

# Immuno-patogenesi delle allergie

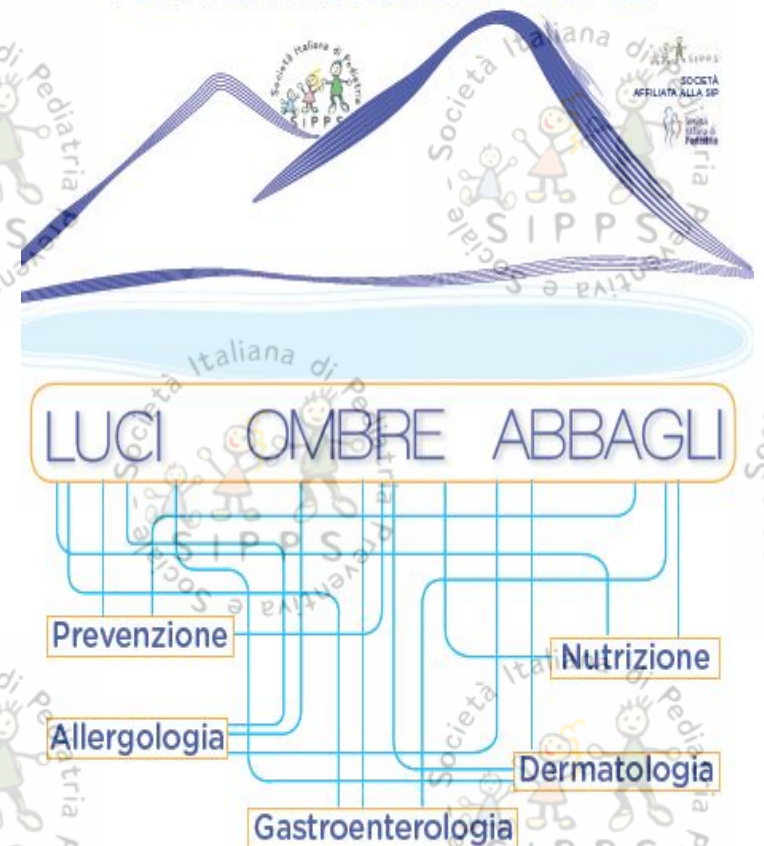
**Marzia Duse**

**Dipartimento di Pediatria e NPI  
Università Sapienza, Roma**



**Napule è...**

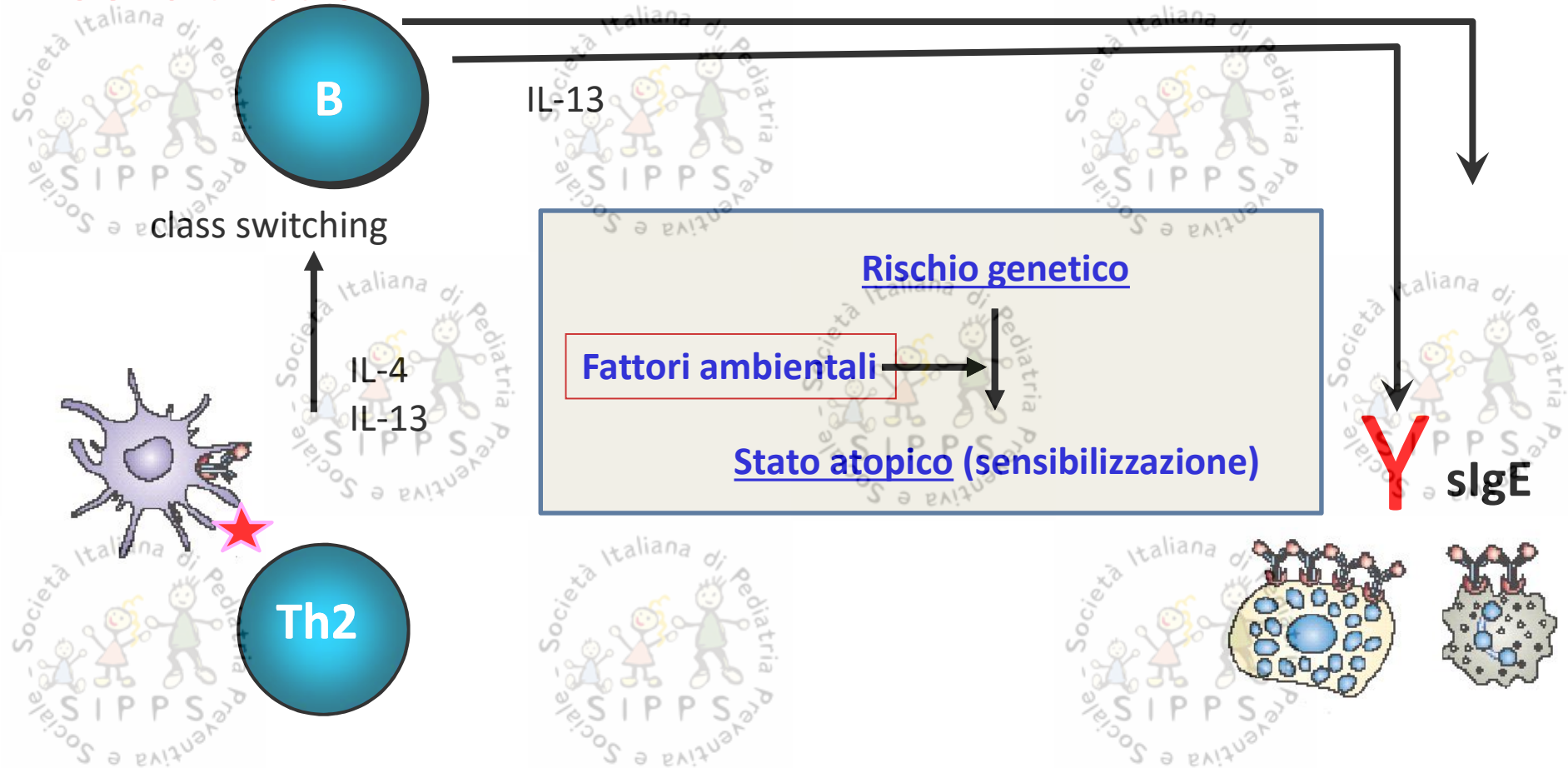
PEDIATRIA PREVENTIVA E SOCIALE



22 - 25 APRILE 2016

Hotel Royal Continental, Napoli

# Sensitization



# Stato atopico

*Current perspectives*

## Identification of IgE

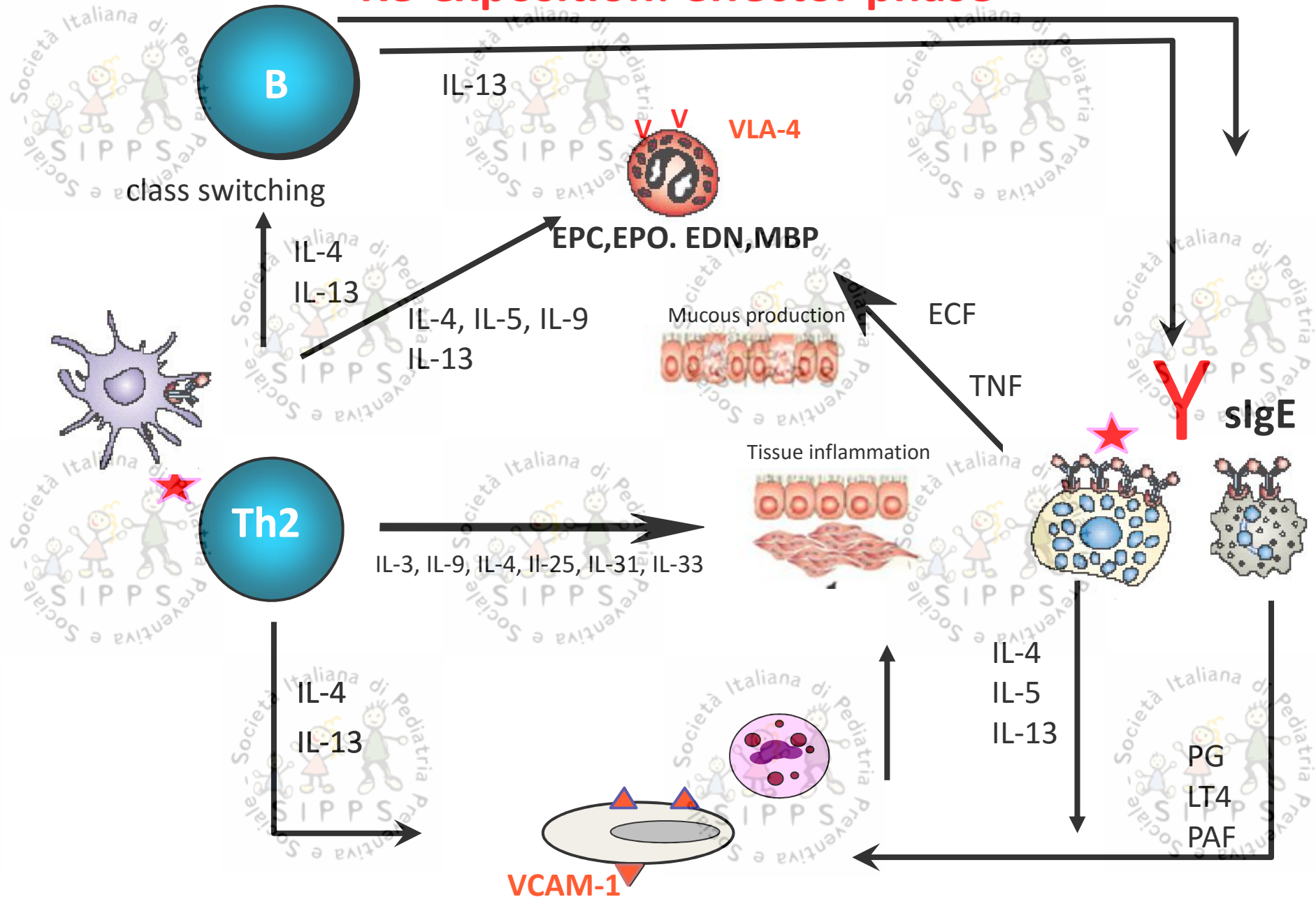
Kimishige Ishizaka, MD, PhD, and Teruko Ishizaka, MD, PhD La Jolla, Calif

**Dal 1966 .....al 2016!**

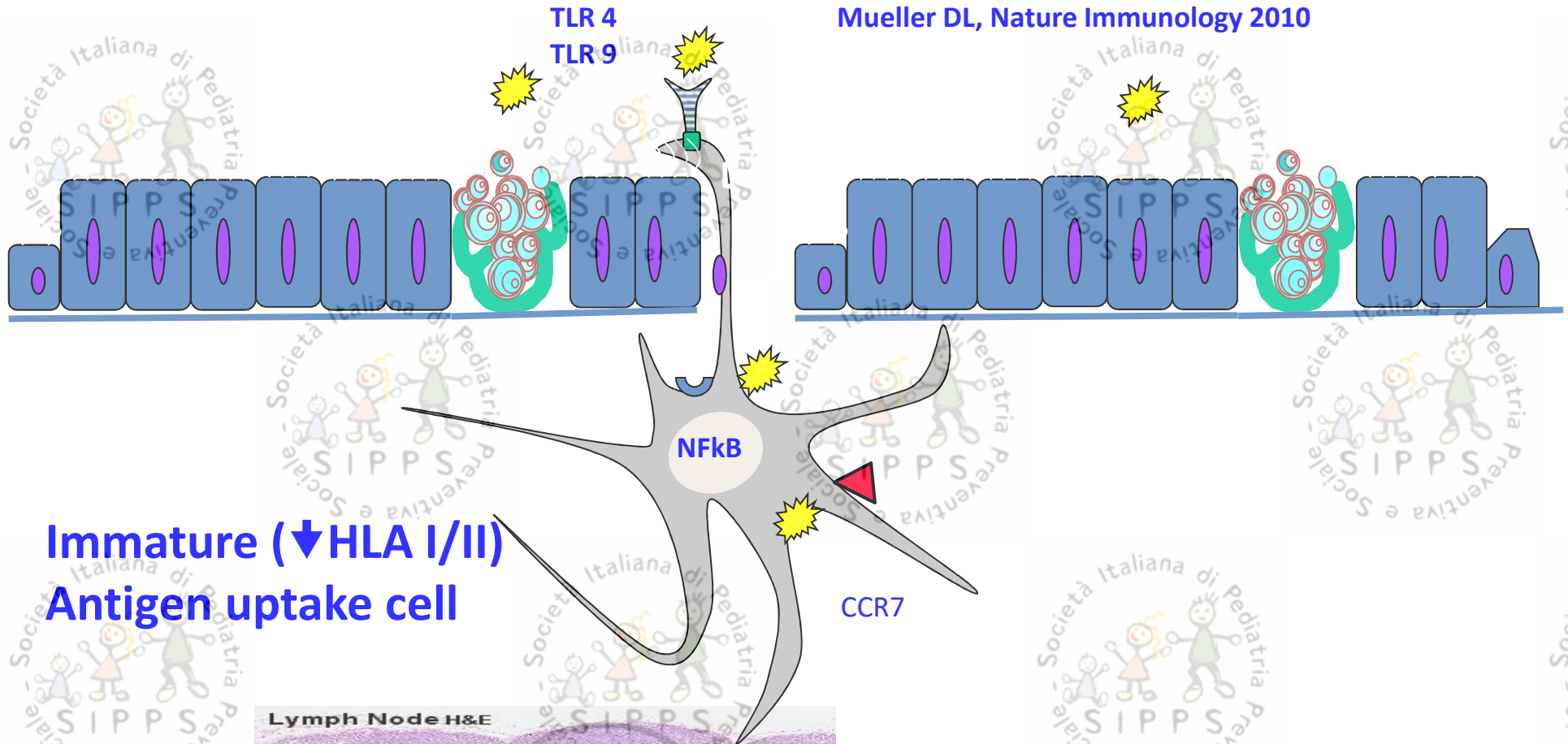


We are very pleased that the IgE system has been used for elucidation of the immunologic and biochemical mechanisms of allergy and for clinical studies on allergic diseases by many investigators for the past 50 years.

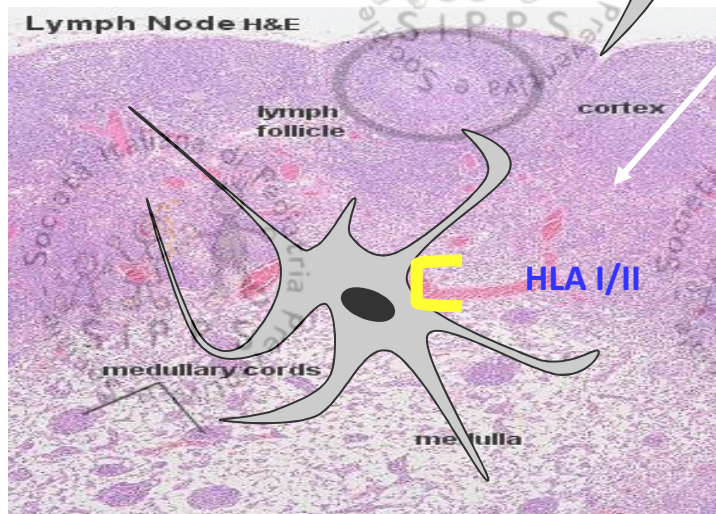
# Re-exposition: effector phase



Mueller DL, Nature Immunology 2010



Immature (↓HLA I/II)  
Antigen uptake cell



Mature DC  
Antigen Presenting Cell

Ozdemir C et al, Clin Exp Allergy 2009

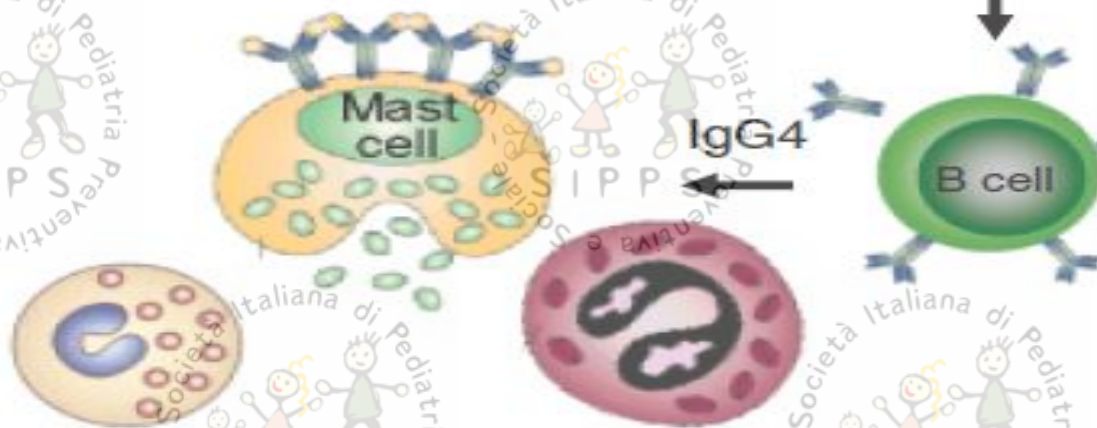


**Immature DC**  
or  
certain cytokines  
high dose of allergen  
less danger signals

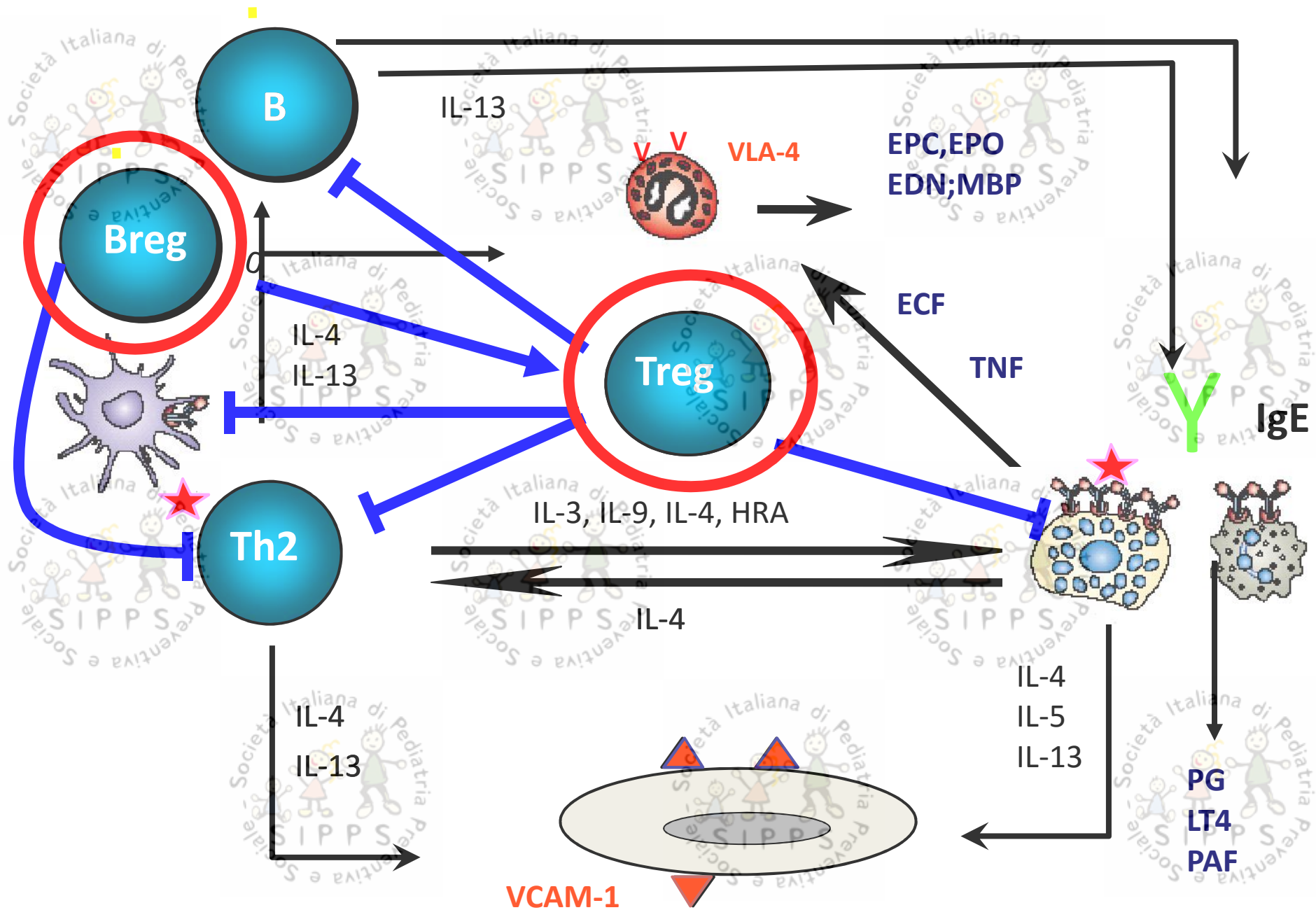


**IL-10**  
**TGF-β**

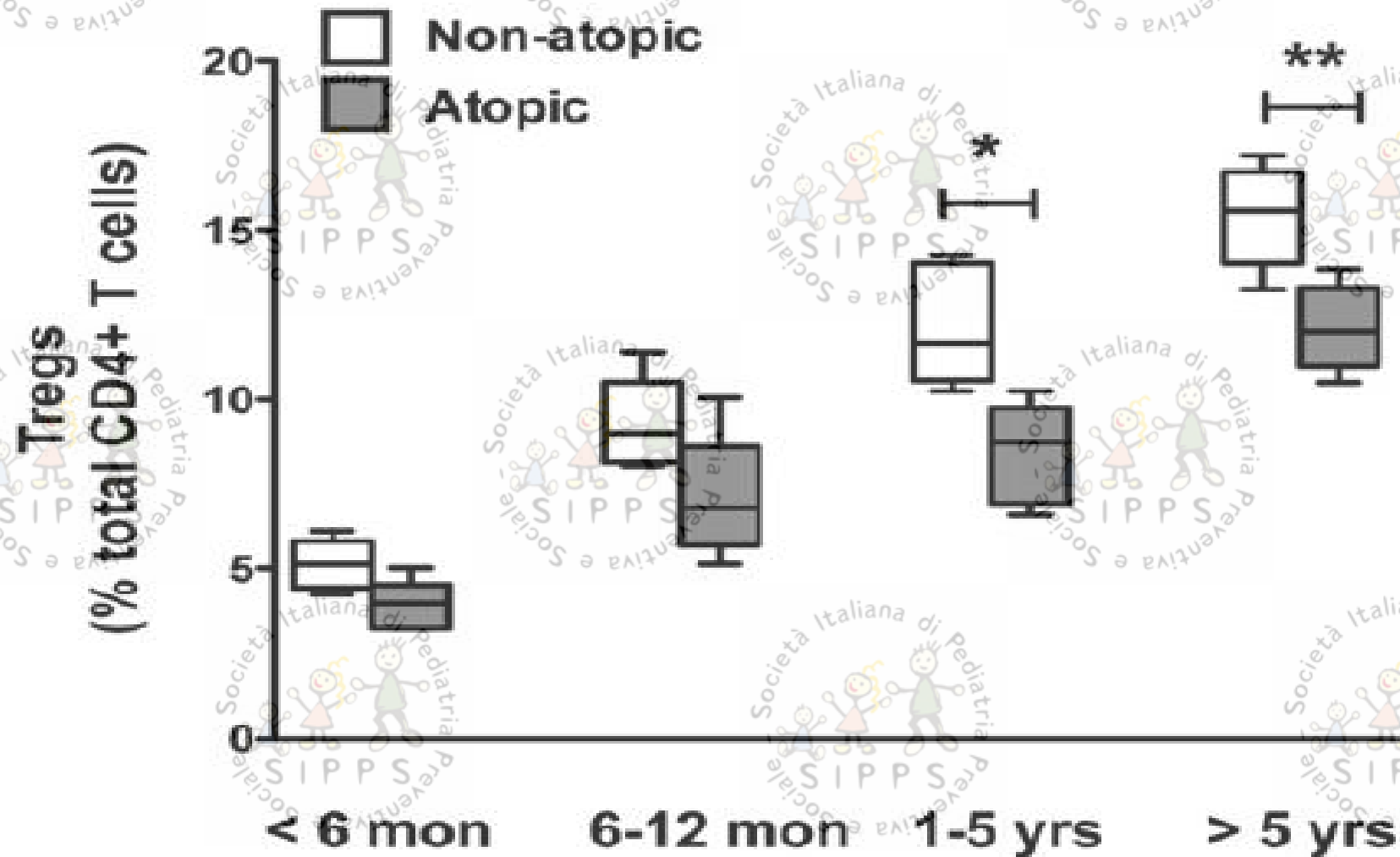
**IL-10**



**Decreased activity**  
**degranulation**  
**tissue migration**  
**survival**

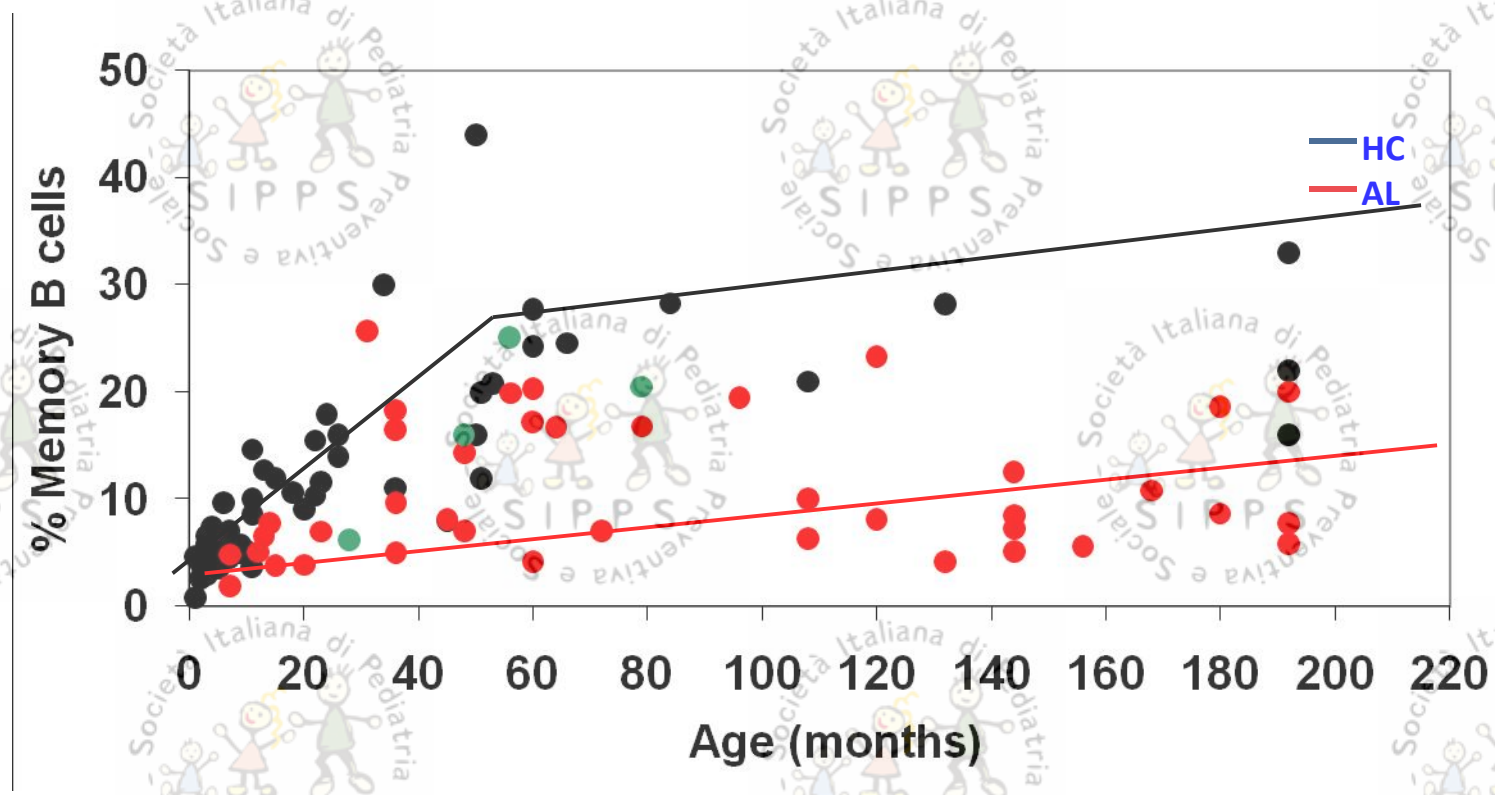


Regulatory T cell maturation from birth to puberty, in atopic and non atopic children



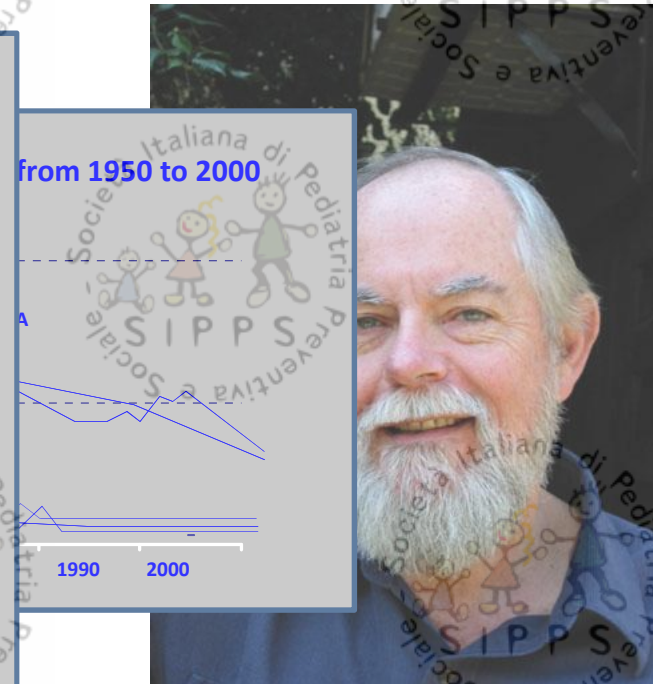
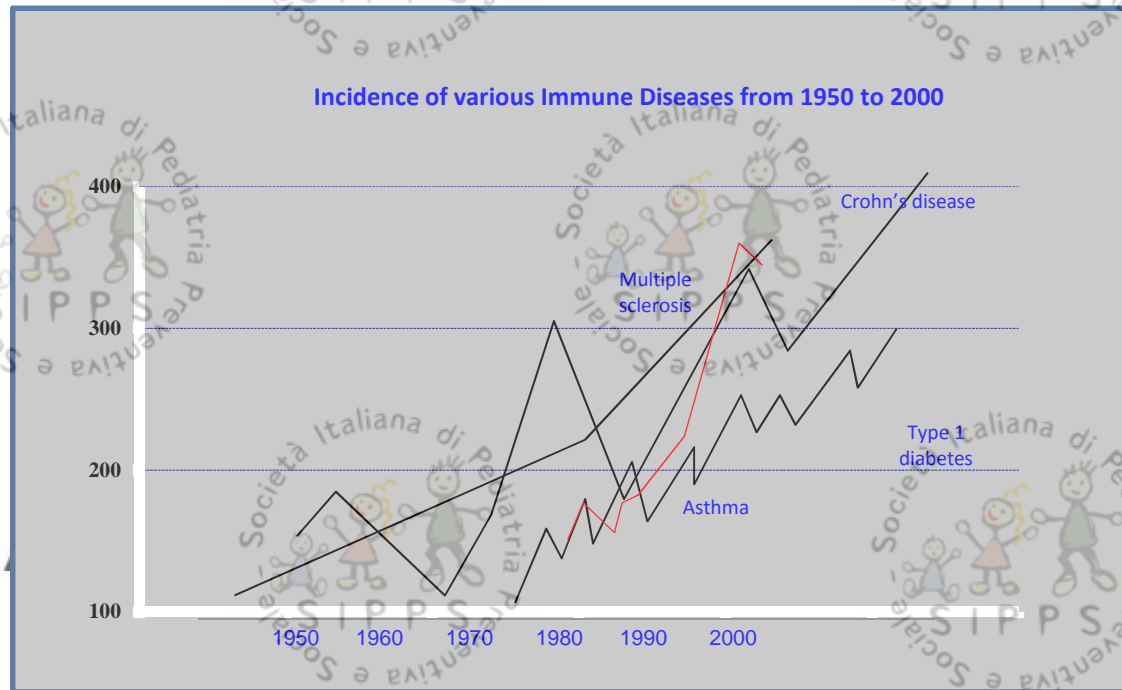
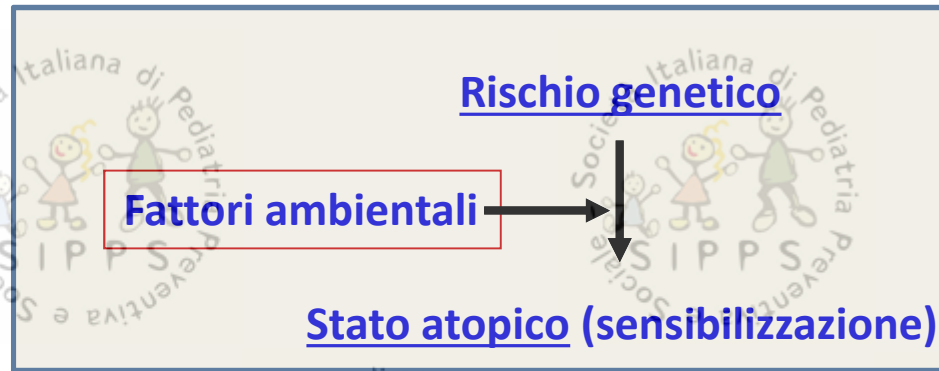


# Frequenza dei B linfociti di memoria nei bambini allergici e nei bambini non allergici



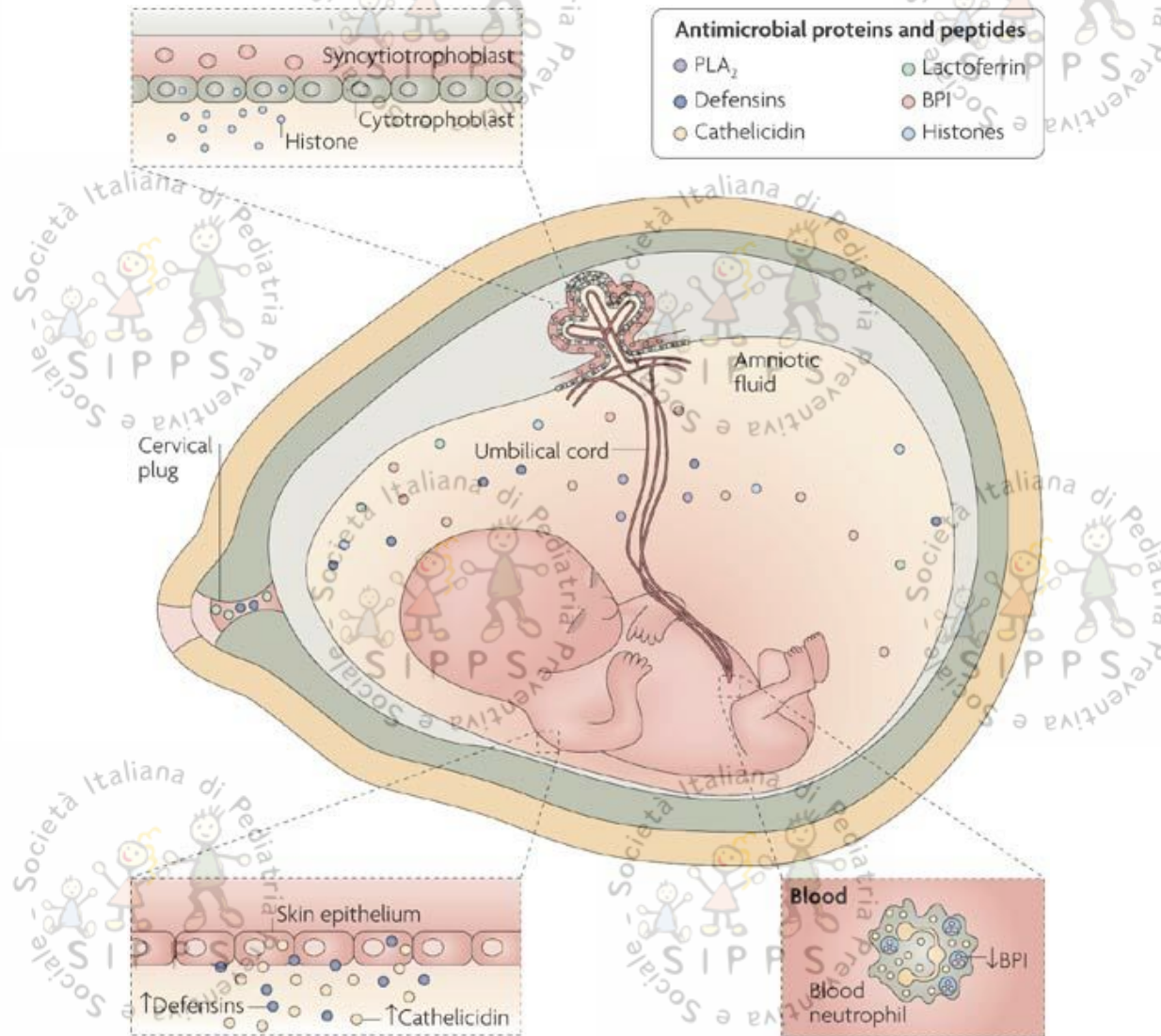
R. Carsetti, Immunol Rev 2006

# perchè?



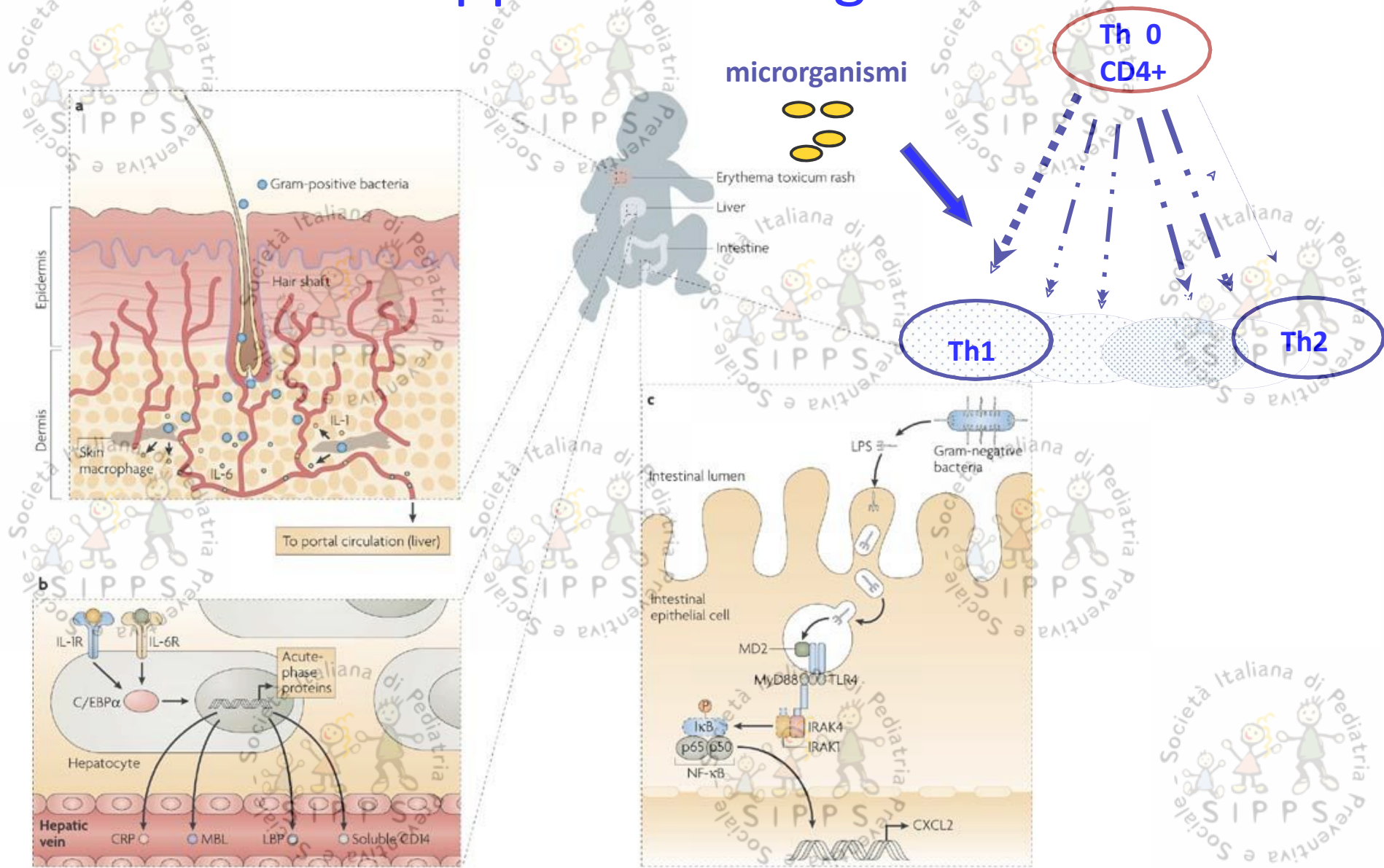
Patric Holt

# Da un ambiente sterile. . .



Ofer Levy, 2007

# ...a un modo zeppo di microrganismi





microrganismi

Th 0  
CD4+

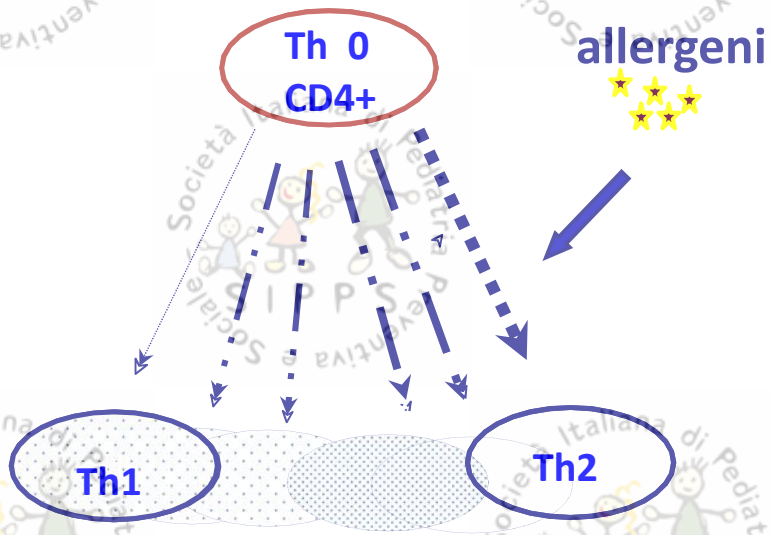


Th1

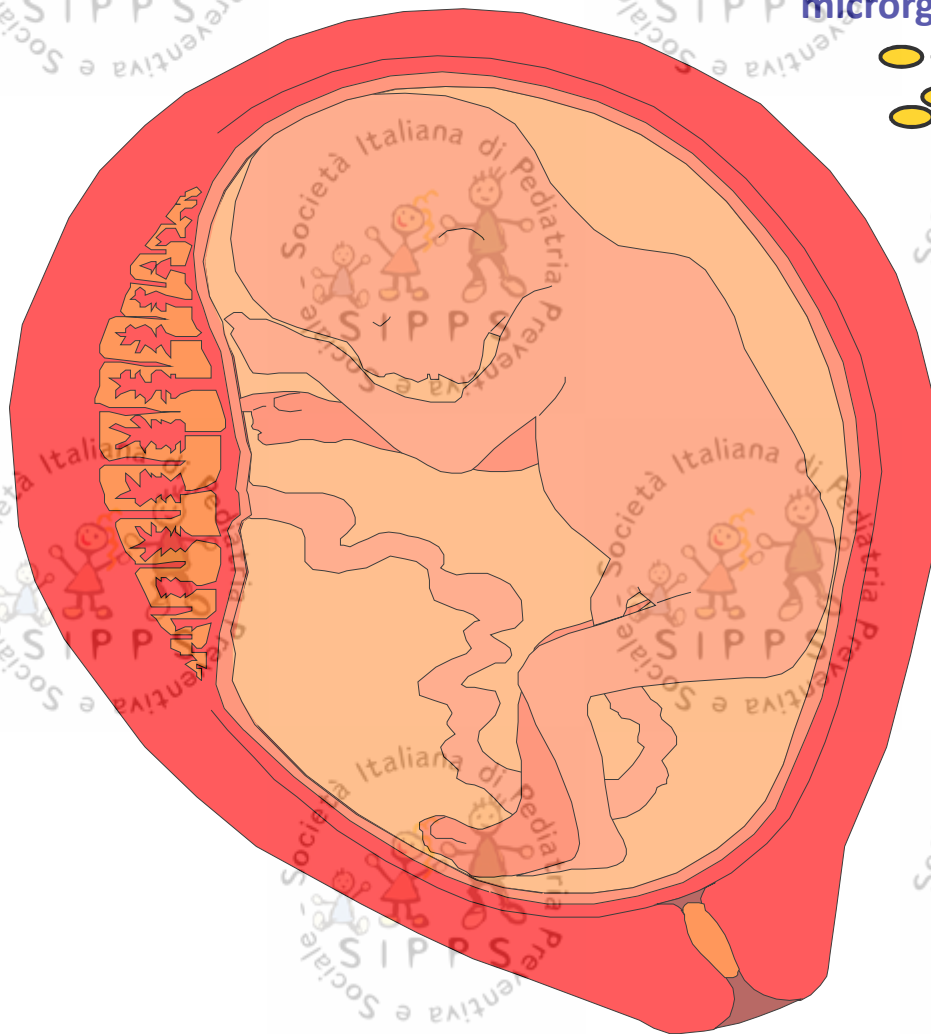
Th2



...e zeppo di allergeni.....



# Il feto come trapianto allogenico



microrganismi



Th 0  
CD4+

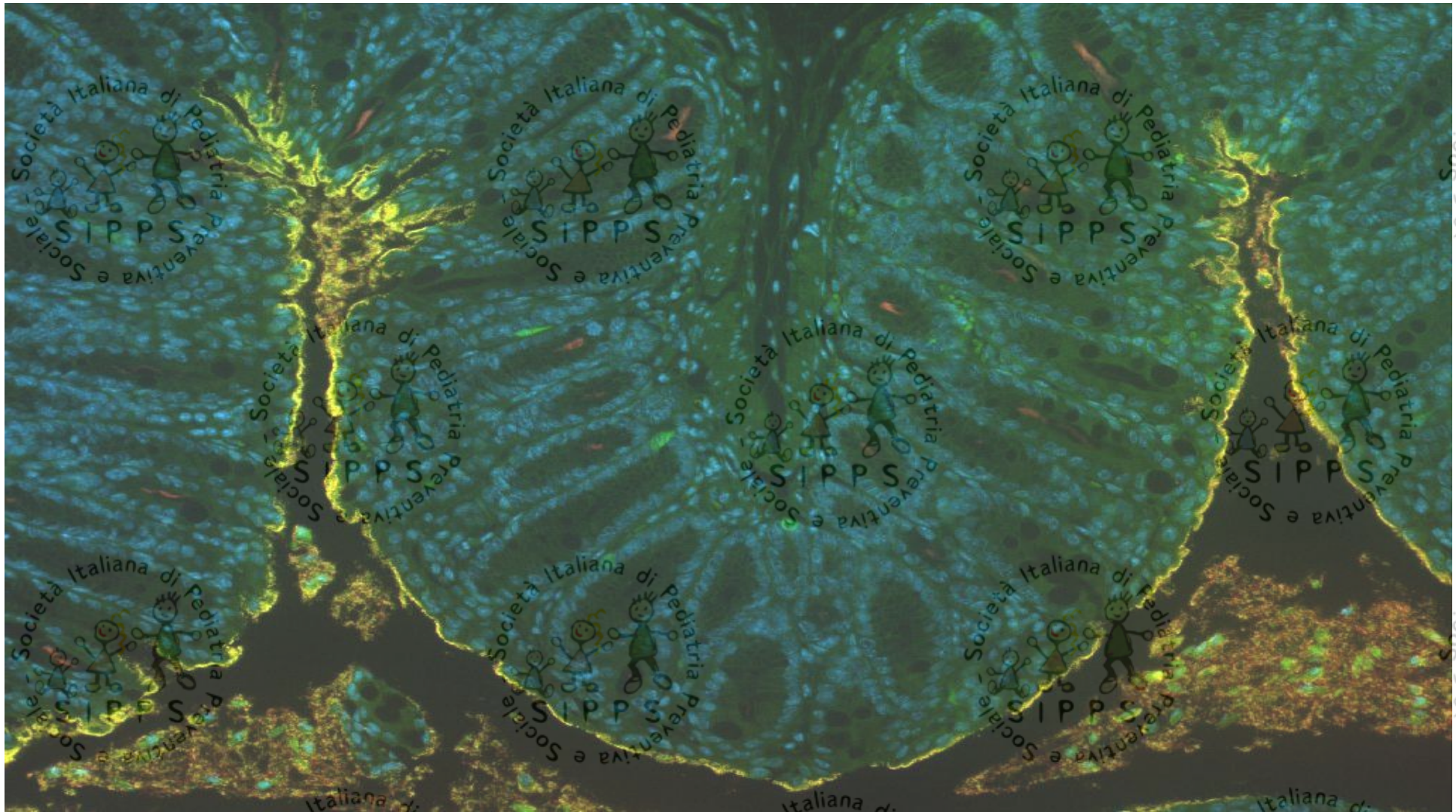
allergeni



Th1

Th2

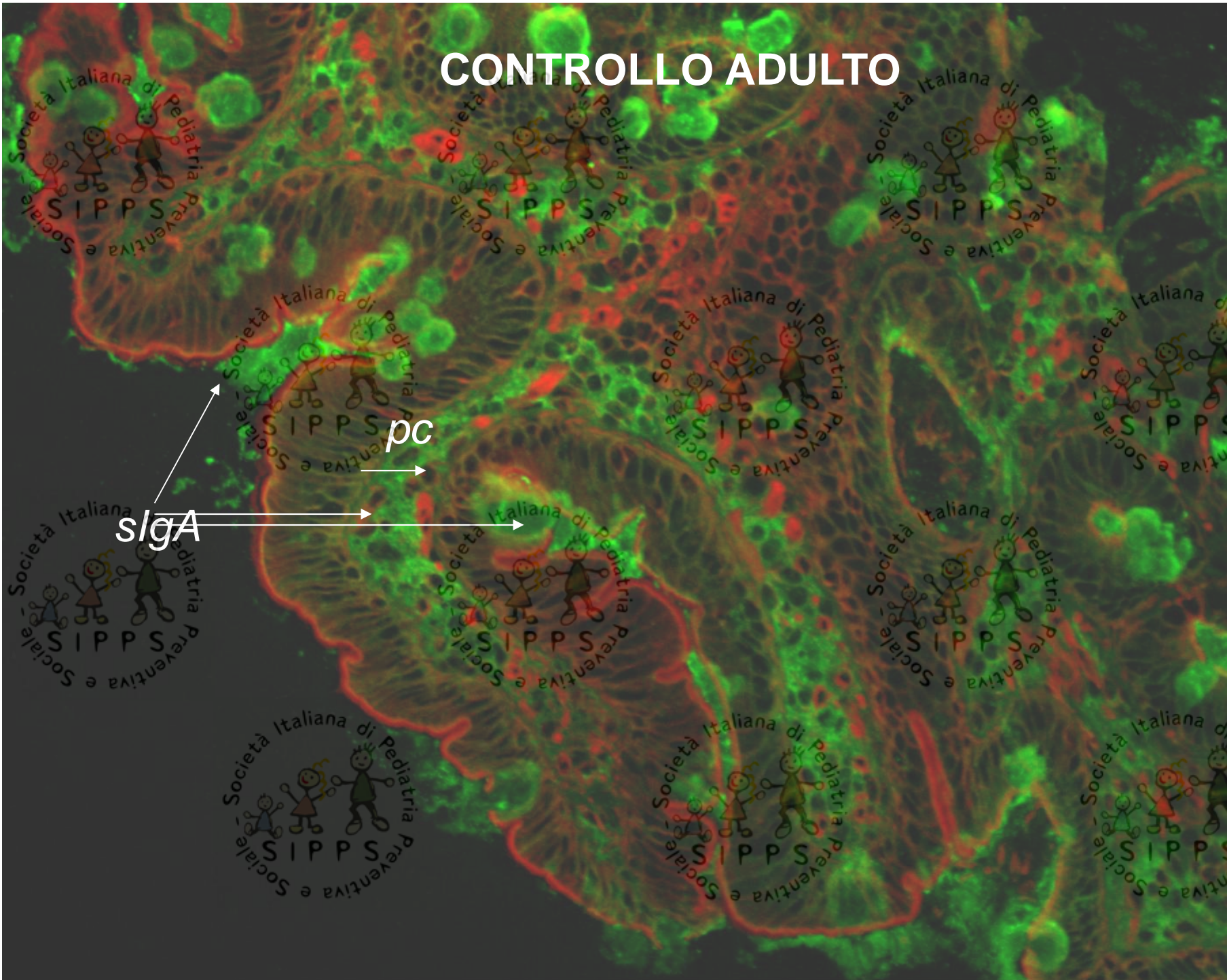
immunitaria: questo  
vantaggio evolutivo  
diviene il maggior  
svantaggio clinico nelle  
prime età della vita  
extrauterina



100 trilioni di germi  
100 volte il patrimonio genico umano (secondo genoma) che produce  
-enzimi digestivi, vitamine, nutrienti, resistenza ai patogeni



# CONTROLLO ADULTO

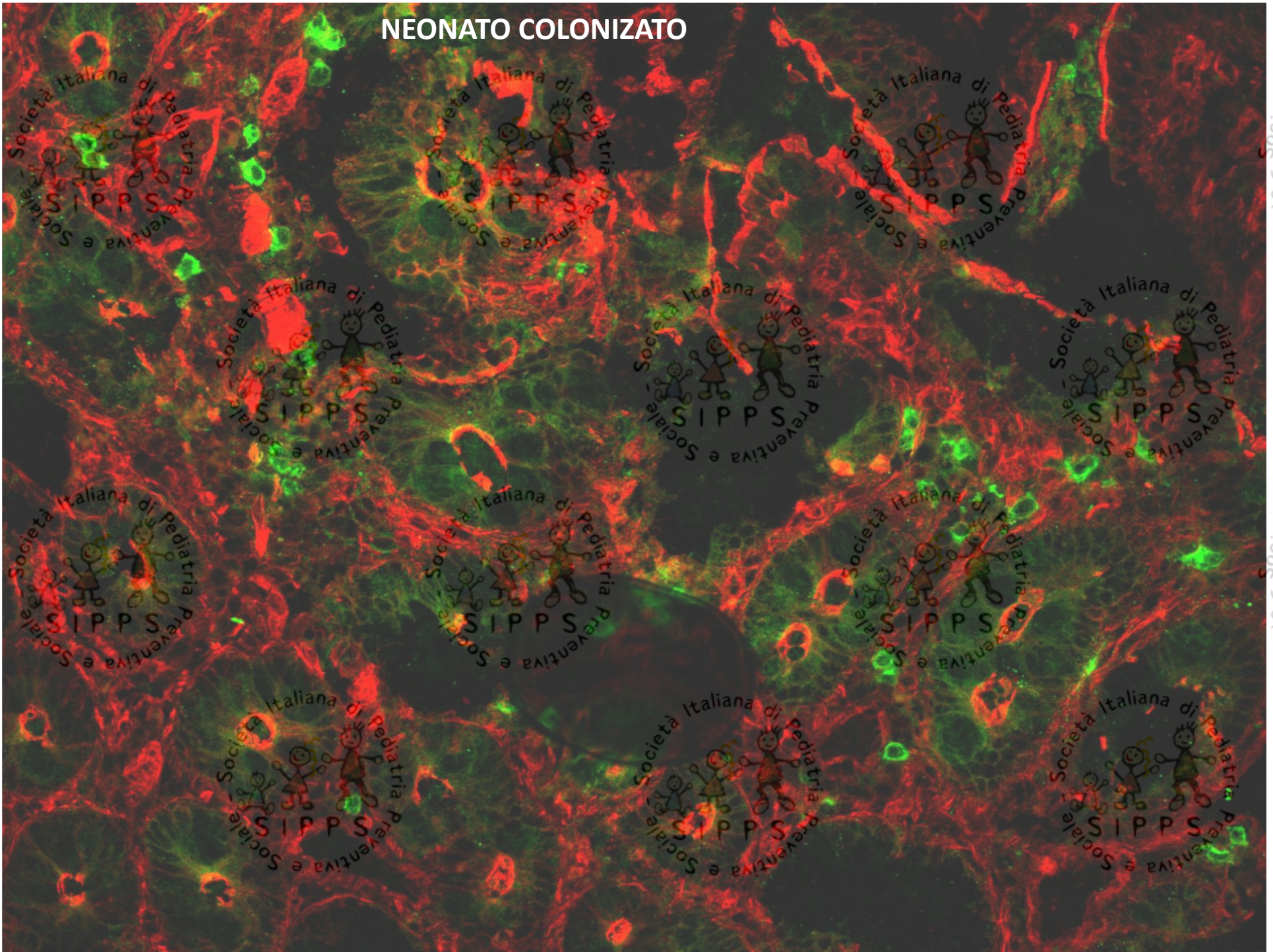


slgA

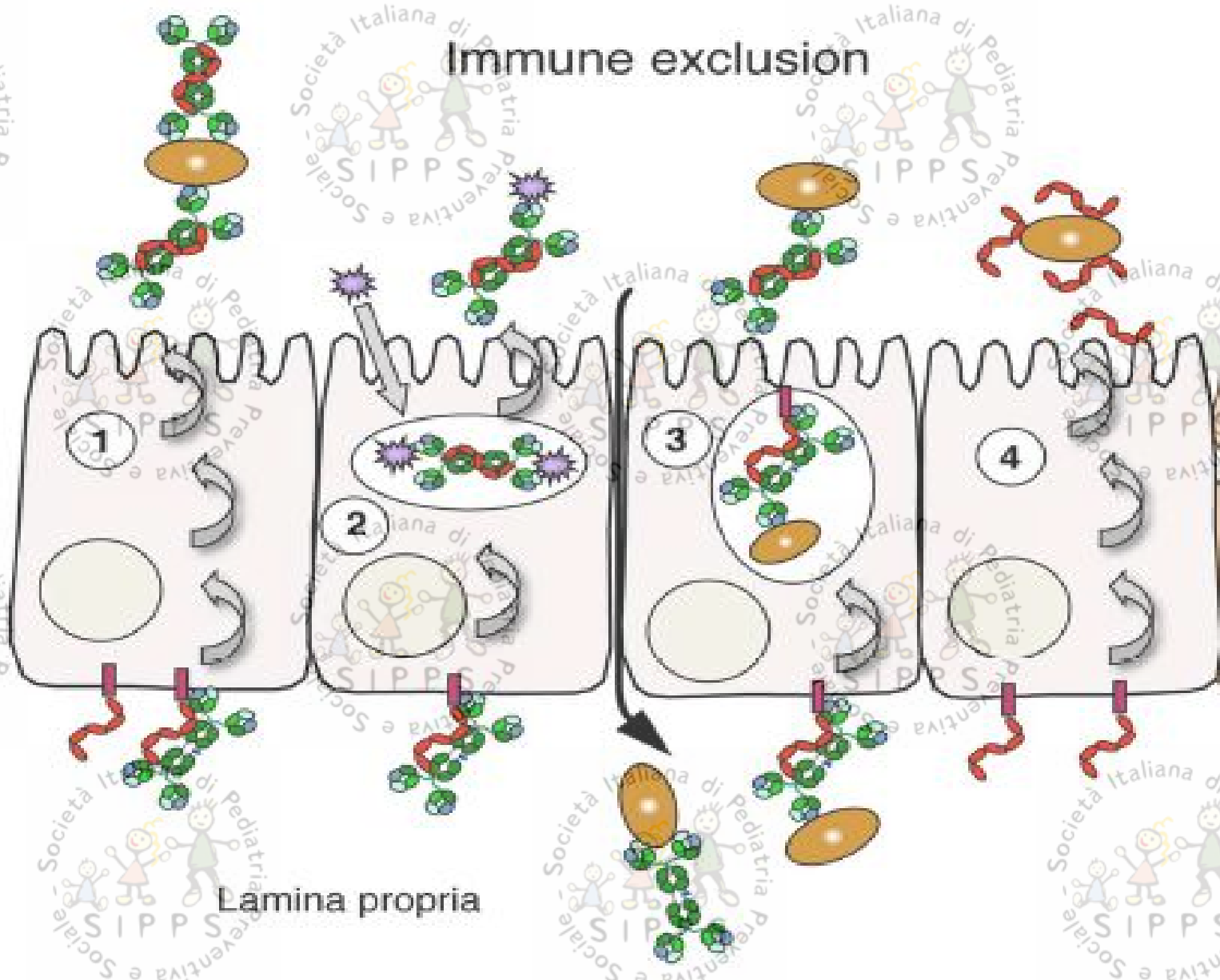
pc



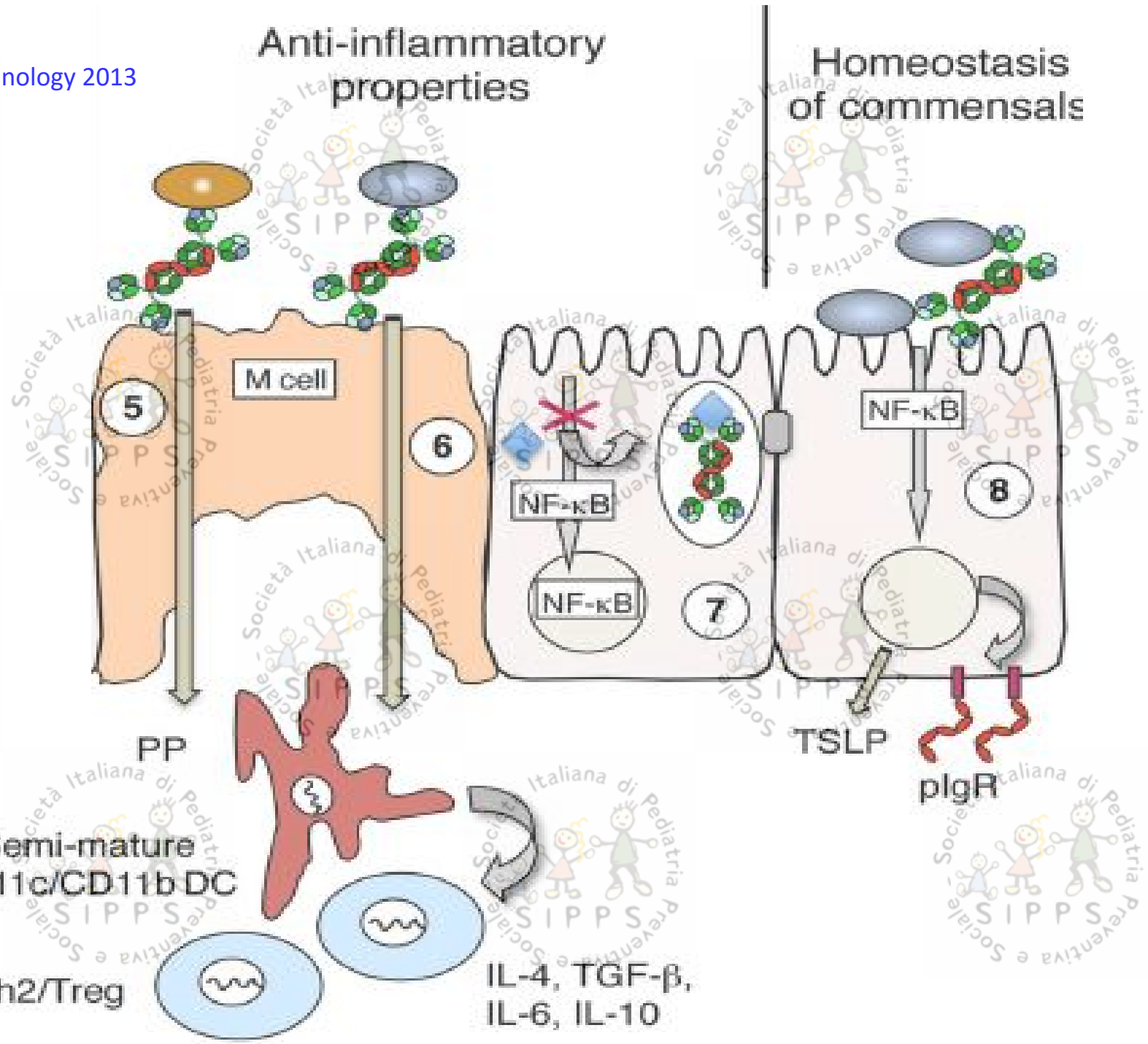
# NEONATO COLONIZATO

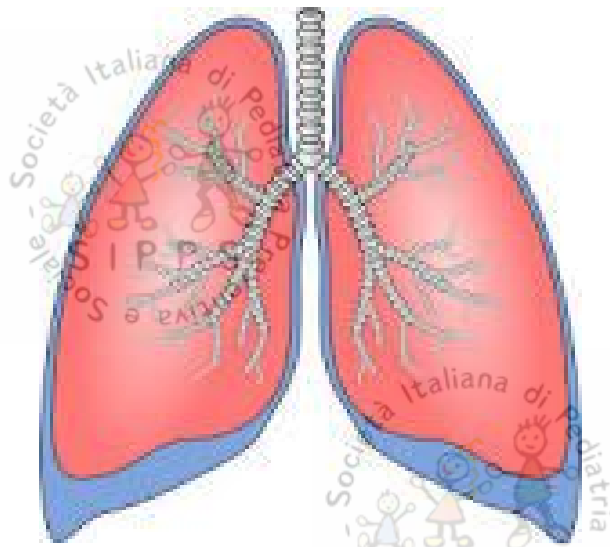


# Immune exclusion

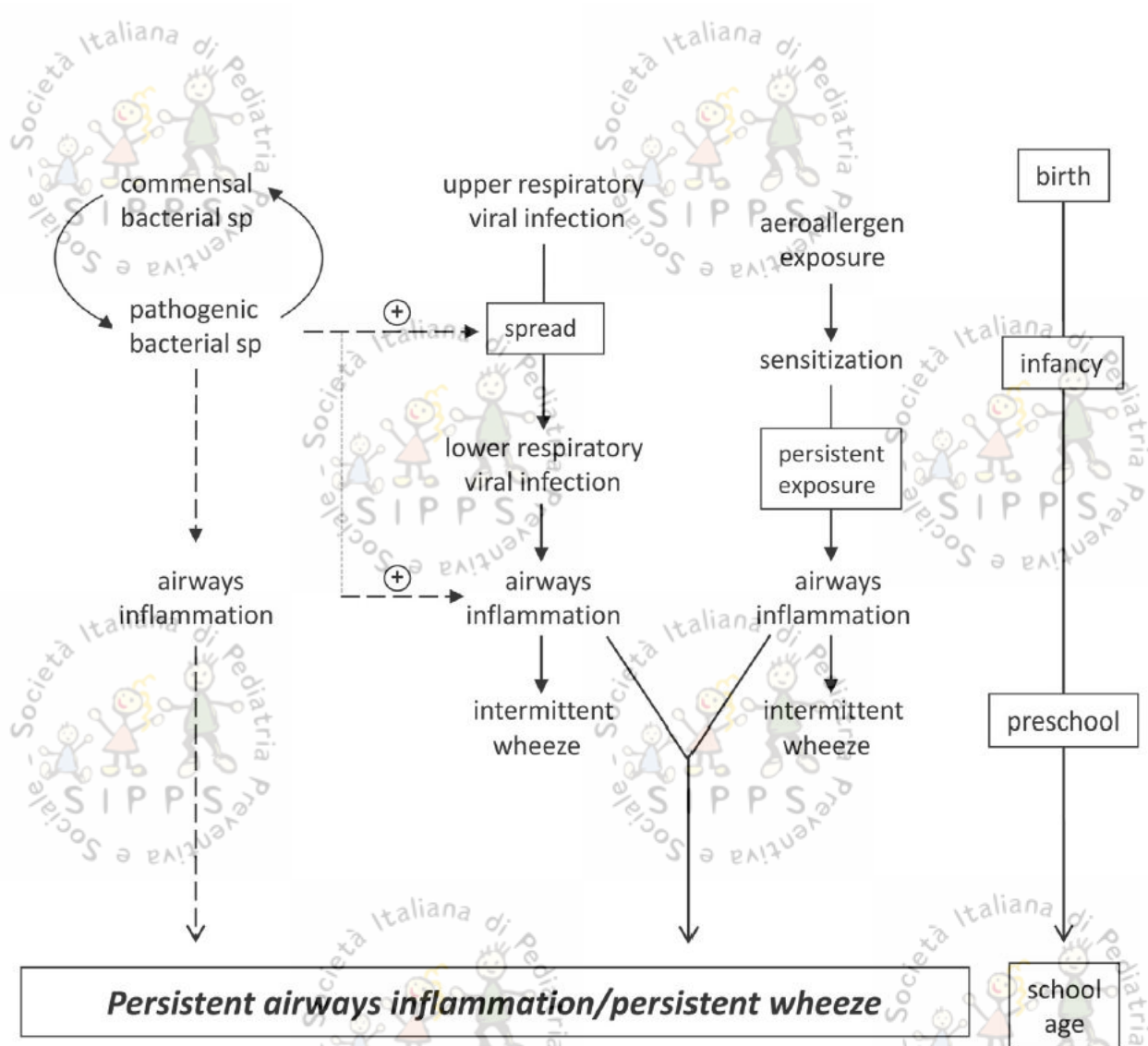


Corthesi B,  
Frontiers in Immunology 2013

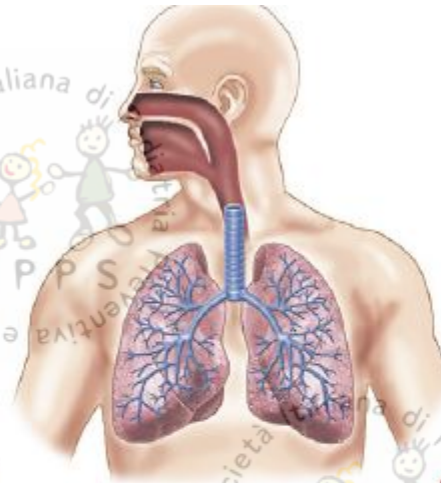




- Enterobatteri
- Pseudomonas
- Neisseria
- Burkholderia
- Moraxella
- Streptococcus p



Holt P et al, JACI 2015



Mucosal immune response?

Changes in the microbiome?

Metabolites?

?

Asthma

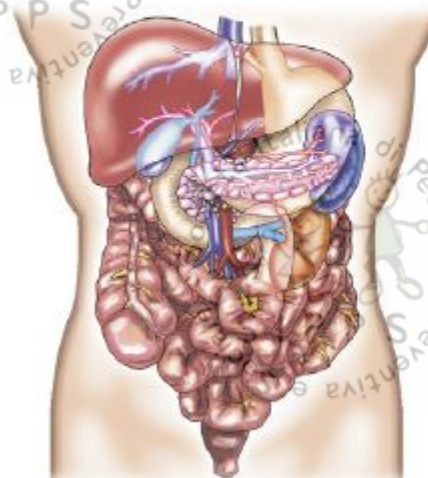
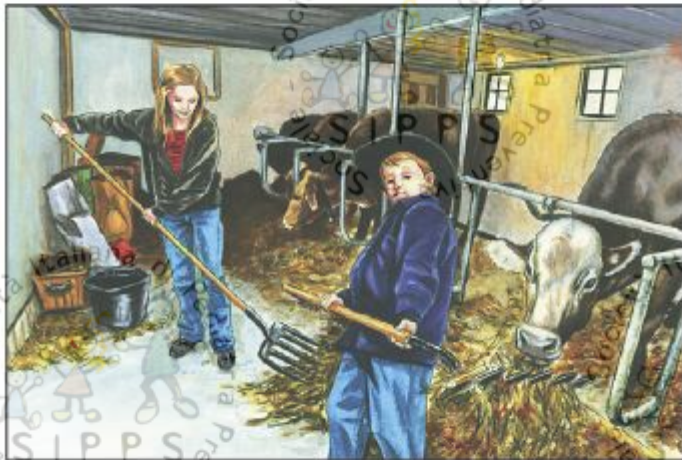


Atopy

Mucosal immune response?

Changes in the microbiome?

Metabolites?



Von Mutius E, JACI 2016

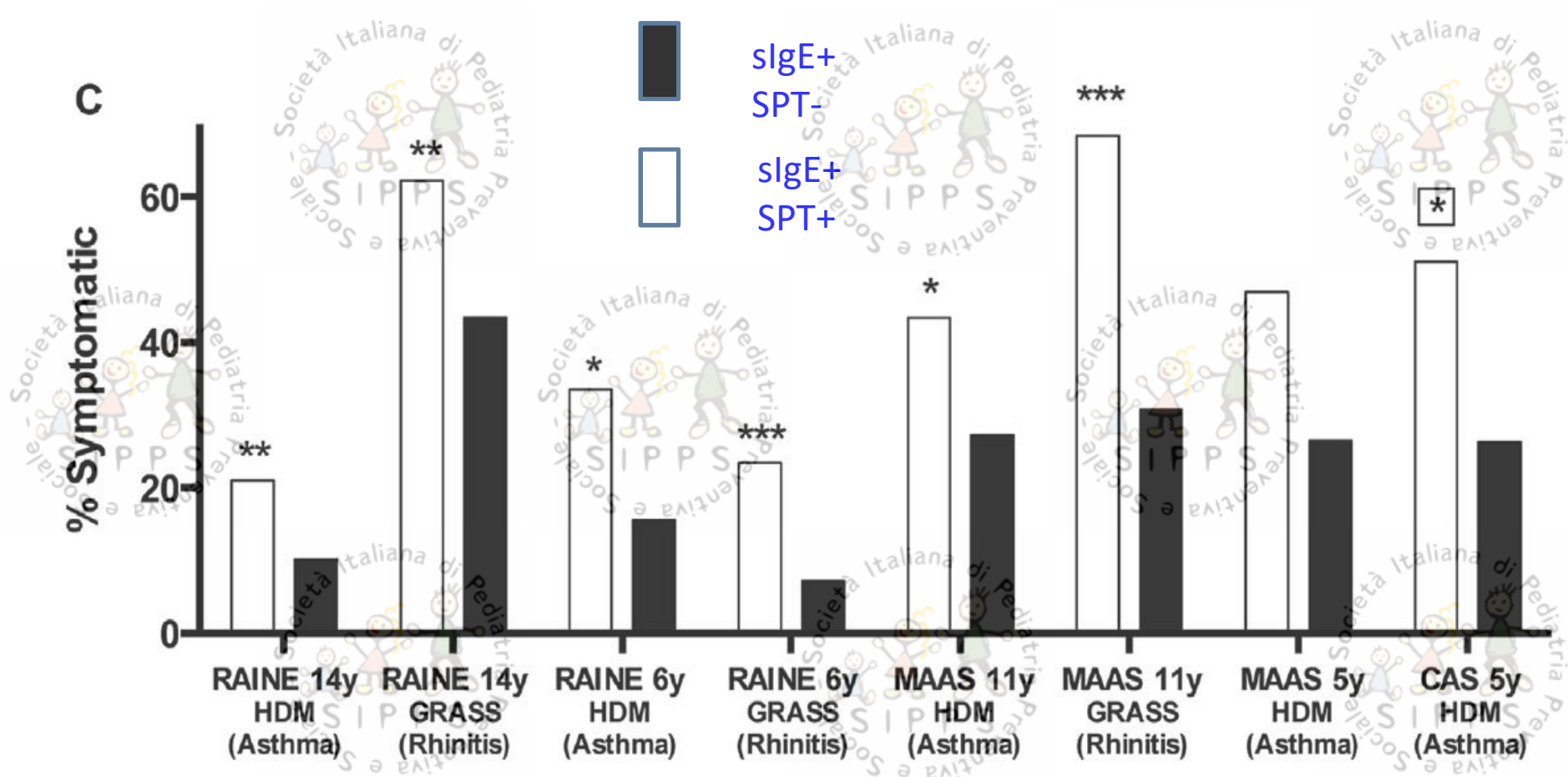
# Chi?

“Recognizing that in excess of 40% of the Western population is atopic..., only about 7% express their atopy in the form of asthma. Therefore, a crucial question to ask is what mechanisms account for the specific expression of atopy in the conducting airways and why some patients despite being highly atopic have no evidence of asthma?”

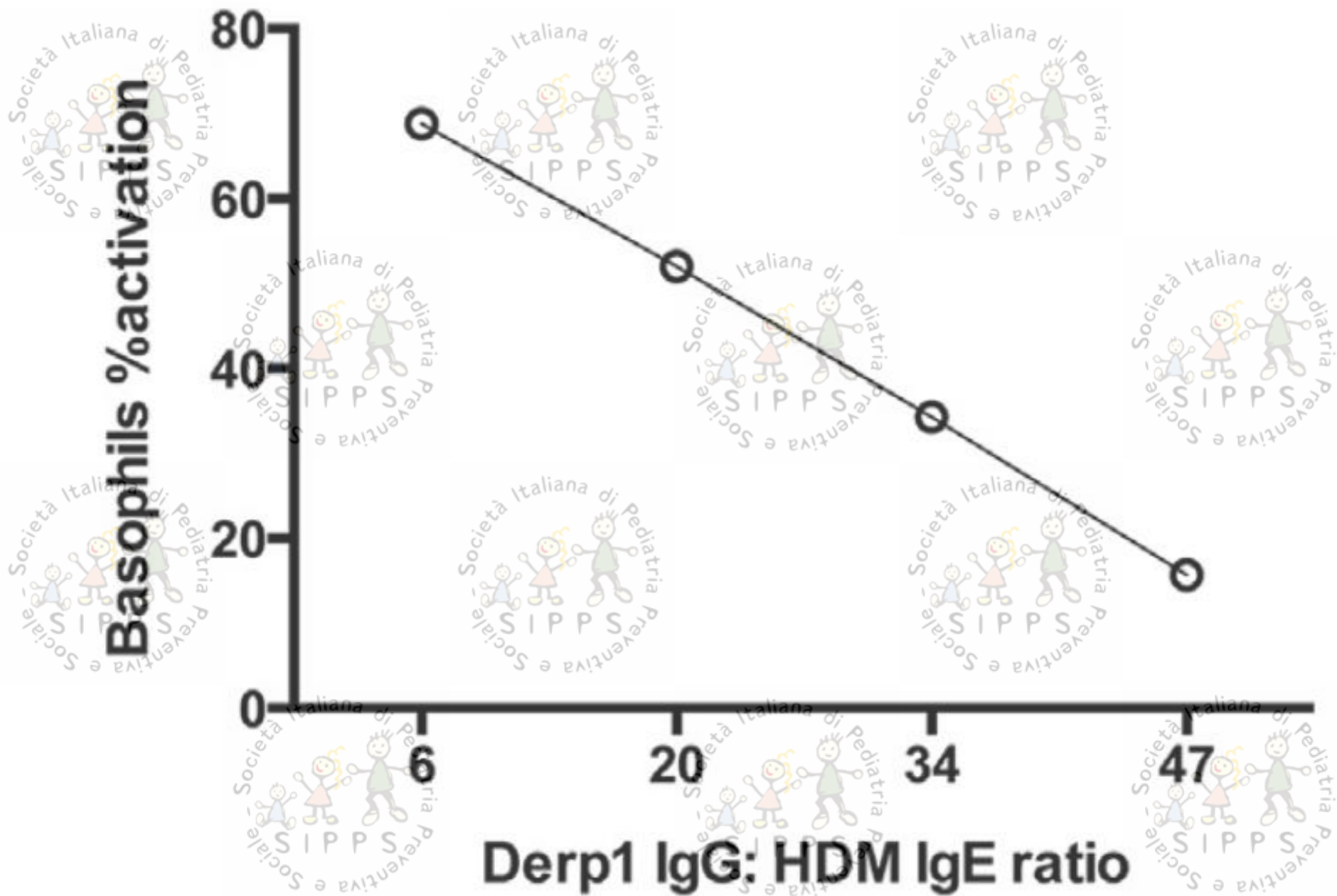
Holgate S. T., 2008



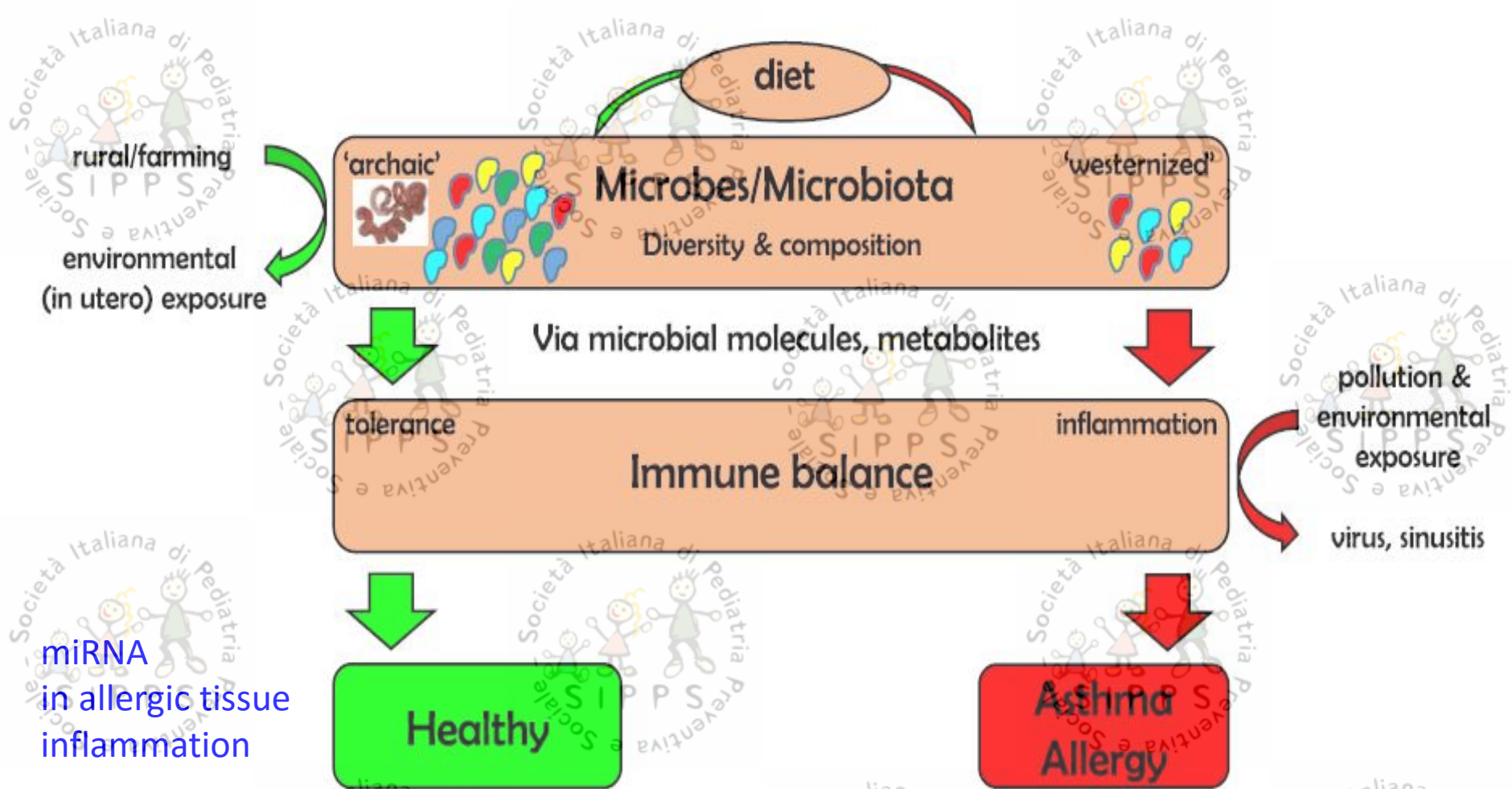
Dissociation between sensitization status determined based on IgE levels versus SPT responses and its relationship to clinical symptoms of asthma and rhinitis in 3 cohorts at different ages.



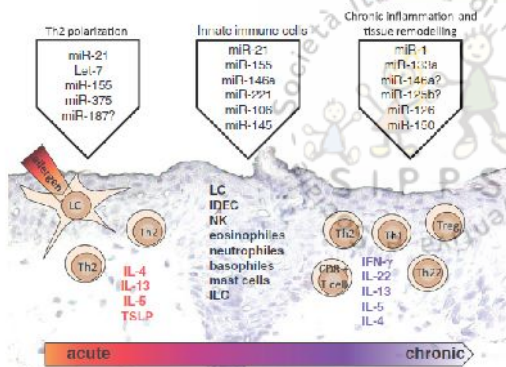
Holt P et al, JACI 2016



Holt P et al, JACI 2016



miRNA  
in allergic tissue  
inflammation



Rebane A, Akdis CA, Curr All  
Asthma Rep 2014

Smits HH et al, JACI 2016