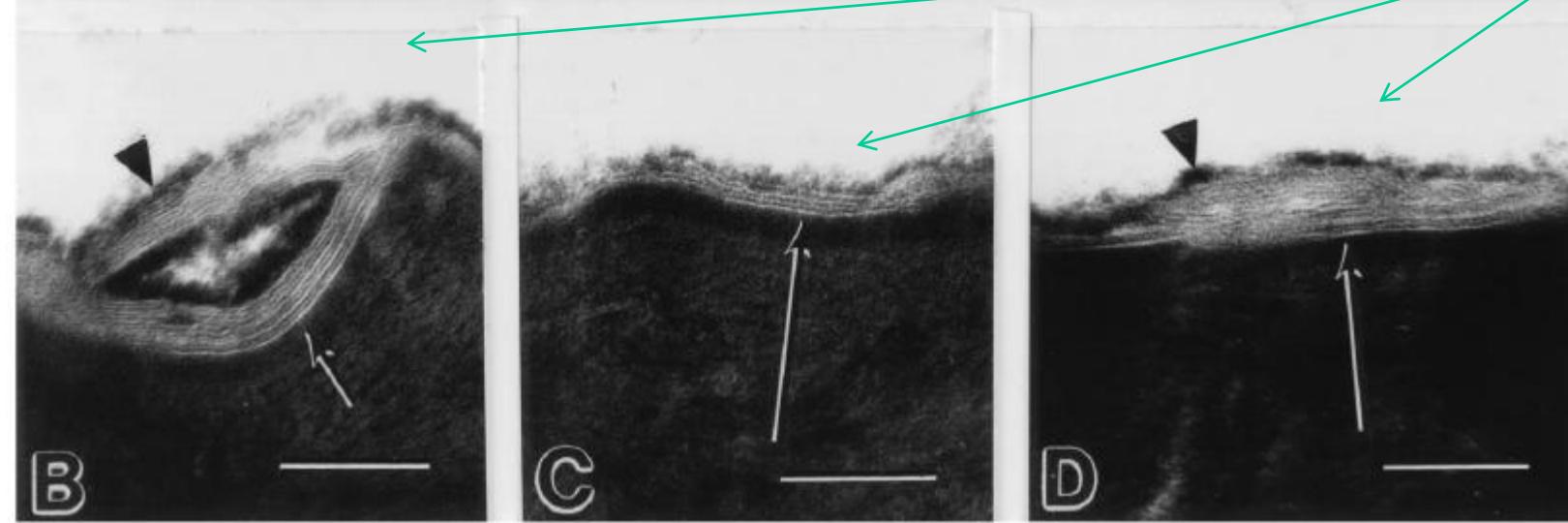
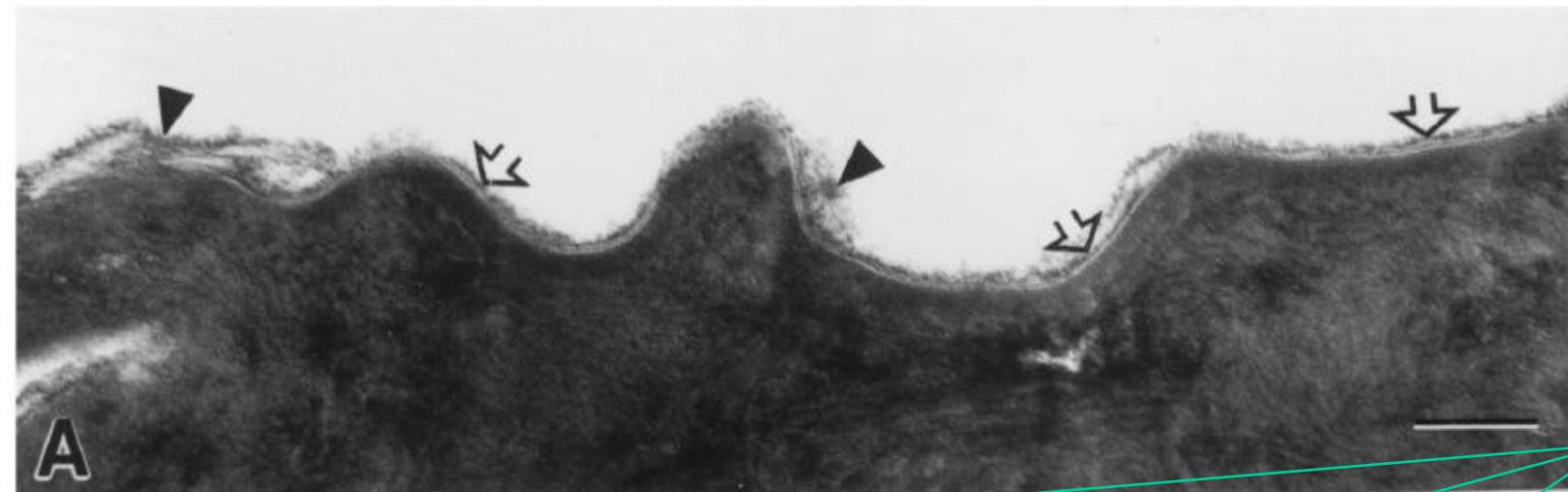
- ✓ A non-steroidal, anti-inflammatory moisturizing cream containing rhamnosoft, ceramides, and L-isoleucine (ILE) (pro-AMP cream)
- ✓ 107 children (72 allocated to pro-AMP cream and 35 allocated to control group) with mild-to-moderate chronic AE of the face
- ✓ Treatments were applied twice daily for a 6-week period.

Evolution of Eczema severity Score from baseline to week 3 and week 6 in the two study groups.



# Ceramide dominant barrier repair lipids alleviate childhood atopic dermatitis: changes in barrier function provide a sensitive indicator of disease activity.

Chamlin SL, . J Am Acad Dermatol 2002;47:198-208.



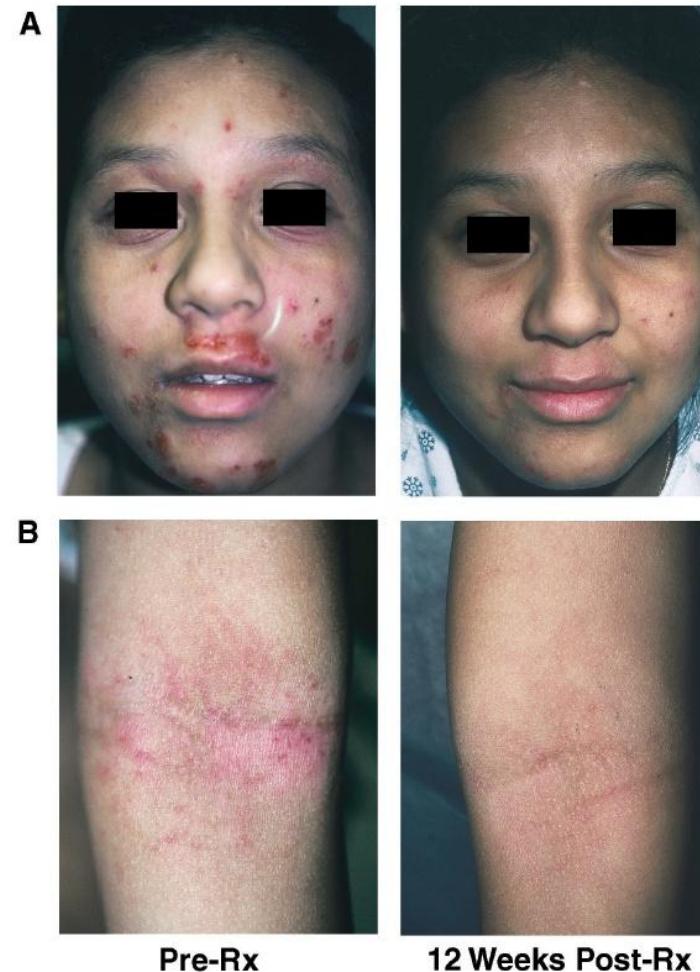
Improved barrier function correlates with appearance of membrane bilayer structures in stratum corneum (SC).

After application of the ceramide-dominant preparation for 6 weeks, extracellular lamellar bilayers appear in foci throughout SC (B-D, arrows). Bars 0.01 m.

# Ceramide dominant barrier repair lipids alleviate childhood atopic dermatitis: changes in barrier function provide a sensitive indicator of disease activity.

Chamlin SL, . J Am Acad Dermatol 2002;47:198-208.

- ✓ ceramide-dominant, physiologic lipid-based emollient, when substituted for **currently used moisturizers**,
- ✓ 24 children who were also receiving standard therapy for recalcitrant AD [hydrophilic petrolatum (Aquaphor), petrolatum (Vaseline ointment), Eucerin cream, Cetaphil lotion, and Aveeno lotion)]

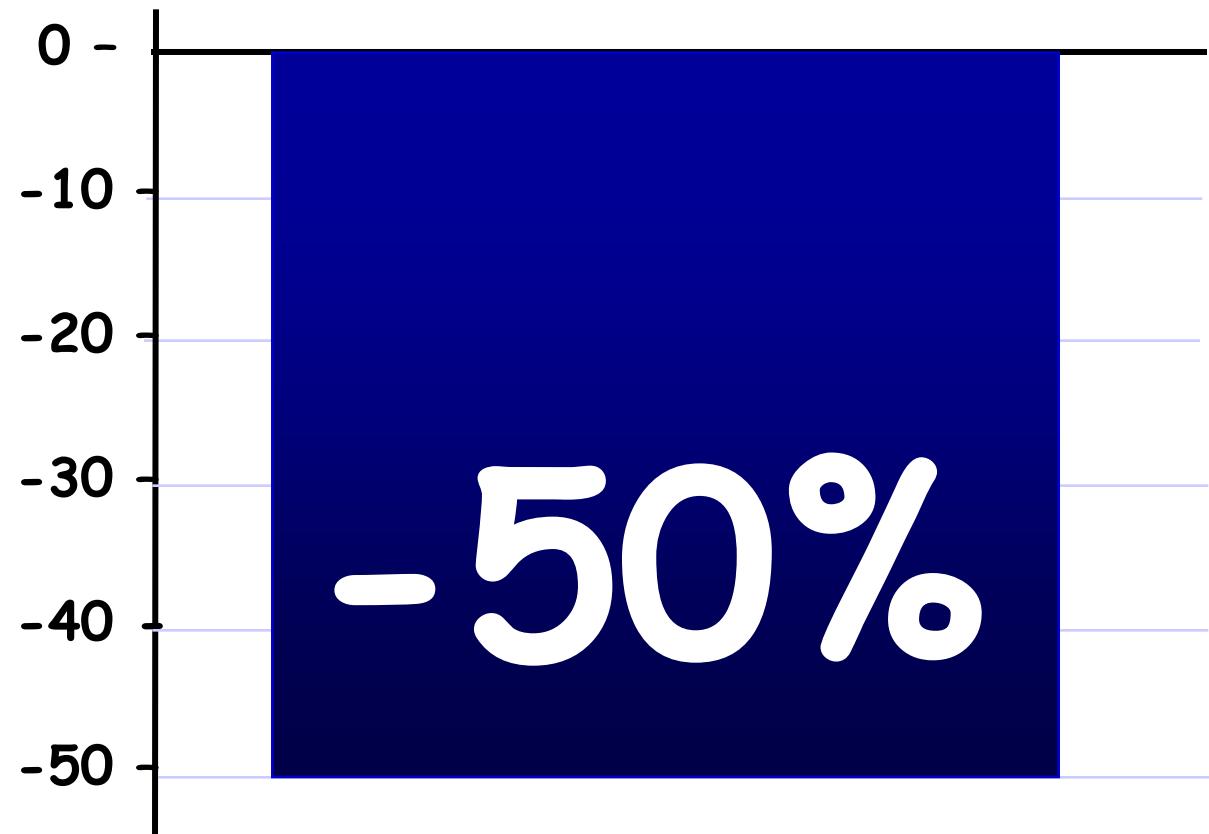


# Use of an emollient as a steroid-sparing agent in the treatment of mild to moderate atopic dermatitis in children

Lucky Pediatr Dermatol 1997;4:321

- 25 ch with AD (3-15 years)
- Application of hydrocortisone 2.5% cream alone or in association with a water-in-oil cream
- 3 weeks treatment

% REDUCTION IN CORTICOSTEROID WITH THE USE OF THE EMOLLIENT



# Bathing in Atopic Dermatitis

## The Diaper Area Analogy: Explaining Why the Wet Method Works

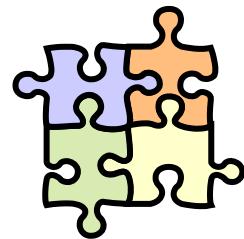
"Atopic dermatitis likes dry skin, but not moist and hydrated skin. Look at the area covered by your baby's diaper.

Feel how soft and supple it is? And notice that eczema does not occur in this area.

By bathing your baby every day and immediately applying the medications and then the moisturizer, we are trying to create the same sort of environment (a moist one) as in the diaper area on the rest of your baby's skin."



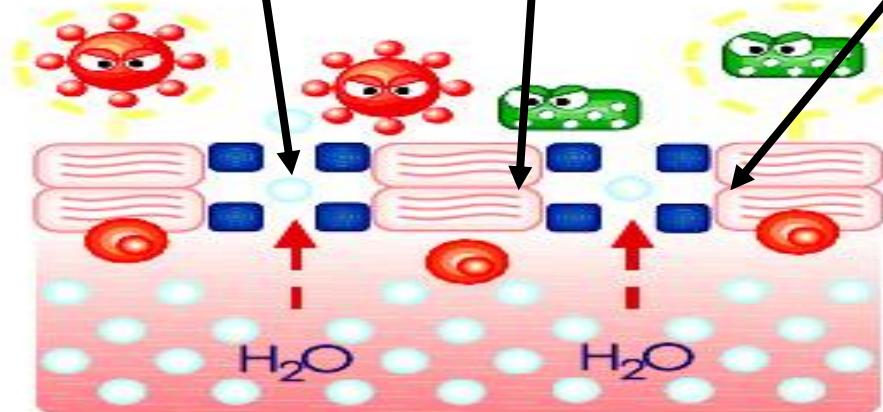
# Bathing in a complementary salt solution



MgCl salt

↑ Skin barrier  
↑ Skin hydration  
↓ Inflammation

Proksch, Int J Derm. 2005; 44:151



Allantoin

↑ Hydration  
↑ Skin barrier  
↑ Repair

Thornfeldt, Derm Surg. 2005; 31:873

Urea A

↑ Skin hydration

Loden, Acta Derm Ven. 2002; 82:45

NaCl salt

↑ urea's effects

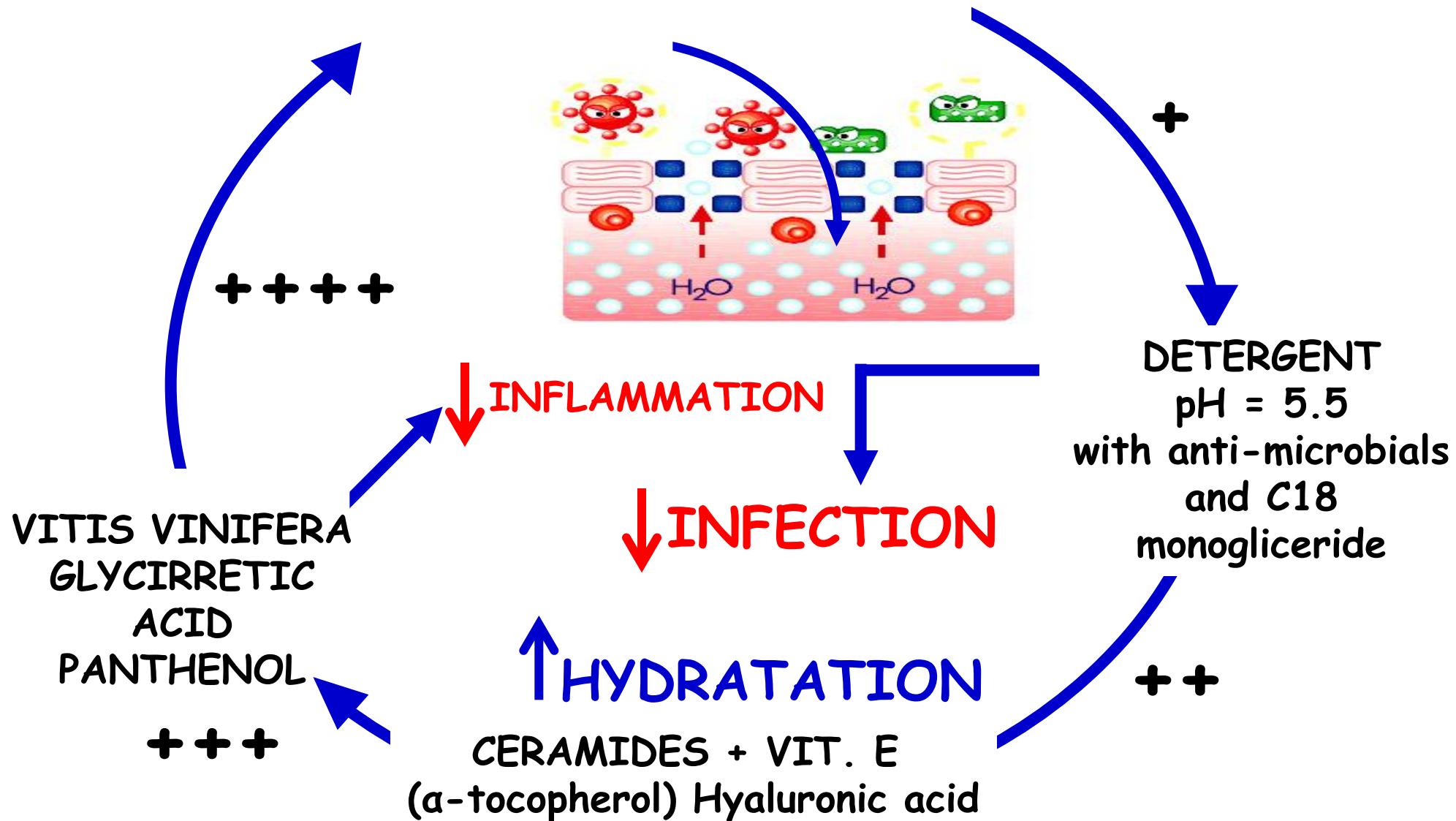
Hagstromer, Skin Pha Ap Skin Phy. 2001; 14:27

↓ S.aureus attachment

Akiyama J Dermat Sci 1998; 16:216

# Long Term Treatment for Atopic Dermatitis: [www.envicon.it](http://www.envicon.it)

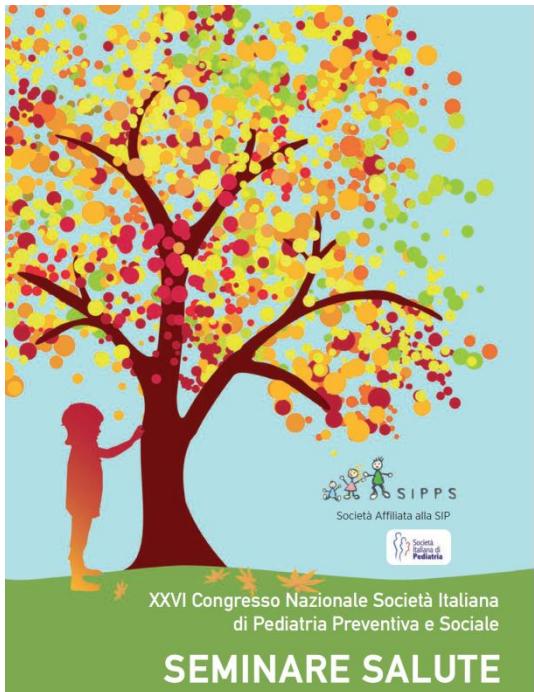
Bath with a saline solution (MgCl, NaCl, urea, allantoina)



# La Dermatite atopica vista dal pediatra

Diego Peroni

Universita' di Ferrara

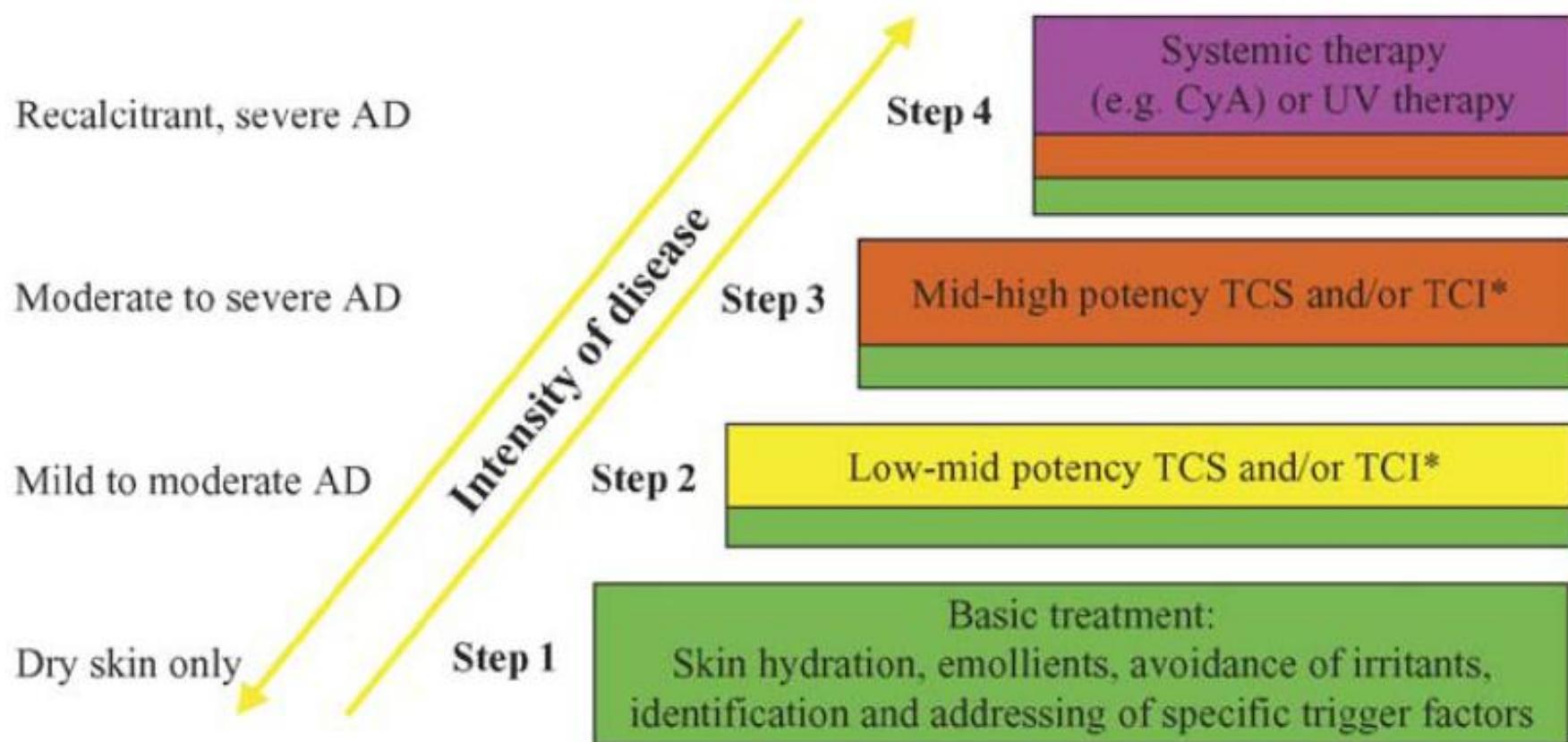


- ✓ Introduction
- ✓ Pathogenesis
- ✓ Triggers & Allergens
- ✓ Antiinflammatory Treatments
- ✓ Conclusions

[diego.peroni@unife.it](mailto:diego.peroni@unife.it)



# Stepwise management of patients with AD



TCS = Topical corticosteroids, TCI = Topical calcineurin inhibitors, CyA = Cyclosporine A

\* Over the age of 2 years

# Potenza degli steroidi topici

Abbreviazioni:

c:crema, p=pomata, u=unguento, lp= lipocrema, l= lozione, e= emulsione, s=soluzione, sch= schiuma, g= gel

## STEROIDI TOPICI SUPERPOTENTI (GRADO I)

Clobetasolo propionato 0,05% p. u. s. sch.	<i>Clobesol; Olux sch</i>
--	---------------------------

## STEROIDI TOPICI MOLTO POTENTI (GRADO II)

Alcinonide 0,1% c.	<i>Halciderm</i>
Amcinonide 0,1% p.	<i>Amcinil</i>
Betametasone dipropionato 0,05% u c	<i>Diprosone; Betamesol; Betametasone dipropionato</i>
Diflucortolone valerato 0,3% c. p. u.	<i>Nerisona forte, Temetex forte, Cortical, Dervin</i>
Fluocinonide 0,05% p. g. l.	<i>Flu 21, Topsyn</i>

### STEROIDI TOPICI POTENTI A (GRADO III)

Betametasone dipropionato 0,05% c. u. s.	Diprosone, Betamesol, Betanesone dipropionato Sandoz
Betametasone valerato 0,1% c. u. e. s.	Ecoval 70, Bettamousse, Betesil cerotti
Desossimetasone 0,025% e.	Flubason
Diflucortolone valerato 0,1% c. u. s.	Nerisona, Temetex, Dermaval, Cortical 0,2, Flu-cortanest
Fluticasone propionato 0,05% c.; 0,005% u.	<b>Flixoderm</b> crema e unguento
Metilprednisolone aceponato 0,1% c. u. s.	Advantan, Avancort
Mometasone furoato 0,1% c. u. s.	<b>Altosone, Elocon</b>

### STEROIDI TOPICI POTENTI B (GRADO IV)

Alclometasone dipropionato 0,1% c. u. l.	Legederm
Beclometasone dipropionato 0,025% c.	Menaderm simplex; Beclometasone Doc
Betametasone benzoato 0,1% c. l. g.	<b>Beben</b>
Budesonide 0,025 c. u.	Bidien; Preferid

## STEROIDI TOPICI DI MEDIA POTENZA (GRADO V)

Betametasone benzoato 0,025% c.	<i>Beben crema dermica</i>
Betametasone valeroacetato 0,05% p. u. l.	<i>Beta 21, Gentalyn Beta, Ecoval</i>
Desonide 0,05% c. e. l.	<i>Sterades; Reticus</i>
Idrocortisone butirrato 0,1% c. p. l. e.	<i>Locoidon</i>
Fluocinolone acetonide 0,025% p.l. c.	<i>Localyn; Fluocit; Fluovitef; Omniderm; Sterolone; Ultraderm; Boniderma; Dermolin; Fluvean</i>
Triamcitolone Acetonide 0,1% c	<i>Ledercort A10, Aureocort</i>

## STEROIDI TOPICI DI POTENZA MINIMA A (GRADO VI)

Clobetasone butirrato 0,05% c.	<i>Eumovate</i>
Fluocinolone acetonide 0,01% glicole	<i>Localyn glicole</i>
Fluocortin butilestere 0,02% c. p.	<i>Vaspit</i>

## STEROIDI TOPICI DI POTENZA MINIMA B (GRADO VII)

Idrocortisone da 0,05 a 1% c. p.	<i>Lenirit; Dermirit; Cortidro; Dermadex c</i>
Fluocinolone acetonide 0,01% glicole	<i>Localyn glicole</i>
Fluocortin butilestere 0,02% c. p.	<i>Vaspit</i>
Desametasone 0,2% c. u.	<i>Dermadex; Soldesam</i>
Flumetasone	<i>Solo in associazione</i>
Metiprednisolone	<i>Solo in associazione</i>

# Prescribing Topical Corticosteroids in Atopic Dermatitis

## Type of Preparation

- **Ointment** bases are more occlusive than creams and result in better penetration and an increased hydrating effect on the skin. Because preservatives are not required in ointments, they are associated with a lower incidence of hypersensitivity reactions.
- **Creams**, however, can be more cosmetically acceptable on the face and are preferable in moist, hairy areas.
- **Lotions, gels, and mousses** are useful on the scalp but often contain alcohol, which may cause a stinging or burning sensation on inflamed skin.

# Topical anti-inflammatory therapy

## Topical Calcineurin Inhibitors

- The anti-inflammatory potency of 0.1% tacrolimus ointment is similar to a corticosteroid with intermediate activity, while the latter is clearly more active than 1.0% pimecrolimus cream.



- TCI do not induce skin atrophy.** This favours their use over topical corticosteroids in delicate body areas such as the eyelid region, the perioral skin, the genital area, the axilla region or the inguinal fold and for topical long-term management.



Severe granuloma  
gluteale infantum



Guidelines for treatment of atopic eczema (atopic dermatitis) Part I  
J. Ring, JEADV 2012, 26, 1045-1060



# Topical anti-inflammatory therapy and wet wraps

- Patients with **acute, oozing** and **erosive lesions**, and children in particular, sometimes **do not tolerate standard topical application**, and may first be treated with '**wet wraps**' until the oozing stops.



- They are highly effective in acute eczema and improve tolerance.

- The use of wetwrap dressings with diluted corticosteroids for up to 14 days (usual is up to 3 days) is a safe crisis intervention treatment of severe and/or refractory AE



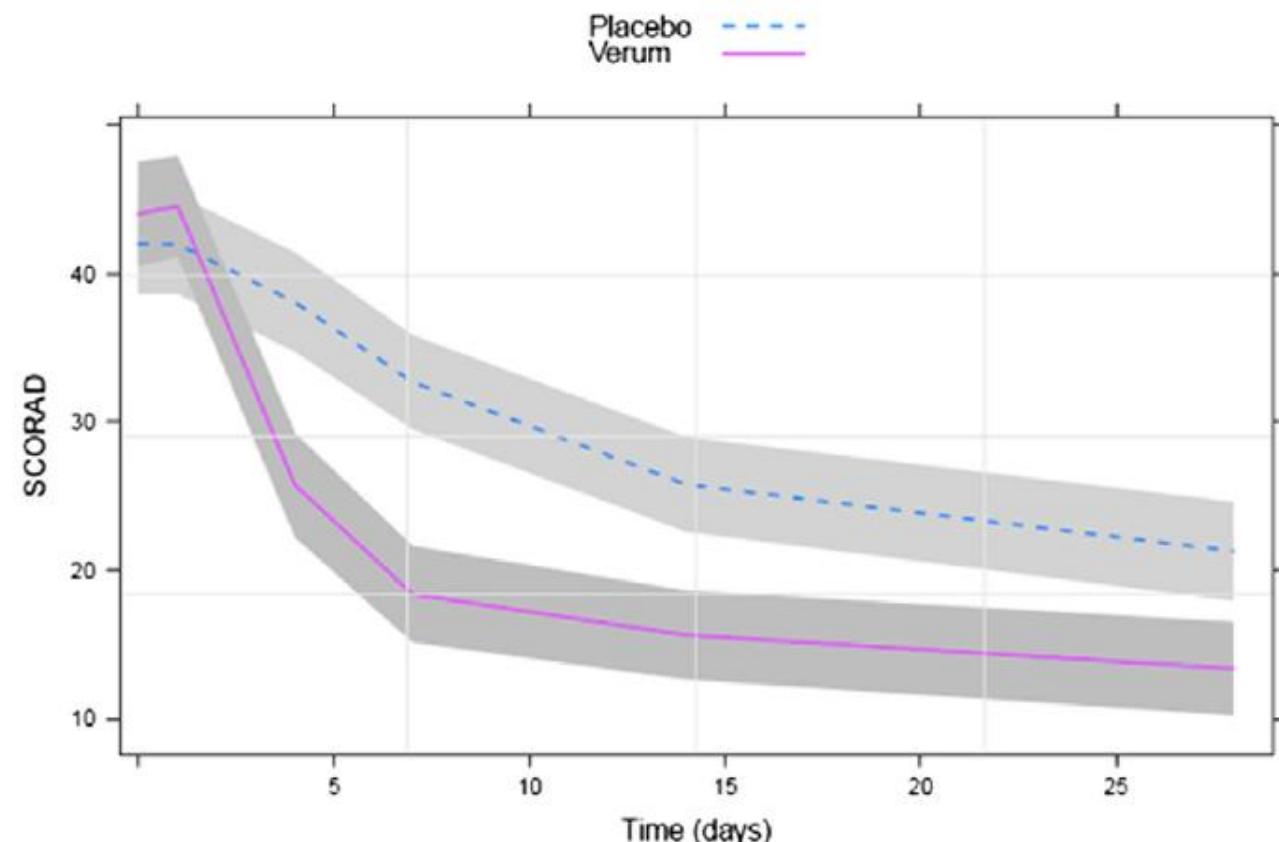
# The proactive wet-wrap method with diluted corticosteroids versus emollients in children with atopic dermatitis: A prospective, randomized, double-blind, placebo-controlled trial.

Janmohamed, 2014 J Am Acad Dermatol 2014;70:1076

children aged 6 months to 10 years with severe AD (SCORAD > 40)

4 wks comparing diluted corticosteroids (1:3 mometasone furoate 0.1% ointment and for the face 1:19 mometasone furoate 0.1% ointment under a mask)

with emollient (petrolatum 20% in cetomacrogol cream).



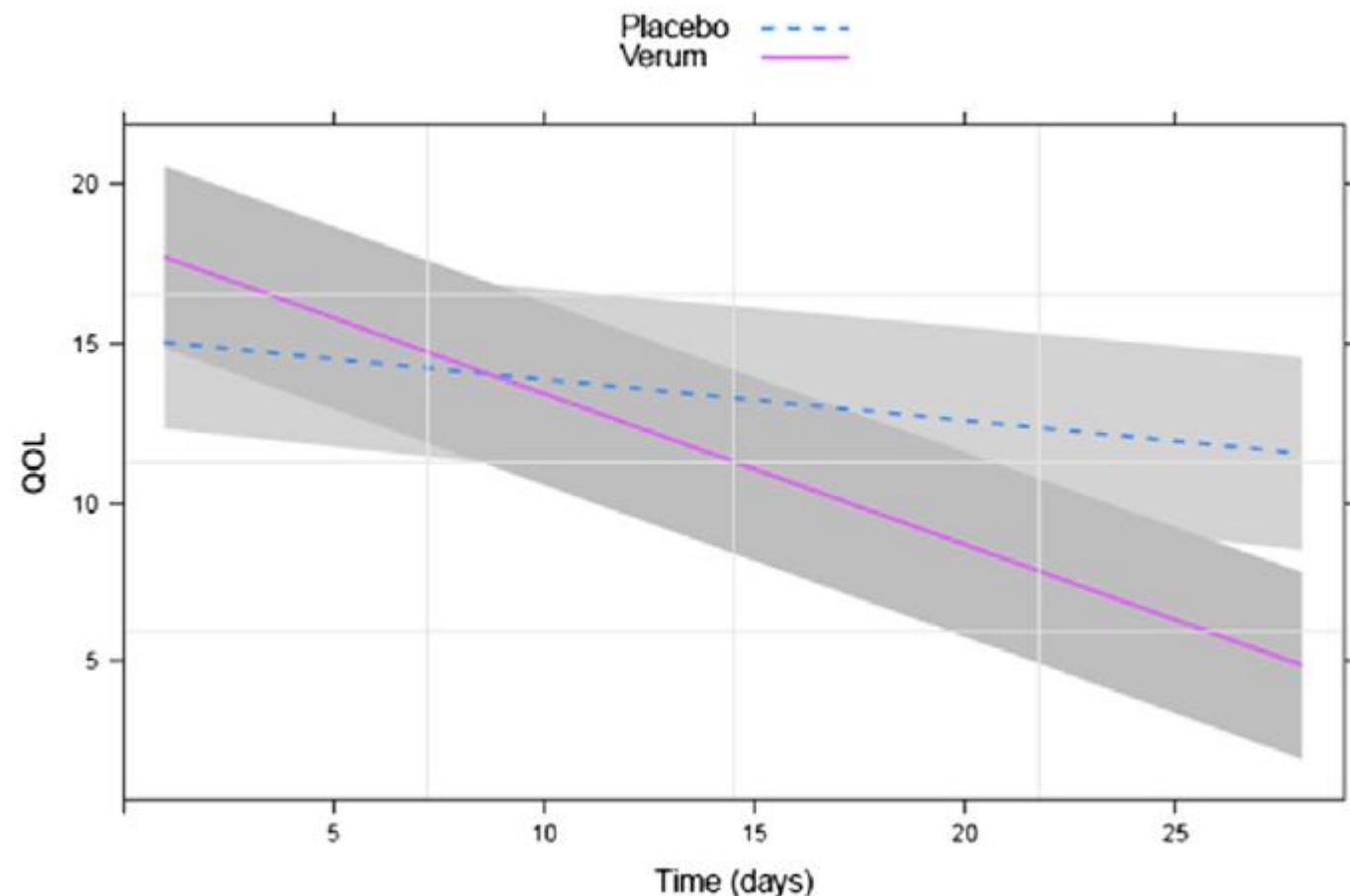
# The proactive wet-wrap method with diluted corticosteroids versus emollients in children with atopic dermatitis: A prospective, randomized, double-blind, placebo-controlled trial.

Janmohamed, 2014 J Am Acad Dermatol 2014;70:1076

In week 1 the study cream was applied once daily on the whole body using the finger tip unit method.

In weeks 2 to 4, the cream was likewise applied on lesions only, ie, once daily for 4 consecutive days per week.

Emollients were used in both groups on the other 3 days in weeks 2 to 4.



# Prevention of exacerbations with topical treatment

- ✓ An important concept with therapeutic implications is the recognition that normal-appearing skin in patients with AD is not immunologically normal.

Hamid Q, J Clin Invest 1994;94:870-6.

- ✓ One approach to **patients whose eczema tends to relapse in the same location** is that of **proactive therapy**.



- ✓ After a period of stabilization, **topical steroids (1,2)** or **calcineurin inhibitors (3-5)** are applied to areas of previously involved but normal-appearing skin rather than waiting for eczema to flare.

1) Berth-Jones J, BMJ 2003;326:1367. 2) Peserico A, Br J Dermatol 2008;158:801. 3) Wollenberg A, Allergy 2008;63:742. 4) Breneman D, J Am Acad Dermatol 2008;58:990-9. 5) Paller AS, Pediatrics 2008;122:e1210-8.

## Guidelines of care for the management of atopic dermatitis. Sidbury, 2014; J Am Acad Dermatol.

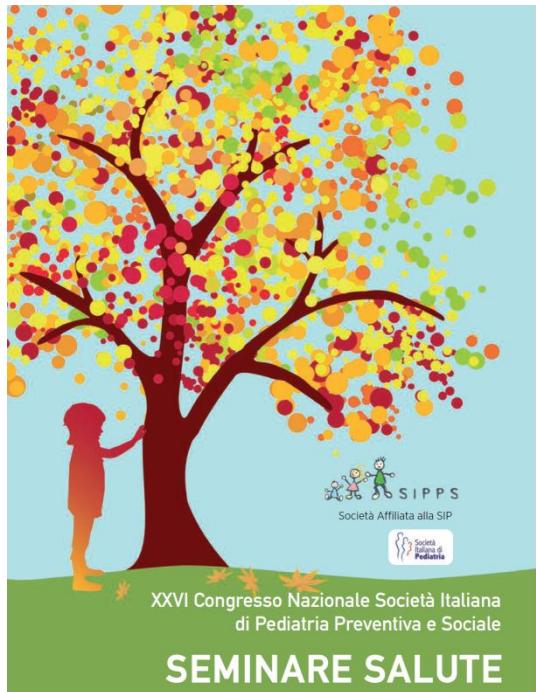
What are the most effective approaches to preventing flares in patients with atopic dermatitis?

Continued use of either topical corticosteroids (1-2 times/wk) or topical calcineurin inhibitors (2-3 times/wk) after disease stabilization, to previously involved skin, is recommended to reduce subsequent flares or relapses.

# La Dermatite atopica vista dal pediatra

Diego Peroni

Universita' di Ferrara



- ✓ Introduction
- ✓ Pathogenesis
- ✓ Triggers & Allergens
- ✓ Treatments
- ✓ Conclusions

[diego.peroni@unife.it](mailto:diego.peroni@unife.it)



# Conclusions

1. Although there has been some controversy with regard to the role of allergy in atopic dermatitis (eczema), the bulk of the data indicate that allergy plays a role in selected patients with AD.
2. In patients with AD, the rate of sensitization to foods (positive skin or in vitro test) ranges from 30 to 80 percent, depending upon the population. The rate of confirmed food allergy is much lower.
3. Food allergies play a role in exacerbating AD in up to 33% of patients with severe AD, 10% to 20% with moderate AD, and 5% percent with mild AD.
4. Elimination of food allergens in patients with AD and confirmed food allergy can lead to significant clinical improvement.

# Conclusions

5. The data on the role of aeroallergens in exacerbating AD are less extensive.
6. Dust mites are consistently the most common positive aeroallergen, and also appear to be the most clinically relevant.
7. Immune reactions, both IgE and T cell-mediated, to *Malassezia* species to *S. aureus* and can also worsen AD.
8. Proper early treatment of the skin is probably the simplest and most effective preventive strategy also for related diseases.
9. Allergen avoidance can be tried in selected patients.
10. Always consider comorbidities.